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INDEX OF CONTENTS.

JANUARY TO JUNE, 1923.

(FOR SPECIAL HEADINGS SEE UNDER ANSWERS TO CORRESPONDENTS; BOOKS; CERTIFICATED PLANTS, ETC.; NURSERY NOTES; OBITUARY; PLANTS, NEW; SOCIETIES; AND ILLUSTRATIONS.)

A

ABERDEEN UNIVERSITY: forest lands for, 86; proposed forestry chair at, 296; teaching of forestry at, 240
Aberdeen's Parks superintendent, 330
Achillea argentea, 183; A. Kellereri, long flowering of, 291
Acthionema iberideum, 195
Afforestation of Dartmoor, 72
Africa, Central, gardening in, 288
Africa, South: fruit industry of, 295; the National Botanic Garden of, 281
Aggett, Mr. W. H., 254.
Agricultural research, special grants for, 239
Agricultural scholarships for rural workers, 169
Agricultural tribunal of investigation, 3
Agriculturists to visit Sweden, British, 282
Allamanda, 5
Allotments in Scotland, 16, 99
Alpine garden, the, 21, 34, 47, 75, 91, 131, 157, 173, 183, 195, 245, 257, 285, 299, 319, 361
Alpine plants at Kew, 319
Aluminum sulphate in soils for Rhododendrons, value of, 281
Amelanchier in a Cumberland garden, a fine, 269
America: notes from, 51, 354; Poppies for Memorial Day in, 240
Amsterdam: horticultural and agricultural exhibition at, 128; International Horticultural Congress at 155, 170
Anacyclus formosus, the propagation of, 361
Anemone, 195
Angraecum mirabile, 17, 35
Annelids of Iceland and the Faroes, 134

Answers to Correspondents:—Acers, propagating Japanese, 154; Adiantum pedatum Klondike, 266; Ampelopsis Veitchii, 266; Apple tree: diseased, 358; eggs on, 279; Arum Lilies: 266; abnormal, 180, 276; diseased, 279; Arundina chinensis, 168; Ants, destroying large red, 327; Asparagus Sprengeri discoloured, 206; Bamboos, 252; Beech trees infested with a white fungus, 28; Begonia Gloire de Lorraine failing, 238; Blackberries, establishing, 168; Bricks, red, for garden paths, 206; "British Flora," value of old, 180; British Gardeners' Association, 70; Broccoli failing to form good heads, 180; Cacti, 28; Camellias: failing to flower, 70; unhealthy, 180; Carnations, perpetual flowering, 312; Cattleya Loddigesii, 140; Celeriac, cultivation of, 266; Celery, 180; Charcoal, 358; Chrysanthemum shoots dying, 126; Chrysanthemums: late flowering, 42; treatment of, 222; Concrete, reinforced, for glasshouse construction, 112; Copper sulphate and pond weeds, 84; Cottager, under gardener, and amateur gardener, definition of, 56; Cucumbers, diseased, 206; Cyaniding: 42; in Peach house, 14; Cyclamens, old corms of, 266; Daphne Cneorum, 140; Dendrobiums, diseased, 279, 344; Dianthus caesius, 154; Digging, methods of 279; Dracaena, unhealthy, 42; Eggs on Apple tree, 279; Eucharis grandiflora, 140; Fern fronds: browned, 154; shrivelled, 358; Ferns, diseased, 358; Figs and Tomatos in same house, 28; Flame Flower, the, 279; Flannel weed, 327; Fuchsias, failing, 280; Gardeners' hours, 42; Gardeners' notice: 70, 327; and possession of cottage, 42; Gardeners' wages: 98; during illness, 42; Gardening Society committee, 168; Geranium, exhibiting a new, 206; Gooseberries eaten by an insect, 266; Gooseberry bushes, wash for, 328; Gorse, seedling, 312; Grafting of Vines, bottle, 98; Grape spot disease, 28; Grapes: diseased, 358; failure with Muscat, 266; out-of-door, 28; Greenhouse plants for cut blooms between October and March, 344; Greens, formation of putting and clock golf, 293; Grubs attacking seedlings, 266; "Hanbury's Gardening, 1769," 112; Herbaceous and alpine palnts, commercial propagation of, 70; Hydrangea hortensis, forcing, 28; Journals, horticultural, 238; Judas Tree, the, 98; Lackey Moth eggs, 279; Landscape architect, 168; Lawn, moss in a, 126; Lawn mower, 112; Leather jackets attacking seedlings, 266; Lilies, Arum, 180, 266, 276; Lime sulphur, use of, 266; Linum narbonense, 140; Manure for Pelargoniums, 266; Market crops: 294; for unheated greenhouse, 56; Market nursery, 28; Melon: Stanley, seeds of, 42; the Musk or Cantaloupe, 266; Mice, rabbits and slugs, poison for, 327; Mildew on Vine leaves, 327; Millipedes in vinery border, 294; Moss in a lawn, 126; Myrobella stocks, diseased, 327; National Diploma in Horticulture, 84; Nectarine fruits malformed, 280; Nursery, rateable value of, 344; Oak leaves, insect on, 252; Oats, average yield and prices of, 84; Onions, diseases of, 14; Onosmodium Thurberi, 180; Orchids, propagating epiphytal, 327; Oxalis tubers, 126; Paeonies, failure of herbaceous, 180; Painting hot water pipes, 14; Peach and Nectarine leaves blistered, 327; Peach house, cyaniding a, 14; Peach leaves, shot-hole fungus on, 328; Pelargonium leaves: spotted, 180; unhealthy, 98; Pelargoniums, manure for, 266; Pentstemons, unhealthy, 206; Plant-collecting expeditions in Asia, recent, 42; Plant names, pronunciation of, 168; Plant propagator, 192; Plants for cut blooms between October and March, greenhouse, 344; Plants of the 16th century, 222; Poison for mice, rabbits and slugs, 327; Pond weeds and copper sulphate, 84; Potatos: discoloured, 327; diseased, 238; Primula leaves, scorched, 294; Primula obconica: leaves diseased, 670; with a fungus growth, 42; Primulas: propagation of, 280; rash caused by handling, 112; Propagation: of epiphytal Orchids, 327; of herbaceous and alpine plants, commercial, 70; of Primulas, Polyanthuses and alpine Auriculas, 280; of Viburnum Carlesii, 168; Putting and clock golf greens, formation of, 293; Raphis flabelliformis and Dracaena, bleached leaves of, 154; Rash caused by handling Primulas, 112; Rhododendron, failing, 328; Rose Maréchal Neil, 293; School of landscape gardening, 312; Seed growing, 112; Shot-hole fungus on Peach leaves, 328; Soil for examination, 280; Spruce aphis on Picea pungens, 312; Tennis courts: construction of hard, 192; weeds on a hard, 84; Tomatos: diseased, 266, 280, 294; dying off, 252; seedlings, 180; Town gardens, designing, 168; Viburnum Carlesii, propagation of, 168; Vine foliage dropping, 328; Vine leaves, mildew on, 327; Vine: removing a large portion of a, 328; unhealthy, 312; Vines, bottle grafting of, 98; Violets, commercial cultivation of, 98; Water from a stokehole, 312; Weed, flannel, 327; Weeds: in a crazy path, 14; in a pond, 84; on a hard tennis court, 84; Woodlice, to destroy, 294; Yew hedge: a neglected, 252; improving a, 293; renewing the lower part of a, 312; Yew tree, unhealthy, 222.

Antartic regions, flora of the, 58
Anthemis cupaniana, 7, 26
Ants, the destruction of, 296
Apple and other fruit bloom, 261
Apple: a seedless and coreless, 16; Cox's Orange Pippin, pollinators for, 262, 290, 339
Apple room, the, 13
Apple stocks, immunity of, from woolly aphis, 267
Apples: at Gunton Park, late, 94; approximate average order of blossoming of market varieties of, in the South of England, 212; double-worked, 81; freightage of Australian, 100; home grown versus imported, 27, 39; in clamps, 150; manurial treatment of, 232; silver-leaf in, 202; stored, 95; the winter pruning of, 181; yellow-coloured dessert, 25
Apples, varieties of: Allington Pippin, 25; Cherry Pearmain, 165; Hanwell Souring, 203; Herring's Seedling, 38; Lord Hindlip, 165; Tompkin's King, 110
Arable land, spring awakening of, 57
Arctostaphylos Manzanita, 318
Arenaria verna, 183
Arnold Arboretum, the, 15
Artichokes, Globe, 322
Ash, canker of, 146
Asparagus beds, 80, 123, 165
Asparagus fly, the, 203
Asperula azurea setosa, 131
Association of Economic Biologists, 30, 85, 142, 204, 313
Astilbe chinensis pumila, 51
Astilbes, the coloured, 272
Astragalus Poterium, the propagation of, 361
Auckland Islands, plant collecting in the, 334
Australia, notes from, 20
Auton, Mr. W., 86
Azaleas: deciduous, 318; Kurume, 182

B

BAGATELLE, 85; Rose garden at, 143
Bailey, L. H. (*The Apple Tree*), 117
Balfour, the late Prof. Sir I. Bayley, 141
Bamboo, a new genus of, 181
Bamff Den as a public park, gift of, 227
Banana aphis, the, 281
Bark cloth, 295; African, 340
Barr Memorial cup, award of the, 194
Beans, Runner, 232
Bedford, Mr. Arthur, 156
Bees, foul brood in, 43
Beet, 276
Beetle, the Colorado, 30
Begonia Gloire de Lorraine, 118
Belgium's unknown soldier, British horticulturists' tribute to, 224
Benary, Ernest (*Seed Raising*), 160
Benbow, Mr. Joseph, 268
Berberis vulgaris, 177
Bermondsey, new garden superintendent for, 86
Bibliographical rarities, 37
"Big bud," experiments to destroy, 85
Birch logs and Silver Leaf disease on Plums, 262
Blind gardeners, Guild of, 313
Bog garden, the, 157
Bookham Common, 185

Books, Notices of:—Black Currant Culture (*W. P. Seabrook*), 346; Botanical Magazine, 127; Bulletin of the Chamber of Horticulture, 282; First Book of Grasses (*Agnes Chase*), 346; Flowering Plants of South Africa, 57, 268; Fruit, Flower and Vegetable Trades' Year Book and Diary, 17; Fruit Foes (*T. W. Sanders*), 117; Fungus diseases of crops, 1920–21, 141; Guide to the University Botanic Garden, Cambridge (*H. Gilbert-Carter*), 160; Handbook of the larger British Fungi, a (*John Ramsbottom*), 354; Home Vegetable Garden, the (*Ella M. Freeman*), 346; Horticultural Directory and Year Book, 16; How to Form a Company (*Herbert W. Jordan*), 151; Influence of Electricity on Mutation in Plants (*A. Pirovano*), 160; Jottings from a Gardeners' Notebook (*F. W. Miles*), 315; Journal of the R.H.S. Gardens Club, 113; Le Chrysantheme, 169; Potato growing in New Zealand (*David Tannock*), 129; Practical Plant

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Ecology (*A: G. Tansley*), 346; Rose Annual, 141; Rose, the, in America (*J. Horace McFarland*), 346; Secretarial Practice, 360; Seed Raising (*Ernest Benary*), 160; The Apple Tree (*L. H. Bailey*), 117; The Culture of Pot Plants (*Hugh C. Davidson*), 151; The Ferns (*F. O. Bower*), 315; The Fundamentals of Fruit Production (*Victor Royal Gardner, Frederick C. Bradford and Henry Daggett Hooker*), 295; The Genus Eucalyptus (*H. H. Maiden*), 194; The Primulas of Europe (*Dr. John MacWatt*), 241; Third Annual Report of the Forestry Commissioners 288; Vegetable Culture (*Hugh C. Davidson*), 129

Books, old botanical and gardening, 188
Botanical Magazine, 127; the original drawings of the, 295
Botanic Garden of South Africa, the National, 281
Botanic illustration, history of, 253
Botany, advanced lectures in, 30
Bourdichon's figures of Black Currants, 110, 138
Bower, F. O. (*The Ferns*), 315
Box Hill, the future of, 76, 185
Bracken and pigs, 330
Bradford, Frederick C. (*The Fundamentals of Fruit Production*), 295
Brasso-Cattleya Hannibal var. Helen, 90
Brasso-Laelio-Cattleya Queen of the Belgians, Low's var., 321
Brest, "Irish moss" industry at, 100
Brighton, spring flowers at, 334
British Empire exhibition, 1924: and horticulture, 70, 82, 99, 110, 122: British bulbs for the, 282; horticultural council of the, 128; timber and forest products at the, 193
British horticulturists' tribute to Belgium's unknown soldier, 224
British Mycological Society, 30, 82, 221; Spring foray of the, 142
British sylviculture, 113
Brooms for woodland planting, 23
Browallia speciosa major, 272; B. viscosa, 349
Buckthorn, the Sea, 9
Buddleia asiatica, 49
Bulb garden, the, 33, 47, 63, 73, 103, 175, 183, 271, 285, 335
Bulbophyllum Sillemianum, 101
Bulbs: British, for the British Empire exhibition, 282; Dutch, in the Tuileries Gardens, 269; gift of, to Hyde Park, 194

C

Cabbage, the Skunk, 338
Calceolarias and Schizanthus, hybrid, 314
Calendar, another old garden, 51
Camellias, 145; single, 93
Campanula raddeana, 319; C. Rapunculus, 277; C. Telham Beauty, 21, 54
Campanulas, 7, 21
Canada, horticulture in, 115
Canadian timber, 114
Cannas, 171, 201
Cannon Hill Park, Birmingham, 8
Cardiff public parks, 118
Cardinal's flower, the, 75
Carnations: in the flower garden, 209; rust on, 191
Carrots, 150
Caterpillars, a plague of, 282
Cattleya Delphin, 213; C. Dowiana, 17; C. Rothmos, 133; C. Stuartii alba, 201
Cauliflowers, the forcing of, 123
Caustic fruit wash, 13, 26, 39, 54
Ceanothus rigidus, 208
Celsia Arcturus, 349

Certificated Fruits and Vegetables:—Apple, Ball's Pippin, 41; Leeks: Royal Favourite, 111; The Lyon, 111

Certificated Plants:—Anemone St. Brigid, Crowley's White, 237; Angulocaste Sanderae var. suavis, 324; Arctostaphylos Manzanita, 125; Begonia, Lord Lambourne, 304; Berberis replicata, 179; Brasso-Cattleya Apollo var. Duke of York, 251; B.-C. Apollo var. Majestica, 237; B.-C. British Queen, 40; B.-C. British Queen var. Excelsior, 68; B.-C. Enchantress var. Lady Primrose, 324; B.-C. Helen, 69; B.-C. Imperiale, 251; B.-C. Joan, Westonbirt. var., 251; B.-C. Pallas magnifica, 324; B.-C. Villa Jeanne, 303; B.-C. Vilmoriniana, Rutherford's var., 124; B.-C. Somme var. Enchantress, 191; Brasso-Laelio-Cattleya Truffautiana var. Triumph, 303; Calanthe Angela, Beckton's var., 55; C. Bryan alba, Beckton's var., 55; C. Glad Eye, 13; C. revertens, 13; C. Rosabelle, 111; Campanula calcicola, 304; C. persicifolia var. The King, 367; Carnations: Atlantic, 279; Aviator, 279; Bona, 279; Donald, 304; Enchantress Supreme, 279; General Joffre, 279; Iceberg, 279; Jazz, 279; Mrs. Walter Hemus, 279; Oceanic, 279; Scarlet Iona, 304; Surprise, 304; The Herald, 279; Triumph, 279; White Wonder, 279; Wivelsfield White, 279; Cattleya Clotho var. Perfecta, 68; C. Dr. Miguel Lacroze var. Excelsior, 204; C. Enid alba, Bletchley Park var., 27; C. Enid alba, Our Queen, 191; C. G. P. Walker var. superba, 303; C. Hentschelii, Rosslyn var. 366; C. intermedia Aquinii, 324; C. Irene, 251; C. Irene var. Our Queen, 303; C. Prince Shimadzu var. Olympus, 302; C. Schröderae Duchess of York, 324; C. Stuartii var. albina, 191; C. Suavior, Low's var., 178; C. Tityus var. Ada Evans, 111; C. Vishnu var. Snowflake, 324; Cerasus Hukon, 237; Clematis macropetala, 237; Clivias: Field Marshal, 153; Lady Holford, 153; Westonbirt Perfection, 153; Coelogyne Sanderae, 191; Cyclamen Firefly, 40; Cymbidium Alexanderi, Crompton Hall var., 251; C. A., Cussons' var., 191; C. A. var. Rosalind, 124; C. A. var. White Wings, 191; C. Arthur, 111; C. Auriga, 124; C. Castor var. Laburnum, 303; C. Curlew var. Feather, 40; C. Doreen, 40; C. insigne, 'Cussons' var., 191; C. i. rhodochilum, 152; C. i. St. Andre, 152; C. Mastersii, Cussons' var., 13; C. Maydew, 191; C. Merlin, Westonbirt var., 152; C. Schlegelii var. Kervalli, 191; C. S. var. rubrochilum, 124; C. S. var. Serena, 111; C. Seamew, 251; Cypripedium Admiral, 124; C. Alethea, 13; C. Antinea, 302; C. bellatulum var. Serianthian, 324; C. Britain's Monarch, 13; C. Cappa-magna var. Victoria, 13; C. Cappa-magna var. Paschalia, 251; C. Caractacus var. Parasceve, 251; C. Cardemona, 180; C. Chorltonville, 13; C. Christopher bisepalum, 55; C. C. var. Grand Monarch, 27; C. Chrysotens, Usk Priory var., 13; C. Cynosure, 55; C. Desdemona var. Radiant, 111; C. Dulcis, Lambeau's var., 69; C. Emerald, 13; C. Emerald, Beckton's var., 55; C. Enchantress, 324; C. Eurybiades var. The Baroness, 124; C. E. var. The King, 27; C. Florence Spencer, 68; C. F. M. Ogilvie var. Conyngham, 124; C. Forest King, 111; C. General Degoutte, 111; C. Godefroyae splendens, 13; C. Golden Sunset, 55; C. Goultenianum albens, 356; C. Helena, 27; C. Icarus West Point var., 124; C. Imperator Excelsior, 68; C. J. M. Black var. Samson, 111; C. Julettie, 55; C. Kervallii, 13; C. Lady Gray, 13; C. Londinum, 111; C. Lord Wolmer, Westonbirt var., 13; C. Mandarin, 27; C. Marian, 356; C. Marie var. Jean Walker, 68; C. Matthewsianum, Usk Priory var., 27; C. Memoria F. M. Ogilvie var. Leopardinum, 180; C. Memoria F. M. Ogilvie var. The Chancellor, 180; C. Minotaur, 13; C. Moonstar, 191; C. Mrs. Giles, 55; C. Mrs. Rickard var. Mercia, 55; C. Monialis var. Hilda Sharp, 13; C. Moonlight var. Delicata, 13; C. Nesta, 68; C. Noel, 27; C. Nydia rubella, 55; C. N. Westonbirt var. 13; C. Olympus var. Diadem, 55; C. O. var. Rex, 68; C. Othello, St. Mary's var., 13; C. Pixie var. rubra, 55; C. Senator, 124, 180; C. Sir H. Rawlinson, Chardwar var., 13; C. Statul, 27; C. Swallow, 27; C. Thais, Gratrixiae, 111; C. Torelor, Beckton's var., 13; C. Trentino, 55; C. Troilus var. Jupiter, 13; C. Verona var. Furens, 13; C. Windsor, 191; Cytisus Cornish Cream, 264; C. Dorothy Walpole, 264; Delphinium Blue Boy, 367; D. Mrs. Townley Parker, 367; D. Unique, 367; Dendrobium Bancroftianum, 180; D. Cybele majalis, 191; D. electrum magnificum, 191; D. Florence var. Wilps, 251; D. Gatton Monarch var. F. J. Hanbury, 96; D. Gatton Sunray, 302; D. nobile, Keeling's var., 251; D. n. Sir G. W. Moore, 124; Eranthis Tubergenii, 252; Eulophiella Rolfei, 13; Gentiana Hopei, 304; Hydrangea Maréchal Foch, 264; H. Triumph, 304; Incarvillea Bees' Pink, 304; Iris Douglasiana var Merton, 264; I. tenax purpurea, 264; I. Thundercloud, 341; Kolkwitzia amabilis, 367; Laelio-Cattleya Britannia var. plumosa, 13; L.-C. Canhamiana Sunray, 324; L.-C. Dodona var. Ashiae, 55; L.-C. Eunice magnifica, 111; L.-C. Faust, 204; L.-C. Gold Flake, 324; L.-C. Hassallii alba. var. Perfection, 204; L.-C. Mrs. W. Pemberton, Dell var. 366; L.-C. Nora, 178; L.-C. Schröderae var. Imperator, 111; L.-C. Surprise, 356; Lilium Golden Grb, 367; Lupinus Harkness' Strain, 367; Lupinus arboreus, Light of Lodden, 341; L. Downer's Strain, 304; Lycaste Gratrixiae, 324; L. Skinneri brilliantissima, 191; L. S. hellemensis, 191; L. S. His Majesty, 191; L. S. Pallas, 191; L. S. Robin, 68; L. S. Zeus, 251; L. S. Virgin Queen, 180; Maxillaria Fletcheriana, 191; Miltonia Butterfly var. Empress, 303; M. Constance, 303; M. Reine Elizabeth var. Roi des Belges, 124; M. Sanderae Unique, 303; M. S. var. Painted Lady, 324; M. Venus var. Fascinator, 324; M. William Pitt, 341; Miltonioda Harwoodii, Ashtead Park var., 204; M. H., Bolholt var., 68; Narcissus Actaea, 252; N. Alban, 251; N. Beauty of Radnor, 220; N. Callirrhoe, 179; N. Cheerfulness, 252; N. Corinna, 252; N. Dainty Maid, 220; N. Dawson City, 252; N. Dinton Red, 220; N. Dorina, 252; N. Dulcimer, 220; N. Eyebright, 252; N. Geertruida Carelsen, 252; N. Glorious, 179; N. Golden Empress, 153; N. Golden Giant, 252; N. Golden Harvest, 252; N. Golden Herald, 125, 153; N. Golden Sunrise, 179; N. Great Dane, 153; N. Honey Boy, 251; N. Hortulanus E. Th. Witte, 252; N. Intensity, 238; N. Lady Moore, 252; N. La Vestala, 252; N. Lord Wellington, 252; N. Lovenest, 252; N. Mainsail, 238; N. Miss Helen O'Hara, 220; N. Mrs. R. O. Backhouse, 252; N. Opera, 238; N. Orange Glow, 252; N. Owen, 220; N. Prince Umbria, 179; N. Provost, 179; N. Puritan Maiden, 205; N. Red Cross, 252; N. Red Guard, 220; N. Red Rim, 220; N. Roland, 238; N. Sanguine, 252; N. Stromboli, 252; N. Tenedos, 251; N. Vara, 252; N. (unnamed), 205; N. White Whirl, 252; N. Wide Wing, 220; N. Xenophon, 252; Odontioda Antinea, 13; O. Brilliant, 303; O. Chantecler, Orchidhurst var., 356; O. Colinge var. Admiral, 55; O. C. var. Redwing, 251; O. C. var. Rosemary, 124; O. Cordor, 111; O. Duchess of York, 303, 356; O. Earl of Chester, 251; O. Juno var. Mira, 324; O. Le Papilon, 324; O. Marina var. rubra, 356; O. Mary Gratrix, 124; O. Mena rubra, 251; O. majestica, 251; O. Mulatto, 124; O. Murillo, 303; O. Naomi, 264; O. Pegasus, 68; O. Radiant var. Majestic, 303; O. Rufus var. Wickham Beauty, 124; Odontoglossum Adula var. rubens, 124; O. Agapetum var. Brunette, 124; O. Aiglon var. Majesticum, 204; O. Aireworth, Beardwood var., 124; O. amabile Duke of Portland, 191; O. a. St. Andre, 356; O. Amazon, 111; O. Antinous, 324; O. Ardendora var. Radiance, 13; O. × Aureola, 204; O. Aurora var. Rajah, 178; O. crispo-Solon, Pitt's var., 27; O. c.-S. var. Carmania, 302; O. crispum Annette, 356; O. c. Daisy, 191; O. c. Duchess of Athlone, 251; O. c. Esmerelda 303; O. c. Faustina, 324; O. c. Fred Hardy, 13; O. c. Lady Mary Cambridge, 324; O. c. Lady Rachel, 191; O. c. Mirimar, 356; O. c. Olympe, 124; O. c. Princess Yolanda, 252; O. c. West Point Beauty, 251; O. Dodeham Prince of Orange, 124; O. Ernest Bristow, 366; O. Eros, 324; O. eximium St. Alban, 356; O. Fabia var. Biddy, 237; O. F. var. Royal Beauty, 68; O. Florence, 13; O. Gatton Emperor var. Nero, 303; O. Goldcrest, 341; O. Gorizia var. Imperial Purple, 264; O. Hardyanum, 251; O. harvingtense, Rosslyn var. 324; O. Leander 251; O. Llewellyn, 69, 152; O. L. var. Colossum, 303; O. L. var. Radiant, 13; O. Mandarin, 191; O. nebulosum xanthotes, 324; O. Odyssey, 111; O. Orosius magnificum, 366; O. Penelope, Rosslyn var., 356; O. Promerens var. albens, 251; O. P. var. Prince Henry, 180; O. P. var. Princess Mary, 356; O. Purple Queen, 96; O. Radiant, 356; O. Rosina, West Point var., 251; O. Serapis var. Dusky Monarch, 303; O. St. Nicholas violacea, 251; O. Tagus Gerrish's var., 264; O. Victory var. Duchess of York, 324; O. W. E. Bissett, 324; Odontonia

Digitized by Google

Baroness Schröder, 96; O. Corona var. Rajah, 341; O. Dora, 152; O. Eurydice, Bolholt var., 55; O. Gratrixiae, 356; O. Meropc, Bolholt var., 55; O. Olivia, 303; Papaver orientale var. Miss Swete, 367; P. o. var. Mrs. G. H. Stobart, 367; Pentstemon puniceus, 341; Pieris taiwanensis, 179; Primula calciphila, 97; P. chrysopa, 304; Prunus Blirieana fl. pl., 179; P. Conradinae, 97; Pyracantha Gibbsii, 23; Pyrethrum Harold Robinson, 341; Rhododendron bullatum, 237; R. ciliicalyx, 125; R. dichroanthum, 341; R. decorum var. Mrs. Messel, 264; R. Euphrosyne, 237; R. Exminster, 205; R. picto-lacteum, 237; R. Gilian, 237; R. insigne, 341; R. Lady Constance, 304; R. Ne Plus Ultra, 96; R. Penjerrick, 237; R. Pink Shell, 304; R. rhododactylum, 179; R. Sargentianum, 264; R. strigillosum, 125; R. (unnamed), 304; Roses: Capt. F. S. Harvey Cant, 304; David Lloyd George, 264; Deception, 236; Mrs. Beckwith, 236; Mrs. Tresham Gilbey, 236; Orange King, 304; Orange Queen, 341; Rubus biflorus quinqueflorus, 23; Saccolabium bellinum Haddon House var., 55; Saxifraga Cotyledon × caterhamensis, 341; S. Griesbachii, Wisley var., 179; S. R. V. Prichard, 125; S. Valerie Keevil, 153; Sophronitis Lowii, 40; Stranvaesia undulata, 23; Trillium undulatum, 237; Tulip Alcemene, 265; Viola hybrida Haselmere, 264; Vuylstekeara insignis, var. Marigold, 324; V. Memoria Joseph Charlesworth, 324; V. Rutherford's Sylvia, 124; Yucca gloriosa argentea, 341

Chamber of Horticulture, 357; "Bulletin" of the, 282
Charities, help for the gardening, 44
Chase, A. (*First Book of Grasses*), 346
Chelsea show, 302, 313, 325; in 1924, 72, 85
Chervil, bulbous, 190
Chicago, beautifying the city of, 267
"Chortle," to: meaning of, 95
Christmas flowers at Pyrford Court, 2
Chrysanthemum: the history of the, 132; insect enemies of the, 282; Mrs. Jack Pearson, 65
Chrysanthemums, 6; late, 94, 139, 165, 220; the best French, 268
Cirsium eriophorum, 123
Cistus ladaniferus, 317
Citrus crops in Greece, 330
"Clay" Cup for Roses, 345
Claytonia perfoliata, 138, 166, 190, 249
Clerodendron fallax, 93
Clianthus, 61
Climbers: planting, 5; stove, 108
Coffee tree, the Kentucky, 161
Colchicum, 76
Cold on plants, the effect of, 85
Colour in the garden in winter, 65, 104
Commercial horticulture in the Scilly Isles, 66, 94
Confessions of a novice, 273, 353
Coniferous trees, old and new, 228
Copper sulphate as a tree cleanser, 232
Cottle's, Dr., expedition to the East, for Orchids, 15
Cotton growing, studentships in, 330
Covent Garden Market, Easter in, 186; strike at, 208
Cranum, 73
Crocus biflorus, 103; C. Caroline Chisholm, 175; C. Kathleen Parlow, 175; C. King of the Whites, 175; C. Mont Blanc, 175; C. Sieberi, 63, 73; C. Snow White, 175; C. Tilly Koenen, 175; C. Tommasinianus, 175; C. versicolor, 103
Crocuses, 76; white, 175
Crops: damaged by rooks, 30; electrification of, 27; fungous diseases of, 141
Crombie, Mr. David, 360
Cucumbers, 54, 111
Cultural memoranda, 5, 34, 105, 118, 146, 248
Currant bud mite: and reversion, 81, 138; sulphur as a cure for, 268
Currant, Red, Laxton's Perfection, 165
Currants, Black: a new cure for big bud in, 29, 54; Bourdichon's figures of, 110
Curtis, Mr. C. H., award of the Peter Barr Memorial Cup to, 194
Cuttings in acidic media, propagation by, 244
Cyclamens, methods of growing, 225
Cymbidium flabellatum, 188; C. Humblotii, 188; C. insigne Bieri, 290; C. Merlin Westonbirt var., 213; C. rhodochilum, 187
Cymbidiums, three Madagascar, 187
Cypripedium chrysostom var. Amy Moore, 35; C. Eurybiades, The Dell var., 62; C. Fletcherianum var. Antinea, 321
Cypripediums, large-flowered, 35, 133
Cytisus purpureus incarnatus, 269

D

Dahlias, dwarf, for bedding, 347
Daffodils at Sutton Court, 202
Daphne Cneorum, 48; D. C. alba, 245
Dartmoor, afforestation of, 72
Davidson, Hugh C. (*The Culture of Pot Plants*), 151; (*Vegetable Culture*), 129
Dawson, the late Mr. Jackson, memorial to, 314
Decaisnea Fargesii, 161
Dewar, Mr. Alexander, presentation to, 169
Dicentra spectabilis, 37, 67
Disease resistance and a copper hypothesis, 276
Douglasia Vitaliana, 21
Droitwich, experiments at, 262, 290, 355
Durban, motor versus locusts in, 249
Durian, the, 259

E

Easter in Covent Garden, 186
Edinburgh Botanic Gardens, notes from, 104, 334
Elaeagnus argentea, 161
Electrification of crops, 27
Elwes, the late Mr. H. J., 296
Epiphyllums, 61
Epping Forest, new lake at, 44
Erigeron mucronatum, 356
Erinacea pungens, the propagation of, 318
Erodium chamaedryoides, 272; E. cheilanthifolium, 131
Erythraea Massonii, 91
Eschscholzia, 258
Eucalyptus, the genus, 194
Eucharis, 231
Exchange, rate of, in France, 345
Exhibitions: at Amsterdam, 128; at Gothenburg, Sweden, 114

F

Fagus sylvatica rotundifolia, 352
Farmyard manure, a garden substitute for, 290, 299, 322, 339
Fendlera rupicola, 177
Fernery, the, 17, 137, 225, 299
Ferns, hardy British, 137
Fertilisers cheaper, 345
Field mice, to trap, 356
Finger-and-toe disease at Droitwich, 355
Fire in an American nursery, 282
Fir, Silver, witches' broom on, 11
Florist's flowers, 65, 94, 209
Flower border, hardy, 7, 21, 34, 52, 105, 122, 132, 159, 173, 195, 209, 229, 272
Flower garden, the, 5, 18, 33, 47, 61, 74, 88, 103, 116, 130, 145, 159, 173, 184, 197, 210, 226, 242, 256, 270, 284, 298, 316, 333, 349
Flowers: for Glasgow market, 26; in season, 114, 194; out of season, 99
Fly, the St. Mark's, 330
Foreign correspondence, 10, 133, 165, 176, 189, 225
Forest area, northern Scotland as a, 114
Forest lands for Aberdeen University, 86
Forestry, 108, 136, 228
Forestry chair at Aberdeen, proposed, 296
Forestry Commissioners' report, 288
Forestry museum at Kew, the British, 142
Forests in Britain, plea for communal, 136
Forrest, Mr. G., and Mr. F. Kingdon Ward, return of, 155
Forst Rose Show, 345
Forsythia, a new, 282
France: garden league for devastated, 208; the best Chrysanthemums in, 268; rate of exchange in, 345
Fream Memorial prize, award of the, 267
Freeman, Ella M. (*The Home Vegetable Garden*), 346
Freesias, 34
French exhibitions, forthcoming, 45
French fruit-growers' visit to England, 360
French Horticultural Congress at Grenoble, 345
Fruit culture in Sweden, 355
Fruit: exhibit of, at Stafford, 95; fungous diseases of, 193
Fruit garden: the hardy, 4, 18, 32, 46, 60, 74, 89, 102, 116, 130, 144, 158, 172, 185, 196, 210, 227, 243, 257, 270, 284, 290, 298, 317, 332, 348; the market, 24, 80, 150, 202, 261, 338
Fruit industry of South Africa, 295
Fruit-testing station in Scotland, proposed, 240
Fruit register, 25, 38, 110, 165, 190, 203, 212
Fruit trees, grefting, 87
Fruit, spraying, 203
Fruits: the setting of, 128; the testing of new varieties of, 254; under glass, 5, 18, 32, 46, 60, 75, 88, 102, 116, 130, 144, 158, 172, 184, 196, 211, 226, 242, 256, 270, 284, 298, 316, 332, 348
Fruit trees, the roots of, 259
Fruit wash, caustic, 13, 26, 39, 54
Fungous diseases of crops, 141

G

Galanthus plicatus Fraseri, 103; G. peculiformis, 63
Gallantry of a park official, 2
Galsworthy's, Mr. Frank, garden and flower pictures, 329
Galt, Mr. Alex S., 16
Gardener, sad death of a, 208
Gardeners' Chronicle: and the Ghent exhibition, 224; seventy-five years ago, 3, 17, 30, 45, 59, 73, 87, 101, 114, 128, 143, 157, 170, 182, 195, 208, 224, 241, 255, 269, 283, 296, 315, 331, 346, 369
Gardeners: legacies to, 30, 128, 156, 182; veteran, 58, 156; wages, 151, 166, 203, 232, 263, 291, 323, 340
Gardeners' Royal Benevolent Institution, 67, 128, 314
Gardening: in Central Africa, 288; some effects of the war on, 12; wireless lecture on, 232
Garden league for devastated France, 208
Garden notes from S.W. Scotland, 36, 104, 135, 162, 198, 286, 319, 363
Gardens: at Olympia, 128, 166, 191; economy in private, 249; prizes for London, 72
Gardner, Victor Royal (*The Fundamentals of Fruit Production*), 295
Garland flower, the white, 245
Gaston, Mr. A. J., presentation to, 142
"Geo. Monro, Ltd." concert, 71, 100
Geranium anemonaefolium, 173; G. atlanticum, 34, 272
Germany: gardening news from, 346; the nitrogen industry in, 128
Germination, 111
Geum rivale, Leonard's var., 272
Ghent Quinquennial exhibition, 16, 72, 141, 223; Britain's part in the, 240; British and Irish members at the, 156; British section of the, 170; *Gardeners' Chronicle* and the, 224; Sander memorial prize for the best new plant at the, 2
Gibbon's garden at Hampton Court, 214
Gilbert-Carter, Humphrey (*Guide to the University Botanic Garden, Cambridge*), 160
Gildredge Park, Eastbourne, 273
Gill, Mr. Richard, 182
Ginkgo biloba, distinguishing the sex of, 10
Gladioli, 20, 47, 183; origin and evolution of summer-flowering, 164, 177; white, 39
Gladiolus primulinus, earliest hybrids of, 10, 54
Glasgow: Botanic Gardens, 227, 273; parks superintendency, 268
Glasnevin, notes from, 45, 121, 199
Globularias 75
Gnat bites, lotions for, 346
"Gordon's Gardening," 120
Gourds, ornamental, 198
Gourock, new public park for, 119
Grafting fruit trees, 87
Grant, Mr. W. J., retirement of, 281
Grape growing: exploded fallacies in, 258; under difficulties, 81
Grapes, hardy, 190
Grass orchards, 339
Greece, Citrus crops in, 330
Greenhouse flowering plants, 20; at Reading, 91
Greenwich Park, new superintendent at, 254, 334
Grenoble, French horticultural congress at, 345
Grevillea asplenifolia, 178; G. rosmarinifolia, 287; G. sulphurea, 287
Guelph Gladiolus show, 208
Guild of Blind Gardeners, 313
Gunton Park, late Apples and Pears at, 94
Gymnogramme leptophylla, 17

H

Hampton Court, spring flowers at, 259
Harwood, Mr. J., 58
Heaths, some uncommon, 89, 123
Hedges, Holly, 248
Helleborus, 317
Hemsley, Dr. W. B., 282
Henry, Prof. A., honour for, 207
Herbaceous perennials for cut flowers, 105
Herbarium presented to Kew, 329
Herb garden, the, 109
Herman, Mr. C., jubilee service of, 3
Hillier, Mr. J. Masters, 296
Hogg and florists' flowers, 6

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Holly hedges, 248
Hooker, Henry Daggett (*The Fundamentals of Fruit Production*), 295
Hop growers, payment to, 208
Horticultural traders and taxation, 148
Horticulture: afloat, 48; at the British Empire exhibition, 70, 82, 99, 110, 122; in the Isles of Scilly, 94
"Horticulture in Holland," 268
Hyde Park, gift of bulbs to, 194
Hypericums, some dwarf, 243

I

Ideal Homes Exhibition, 128, 166, 191
Imperial College of Science, plant pathology at the, 100
Imperial fruit show, 1923, 101, 223
"Index Kewensis," 182
Indoor plants, 5, 20, 49, 61, 93, 108, 115, 145, 171, 189, 201, 231, 272, 337, 349
Insect enemies of the Chrysanthemum, 282
Insect pests in the fruit garden, 338
International Congress at Amsterdam, Kewites at the, 170
Inventions, new horticultural, 56, 139, 191, 293
Ireland, notes from, 147, 347
Irises, 76, 361
Iris lutescens-Stabellae, 349; I. Marjorie Tinley, 361; I. sibirica, 349
Irving, Mr. Walter, 330.
Ixiolirion, 349

J

January Flowers, 76
Jardin des plantes at Montpellier, 146
Jeffersonia dubia, 131
Johns, Mr. Wm. H., appointment of, 86
Jones, Mr. H. J., 30
Jordan, Herbert W. (*How to Form a Company*), 151
"Journal of Pomology and Horticultural Science," 43
Juglans cathayensis, 103

K

Ken Wood, 2
Kew, alpine plants at, 319; British Forestry Museum at, 142; death of a former gardener at, 170; presentation of a herbarium to, 329; special exhibits of botanical interest at, 57
Kewites at the International Congress at Amsterdam, 170
King, Mr. David, illness of, 296
Kirengeshoma palmata, 258
Kirstenbosch, new South African plants at, 268
Kitchen garden, the, 5, 18, 32, 46, 60, 74, 88, 102, 117, 131, 144, 158, 172, 184, 196, 210, 226, 242, 256, 271, 285, 298, 316, 332, 348, 362

L

Laelio-Cattleya Aethiopian, 101; L.-C. Beauty, 171; L.-C. Dodona, 62; L.-C. Emily Methuen, 290; L.-C. Gwendolen Leach, 213; L.-C Nancie Gamble, 187; L.-C. Narcissus, 201; L.-C. Saffron, 160
Lake: at Epping Forest, 44; in St. James's Park, 329
Land, continuous tenure of, for nine-hundred years, 16
Landscape gardening for women, American school of, 169
Lapagerias, 49
Lathyrus odoratus zeylanicus, 364
Lavender, varieties of, 301
Law Notes: — Failure of a manure firm, 42; of a market salesman, 167; of a nurseryman, 28, 168
Legacies: to a nursery manager, 17; to gardeners, 30, 128, 156, 182
Lettuce, a new disease in, 86
Lilies, 274: for planting in January, and February, 33; in 1922, 78, 86; some easily-grown, 79
Lilium monadelphum, 79; L. sulphurgale, 133
Lilacs, hybrid, 352
Lily-of-the-Valley, coloured forms of, 240; home-grown, 34
Linum arboreum, 209; L. narbonense Six Hills variety, 159
Lithospermum prostratum, 26
Liverpool's fruit and vegetable markets, 360
London Daffodil show, 100
London Gardens Guild, 182
London weather forecasts, 57
Lonicera Hildebrandtiana, 26
Lotions for gnat bites, 346
Loudon, Jane, 77, 95, 110
Lowe, Mr. Joseph, 100
Lupins, 173
Lychnis chalcedonica, 122
Lysichitum camtschatcense, 157

M

McFarland, J. Horace (*The Rose in America*), 346
M'Hattie, John W., 170, 252
Mackie, Dr., honour to, 313
MacWatt, Dr. John (*The Primulas of Europe*), 241
Magnolia Kobus var. borealis, 301
Magnolias, 177
Maidenhair, a fine hardy, 225
Maiden, Mr. J. H.: honour for, 155; (*The Genus Eucalyptus*), 194
Manure, a garden substitute for farmyard, 290, 299, 322, 339
Manures, the application of artificial, 101
Manurial experiments at Droitwich, 262, 290
Manuring orchards, 24
Marc's-tail, fruit structure and germination of the, 239
Marloth, Dr., 254
Masdevallia deorsa, 258
Matthews, Mr. C. M., 2
Matthews, Mr. Edward, 268, 346
Mayhew, Mr. Chas. W., presentation to, 29
Medals for fruit exhibits, 346
Melon Dickson's Acquisition, 150
Melon fruits cracking, 323
Mesembryanthemum uncinatum, 34
Miles, F. W. (*Jottings from a Gardener's Notebook*), 315
Miltonias, 145
Ministry of Agriculture, Intelligence Department of, 155
Montbretias, 105, 166
Moonock, 323, 340, 356
Mosaic disease, 345
Motor cycle versus locusts in Durban, 249
Muscari Heldreichii, 73

N

National Institute of Agricultural Botany, 156
Naturalists' show, field, 20
Neill, Patrick, 320
Nepenthes mixta, 113
Nerine Bowdenii, 295, 335
New Jersey, notes from, 354
Nitrogen industry in Germany, 128
Nomocharis pardanthina, 299
Nursery, fire in an American, 282
Nursery Notes: Mr. Moyses Stevens, Wandsworth Common, 213; Sutton and Sons, Reading, 91
Nuts and Filberts, 138

O

Oak Timber, Bog, 198; eight and a half centuries old, 248

Obituary: — Bonnier, M. Gaston, 13; Callier, Eugène, 358; Cannon, George, 98; Challis, Thomas, 358; Clark, John, 27; Fowler, Rev. Canon W. W., 326; Gilbert, Mrs., 167; Greening, Edward Owen, 154; Grey, Thomas J., 180; Hall, John, 55; Harrington, George, 208; Hay, John, 84; Jefferies, John E., 358; Jordan, F. W., 265; Maclennan, George, 154; Martin, R. F., 126; McNicol, Edwin, 265; M'Hattie, John W., 352; O'Neil, Bartholomew, 55; Parsons, Samuel, 112; Plymouth, the Earl of, 154; Priest, William, 358; Powell, David Charles, 167; Russell, James, 222; Stewart, John Malcolm, 70; Thomas, Owen, 312, 313, 326; Turner, James S., 206; Waters, Alfred, 126; Welsh, Alexander, 222; Wilks, Rev. W. 127; Winter, Thomas, 98

Odell, Mr. John W., 170
Odontioda Bantingii, 321; O. Daffodil Montague Mackenzie, 187; C. Deltilia, 247; O. J. Eversfield, 347; O. Red Dragon, 118; O. Walda, 160
Odontoglossum Amillus, Gerrish's var., 213; O. Aquila, 62; O. Camden, Low's var., 290; O. crispum Cepheus, 321; O. Orosum, 187; O. St. Emilion, 62
Œnothera taraxicifolia, 183
Olympia, gardens at, 128, 166, 191
Oncidium McBeanianum, 133
Onions, 54, 111; large *versus* small foliage on, 138
Onoclea sensibilis, 299
Orchards, grass, 339; manuring, 24
Orchid houses, the, 4, 18, 32, 46, 60, 74, 88, 102, 116, 130, 144, 158, 172, 184, 196, 210, 226, 242, 256, 270, 284, 298, 316, 332, 348, 362
Orchid hybrids, new, 62, 160, 258, 334
Orchid notes and gleanings, 17, 35, 62, 90, 101, 118, 133, 145, 160, 171, 187, 201, 213, 247, 258, 290, 321, 347
Orchids: Dr. Cottle's expedition to the East for, 15; in 1922, 10
Orchis incarnata pulchella, 347
Ornithogalum nutans, 47
Osteomeles anthyllidifolia, 335
Oxalis lobata, 195

P

Paeonies Herbaceous, 229; specia cups for, 77
Paeonia Emodi forma, 365
Page, Mr. W. H., 72
Painters, early botanic, 8, 92, 148, 200, 260, 336
Palm garden in Leipzig, the, 239
Palms of the Riviera, 136, 248
Papaver alpinum, 34
Paris autumn show, 239
Park, new public, at Gourock, 119
Parks and gardens, public, 118, 185, 227, 273, 334,
Pea, a prolific, 296
Peas: 176, 249, 277, 323; the earliest, 123
Pear, prolification of, 19
Pear stock, a new, 282
Pears: 38, 208; approximate average order of blossoming of market varieties of, in the south of England, 212; manuring of, 232
Peat composts, 113
Pelargonium leaf spot, 208
Pelargoniums for winter flowering, 49
Pentactina rupicola, 331
Perennial carpeting plants, 118
Perennials, herbaceous, 132; for cut flowers, 105
Perfume, cultivating, 194
Pernettya, 9
Pettigrew, Mr. A. A., 114
Pictures, Mr. Frank Galsworthy's garden and flower, 329
Pieris taiwanensis, 63
Pigs and Bracken, 330
Pirovano, A. (*Influence of Electricity on Mutation in Plants*), 160
Plant collecting in the Auckland Islands, 334
Plant names, puzzles in, 201, 323, 356
Plant notes, 299, 335
Plant pathology at the Imperial College of Science, 100
Planting, deep, 146
Plants: failures with, 109, 123, 165; forcing, 5; for sub-tropical effect, 52; for the moraine, 257; mystery, of Uganda, 36; new South African, at Kirstenbosch, 268; of special garden merit, 23; specimen for the flower garden, 297; the effect of cold on, 85; the naturalisation of, 164; the propagation of "difficult," 318, 333, 361; under glass, 5, 18, 32, 46, 60, 75, 88, 102, 116, 130, 145, 158, 172, 184, 196, 210, 226, 242, 256, 270, 284, 298, 316, 332, 348, 362

Plants, New or Noteworthy: — Astilbe chinensis pumila, 51; Magnolia Kobus var. borealis, 301; Paeonia Emodi forma, 365; Pentactina rupicola, 331; Pieris taiwanensis, 63; Primula calciphila, 101, 283; P. Delavayi, 331; Psilotum triquetrum, 365; Rhododendron obtusum album, 227; R. insigne, 351; R. phoeniceum var. Tebotan, 255; R. praeteritum, 143; R. praevernum, 159; R. strigillosum, 129; R. sutchuenense, 171; Rubus robustus, 51; Sanguinaria canadensis var. multiplex, 283; Silene Californica, 365; Sisyrinchium filifolium, 129, 178

Playing pitch at the Empire Stadium, 240
Plumbagos, red-flowered, 49
Plums: approximate order of blossoming of, in the south of England, 190; birch logs and silver leaf disease on, 262; manurial treatment of, 232; poor crop of, 339
Pollen, on, 169
Polyanthuses: reversion in, 269; in praise of, 207
Poppy, the Shirley, 149
Poppies for Memorial day in America, 240
Postal Rates, reduction in the, 208
Potato and hay crops, 58
Potato, degeneration of the, 25, 38, 54, 157
Potato flowers, degeneration and causes of sterility in, 176, 188
Potato foliage, leaf-roll in, 194
Potato seedlings, tuber formation in, 13
Potato sets, yields of whole and cut, 100
Potato variety trials, 193
Potatos: early, 26, 359; supposed relation of skin spot to corky scab in, 355; wart disease of, 114; wart disease of, on allotments, 182
Potentilla rupestris, 285
Potinara Lowii, 145; P. Juliettae, 90
Preston Park, Brighton, 273
Prices, inquiry as to, 2, 345
Primula calciphila, 101, 239, 283; P. Delavayi, 331; P. denticulata, 173; P. erythrocarpa, 255, 291; P. malacoides, with rounded flowers, 203; P. sinensis and P. calciphila, 239
Primulas: at Reading, 91; for home decoration, 166
Prizes for London gardens, 72
Propagation: by cuttings in acidic media, 244; of "difficult" plants, 318, 333, 361
Prunus cerasifera and varieties, 185; P. rufa, 335

Digitized by Google

Psilotum triquetrum, 365
Pulmonaria angustifolia azurea, 122
Purslane, winter, 138, 166, 190, 249, 292
Puschkinias, 271
Pynaert, Mr. Charles, 282
Pyracantha Gibbsii, 23
Pyrford Court, Christmas flowers at, 2
Pyrus salicifolia, as a stock for Pears, 38; P. Scheideckeri, 185, 203; P. toringoides, 89

R

RAILWAY STATION GARDENS, 30
Rainfall: heavy, 142; in 1922 at Tirley Garth Gardens, Tarporley, 15
Rain gauges, the earliest, 72
Ramsbottom, John (*Handbook of the Larger British Fungi*), 354
Ranunculus, 209; R. glacialis, 157
Raphiolepis Delacouri, 34
Raspberry stem bud moth, 11
Raspberries, 29
Reading, greenhouse plants at, 91
Rehmannia angulata, 145
Research, grants for agricultural, 239
Rhododendron obtusum album, 227; R. phoeniceum var. Tebotan, 255; R. praeteritum, 143; R. praevernum, 159; R. strigillosum, 129; R. sutchuenense, 171
Rhododendrons: 64; javanicojasminiflorum, 189; on limestone, 26, 59, 151; the propagation of Himalayan, 146; value of aluminium sulphate in soils for, 281
Rhodora canadensis, 161
Richardias, 337
Richmond flower show, 43
Richmond Park official, gallantry of a, 2
Robinia Pseudacacia, poisonous pods of, 166
Rock garden? what is a, 323, 340, 356, 366
Rockingham flower show, 71
Romneya Coulteri, 139, 166
Rooks, crops damaged by, 30
Rose Belle Portugaise, 289, 330
Rose garden at Bagatelle, 143
Rose growing, 223
Roses, Christmas, 317
Roses, wireless lecture on, 193
Rotation, manure or fertilisers, 99
Rothamsted Experimental Station, inspection of, 364
Rouken Glen Park, Glasgow, 44
Royille Horticultural College, centenary of the, 16
Royal Academy, floral pictures at the, 267
Royal Botanic Society's gardens, 43
Royal Gardeners' Orphan Fund, 44, 95, 292
Rubber, wonderful, 228, 277, 292
Rubus bifforus quinqueflorus, 23; R. robustus, 51
Rudbeckia pinnata, 21
Rue, 161
Ruellia macrantha, 231

S

ST. CUTHBERT'S COLE, 201, 356
St. James's Park, the lake in, 329
Salads, winter, 138, 166
Salvias, 361
Sander memorial prize at Ghent, 2
Sanders, T. W. (*Fruit Foes*), 117
Sanguinaria canadensis var. multiplex, 283
Sap, the ascent of, 253, 292
Sarawak, development of, 330
Saxifraga Kellereri, 47
Schinus Molle, 37
Schizanthuses and annual Larkspurs at Wisley, trial of, 331
Scholarships for rural workers, agricultural, 169
Sciadopitys verticillata, 59
Scilla Lilio-hyacinthus, 245
Scilly Isles, commercial horticulture in the, 56, 94
Scotland: allotments in, 16, 99; northern, as a forest area, 114; North-east conditions in, 72; proposed fruit-testing station in, 240; garden notes from S.W., 36, 104, 135, 162, 198, 286, 319, 363
Seabrook, W. P. (*Black Currant Culture*), 346
Secretary, an absconding, 59
Sedum pilosum, 361
Sedums, some early-flowering, 62
Seed analysts, training and examination of, 43
Seed orders, three xviii century, 286
Seeds: effect of moonlight on the germination of, 30; for New Zealand, 359; the vitality of, 330
Sempervivum, 189
Sherwood, Mr. Edward, presentation to, 58,
Shrubs: for the seaside, grey-leaved, 12; some Californian, 174
Silver leaf disease, 249: in Apples, 202; Order of 1923, 314
Sisyrinchium filifolium, 129, 178
Skunk Cabbage, 199, 338

Societies: — Aberdeen Gardeners' and Florists', 68; Alderley Edge and Wilmslow Horticultural, 58; Ashford Cottage Gardeners', 87; Aylesbury Chrysanthemum, 115; Bath and West of England Agricultural, 293, 324; Beckenham Horticultural, 314; Blackheath and Lewisham Horticultural, 142; Bournemouth Horticultural, 58; Brighton, Hove and Sussex Horticultural, 59; British Carnation, 68; British Florists' Federation, 83; Bromley Chrysanthemum, 86; Bury and West Suffolk Horticultural, 157; Cardiff Gardeners', 42, 55; Chalfont St. Peter and Gerrard's Cross Horticultural, 156; Congleton Rose and Sweet Pea, 314; Cornwall Daffodil and Spring Flower, 263; Deal, Walmer and District Horticultural, 58; Deeside Field Club, 279; Eastbourne Horticultural, 59; Egham Mutual Improvement Association, 86; Elgin Horticultural, 139; Elstree and District Horticultural, 152; Falmouth spring show, 251; Finchley Chrysanthemum, 254; Finchley Horticultural, 58; Folkestone Gardeners', 86; German Rose Society, 345; Ghent Quinquennial, 216, 233; Glasgow and West of Scotland Horticultural, 204; Haywards Heath and Mid-Sussex Horticultural, 195; Hereford and West of England Rose, 194; Highgate Horticultural, 157; Horticultural Club, 137, 277; Hull and East Riding Chrysanthemum, 170; Hythe Gardeners' Association, 86; Ipswich Gardeners' and Amateurs', 58; Kew Guild, 324; Keymer, Clayton and Hassocks Flower show, 87; Kirkcudbright Horticultural, 195; Langford and District Horticultural, 87; Leeds and District Market Gardeners', 167; Lewisham and District Horticultural, 156; Limpsfield and Oxted Gardeners' Mutual Improvement, 86; Manchester and North of England Orchid, 13, 27, 55, 68 111, 124, 180, 191, 251, 324, 356; National Chrysanthemum, 30, 83, 346; National Hardy Plant, 83; National Rose, 41, 236, 250; National Tulip, 278; Newcastle and District Horticultural, 55, 84, 139, 180, 263; Norfolk and Norwich Horticultural, 114; North of England Pansy and Viola, 240; Oxted Gardening, 240; Reading and District Gardeners', 68, 83, 152, 166, 204, 251, 342; Reading Horticultural Branch of Young Farmers' Clubs, 27, 55, 124; Royal Caledonian Horticultural, 41, 96, 166, 221, 312; Royal Horticultural, 40, 69, 71, 96, 111, 124, 152, 178, 204, 237, 264, 302, 325, 341, 369; Royal Horticultural of Ireland, 14; Royal Oxfordshire Horticultural, 194; Royal Scottish Arboricultural, 111; Saffron Walden Horticultural, 268; Saltwood Cottage Gardeners', 86; Société Royale d'Agriculture et de Botanique de Gand, 216, 233; Société Nationale d'Horticulture de France, 356; Southgate Rose, 170; South Oxford Horticultural, 86; Southwark Horticultural, 59; Sussex County Agricultural, 194; Ulster Horticultural, 268; United Horticultural Benefit and Provident, 42, 111, 167, 221, 293; Wakefield and North of England Tulip, 324; Walsall Flower, 156; Warrington Garden, 87; Watford Horticultural, 58; West Bridgford Garden Holders', 58; Windsor Rose and Horticultural, 142; Women's Farm and Garden, 311; York Gala, 342
Soil: acidity of, 247; compost, 176; partial sterilisation of, 156
Solanum capsicastrum in the open, 287; S. cinereum, poisonous properties of, 281; S. hybridum, 115; S. Wendlandii, 272, 299
Sollya heterophylla, 287
Sophronitis Lowii, 44
Spinach, summer, 355
Spraying: dry, 262; successful, 330; with copper sulphur, 202
Spring awakening of arable land, 57
Spring flowers at Hampton Court, 259
Stafford, fruit exhibit at, 95
Stelis tristyla, 247
Stevia paniculata, 52
Stock, influence of, on scion, 53
Stones, prevention of decay in building, 267
Stove climbers, 108
Stranvæsia undulata, 23, 34
Strawberries, 5; red plant disease in, 360
Streptocarpus, 20, 272
Strike at Covent Garden, 208
Stylophorum diphyllum, 229
Sulphur and Black Currant mite, 268
Superintendent: at Aberdeen's parks, 330; at Greenwich Park, 254, 333
Sutton Court, Daffodils at, 202
Sweden: British agriculturists to visit, 282; fruit culture in, 355
Sweet, Mr. James, presentation to, 359
Sweet Pea of Ceylon, the, 364
Switzer, Stephen, 230
Sylviculture, British, 113
Symplocarpus foetidus, 199, 318
Synthyris, 21; S. reniformis, 91

T

TANNOCK, DAVID (*Potato growing in New Zealand*), 129
Tansley, A. G. (*Practical Plant Ecology*), 346
Tecoma alata, 201
Tenure of land for nine hundred years, continuous, 16
Teucrium fruticans, 9
"The Microscopical Theatre of Seeds," 178
"The Orchard and the Garden," 106, 138, 190
Thladiantha dubia, 53, 82
Thomas, the late Mr. Owen, 207, 312, 326
Tigridia Pavonia, 73
Timber: bog Oak, 198; Canadian, 114; resources, Imperial, 101
Tithe rent charge, redemption of, 16
Tithymals, 51
Tirley Garth Gardens, Tarporley, rainfall in 1922 at, 15
Town planning, 2
Town refuse as a fertiliser, 267
Trade notes: 14, 27, 55, 70, 84, 112, 139, 154, 180, 191, 206, 222, 252, 265, 312, 326
Tree planting in the United States, 282
Trees and shrubs, 9, 23, 34, 59, 89, 103, 161, 177, 185, 209, 243, 269, 287, 301, 317, 335, 352
Trees: buttressed and stilt-rooted, 174; for street planting, 352; the most profitable to plant, 108
Tribute by British horticulturists to Belgium's unknown soldier, 224
Tricyrtis hirta, 21
Tropæolum tuberosum, 248
Tuileries gardens, Dutch bulbs in the, 269
Tulip growing, early tract on, 31
Tulips, 271; Darwin, 263
Turton, Mr. T., retirement of, 30

U

UGANDA, MYSTERY PLANTS OF, 36
United Horticultural Benefit and Provident Society: 42, 111, 167, 221, 293; treasurership of, 86
United States of America: import regulations, concessions in, 43; tree planting in the, 282
Usk Priory, Monmouthshire, 147

V

VANDA TRICOLOR INSIGNIS, 90
Vegetable garden, 26, 54, 80, 123, 138, 150, 176, 203, 190, 212, 232, 248, 262, 276, 290, 322, 355
Veitch Memorial medal, 197
Veitch, Mr. H. Morgan, 58
Verbascum Miss Willmott, 52, 132
Veronica salicifolia, 9; V. Traherne, 132
Veronicas, hybrid, 67
Vicia herbacea, 157
Victoria, settlement scheme for, 207
Vines, grafting, 111
Viola Alannah, 299
Violas, 354
Viscaria, 258

W

WAGES, GARDENERS', 151, 166, 203, 232, 263, 291, 323, 340, 356
Wallace, Alfred Russel, Memorial to, 360
Ward, Mr. F. Kingdon: return of, from the East, 155, seventh expedition in Asia, 22, 50, 71, 80, 107, 134, 162, 186, 214, 246, 300, 350
Waterfield, Mr. A., gallantry of, 2
Watsonias, hybrid, 285
Weather forecasts: 57, 313
Weeds, destruction of, by spraying, 240
Welsh garden, notes from a, 6, 230, 286
Wenman, Mr. W., retirement of, 85
Wheat, 329; and nitrogen fixation, 127
Whitton, Mr. James, retirement of, 239, 314
Wilde, M. Henri de, 194
Wilks, the late Rev. W., 127, 155, 239
Winter of 1922-3, the, 225
Wireless lectures on gardening, 232
Wiseman, the late Mr. Wm., 72
Wisley: notes from, 19, 121, 163, 211, 297, 363; trials at, 44, 156, 331
Witches' broom on Silver Fir, 11
Wood and carpentry at Luxor, 263
Woolly aphis, immunity of Apple stocks to, 267
Worms, climbing, 212
Wright, the late Mr. S. T., 3; Memorial Fund, 114

Y

YAMS, THE HARDY 54, 190
Year 1922, the, 1

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LIST OF ILLUSTRATIONS.

A

ACHILLEA ARGENTEA, 183; A. Kellereri, 291
Aethionema iberideum, 195
Aggett, Mr. W. H., portrait of, 254
Angraecum mirabile, 17
Annual flowers exhibited by Messrs. Sutton and Sons at Chelsea, 315
Anthemis cupaniana, 7
Apples: Ball's Pippin, 67; Lord Hindlip, 165
Ash, canker of, 146
Astilbe chinensis var. pumila, 51
Auton, Mr. W., portrait of, 86
Azalea Albert-Elizabeth, adjudged the best new plant at the Ghent show, 211

B

BANANA, John White's drawing of the, 200
Barker, Mr. J. T., portrait of, 4
Bedford, Mr. Arthur, portrait of, 156
Benbow, Mr. Joseph, portrait of, 268
Black Currant, Bourdichon's figures of the, 92
British horticulturists at the grave of Belgium's unknown soldier, 224
Buddleia asiatica, 48
Bunyard Memorial Medal for fruits 367

C

CABBAGE, SKUNK; at Cambridge Botanic Garden, 199; fruit of the, 338; section through a fruit of, showing embedded seeds, 339
Camellia Jupiter, 93
Campanula calcicola, 320
Carnation Eileen Low, 297
Ceropegia Brownii, the home of, 36
Chiang-ka River, the, 350
Chrysanthemums: as grown for market, 3; Mrs. Jack Pearson, 65; W. H. Lincoln, 6
Clianthus puniceus albus flowering in the open in a Devon garden, 61
Clivias, Sir Geo. Holford's Gold Medal exhibit of, 163
Coutts, Mr. J., portrait of, 4
Crocus biflorus, 103; C. Sieberi, 73; C. versicolor, 105
Crombie, Mr. David, portrait of, 360
Currant, Black, Bourdichon's figures of the, 92
Cuttings rooted in acidic media, relative growth of, 244, 245
Cymbidium Merlin, Westonbirt var., 213
Cypripedium Chrysostom var. Amy Moore, 35
Cypripediums, a group of a large-flowered strain of, 133
Cytisus Dorothy Walpole, 269

D

DAFFODIL BULB, life cycle of a "broody," 66
Damyon, the cupola-shaped, snow-capped peak of, with Conifer forests in the foreground, 300
Decaisnea Fargesii, fruits of, 161
Durian: a tree bearing fruit, 259; fruits of the, 259

E

ENTEBBE BOTANIC GARDENS, view in the, 289
Erodium cheilanthifolium, 131
Eucalyptus haemastoma, 187
Eucharis grandiflora, well-flowered plants of, 231

F

FIR, SILVER, swelling caused by the Witches' Broom fungus on, 11
Fruit exhibit at the Stafford Fruit Show, 95
Fruits, a fine exhibit of dessert, 25

G

GALT, MR. ALEX. S., portrait of, 16
Gentiana Hopei, 323
Ghent show: plan of the British section, 217; the King and Queen of the Belgians at the opening ceremony, 216; views of the, 215, 235, 236
Gill, Mr. Richard, portrait of, 182
Globularia incanescens, 75
Grapes, a fine crop of, 81

H

HARTLESS, MR. A. J., portrait of, 4
Hay, Mr. John, portrait of the late, 84
Heracleum giganteum, 52
Hillier, Mr. J. Masters, portrait of, 296
Hydrangea Parsifal exhibited at the Chelsea show by Mr. H. J. Jones, 305

I

INCARVILLEA BEES' PINK, 318
Iris and water garden exhibited at Chelsea Show by Messrs. J. Carter and Co., 317
Iris Douglasiana var. Merton, 271; I. germanica, by an early sixteenth-century artist, 8; I. Marjorie Tinley, 361; I. Thundercloud 349
Irrawaddy river, the head-waters of the, 278
Irving, Mr. Walter, portrait of, 330

J

JEFFERSONIA DUBIA, 130
Jones, Mr. H. J., portrait of, 30

L

LAKE EMBANKMENT IN ROATH PARK, Cardiff, with formal flower beds, 117
Lambourne, the Rt. Hon. Lord, portrait of, 208
Lilacs, Rabel's illustration of, 336
Lilium auratum var. platyphyllum, 33; L. Davidii, 78; L. Davidii, as reconstructed by Mons. Faquet from the type specimen, 79; L. Duchartrei, creeping stem of, 77; L. Stewartianum, 275; L. Tenii, 274; L. Thayerae, now considered to be L. Davidii, 79
Lily garden exhibited at the Chelsea Show by Messrs. R. Wallace and Co., 307
Lily, Rabel's illustration of a red, 337
Linum arboreum, a fine clump of, 209
Lowe, Mr. Joseph, portrait of, 100

M

McBEAN, Mr. A. A., portrait of, 142
M'Hattie, John W., portrait of the late, 252
Magnolia Kobus var. borealis, 301
Marguerite, bed of the double yellow-flowered, 145
Matthews, Mr. C. M., portrait of, 2
Matthews, Mr. Edward, portrait of, 346
Messenger, Mr. W., portrait of, 5
Muli monastery, on a limestone plateau east of the Yangtze, 277

N

NARCISSUS BRIMSTONE, 225; N. Opera, 257; N. Prince Umbria, 189

O

ODELL, MR. JOHN W., PORTRAIT OF, 170
Odontioda Naomi, 272
Odontoglossum crispo-Solon var. Carmania, 321
Odontonia Baroness Schröder, 107; O. Olivia, as exhibited at the Chelsea Show, 302
Oncidium splendidum holoxanthum, 111
Orchid exhibit, part of Messrs. J. & A. McBean's, at the Chelsea show, 303
Osteomeles anthyllidifolia, 335
Oxalis enneaphylla, 109

P

PAEONIA EMODI FORMA, 365
Page, Mr. W. H., portrait of, 72
Papaver silvestris, from a painting by Jacques Le Moyne de Morgues, 149
Pear, prolification of, 19
Pear tree: grafted on Pyrus salicifolia, 38; grafted on the free stock, 39
Pentactina rupicola, 331
Perry, Mr. Amos, portrait of, 44
Pettigrew, Mr. A. A., portrait of, 114,
Pieris taiwanensis, seedling plants of, 63
Pineapple, John White's drawing of the, 201
Polystichum aculeatum var. gracillimum Cranfield, 137
Potato plant, the earliest known portrait of the, 260
Primula calciphila, 101; P. c. at home on the limestone cliffs in the Ichang Gorge, 241; P. chrysopa, 319; P. Delavayii, 333; P. denticulata, 173; P. erythrocarpa, 261; P. Inayatii in the rock garden at Glasnevin, 121; P. malacoides, 91; P. m., a new round-flowered form of, 203; P. sinensis, The Pearl, 91; P. stellata var. Giant White, 87
Psilotum triquetrum in the Cambridge Botanic Garden, 363
Pulmonaria angustifolia azurea, 122
Pynaert, Mr. Charles, portrait of, 282
Pyracantha Gibbsii, 23
Pyrus salicifolia, Pear tree grafted on, 38; P. Scheideckeri, 185; P. toringoides, fruiting branch of, 89

R

RABEL'S ILLUSTRATION OF LILACS, 336; of a red Lily, 337
Ranunculus glacialis, 157
Rhododendron bullatum, 243; R. insigne, 351; R. obtusum album, 227; R. Pink Shell, 325; R. phoeniceum var. Tebotan, 255; R. praeteritum, 143; R. praevernum, 159; R. strigillosum, 135; R. sutchuenense, 171
Roath Park, Cardiff: group of succulent plants in the conservatory, 115; lake embankment in, with formal flower-beds, 117; students' garden in, 119
Rock gardens at the Chelsea Show, 303, 306, 308
Roses: Capt. F. S. Harvey Cant, 299; David Lloyd George, as grown under glass for market, 273; Deception, 247; Mrs. Tresham Gilbey, 347; La France growing in Central Africa, 288
Rubber trees, a plantation of, 228; suitable for tapping, 229
Rubus biflorus var. quinqueflorus, 22; R. robustus, 50
Rudbeckia pinnata, 21

S

SALT WELLS AT TSA-KA-LO on the Mekong river, 277
Sander Memorial cup offered for the best new plant at Ghent, 210
Sanguinaria canadensis var. multiplex, 283
Saxifraga Kellereri, 47; S. longifolia, 353
Schinus Molle, fruiting branches of, 37
Sciadopitys verticillata, cones of, 59
Sisyrinchium filifolium, 129
Solanum capsicastrum, fruiting branches of, 287
Sophronitis Lowii, 45
Spring garden arranged by Messrs. J. Carter and Co., at Olympia, 151
Stone, the base of which is the only known habitat of Ceropegia Brownii, 36
Students' garden in Roath Park, Cardiff, 119
Succulent plants in the conservatory, Roath Park, Cardiff, 115
Symplocarpus foetidus, 338, 339; at Cambridge Botanic Garden, 199

T

THATCHER, MR. R. W., portrait of, 5
"The Orchard and the Garden": last page of, 106; title-page of, 106
Thladiantha, tubers of, 53
Trachycarpus excelsa at Usk Priory, Monmouthshire, 147
Tree: a typical swamp-forest, stilt-rooted, 174; buttressed tropical, broken by a storm, 175
Trillium undulatum, 249
Tulips: an old Dutch implement used for transplanting, 31; Darwin, in the formal garden at Mountain House, Chepstow, 263
Turner, Mr. C., portrait of, 4

U

USK PRIORY, MONMOUTHSHIRE, Trachycarpus excelsa at, 147

V

VEITCH MEMORIAL MEDAL, 197
Veitch, Mr. Harry Morgan, portrait of, 58
Veronica salicifolia, 9

W

WATSONIAS IN THE MELBOURNE Botanic Gardens, new hybrid, 285
Whitton, Mr. James, portrait of, 314
Wilde, M. H. de, portrait of, 194
Wilks, Rev. W., portrait of the late, 128

SUPPLEMENTARY COLOURED ILLUSTRATIONS.

Begonia Haageana (January 6)
Nepenthes mixta (March 3)
Nerine Bowdenii (June 2)

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BEGONIA HAAGEANA.

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THE
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CONTENTS.

Agricultural tribunal of investigation 3
Apple room, the 13
Begonia Haageana ... 1
Cannon Hill Park, Birmingham 8
Caustic fruit wash ... 13
Christmas flowers at Pyrford Court ... 2
Chrysanthemums: do they deteriorate? 7
Cultural memoranda—
Planting climbing plants 5
Strawberries 5
Events of the past year 1
Foreign correspondence—
Distinguishing the sex of Ginkgo biloba ... 10
Earliest hybrids of Gladiolus primulinus... 10
Gardening, some effects of the war on ... 12
"Gardeners' Chronicle" seventy-five years ago 3
Ghent Quinquennial Exhibition 2
Hardy flower border... 7
Anthemis cupaniana... 7
Campanulas 7
Hogg and florists' flowers 6
Indoor plants—
Allamanda 5
Forcing plants... ... 5
Ken Wood 2
National Rose Society's annual meeting ... 2
Orchids in 1922 10
Painters, early botanic... 8
Park official, gallantry of a 2
Raspberry stem bud moth 11
Sander memorial prize at the forthcoming Ghent show 2
Shrubs for the seaside, grey-leaved 12
Societies—
Manchester and North of England Orchid ... 13
Royal Horticultural of Ireland 13
Town Planning 2
Trees and shrubs—
Pernettya 9
Teucrium fruticans ... 9
The Sea Buckthorn ... 9
Veronica salicifolia ... 9
Week's work, the ... 4
Welsh garden, notes from a 6
Witches' broom on Silver Fir 11
Wright, Mr S. T., the... late 3

ILLUSTRATIONS.

Anthemis Cupaniana 7
Parker, Mr. J. T., portrait of 4
Chrysanthemum W. H. Lincoln: a finely-flowered plant of 6: a house of 3
Corbett, Mr. John, portrait of 4
Fir, Silver, swelling on caused by the witches' broom fungus 11
Hartless, Mr. A. J., portrait of 4
Iris germanica, a painting of, by an early sixteenth-century artist 8
Messenger, Mr. W., portrait of 5
Thatcher, Mr. R. W. portrait of 5
Turner, Mr. C., portrait of 5
Veronica salicifolia, a fine bush of 9

COLOURED SUPPLEMENTARY ILLUSTRATION: Begonia Haageana.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 38.2°.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 3, 10 a.m. Bar. 30.2; temp., 46°. Weather—Sunny.

1922. Gardeners may look back with pleasure on the year that has just ended, for the results in gardens have been surprisingly good, and the satisfaction is the greater in that the wholesale losses of trees, shrubs and other plants which were expected to follow the unprecedented heat and drought of the previous year did not materialise. This was owing to the dull, sunless summer and autumn of 1922, and instead of trouble, we had one of the best garden years on record, for not only were crops of all kinds fully equal to the normal, and in many cases above the average, but we enjoyed the beauty of many plants which fructify only on rare occasions in our temperate climate. The prolific flowering and fruiting of plants of all kinds was common everywhere in Great Britain, due to the extraordinary degree with which the growth was ripened in the previous season, and those who attach great importance to the ripening of plants and the need for thin training in order that this may be brought about by sunshine and air, have had their contention fully justified. Perhaps the greatest surprise was the great wealth of all kinds of out-door fruits, for it is only on very rare occasions that fruitful years follow in succession; whilst the Apple harvest of 1921 was almost a record, that of 1922 was but little below it, and the large number of strong, healthy fruit buds betoken another excellent fruit year in 1923. Although the fruit crops were so good, the flavour of hardy fruits generally was very deficient, and this was especially noticeable in the case of Pears, which seem to require plenty of warm sunshine to develop their finest qualities. The decision of the Royal Horticultural Society, in conjunction with the Ministry of Agriculture, to undertake trials of varieties of fruits especially suited for commercial purposes is of interest to all fruit growers, and it is to be hoped that some of the meritorious varieties which are known to exist in isolated gardens and orchards will find their way to Wisley and have their merits tested in comparison with what may be termed standard sorts. Novelties amongst fruits have been shown fairly extensively at the R.H.S. meetings, but the standard required is a very high one, and few of them showed sufficient merit to warrant the recognition of an award. Messrs. T. Rivers and Sons received an Award of Merit for a distinct, new, early Cherry, of the Governor Wood type, but without the defect of splitting, which the old variety is very prone to. Apart from this, the only other fruits to receive awards from the R.H.S. were Apples John Standish, Laxton's Pearmain, Peter Lock, and Joybells. Perhaps the greatest fruit novelty of the year was a new Grape named Ecclesdon Manor, said to have been raised from the pip of a white Grape some thirty years ago. If this seedling Grape fulfils its promise, it should prove to be a valuable addition, and especially for growing in unheated vineries and conservatories. The crops of the kitchen garden may perhaps be classed as the outstanding ones of the year. Whilst in the winter of 1921 there was almost a famine in vegetables, and in green vegetables especially, gardens everywhere this winter are filled with winter greens, and the root crops have been amongst the best on record, the Potato yield surpassing that of any other since 1886, when returns were first collected, being more than one ton per acre above the average of the ten years 1912-1921. In some cases vegetables grew so large as to be coarse—Beets, for example—the great amount of growth being favoured by the dull, moist summer. The flower garden has yielded equally good results as the fruit and vegetable garden, and this has been reflected in the numerous exhibitions up and down the country. Roses were especially fine, and the Rose season was one of the longest on record. All the exhibitions of the National Rose Society were very successful, as were those of other floricultural societies, including the British Carnation Society, National Dahlia Society, the National Sweet Pea Society and the National Chrysanthemum Society. The show of the last-named Society was one of the best ever held under its auspices, and those competent to judge were of the opinion that finer blooms have never been shown at any Chrysanthemum exhibition than those exhibited on November 16 and 17 in the Horticultural Hall, Westminster. The large provincial shows, including those at Shrewsbury and York, have almost regained their pre-war importance, whilst the Centenary Exhibition of the Glasgow International Exhibition attracted exhibitors from all parts of the Kingdom, as well as a few from abroad. The Royal Horticultural Society held a full programme of meetings, all of which were unusually successful. The Chelsea Show was, as usual, the finest of the year, while the innovation of combining the fruit and vegetable exhibitions, together with autumn flowers, in one large show at Holland Park Hall was justified by the results; indeed, it was one of the most successful autumn exhibitions the Society has ever held. The fortnightly meetings at Vincent Square attracted large numbers of new plants, and many fine novelties received awards; the displays of Orchids were of exceptional merit, as will be gathered from Mr. O'Brien's summary on p. 10 of the Orchids shown during the year. The Manchester and North of England Orchid Society also enjoyed a most successful season, and its exhibitions continue to attract some of the finest novelties of raisers, as well as important groups.

Conferences on Irises were held at Vincent Square and at Paris, and, in connection with these conferences, Iris specialists exhibited largely and well, so that this flower received great prominence in the past year. In view of the difficulty of recognising the affinities of modern Irises and classifying them in their sections, Mr. Chittenden at the R.H.S. conference drew up a scheme for classifying the tall, bearded Irises according to their colours, for the special purpose of helping amateurs to arrange Irises in their gardens. The conferences organised by the R.H.S. have constituted some of the best work accomplished by the Society; the Conifer Conference, the Fruit Conference and the Primula Conference—to mention only a few—all added very materially to our knowledge of these subjects. The results of the several plant-collecting expeditions in China in recent years are beginning to be seen in the many new Chinese species which receive awards from time to time; the interesting narrative from Mr. F. Kingdon Ward, describing his latest expedition in China, which is being published in these pages, shows that that vast empire contains still further treasures for the garden. The year that has closed has robbed us by death of several prominent horticulturists, including Mr. H. J. Elwes, whose striking personality will be greatly missed, a gentleman who enriched our gardens with many choice plants, and was a valued contributor to the literary side of both horticulture and forestry; Professor Sir Isaac Bayley-Balfour, the eminent keeper of the Edinburgh Botanic Garden, whose knowledge of plants and their cultivation was most extensive; Mr. S. T. Wright, the capable superintendent of the R.H.S. Gardens; Mr. Hugh Dickson, the raiser of many excellent Roses; Mr. W. Iceton, one of the most successful florists of the period, and Mr. R. Lewis Castle, a brilliant writer and author on gardening, as well as a clever craftsman.

Our Coloured Supplementary Illustration.—With this first issue of *The Gardeners' Chronicle* for 1923 we present our readers with a supplementary, full page, coloured illustration of Begonia Haageana. This interesting and useful Begonia, though introduced to cultivation some time previous to 1887, is neither known so well nor cultivated so freely as its merits deserve. In a warm house, and under generous treatment, fine specimens of this handsome species may be grown to a large size. The big clusters of large white flowers are usually so heavy that unless supported the stems are apt to break, and in any case they assume a semi-pendulous position. But the beauty of the plant is not confined to its flowers; the large leaves are deep red on the underside, and reddish green above, while stems, peduncles and pedicels are all red and abundantly supplied with reddish hairs, some of the latter even appearing on the back of the sepals. The history of this species is no less interesting than the plant itself. In the *Bot. Mag.*, tab. 7,028, Begonia Haageana is figured and described under the title of B. Scharffii., and the statement is made that the plant was introduced by Miss (?) Haage and Schmidt "from the Peninsula of Destierro, in the Island of St. Catherine, South Brazil, and it is possibly a native of the Sierra de Catherina in the interior of the province of that name. It is one of the most magnificent species of the genus. The Royal Gardens are indebted to the

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importers for the plant from which our figure was taken. It flowered for the first time in September, 1887, producing female flowers; these were followed in October by male flowers and female buds, and in November again by another crop of male flowers." These remarks indicate the free-flowering habit of B. Haageana, but its season of floral beauty may be extended almost indefinitely by rooting cuttings at various seasons of the year and by giving some plants cooler treatment than others. Adverting to its history, however, we find this set forth in *Gard. Chron.* of October 5, 1889, p. 388, as follows :—"Begonia Scharffiana and B. Haageana.—These two plants have been confused with each other. They have both been in flower at Kew, are perfectly distinct, and the names for each have been decided as follows :—In 1887 Messrs. Haage and Schmidt sent three kinds of Begonia to Kew for name, and they appear to have sent them also to Dr. Regel for the same purpose. These Begonias have been introduced from Brazil by Dr. Scharff, and Mr. Haage, of Messrs. Haage and Schmidt, desired that one of them should bear his name. The plant selected for this compliment at Kew, however, was not the same as Dr. Regel had chosen, but as his description of B. Scharffiana was published before that of B. Scharffii appeared in the *Bot. Mag.*, Dr. Regel's name must stand. B. Scharffiana of Regel is described in *Garten Flora*, 1888, p. 127. It has large, fleshy leaves, black-green above, crimson beneath, and covered with hairs; the stipules are very large, and the flowers are clustered on long, drooping peduncles. This is the plant which Messrs. Laing and Sons have distributed as B. Scharffiana. B. Haageana of Kew is the plant figured in *Bot. Mag.* under the name of B. Scharffii. It was exhibited under the former name at one of the meetings of the Horticultural Society in July, 1887. It is one of the very finest of the evergreen, flowering Begonias, and is certain to become a popular garden plant. A third plant received along with the above has the habit of B. Scharffiana, but it has smaller leaves and flowers, and is a much less ornamental plant. It is called B. Scharffiana var. minor."

Our Almanac for 1923.—We propose to publish the *Gardeners' Chronicle* Almanac for the year 1923 with our issue of January 13. In order to make it as useful as possible for reference, we shall be obliged if secretaries of horticultural, botanical and allied societies, or any of our correspondents, will send us by first post on Monday, January 8, the dates of exhibitions and meetings for the coming year.

Christmas Flowers at Pyrford Court.—Writing under date of December 28, 1922, Mr. W. Auton, gardener to Lord Elveden, Pyrford Court, Woking, informs us that although the mean temperature during November and December was comparatively low at Pyrford, growth continued and prolonged the flowering period of many late-flowering plants. At the same time many spring-flowering subjects opened their blooms considerably in advance of their normal season. The following list of garden plants noted in flower out of doors on Christmas Day is interesting, representing, as it does, almost every season of the year: Achillea tomentosa, Armeria canescens, Ajuga alpina, Andromeda floribunda, Anemone coronaria var., Arabis albida, Arbutus Andrachne, Aubrietia deltoidea, Calendula vulgaris, Campanula garganica, Chimonanthus fragrans, Choisya ternata, Cheiranthus Cheiri, Daphne Blagayana, D. Mezereum, Dianthus fragrans, Eranthis hyemalis, Erica codonodes, E. arborea, E. mediterranea, Fragaria collina, Grevillea rosmarinifolia, Hamamelis virginica, Helleborus niger, Iberis gibraltarica, Ionopsidium acaule, Iris unguicularis, Jasminum nudiflorum, Kniphofia aloides, Lithospermum prostratum, Lupinus polyphyllus, Potentilla alpestris, Primula japonica, Prunus subhirtella, Pyrus japonica, Romneya Coulteri, Rosmarinus officinalis, Spiraea Thunbergii, and Viburnum Tinus. Antirrhinums, Chrysanthemums, Daisies, Primroses, Polyanthuses, Stocks, Pansies, Violas, and Roses in variety were also in flower, while numerous varieties of native plants were found flowering out of their usual season.

Mr. C. M. Matthews.—The Council of the Chamber of Horticulture was fortunate when, in 1920, it needed a new secretary and was able to secure the services of Major C. M. Matthews. Although his previous experience was more agricultural than horticultural, his training fitted him for his new post. During his period of office Mr. Matthews has not had an easy time, as post-war conditions made the conduct of commercial horticultural activities extremely difficult. Government regulations, railway freightage, labour rates, imports and exports, and many other matters had to be considered in connection with Government departments and other authorities, consequently the activities of the Chamber of Horticulture and its affiliated associations were considerable. Moreover, the Chamber was taking over new offices in Bedford Square, so Mr. Matthews came into office at a very busy and critical time. Those who are acquainted with his work know that he has fulfilled his duties in a quiet and thorough manner to the great advantage of commercial horticulture. When seventeen years of age Mr. Matthews entered the office of Lord Winchelsea's National Agricultural Union,

MR. C. M. MATTHEWS.

where for about six years he was engaged in the organisation of the branches of the Union and in arranging conferences in all parts of the country. Later, when the Union was absorbed into the Agricultural Organisation Society, Mr. Matthews left London and started farming on his own account. In 1908 he became secretary of the East Kent Conservative Association, and acted as political agent to the Rt. Hon. A. Akers Douglas, and thus he gained a wide knowledge of parliamentary matters and experience as a public speaker, all of which have been of advantage in the work of the Chamber of Horticulture. As an organiser Mr. Matthews possesses unusual ability, and at the outbreak of war he was given a commission in the army; because of his knowledge of agricultural and railway matters he was attached to the Forage Department of the War Office. Later, he was promoted to the post of District Purchasing Officer for supplies in Lincolnshire, and eventually received the rank of major.

Government Inquiry as to Prices.—The Departmental Committee appointed by the Government to inquire into the methods of selling and distributing agricultural, horticultural and dairy produce, will meet on January 10, and with a view to making arrangements as to witnesses and evidence the Chamber of Horticulture convened a conference of all sectional interests. The organisations sending representatives to this conference were the Federation of British Growers, National Farmers' Union, Lea Valley Growers, British Glasshouse Produce Marketing Association, North-West Kent Growers, Spalding and District Growers, and the Chamber of Horticulture.

Gallantry of a Park Official.—The King has approved of the award of a medal of the Order of the British Empire to Mr. A. Waterfield, one of the keepers of Richmond Park. In April last he captured two men who were in possession of firearms. He saw them near the Robin Hood Gate and chased them, and, as he drew close to them, one fired at him, but he wrenched the gun from the man and captured them both. One of the men proved to be a housebreaker and was sent to a Borstal institution.

Kew Gardeners' Social Gathering.—The young gardeners at Kew have arranged a social evening for the 19th inst., at 7 p.m., in St. John's Hall, Richmond. The programme includes a whist drive and dance, and refreshments will be provided. The Secretary, Mr. A. Birkinshaw, Royal Gardens, Kew, will be pleased to hear from old Kewites wishing to attend.

Appointment at Kew.—Mr. Gerald Atkinson has been appointed by the Ministry of Agriculture, as from September 11, 1922, artist in the Herbarium at Kew, in succession to Mr. A. Kellett. Mr. Atkinson received his training at the School of Arts, Hull.

National Rose Society's Annual Meeting.—The forty-sixth Annual General Meeting of the members of the National Rose Society, which is to be held at Caxton Hall, Westminster, at 2.30 p.m. on Tuesday, January 16, will be of special interest, because, in addition to the ordinary general business, the Treasurer, Mr. Preston-Hillary, will give notice of motion "That the Council be instructed to take the necessary steps with a view to obtaining, if possible, a Royal Charter of Incorporation." Members of the society are cordially invited to tea and light refreshments after the meeting, and after tea Mr. E. J. Holland will give a short lecture on "Scented Roses."

Ken Wood.—The Ken Wood Preservation Council has completed the purchase of one hundred acres of the Ken Wood Estate, adjoining Hampstead Heath and near to Parliament Hill Fields. The purchase price is £1,350 per acre, and the whole of the money has been raised by voluntary subscription. The land has been temporarily vested in three trustees, but steps are being taken to transfer the ownership to the London County Council at the earliest possible date. The land to be actually transferred to the Council will be from ninety to ninety-five acres; the small area remaining will be sold as garden or as park land, and will not be built on. No part of the woodlands has been acquired, but a desire has been expressed that they shall be secured as a bird sanctuary.

Sander Memorial Prize for the Best New Plant at Ghent in 1923.—With the New Year more rapid progress is being made with arrangements for the Great Quinquennial Exhibition of the Société Royale d'Agriculture et de Botanique de Gand, to be held at Ghent from April 14 to April 22, 1923. Among the special prizes offered for competition is one in memory of the late Mr. H. Frederick Sander, the famous Orchid specialist, of St. Albans and Bruges. This is a silver cup of the value of one thousand francs, presented by Messrs. Sanders, sons of Mr. H. F. Sander, to be offered for the best new plant, flowering or non-flowering, not yet in commerce, and not yet having been shown at any Ghent Quinquennial Exhibition.

Town Planning.—As town planning is a subject of great importance and interest at the present time, and especially to garden lovers who desire to see every town and city in the enjoyment of ample open spaces and public and private gardens, the lecture on "Zoning in the Control of Large Cities," which Mr. F. W. Hunt is to give at the Surveyors' Institute, Great George Street, Westminster, on Monday, January 8, at 8 p.m., should be well attended.

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A Gardener's Jubilee of Service.—Mr. Charles Herman, an employee in the gardens of Earl Temple, at Newton Park, near Bath, has just completed 50 years' service without having been once late. In honour of the event, the Earl and Countess of Temple have presented Mr. Herman with a clock inscribed as follows:—"Presented to Charles Herman by Earl and Countess Temple on the completion of 50 years' service in the Newton Park Gardens, January 1, 1923." Lord Temple, addressing the recipient, said: "This shows a fine record of faithful service; and in these times of unrest is a splendid example of the mutual esteem, loyalty, and affection which exists between masters and their employees." The Earl added that two other employees on the estate would shortly reach their jubilee of service.

Agricultural Tribunal of Investigation.—The Prime Minister has appointed a Tribunal of Investigation into the agricultural problem in accordance with the undertaking given by him in the debate on the Address in the House of Commons. The Tribunal will consist of the following economists, viz.:—Sir William Ashley, Professor of Commerce and Vice-Principal of the University of Birmingham; Professor W. G. S. Adams, Gladstone Professor of Political Theory and Institutions, Oxford; and Professor D. H. MacGregor, Drummond Professor of Political Economy, Oxford. Mr. C. S. Orwin, Director of the Institute for Research in Agricultural Economics at Oxford, has been appointed Agricultural Assessor to the Tribunal, and Mr. D. B. Toye, of the Ministry of Agriculture and Fisheries, will act as secretary.

Appointment for the Ensuing Week.—Wednesday, January 10.—East Anglian Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years ago.—*Horticultural Society's Garden, Turnham Green.* The Orchid house here looks well, even at this season, the increased size and health of the plants speaking favourably of the comparatively cool and dry treatment to which they have been, and are, of course, still subjected. Several of them were in bloom, among which were plants on blocks of Epidendrum Skinneri, whose beautiful purple flowers, being produced nearly all the year round, render it one of the most desirable of all Orchids for small collections. Phalaenopsis amabilis, which is scarcely behind it in the abundance and duration of its blooming, was also displaying its glorious blossoms. It may not be known to all that of this there are two varieties—one much smaller flowered than the other, a fact amateurs should bear in mind when making purchases. In the same collection were also in bloom the white lipped Odontoglossum Bictoniense, the West Indian Brassavola nodosa, the pretty little orange-flowered Sophronitis cernua, Cypripedium insigne, and C. barbatum. It may, perhaps, be worth mentioning in regard to the latter that in the same sheath from which one of the flowers proceeded, another flower-bud had formed, which looked as if it would expand and succeed its predecessor. The immense mass of Laelia superbiens in the large stove will again soon be in bloom. It has flower spikes on it, each from four to five feet in length. It is expected that it will this time realise all that has been said of it. Aechmea discolor, Vriesia psittacina, and other plants nearly related to the Pine-apple were in flower. This is a class of plants to which cultivators in general have not hitherto paid sufficient attention, their season of blooming, bright colours, and length of time they remain in beauty being desiderata not to be overlooked. Justicia flavicoma, also a useful plant at this season, especially on account of its colour, was in flower; and in the same house was a new plant named Saricographis Ghiesbrechtiana, perhaps better known by the nursery name of Aphelandra Ghiesbrechtiana. It looks as if it would be a useful winter-flowering plant, producing little spikes of bright red blossoms from the axils of the leaves, which, being of a deep green, set them off to good advantage. Various other winter flowers, as Euphorbia jacquiniflora, Gesnera zebrina, etc., were also in blossom. *Gard. Chron., January* 1, 1848.

THE LATE MR. S. T. WRIGHT.

WITH characteristic generosity, the Council of the Royal Horticultural Society have subscribed £100 toward the fund which, on their initiative, is being raised to commemorate the late Mr. S. T. Wright's long and devoted services to horticulture and to the Society, and to provide much needed assistance to his widow. The subscriptions to the fund already received by the Royal Horticultural Society, and set forth in the accompanying list, amount to nearly £170, and there can be little doubt but that the late Mr. S. T. Wright's many friends who have not already subscribed to the fund will be glad to begin the New Year by adding contributions which will both testify to their enduring regard for the man, and their appreciation of the services which he rendered both as Superintendent of the Gardens at Wisley, and as supervisor for many years of the arrangements for the Society's exhibitions at Temple Gardens, Holland Park, and Chelsea, and the fortnightly shows. There are few among those who have enjoyed the Society's exhibitions who are not aware how much Mr. Wright's imperturbable urbanity contributed to their success, and there is no one who visited Wisley during Mr. Wright's tenure of office there whose visit was not made the more enjoyable and memorable by his pleasant chaperonage. To walk round the garden with Mr. Wright was a liberal education. He knew every plant and loved them all with a paternal discrimination. Few men have had a larger opportunity of helping professional and amateur gardeners, and none has availed himself more fully of that opportunity. Mr. Wright's work in the service of the Society extended over many years, both at Chiswick and at Wisley. Although a frugal man, it was not in his power to make full provision for his widow and children. We believe that, thanks to the pension scheme inaugurated by the Royal Horticultural Society, and thanks to savings made by Mr. Wright, some provision is already made for Mrs. Wright, but nevertheless, the fact remains that without further assistance life will be made very difficult for her. It is the hope of her husband's colleagues and friends that Mrs. Wright may be relieved of all financial cares, and they believe confidently that all that is needed to secure this end is to bring the knowledge that help is needed to all sections of the horticultural community.

The following subscriptions have been received for the fund that is being raised to help the widow of the late Mr. S. T. Wright. It is hoped that a sufficient amount will be subscribed by Fellows of the Society and others who wish to mark their appreciation of Mr. Wright's services to enable an annuity to be purchased for Mrs. Wright. Subscriptions should be sent to the Secretary, Royal Horticultural Society, Vincent Square, Westminster.

	£	s.	d.
The Royal Horticultural Society ...	100	0	0
Mr. C. Bewes	1	0	0
Lady Airedale	1	1	0
Mr. G. James		5	0
Mr. Birkenshaw	1	1	0
Messrs. Pulham and Sons	1	1	0
Mr. A. J. Cheverton		3	0
Mr. S. Morris	1	1	0
Mr. R. H. Crockford		10	0
Mr. G. Abbey		5	0
Messrs. Dobbie and Co., Ltd. ...	5	0	0
Mr. G. Carpenter		10	0
Lady Stanley	1	0	0
Sir Stuart Samuel	3	3	0
Mr. A. D. Cotton		10	0
Mr. J. Bray	1	1	0
Mr. H. K. Rutherford	1	1	0
Mr. T. Coomber	1	1	0
Mr. T. Lewis		5	0
Messrs. Robert Veitch and Son ...	2	2	0
Mr. E. Marsden-Jones		10	0
Mr. C. R. Fielder		10	0
Sir Harry Veitch	5	0	0
Messrs. Spooner and Son	2	2	0
Mr. T. E. Henwood		5	0
Mr. J. Rees		10	0
Mr. Wm. Smith	2	0	0
Mr. W. C. Slocock	1	1	0
Major Churcher	3	0	0
Messrs. W. Richardson and Co. ...	1	1	0
Mr. H. N. Ellison	1	1	0
Mr. G. Reuthe	1	1	0
Mr. G. S. Manvell	1	0	0
Sir Frederick Moore	1	1	0
Mr. and Mrs. Michael Stephens ...	21	0	0
Mrs. Edmunds	5	5	0
Dr. J. Aarons	1	1	0

FIG. 1.—CHRYSANTHEMUM W. H. LINCOLN, AS GROWN FOR MARKET (see p. 6).

Publications Received.—*The Circling Hours*, and other poems. By Arthur William Smith. M. H. Bradshaw, 146, High Street, Harborne, Stafford. *The Journal of Pomology and Horticultural Science.*—Vol. III., No. 1. Edited by Edward A. Bunyard. Published quarterly by Headley Bros., 18, Devonshire Street, Bishopsgate, E.C.2. Annual subscription 15s., post free. *A Summer in Greenland.* By A. C. Seward. Cambridge University Press, Fetter Lane, E.C.4 Price 7s net.

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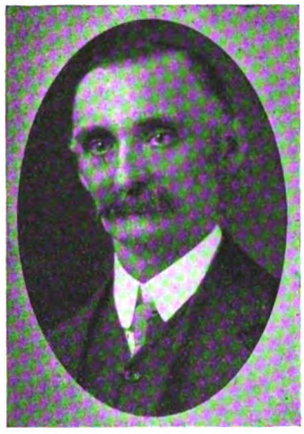
The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Foreword.—Cleanliness being one of the greatest aids to good cultivation, the houses should receive a thorough cleansing during the early weeks of the present month. The glass, woodwork and walls should be washed thoroughly with strong soapy water and special care should be taken to remove, so far as possible, the green slimy matter between the laps of glass, as it obscures the light and often causes drip. At the same time it is advisable to thoroughly cleanse the plants before the busy potting season, as dirty, infested plants cannot thrive, and often a plant badly infested with any particular insect pest succumbs. As everything depends upon the conditions provided for the different species and hybrids which go to make up present-day collections of either warm, cool, or intermediate house Orchids, too much care and attention cannot be given in maintaining the most suitable conditions of warmth, air, and moisture. At this season, when work is not pressing, it is advisable to prepare a stock of the various fibres, peat, and Sphagnum moss, also to wash pots, pans, and crocks. Oak or Beech leaves should be collected, prepared, and stored in a dry and well-ventilated place. Blinds should be overhauled, those requiring repairs attended to, and any that need to be renewed secured at an early date.



Temperatures.—The following day temperatures should be maintained in the respective houses:—East Indian or warm house, 65° to 70°; Cattleya or intermediate house, 60° to 65°; Odontoglossum or cool house, 55° to 60°. Where large numbers of Orchids are grown, a house or two is usually kept a few degrees higher than normal for the accommodation of some particular plants; but for general purposes the different temperatures given will answer all purposes. No effort should be made to hasten the plants into growth by maintaining a high temperature, and I am convinced that many Orchids will succeed even in a lower temperature than is usually employed. Plants grown in high temperatures during the winter are more liable to receive a check through a sudden fall of the temperature during a very cold night than plants grown under cooler conditions. With the cooler conditions, the atmosphere should be maintained in a drier condition, and no harm will accrue from a considerable fall in temperature during extremely cold weather, provided the atmosphere is dry and the temperature does not remain at a low degree for too long a period. Where the raising of seedlings is attempted, fluctuation of temperatures must be prevented, as a steady, growing atmosphere is necessary at all times. A most important detail in the management of Orchid houses is that the lowest reading of the thermometer in the houses during the twenty-four hours should be in the early morning, with a gradual rise until mid-day, and then a gradual reduction in warmth until the night temperatures are reached. Fire heat may be economised where lathe blinds are used by letting them down at night, or by putting coverings of the different materials supplied for the purpose on the glass, but these should always be removed as soon as possible in the morning, as it is essential that the plants should receive all the light possible at this dull season.

Ventilation.—Plenty of fresh air is necessary for keeping the atmosphere of the different houses in a sweet, healthy condition. Always keep one or more of the ventilators open, if only for an inch or so, as even exotic plants need plenty of pure air. In the admission of air to the houses, care must be taken that draughts are not caused, as these are most injurious. Too much care cannot be observed in providing suitable conditions for plants under glass, especially during the dull, short days of winter, as without proper attention to these details success will not be attained.

THE HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Foreword.—With the New Year fruit-growers have made their notes from last year's experience, including those on the growth, fruiting and behaviour of various hardy fruits under their charge. Apple and Pear trees were never so free of fungous and insect pests, nor have they borne such luxuriant foliage as in the past year. Mildew was rather persistent on Apple Cox's Orange Pippin. Most fruit trees show good promise of fruiting freely in the coming season.

Planting.—Advantage should be taken of open weather and before the ground becomes very cold to complete the work of planting. All trees should be planted as shallowly as possible. The bottom of the hole should be well firmed with a rammer, and especially for Apples on the Paradise stock. For stone fruits lightly fork up the sub-soil if the ground is in any degree pasty, then spread the roots carefully, cutting back any that may be damaged. Wall trees should be planted about 6 inches from the wall not only to allow for expansion of the stem, but also for the roots to be set in a moist medium. Where the water level is high or the soil heavy, the trees will grow more successfully and the fruits colour better, especially in the case of Apple Cox's Orange Pippin, if they are raised 6 inches above the general ground level. In these gardens large trees growing in ground over an uncongenial sub-soil became cankered; they were lifted and raised rather more than 6 inches, with the result that although some of the large roots of a number of trees show above the surface, all the trees now yield better crops, and are freer from diseases and insect pests. If planted during winter fruit trees should be well mulched with straw litter to favour root action as much as possible before very severe weather sets in.

Bush Fruits.—Proceed with the pruning of bush fruits, but where birds are troublesome and Gooseberry bushes have to be tied up or treated with washes, the pruning of these may be deferred until later. All "big buds" should be removed from Black Currant bushes and burned.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Introductory Remarks.—It is generally conceded that cleanliness is all important in the successful cultivation of plants. If not already done, no time should be lost in putting the houses in order for the coming season. As light at this time is all important, the roof glass and side lights should be thoroughly washed. In the neighbourhood of London and other large towns, it is necessary to wash the roof glass outside on frequent occasions. The material on stages and benches, such as shingle and cinders, has an important effect on the health of the plants, therefore old, sour material should be removed and fresh clean material substituted. Where pea gravel is used, it should be washed and returned to the stage. All propagating cases should be cleaned and, if necessary, the old plunging material removed, and fresh substituted, first thoroughly spraying all parts of the cases with carbolic acid, using four ounces of acid to three gallons of water. All walls should be limewashed, using fresh lime for the purpose; to every three gallons of limewash add one pound of flowers of sulphur. Clean pots should be prepared, and a supply of loam, leaf-mould, and sand placed under cover.

The Seed Order.—The list of seeds required should be prepared and sent to the seedsman in good time. A few specimens of any new plants that it is proposed to grow under trial should also be obtained; it is well to try a few new plants each season, either from seeds or cuttings.

Climbers.—When the glasshouses are being cleansed it is a good opportunity to take down all climbers and prune or thin them as required. After cleansing them thoroughly they should be secured in position again; where mealy bug is present the wires should be rubbed with a rag soaked in paraffin.

Annuals in Pots.—Annuals are largely grown in most gardens for decorative work, and the seed is usually sown during September, the plants wintered in frames or cool greenhouses. Where this has not been done, good results may be obtained by sowing at this time. Schizanthus, Clarkias, Godetias, annual Chrysanthemums and Mignonette are all favourite subjects, but there are many others which will be noted in due course. Statice Suworowii is a beautiful decorative indoor plant, and it is surprising it is not more generally grown. This also may be raised from seed sown now.

Gesnera cardinalis.—The tubers of this plant should be started into growth. They may be laid out in boxes containing leaf-mould, or potted direct into small pots, using light, rich soil. Very little water is needed until the plants have started into growth, and made a quantity of roots. They will grow well in a temperature of 55° to 60°, and when in flower may be stood in the greenhouse. This plant is easily raised from seeds; if the latter are sown now the plants, if well grown, will flower during the autumn.

Forcing Plants.—Continue to place fresh batches of plants for forcing in a warm house in sufficient quantities to meet the requirements of the establishment.

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THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Planning the Summer Display.—Even at this early date it is not too soon to consider the summer bedding scheme, for however small a garden may be some forethought must be given as to what shall occupy the beds and borders during the ensuing year, while for large gardens it is very necessary, if shortage of stock and consequent failure are to be avoided. Having decided what material will be used the particular seeds should be ordered forthwith, as it will be necessary to sow certain kinds shortly. Any shortage in the supply of plants raised from cuttings should be ascertained, and steps taken to make up the required number. Bottom heat is needed for rooting cuttings at this time of year, and where there is no propagating case heated with pipes recourse must be made to a hotbed of leaves and strawy manure. Zonal Pelargoniums, Lobelias, Verbenas, Fuchsias, Iresines and Coleus should all be increased from cuttings where the stocks are deficient at this period of the year.

Autumn-sown Sweet Peas.—A row of Sweet Peas in these gardens sown during the first half of October includes sturdy specimens of 2 inches growth. If bad weather sets in the soil will be slightly ridged on both sides of the row as a means of protection. We grow this row in the kitchen garden because the plants are safer from wood pigeons than they would be in the flower garden during winter. The yield of flowers from this sowing is considerably earlier than from the first sown spring plants, and the blooms are useful for augmenting the few outdoor flowers then available.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Melons.—To obtain early Melons, a few seeds of good early varieties may be sown this month. Melon seeds may be sown singly or in pairs, in small pots filled with fresh fibrous loam, to which a little sand has been added. Insert the seeds upright, with the broad end upwards—this is a detail which should not be overlooked, as it reduces the number of deformed seedlings to a minimum. Place the pots in a propagating box or pit furnished with bottom heat, that will maintain a temperature of 70° to 75°. If sown in moderately moist soil no water will be required until the seedlings appear, when they should be removed to a position in full exposure to sunlight. Early Melons can only be produced in efficiently heated houses or pits, which should be thoroughly cleansed before introducing the hot-bed materials. A good supply of fermenting material should be prepared in readiness to make up the hotbed when required. If the soil to be used is stacked out of doors it is advisable to place it under cover forthwith. I have for many years used a compost consisting of sandy clay with a liberal addition of old plaster rubble and wood ash. To produce extra early fruits it is preferable to grow the plants in 12-inch or 14-inch pots; these should be stood on inverted pots, and the plunging material placed around them. Ample drainage should be provided, as the plants will require a considerable amount of water during the growing season. The day temperature should range from 70° to 85°, with sun-heat; the night temperature should be about 65°, according to the weather.

Strawberries.—The majority of growers start their first batch of pot Strawberries in the New Year. They may be grown on a shelf in a recently started Peach house, or, where brick pits are available, the plants may be placed over a bed of fermenting leaves, the gentle warmth of which will stimulate the roots into activity and prevent an early attack of red spider. Prior to introducing the plants indoors remove all dead and decaying foliage, and, if necessary, make the soil firm round the sides of the pots. It is also necessary to inspect the drainage hole, which occasionally becomes blocked, and thus prevents the free passage of water. In the early stages of forcing the plants require careful watering; an excess of moisture at the roots is most harmful. Later, when growth becomes active, an abundance of water will be necessary.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

The Seed Order.—The seed catalogues for 1923 should be gone through, the necessary items ticked off, and the order dispatched forthwith. Varieties that are suited to the neighbourhood should be mainly relied on, and a few of the newer sorts tried for comparison. When the seeds arrive, place them in separate compartments to be readily accessible when required, and, above all, keep them in a dry place.

Protection of Crops.—We may now expect cold weather, and it will be wise to have protecting materials ready to hand. Long stable litter and Bracken Fern are useful for covering Celery, Globe Artichokes and Broccoli. In cold districts Broccoli should be laid with the heads to the north. To do this, take out a spit of soil on the north side of the plants, bend them over, and replace the soil behind them, packing it firmly around the stem, and then cover the plant closely with the litter. Celery and Artichokes should only be covered in very severe weather, as they will withstand a certain amount of frost. The covering should be removed immediately the weather turns mild.

Onions and Leeks.—To obtain large specimens of these vegetables the seed should be sown now in well-drained boxes in light friable soil, and placed in a warm house to germinate. Slightly cover the seeds and water the soil with a fine rose can, placing a sheet of glass and paper over the seed pan to conserve the moisture.

CULTURAL MEMORANDA.

PLANTING CLIMBING PLANTS.

THIS season of the year offers a good opportunity for planting climbers in the positions where they are to be grown on. Where they are set at the foot of a wall, care should be taken to make sure that there is sufficient good soil for the young plant to make free growth. If any doubt exists on this matter, excavate a large hole, and fill it with fresh soil, also when planting, place around the roots some rich compost such as old potting soil. There are many beautiful plants that make fine subjects when trained up poles in shrubberies, some are evergreen, others deciduous, but all are worthy their positions: Clematis of various sorts, Holboellia, Akebia quinata, Honeysuckles, especially Lonicera tragophylla, L. ciliosa, and L. sempervirens; Periploca graeca; various Vines, especially some of the beautiful species from China and Japan, such as Vitis Coignetiae, V. pulchra, and V. Thunbergii, which are splendid for this form of decoration, and to these may be added the various climbing Roses. For furnishing walls there are many very interesting plants that may be employed; some are suitable for furnishing very high walls, such as species of Vitis, many of which are self clinging; the Ivies (Hedera) with their pretty variegated foliage; Solanum jasminoides, Berberidopsis corallina (suitable for a north or east wall); Clematis, including C. montana and its varieties, and C. nutans. Others suitable for low walls are the Loniceras, Garrya, Hydrangea quercifolium, Billardieras, Actinidias, Celastrus, Lardizabala, Smilax, Ceanothus and Escallonia. Many climbing subjects are exceedingly useful for clambering over tree trunks, and old tree roots. For such purposes the common Honeysuckle, Lonicera Periclymenum, L. Henryi, Celastrus, and Clematis, such as C. montana, and C. tangutica, are all suitable. *E. Beckett.*

STRAWBERRIES.

EARLY plants of Strawberries in very small pots will soon be sending up their flower trusses, and when they approach the flowering stage they should be moved to the lightest and most airy part of the house, as being the most favourable to the setting of the fruit. Fresh air from the time they are introduced until the fruit begins to swell is imperative, and yet a certain amount of warmth must be maintained. Watering throughout the early stages is a very important matter, for much as the Strawberry likes root-moisture and resents drought, serious mischief may be the outcome of giving the roots too much moisture when the plants are in flower. *H. M.*

INDOOR PLANTS.

ALLAMANDA.

THE current season's shoots of this beautiful stove or intermediate house plant may now be pruned to within three or four buds. For the next few weeks keep the roots comparatively dry, to allow the plants a rest before again starting them into growth.

FORCING PLANTS.

IN gardens where flowers are required in quantity during the winter, timely arrangements should be made to produce them. Early potted bulbs of Roman and Dutch Hyacinths and early varieties of Narcissi should be stood near the roof glass for a few days before finally placing them in the forcing pit. Early varieties of Tulips may also be included if they are sufficiently advanced, but unless Tulips are required specially early these should not be submitted to hard forcing. Large specimens of Lilac, Viburnum, Wistaria, Laburnum, and Azalea mollis may be placed in a vinery that is just being started, and removed later to the flowering house. Clumps of Spiraea astilboides floribunda may be placed in gentle warmth; but the forcing of this plant should be done gradually. *P.*

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NOTES FROM A WELSH GARDEN.

ONE of the greatest charms of the hardy Heaths is that a fairly representative collection will provide flowers from January to December. Last year we were certainly favoured with a remarkably mild autumn, which in part accounted for the late flowering of several varieties. But even in a normal season we may always count upon a good show of Erica ciliaris and E. stricta right up to Christmas, and, as often as not, there will be a goodly number of the big white globes on St. Dabeoc's Heath (Daboecia polifolia alba), as well. Before these have passed out of bloom, the winter-flowering series opens with E. darleyensis, to be followed closely by E. carnea and E. mediterranea. The first of these and the white form of E. carnea had several sprays fully expanded on December 21 last. But, quite apart from the bright colours afforded by these plants, the foliage of a grouping of Heaths is always a charming feature of a winter garden.

Arbutus Menziesii is another subject which is never more appealing than in the depth of winter. This species sheds its old bark so much more completely than others of the same genus that, instead of lingering in a shabby, peeling condition, the stem and branches are transformed in a few weeks to a uniform nut-brown, so clean and smooth that they look as if they had been sand-papered. In contrast to this, the leaves, much larger than those of A. Unedo, are a strikingly vivid and burnished green. A. Menziesii must, however, give place to the better-known species in the size and colour of its fruit.

Two Conifers which never fail to arrest attention just now are Cryptomeria japonica and Cupressus macrocarpa, var. aurea. Both are exceptionally elegant in habit, and the pale grass-green of the one, with its ruddy stems, and the gold of the feathery plumes of the other are very comforting in a wintry landscape. Neither of these has ever been injured in our winters, and they have had to endure over 20° of frost. C. japonica, var. elegans, however, is very unreliable, dislikes cold wind, and is in every way a less desirable tree than the type. The latter, indeed, is probably much hardier than is generally supposed.

My last remark might also be applied to Lithospermum rosmarinifolium. This splendid species has been in bloom since early November, and at Christmas was covered with its large blue flowers, some of them with seven petals and nearly as big as a shilling, whilst in purity and depth the colour left nothing to be desired. The fine and glossy green of the foliage affords a good setting for the blossoms, and a well-grown plant, filling the spaces between some rugged lumps of limestone or other rock, is irrestibly charming. That this species enjoys lime there can be no doubt. It also likes a stony root-run. Though we are some miles from the sea, and not infrequently suffer the loss of other half-hardy South European plants, this Lithospermum has never given any trouble.

The gayest spot in the rock-garden for a long while has been a clump of Viola gracilis, var. Lady Crisp. Other allied varieties, notably Perry's Yellow, bloomed until unusually late, but when winter arrived Lady Crisp was as vigorous as ever, and, unless something very unusual in the way of weather comes along, it looks as though the patch of clear, blue-lavender blossoms would continue until the days are lengthening.

Two little Sedums which are more interesting in winter than at any other season are S. brevifolium Pottsii and S. amplexicaule. It is now that the white mealiness which covers the stems and leaf bases of the former—a tiny thing about one inch in height—assumes that cold glacier-blue tint which makes this plant so delightful a companion to the moss and lichen of some hoary rock in whose barren chinks it will readily grow. As for the other, S. amplexicaule, it wraps its verdure in a sheath of straw-coloured thatch and pretends to be dead when summer is here, opening only the golden flowers which look so big for such a mite. But when autumn comes it throws off the mask and breaks into little tufts of leafage, which are extremely dainty, a pure emerald green, and in this dress it sees the winter through.

Another rock-garden subject which appears at its best in winter, provided the rain is not too excessive, is Achillea Kelleri. This is a very lovely plant, which makes a tuft of many long and graceful, narrow leaves, so finely cut and so silvery that they look like pieces of the finest filigree work. Like many other grey or white-leaved plants, A. Kelleri becomes greener in summer, but it bears a head of white flowers at that season, more worthy than that of many of its clan. *A. T. Johnson, Talycafn, N. Wales.*

FIG. 2.—A FINELY-FLOWERED PLANT OF CHRYSANTHEMUM W. H. LINCOLN.

DO CHRYSANTHEMUMS DETERIORATE?

AMONG growers of Chrysanthemums one often hears the remark that a certain variety has deteriorated to such an extent that it is no longer worth cultivating. Such a remark is made regarding various florists' flowers, but especially in regard to Chrysanthemums, and when it is repeated often enough there are those who believe it is true. Raisers of new varieties may regard such observations as good news, for without some encouragement in the form of orders they would not find the raising of new varieties profitable. There is a tendency on the part of certain people to put their faith in a new variety (rather than an old one), even before it has been fully tested; the writer knows full well that there is a large amount of pleasure to be derived from growing novelties, but where it is a matter of business such a policy is not wholly to be recommended.

Readers must not infer from these remarks that new varieties should not have a trial; far from it. They should be tried, as it is only by comparison that their true value can be estimated, and one season's trial is not sufficient. Even an expert grower may be misled the first season, so that any variety which promises some distinct advance over an older one should be tried again and again until correct methods of cultivation and favourable seasons bring out its real merit; then the time is ripe for growing it in quantity.

In looking through a list of varieties of Chrysanthemums suitable for late blooming, a grower is apt to be impressed by the number of varieties that have been in existence for quite a long time, as to-day some of them more than hold their own in popular estimation for market purposes. The most noticeable varieties are Tuxedo, Framfield Pink, W. H. Lincoln, and White and Yellow Thompson. The writer cannot state quite how long these varieties have been in existence, but it is a fact that two or three of them have been grown for more than thirty years. This goes far to controvert a too general statement that varieties deteriorate or degenerate. Is it not a matter of more care in the treatment and selection of stock, coupled with a thorough knowledge of the requirements of each variety?

No variety—old or new—can or will put up with slipshod methods of propagation and cultivation over a series of seasons without showing signs of declining; in such cases it is not the fault of the variety, but of the methods employed.

In passing it may not be out of place to add that new varieties also suffer at the outset (particularly those that show great promise) by over propagation, and some two or three seasons are needed to eliminate or overcome the weakening tendency caused by excessive propagation.

Raisers and distributers would be well advised to hold a first-class variety sufficiently long to enable them to meet all demands by means of healthy root cuttings rather than spoil its chances of ultimate popularity by sending out plants that have been robbed of half their vitality by over propagation. Weak plants can never do justice to the variety, however good, and thus it is handicapped at the start. The accompanying illustrations (Figs. 1 and 2) show how at least one of the old varieties—W. H. Lincoln—is still grown extensively, and does well; the single plant was photographed just before Christmas, 1922, and the house a fortnight earlier. *Grower.*

HOGG AND FLORISTS' FLOWERS.

I AM glad that Mr. Brotherston (p. 268, vol. LXXII.) has called readers' attention to Thomas Hogg and his book about florists' flowers. There is no doubt he was a chatty writer, and his numerous asides or deviations from his subject are often humorous and interesting. I would like to add two, also taken from the second or 1822 edition of his Treatise. When discussing the merits and demerits of the Dutch mode of gardening on pages 102 to 105, and of beauty in masses—a matter on which I am one with the old schoolmaster—he says: "Mrs Siddons, the celebrated tragic actress, is a great admirer of this mode of planting." "Her favourite flower was the Viola Amoena, the Pansy, or Common Purple Heart's-ease, and this she set with unsparing profusion all round her garden." As I visualise it, it was all evergreens. "Box, Fir, Privet, Phillyrea, Arbor Vitae, Holly, Cypress, the Red Cedar, Laurel, Irish Ivy, Bay-tree, etc., etc.," with practically all the borders filled with her favourite purple Pansy. It did not appeal to Hogg, who writes: "The only period of the year in which it could be viewed with any degree of satisfaction was the winter." After all there is something rather fascinating in the idea of the great tragedienne surrounding herself with a garden, one in spirit with herself. Wheatley (*Observations on Modern Gardening*, 1770) would have been hard put to it to suggest a more characteristic surrounding. The second point of interest occurs on pages 252-253. Writing about the Dahlia, he states: "It is now generally treated as an annual by sowing the seed in March." I do not know why the practice died out, but I rather fancy that until the last ten or twenty years the gardens in

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which seedling Dahlias were raised every year were few and far between. This must suffice for the Treatise. I now come to the supplement which Mr. Brotherston does not mention. It is a scarce book—dated 1833. When it was written the author had been obliged to entirely give up "gerund-grinding" after being at the task for thirty years, for reasons of health, and he and his two sons were flower growers and dealers pure and simple. In the preface he paints the years 1831 and 1832 as being very black from a nurseryman's point of view. "The agitation produced by the discussion of the Reform Bill seemed to have diverted men's minds from the ordinary occupations of life; . . . few or no ornamental shrubs, plants or flowers were required to embellish the conservatory, the greenhouse, or garden as before; to add to the evil hardly any nurserymen's bills were paid, and their credit suffered accordingly." He suffered himself. Sixty persons, "noble and ignoble," failed in their engagements with him. China Asters were a new flower—they were introduced to commerce about 1829. The method of keeping pollen in glass tubes, discovered by a Mr. Lemon, a nurseryman and florist near Paris, was urged upon the attention of those who wished to raise new varieties. It "will retain its virtue for some weeks."

Dwarf Dahlias were being raised from seed and the culture of Heart's-ease was beginning to be taken up by nurserymen; Hogg himself had a fine collection. Reference is made to Queen Adelaide's love of florists' flowers, and her collection of Carnations at Windsor, some of which our author supplied. She was very fond of Tulips, and when Duchess of Clarence, he says, Lawrence's bed of Tulips at Hampton was a particular point of attraction.

If at the time of publishing the second edition of his Treatise Hogg did not take, as Mr. Brotherston suggests, as much interest in the Tulip as in the Carnation, it was no longer the case when the Supplement appeared in 1833. In this work there are 208 pages, and of these 112 are devoted to the Tulip, and he grew himself at least one hundred varieties. If he had not Fanny Kemble, he had Lady Crewe (a rose) and Polyphemus (a bizarre) amongst them. Many pages are devoted to "breaking." Not only does it seem to have been a difficult matter to get breeders to "break" in mania days, but even when Hogg was forming his collection about 200 years afterwards, it was no easy matter to insure it. It is well worth while anyone, who is interested in this flower, reading all that is said on the subject. Suggestions, likely and unlikely, are put forward as its cause, but none was satisfactory. We have not found out the secret to-day. In my opinion constant moving from garden to garden is as likely a cause as any; and if growers of Darwin Tulips have to bemoan their flowers breaking, when it is the last thing in the world that they want them to do, it goes a long way to strengthen my surmise, for Tulips to-day move about more frequently, more easily, and less expensively than when they first bewitched the flower-loving gardeners of Western Europe, or even when some of them found a lodging in our florist's garden at Paddington. The name of Clark, of Croydon, looms large, as well it should. When I think of him I think of James Douglas, Parson Horner, and other great florists of our own times. They may have been his equal, but cannot have been his superior. I like his simple honesty when he writes, on his sending some Breeder Tulips to Mr. Hogg in 1822: "I would not have you, or your sons, expect that I have sent you my very best; although I believe them to be such as will make very fine flowers." I am sure they would Among my most cherished Tulip possessions are some original paintings of some of Clark's broken breeders, taken from life. Considering the time of their appearance, their delicate feathering, and the purity of their ground colouring, are wonderful. Again may I express my thanks to Mr. Brotherston for his calling attention to Thomas Hogg, "gerund-grinder," writer and dealer in florists' flowers. His little books are delightful and instructive reading for all who care to delve into a past age of gardening. *Joseph Jacob.*

HARDY FLOWER BORDER.

ANTHEMIS CUPANIANA.

THERE are many good garden flowers which the majority of gardeners—amateur and professional alike—know little or nothing about. Anthemis cupaniana appears to be one of these. It is not, however, a rare plant. It is frequently offered in trade catalogues, and may occasionally be seen in certain private gardens, especially in those whose owners take a real interest in plants. Yet it is somewhat puzzling to understand the comparative neglect of Anthemis cupaniana. It has been called by one of our keenest and often most caustic critics of flowers "a treasure." With such commendation applied by one who was no mean judge, it is hardly necessary to expatiate upon the claims of this plant. It is practically hardy everywhere. It will grow well in either sun or shade, though I consider that it has a preference for sun. It does not object to light soil or heavy soil, although it succeeds best in light, well-drained land. I have occasionally lost old plants, though but rarely, and it was easy to replace these, either from

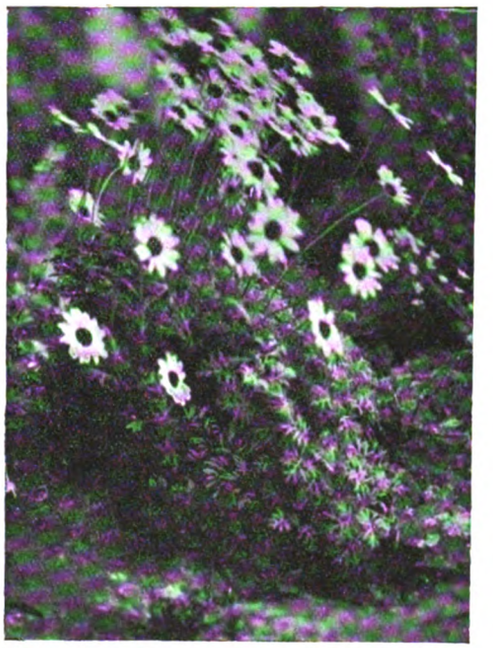

FIG. 3.—ANTHEMIS CUPANIANA.

self-sown seedlings or from cuttings, which root with the greatest of freedom in sandy soil under glass, either in the open air, under a cloche, bell-glass, or other shelter, or in a cool or cold house in pots well surfaced with sand. The old-fashioned method of making the cuttings with a heel answers well, but is not essential.

This Anthemis forms a rather loose, yet neat plant of slightly trailing habit, when of good size, composed of many branches fully furnished with charmingly cut, silvery leaves, and of a pleasing aromatic odour. Then it produces for many months, often from May and June until December, if severe frost keeps away, a host of fair-sized, single, pure white, Chrysanthemum-like flowers, useful if needed for cutting, and making a delightful harmony with the silvery foliage. An old plant may be a yard across if desired, but it can be kept to any smaller size required by clipping it back in spring or after the flowering is over. Seeds are sometimes procurable, but a stock is soon raised from cuttings if a single plant is secured to begin with. Anthemis cupaniana is a native of South Europe. *S. Arnott.*

CAMPANULAS.

CAMPANULAS include some of the most beautiful hardy herbaceous perennials for gardens, and it would be most difficult to convey an adequate idea of their wonderfully varied beauty. Their colours range from snow-white through the most delicate shades of lavender to dark blue and purple. They are of very easy cultivation, growing well either in sunny or partially shaded positions. The taller varieties are admirably suited for the herbaceous or shrubbery borders, and the dwarf forms are charming on the rockery, or for planting on the edge of the herbaceous border, in deeply trenched, moisture-holding soil. During the early summer the various forms of Campanula persicifolia, the Peach-leaved Bell-flower, are most beautiful; indeed, no section in this widely-varied group is better suited for general cultivation by those who desire a good display of flowers, more especially the large-flowered form known as Backhousei. This beautiful Campanula has large, handsome snow-white flowers, developed on stout stems 2 feet to 3 feet high from June to September. The variety Moerheimii has most beautiful semi-double pure white flowers, borne on stout spikes. The spikes are fine for use as cut blooms. The variety Coupe d'Azure has also semi-double flowers, and is very beautiful; the blooms are a pretty shade of lavender-blue, and borne on stiff, erect stems. The variety humosa is distinct from the above, with its semi-double lavender-blue flowers; it is a good border plant, flowering from June to August.

All the above make charming plants for pot culture in a cool greenhouse. They need only a little fire heat, and if lifted in fair-sized clumps and potted grow freely, opening their pretty, bell-shaped flowers with freedom.

Another most distinct and valuable Bell flower is C. persicifolia coronata alba, with cup and saucer shaped flowers. The corolla is encircled with a collar-like appendage near the base, which adds materially to the whiteness of the flowers. The variety coronata is also useful as a border plant. It has blue flowers and is free blooming, the spikes appearing from June onwards. This variety grows about 2½ feet tall.

Campanula grandis (syn. latiloba), Perry's variety, is a vast improvement on the type, having tall, stout stems bearing light blue flowers. It is in bloom from May to July, and grows 3½ feet tall.

C. grandis alba, a pretty white form, is fine for massing or grouping.

C. lactiflora (syn. celtidifolia) is one of the most beautiful Bell-flowers. The plant is of robust habit, producing its flowers on numerous stout stems from 3½ feet to 4½ feet tall. With its side branches it forms a pyramid of soft lavender-blue powers from June to August.

C. lactiflora alba magnifica is similar in habit and structure to the last, but has pure white flowers.

C. latifolia alba is splendid for planting in the foreground of the shrubbery border. It bears tall spikes, with pendulous, long, white bells. The variety macrantha has erect stems 3 feet high bearing long, deep purple flowers.

C pyramidalis, the Chimney Bell-flower, is the most conspicuous of all Campanulas, and grows from 4 feet to 6 feet high. The massive flower stalks are well furnished with beautiful bell-shaped flowers from July until October. The plant is especially adapted for pot culture for conservatory decoration; the numerous handsome pyramidal spikes crowded with large, salver-like, blue or white flowers are exceedingly effective.

Campanula Medium, the Canterbury Bell, is a most valuable biennial species, of which there are numerous forms and varieties. This plant is one of the freest flowering of all the species and is most valuable for the summer decoration of the garden. The seed may be sown thinly in April in the open border or in pans and boxes under glass. As the plant is a biennial, it should be transplanted in a shady border, well watered and allowed to make good growth.

Other Campanulas suitable for planting in close proximity to the shrubbery border are C. glomerata superba, which bears clustered heads of violet-blue flowers: C. alliariaefolia, that bears graceful sprays of creamy-white flowers on stems 2 feet tall; and C. bononiensis, that has tall, slender spikes of pale blue flowers; also its variety alba, which is splendid for grouping in the mixed border, and grows to a height of 2½ feet to 3 feet. *W. Logan.*

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EARLY BOTANIC PAINTERS.—No. 1.

DURING a recent visit to the ancient town of Poitiers I was able, by the courtesy of Monsieur E. Ginot, Conservator of the Bibliothèque municipale, to examine an interesting old manuscript by an unknown botanic painter, and to obtain some photographs of it. Entered in the catalogue of MSS. as No. 154, *Recueil de plantes à la gouache, avec légendes français et rubriques*, it has several features of more than passing interest. In the first place, although not distinguished either for fine drawing or colouring, it is nevertheless remarkable as an early example of the Florilegium, i.e., a collection of plant depictions with little or no text—a type of botanic illustration that became more common in the early decades of the seventeenth century. Secondly, this MS. is a striking example of the ancient manner of painting entirely in body-colour, and of accentuating the forms by definite coloured outlines of a darker tint than the parts they enclose—a method so ancient that it was used by the ancient Egyptian painters. The same technique was also employed by the painter of the earliest-known codex of Dioscorides (VI. century), as may be clearly seen in the splendid facsimile of that MS. The Poitiers MS. is therefore intimately allied, as regards its technique, to some of the most ancient plant-paintings known.

The late Dr. E. T. Hamy, who in 1898 wrote a short memoir on this MS. in *Bull Mus. Hist. Nat., Paris*, iv., pp. 158-161, was of opinion that it belonged to the first half of the sixteenth century. The type of botanic illustration found in it, however, shows a great affinity to that of the printed *Herbarius*, 1484, and *Ortus Sanitatis*, 1491; and the illustrations in these printed herbals are presumed, on good grounds, to have been copied from MSS. of earlier dates. Nevertheless, as Dr. Hamy has pointed out, the Poitiers MS. is undoubtedly a copy of an older MS., as the inscriptions contain faults such as would be made by one who failed to decipher fully the text he was copying. Taking everything into consideration, it seems most likely that the MS. was painted about 1500, before rather than after.

The plants painted on both sides of the fifty quarto-size leaves of rather coarse vellum comprising this MS., amounting in all to one hundred and eleven subjects, are, with the exception of two introduced plants, those common to the neighbourhood of Poitiers. Some are frankly diagrammatic, yet have traces of a feeling for natural form, whilst others show a considerable amount of naturalism, which leads one to presume that even if the painter did not work direct from nature, he was well acquainted with many of the plants he depicted. The painting reproduced here (Fig. 4) shows Iris germanica, and is typical of the more natural examples in this MS. The name "Flay" is no doubt a local form of "Flambe," the old French name for the Iris. Some of the effects obtained by this method of working entirely in body-colour are most striking, and it is surprising how well the smaller details in flowers are sometimes indicated.

The introduction of a humble-bee walking along a leaf in one of the paintings is a detail of some interest. This, the only insect depicted, is quite creditably painted; and it marks this MS. as a forerunner of those more elaborate MSS. and engraved books, with their wealth of fine insect depiction, which were the product of the ensuing century. Another point of interest is that one plant-figure is accompanied by an enlarged study of the fruit, a method of illustration much in vogue later on.

The inscriptions in this MS., written in old French characters in the fine, rubricating ink

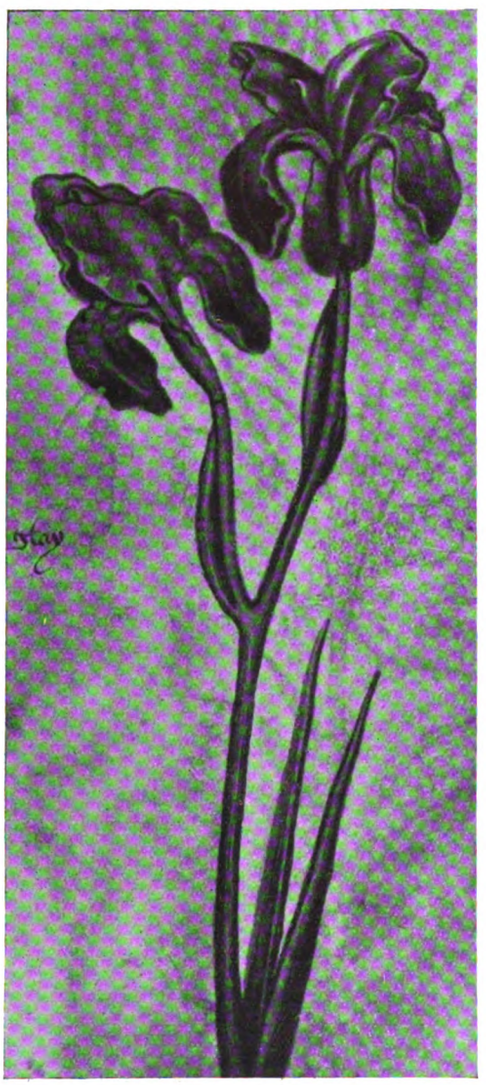

FIG. 4.—IRIS GERMANICA, BY AN EARLY SIXTEENTH-CENTURY ARTIST.

that never seems to fade, comprise the names of the plants, in some cases the medicinal qualities, and in others even the habitats. A few glosses in black ink in a later cursive hand have been added.

The Bibliothèque Municipale acquired this MS. in 1818 from the heirs of the Benedictine D. Mazet. Its origin may possibly be monastic, though there is no evidence to show this. As yet, its plant designs have not been traced to any early printed herbal. They are perhaps the survival of a local botanic tradition of considerable antiquity, harking back to the early period of the Middle Ages.

More than a century later, another Poitevin figures as a botanic painter. Jean Le Roy, Sieur de la Boissière, was the painter of a Florilegium at present preserved in the Muséum d'Histoire Naturelle, Paris, and was of an ancient Poitevin family, one of his ancestors being mayor of Poitiers in 1293. This MS. of his consists of forty-four leaves of strong vellum, 40 x 30 cm., and has on its second leaf an elaborate frontispiece, which includes a Latin dedication to Thomas Garnier, apothecary of Poitiers, dated 1610. The painter evidently presented this MS. to Garnier as a friendly offering, and it appears that he did so at an advanced age, as his dedication mentions his trembling hand. He also calls his MS. a Florilegium, although its contents are of a somewhat varied character, for three landscapes are included, and several birds! His flowers are sometimes decorated with insects, and here as in several other MSS., a preference is shown for certain species, such as the Emperor Moth and strikingly decorative Butterflies. More than forty kinds of Tulips are included, unhappily without names. A magnificent orange-red Martagon Lily, known as the Lily of Constantinople, many species of Fritillaria, Iris, Crocus, Hyacinth, Narcissus—and, in fact, most of the flowers then in garden cultivation, are well depicted in his pages. One page shows six different double varieties of Carnation, a flower cultivated in France with the greatest zeal in the early years of the seventeenth century.

The technique used by this painter was that of a mixture of water-colour wash and body-colour, a method that had become common in his day. The execution is somewhat unequal, due no doubt to the trembling hand of the aged painter. This MS. has suffered considerably from damp, and must have fallen upon evil days at some time between its possession by Thomas Garnier and its purchase for a moderate sum from a clockmaker in Paris by its present preservers. Further details concerning this MS. will be found in Dr. E. T. Hamy's memoir in the *Nouvelles Archives du Muséum, Paris*, ser. 4, iii., pp. 1-20

By a comparison between these two MSS., we are enabled to gauge in some measure the progress in plant painting that had been made in about one century. In the Poitiers MS. we find traditional plant figures allied to a traditional technique of great antiquity, and in Le Roy's MS. a close adherence to natural forms and colours, combined with a more enlightened technique. Further, whilst on the one hand the plants have been chosen for their medicinal qualities, on the other hand we find an abundance of garden plants, many of which were unknown to the earlier painter, and eloquent of the great progress made in horticulture. *S. Savage.*

CANNON HILL PARK, BIRMINGHAM.

THE citizens of Birmingham are fortunate in possessing a large number of fine parks within easy reach of the centre of the city. The writer has had the pleasure of visiting Cannon Hill Park on several occasions during the past season. This beautiful park is within two miles of New Street Railway Station, and from thence can be reached by tram in twenty minutes.

From an arboreal point of view, there are few public parks in the United Kingdom so well favoured. Large Elms, Oaks, Beeches, Chestnuts, and Hawthorns abound, giving a fine rural effect to a well-laid-out park. Special mention may be made of the Hawthorns and Pyruses, which are numerous and in great variety in this park. Isolated specimens on many of the lawns are magnificent, both in size and in the rich colour of flowers and fruits. Several very fine specimens of the Willow-leaved Pear, Pyrus salicifolia pendula, growing on the lawns near the main entrance, give a splendid effect in spring, with their wealth of bloom and silvery foliage.

The arboretum proper is of recent formation, and provides a very interesting feature. It contains Conifers in great variety, interspersed with deciduous and evergreen flowering shrubs, which provide a rich display from early spring to late autumn.

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Contiguous with the arboretum is the students' garden, where large numbers of plots are filled with British plants, arranged according to their natural orders, for the benefit of the botanist and the student.

Spring and summer bedding is practised on an extensive scale, and very fine effects were produced last season by the free use of standard Heliotropes, Paul Crampel Pelargoniums, Abutilon Thompsonii, Fuchsias, and Centaurea Cineraria (syn. candidissima) over a groundwork of dwarf Paul Crampel Pelargoniums and yellow Violas, the whole relieved with the feathery green foliage of Artemisia sacrorium viridis and Acacia dealbata. Two of the most beautiful beds I saw during the past season were in this park planted with large standards of Pelargonium Clorinda over Fuchsia Dr. Wileman and Gladiolus Niagara, with a groundwork of Verona Pelargonium interspersed with variegated Grasses, the whole producing a charming colour effect in pink.

Carpet bedding is still practised in the Birmingham Parks, and, judging by the crowds of visitors who flock round the large "carpet" at Cannon Hill, it would appear that this style of bedding is almost a necessity in a well-ordered public park. Many old favourites were noted, such as Iresines in variety, Alternantheras, Arenarias, Fuchsia Nora Parker, Coleus Verschaffeltii, Violas, Sedums, and Echeverias. The design was simple, and consequently all the more effective, as large panels of each subject were planted, producing a very vivid effect in a setting of excellent green turf.

In the autumn bold displays of Antirrhinums, Pentstemons, Chrysanthemums, Gladioli, and Monthretias in great variety were noted, and special mention may be made of a magnificent bed of Kniphofia (Tritoma) Uvaria, each plant carrying from twenty to thirty spikes of flower, from 5 to 6 feet high.

The Rose garden contains a good collection of free-flowering varieties, and, judging by the colour of the blooms, the healthy foliage, and strong growth, the soil at Cannon Hill appears to be ideal for them. The varieties Hugh Dickson, Geo. Dickson, Mme. E. Herriot, Mme. Ravary, Lady Pirrie, Caroline Testout, General McArthur, Lady Hillingdon, Richmond, Pharisäer, and Lady Ashtown all flowered splendidly last summer.

The glass department at Cannon Hill is extensive. Orchids are a special feature. Cypripediums, embracing all the best varieties, are extensively grown, also Cymbidiums, Cattleyas, and Dendrobiums. It is gratifying to note that, in addition to batches of many well-known present-day flowering and foliage plants, old favourites are also included. Fine batches of Thrysacanthus rutilans, Tydaea amabilis, Manettia bicolor, Aphelandras, Scutellarias, Eranthemum pulchellum, Rondeletia, and Callicarpa purpurea were to be seen, also a goodly collection of scented-leaved Pelargoniums, which add interest to a very comprehensive collection of indoor plants.

The large Palm house contains a fine collection of Palms and economic plants, such as the Banana, Coffee, Cotton, Monstera, and Ficus in variety.

These notes would be incomplete without some reference to the provision made for recreation in this park. Ample facilities are provided for boating, tennis, cricket, bowls, golf, and fishing, and it is a matter for congratulation to the citizens of Birmingham that they have the privilege of enjoying all kinds of sports amidst scenes of sylvan beauty seldom met with in close proximity to an industrial town. *Hortus.*

TREES AND SHRUBS.

VERONICA SALICIFOLIA.

ALTHOUGH among the hardiest of the shrubby Speedwells a bush of Veronica salicifolia dies outright occasionally, as has been the case with the specimen depicted in Fig. 5, since it was photographed. The reasons for such failure are various, but in this case I think old age was the cause, coupled with a poorly drained site in a rather exposed position. Authorities differ about the flowering period of this species—both autumn and summer being mentioned. Here it bloomed in summer, despite the cold and somewhat sunless site. Indigenous to New Zealand, V. salicifolia is a shrub appropriate for growing against a wall, as well as for planting in bush form in the open—the former position being advisable in cold localities. Veronica salicifolia is a quick-growing species, bearing pale blue to whitish flowers on pendulous racemes, the latter feature being both distinctive and pretty. *C. Turner, Ampthill Park Gardens.*

TEUCRIUM FRUTICANS.

THOUGH well known as an indoor plant, this shrub is a good deal hardier than is generally supposed, and one that might be planted outside in many districts other than those which are notable for the mildness of their climate. Even in localities where the winters are rather severe it will make an attractive wall plant. Here it has withstood 20 degrees of frost with no more protection than a little dry Bracken about the roots, and even should the branches be killed the plant will send out strong new growths from the base in spring.

T. fruticans undoubtedly possesses attractions which merit such care being taken of it. The white stems and silvery leaves are not only very beautiful in themselves, but they make an admirable background for the large and elegantly poised pale-blue flowers. A conspicuous feature of these latter is the very long stamens which protrude, Honeysuckle-fashion, from them, and another noteworthy point is the extensive season of flowering. T. fruticans, in a warm, sunny place, will produce a succession of bloom from mid-summer to the autumn frosts. It appears to do well in any free soil and is an indispensable plant for the rock-garden, where grey or lavender effects are desired. Propagation is easily effected by means of cuttings, and young plants so raised may be expected to flower in two years. *A. T. J.*

PERNETTYA.

PERNETTYA MUCRONATA is the most commonly cultivated species of the genus. It is a dwarf berried evergreen of neat habit, with hard, glistening foliage. There are numbers of varieties of this species with a wide range of colour in the berry, including carnea nana, coccinea lilacina, nigra major, rosea purpurea, and sanguinea, the names indicating the colour variation. Other good varieties are P. m. speciosa, the large-fruited P. m. macrocarpa, and the profusely berried P. m. floribunda.

FIG. 5.—VERONICA SALICIFOLIA.

Pernettyas thrive best in light, well drained soil; they dislike anything approaching stagnation at the root. I have seen them particularly well berried on the gravelly soil overlying the Bunter Sandstone in North Staffordshire.

Pernettyas are suitable subjects for covering gently sloping banks; they are naturally of slow growth, and do not quickly outgrow their position. They may also be massed at the front of the shrubbery border, or planted in small beds on lawns. Quite small plants berry freely, and are useful for furnishing window-boxes in winter. *Fred. W. Jeffery, Dalserf, N.B.*

THE SEA BUCKTHORN.

THE great natural thickets of this shrub on the seacoast of Lincoln, at Skegness, have been in grand form this winter, up to the end of December at least. Birds are said not to eat the berries, but they did so last year some

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time before Christmas. The reason given by Mr. Alex. Wright, the keeper of one of the golf courses, was that birds will eat the berries after they have been mellowed by frost. The redstart and missel-thrush are the principal feeders upon them, but he suspects some others. No great frost having occurred, the berries are in perfection. Much can be learnt of the habit of the plant when in berry. There are two distinct shades of colour, namely orange-red and orange-yellow, and some colonies show a tendency to white, especially on the southern exposure of the bushes. Philip Miller spoke of seeing the red variety only on the sand-banks of Holland, but only the yellow one in Lincolnshire. This may be the dominant one yet, but there are many red-berried colonies. The male plants also grow in colonies and are wonderfully evenly distributed. They are recognisable by the entire lack of berries and the larger flower-buds at this season. Each colony is obviously the result of a single seedling, for increase takes place more often by suckers than by berries. The rank Marram and Lyme Grasses may prevent the seedlings from getting a footing, for they are not very robust. As the new villas extend southwards along the coast, the Buckthorn is often allowed to remain in the garden. *J. F.*

FOREIGN CORRESPONDENCE.

EARLIEST HYBRIDS OF GLADIOLUS PRIMULINUS.

IN your issue of December 9, 1922, p. 346, appears a note in which Messrs. Kelway and Son state that they were the first to put into commerce hybrids of Gladiolus primulinus. The concluding lines of the note in question are "they were offered to the public in 1913. Certainly no hybrids of primulinus were ever listed in any other catalogue so early as this."

We are sending you under separate cover a copy of our catalogue for the spring of 1908, in which we offered, together with Gladiolus primulinus (species), the first hybrid of this species, which we raised and named G. primulinus major. In the succeeding years, 1909 and 1910, we offered other hybrids—G. primulinus salmoneus and G. primulinus maculatus. Others followed in due course. We thought it desirable to re-establish the actual facts of the case, which are founded on documentary evidence. *V. Lemoine and Fils, Nancy, France.*

[We have received a copy of Messrs. Lemoine and Sons' catalogue for the spring 1908, in which, as stated in their letter, Gladiolus primulinus major is catalogued as the result obtained by crossing G. primulinus with fine yellow varieties of the G. Lemoinei section.—EDS.]

DISTINGUISHING THE SEX OF GINKGO BILOBA.

IN the *Gardeners' Chronicle* of October 7th, 1922, p. 209, regarding Ginkgo biloba, I read: "At one time it was said to be possible to distinguish the sex of the tree by its growth, the male being upright in growth and the branches of the female more or less spreading. During Mr. E. H. Wilson's extensive tours in China and Japan he made many inquiries on this point, the result being that he found it impossible to determine the sex by its mode of growth, in which Chinese and Japanese arboriculturists agreed."

Notwithstanding all this, there is an easy method of distinguishing the sex of trees of Ginkgo biloba, in the absence of fructification. This was first observed by Mr. J. Daveau, who is now the Keeper of the Herbarium in the University of Montpellier. He discovered that on the male trees the leaves appear and fall fifteen to twenty days before they do on a female tree. I have observed the same thing even in small plants obtained from seeds. Here in the Botanic Gardens of Coimbra the male Ginkgo lost its leaves about a fortnight ago, while on the female tree the leaves are only now beginning to change their colour (November 24th), and none have yet fallen. *Dr. J. A. Henriques, Botanical Institute, Coimbra University, Portugal.*

ORCHIDS IN 1922.

DURING 1922, interest in Orchids was well sustained, and there are signs that the depression caused by the war is passing and that a brighter future is before orchidists, both amateur and professional.

The exhibits of Orchids at the Royal Horticultural Society's meetings and those of the Manchester and North of England Orchid Society have been finer than in recent years, the R.H.S. granting twenty-four First-Class Certificates and seventy Awards of Merit, and the Manchester Society a more than usual number of awards to exceptionally good novelties. The R.H.S. continues to add to its pictures of certificated plants; the number added last year brings the total to 2,800. The new hybrids of last year, lists of which were given from time to time in *The Gardeners' Chronicle*, give further evidence of the hybridists' activity, the number recorded during the past year being 525, as compared with 320 in 1921.

Amateurs have loyally sustained their interest in Orchids by the many magnificent groups shown, some of which have been more extensive and remarkable than any previously staged.

Sir GEO. L. HOLFORD, K.C.V.O., Westonbirt, Tetbury (gr. Mr. H. G. Alexander), with his memorable group of Cymbidiums staged at the R.H.S. Hall on February 28, caused astonishment and admiration for the great variety and beauty of this noble class of Orchids raised at Westonbirt. On other occasions Westonbirt has been to the fore, and during the year First-Class Certificates were obtained for the rich scarlet Sophro-Laelio-Cattleya Falcon Westonbirt var., Cymbidium Miranda Bronze Beauty, and C. Thrush, C. Alexanderi Westonbirt var., whilst Awards of Merit have been gained for several new Cymbidiums, Laelio-Cattleya Sargon Westonbirt var., L.-C. Golden Light, and, among others, Cypripedium Golden Light.

Sir JEREMIAH COLMAN, Bart., Gatton Park (gr. Mr. J. Collier), at Holland Park Hall Show and on other occasions, exhibited groups replete with distinctive Odontoglossums of the Gatton strain and fine Cattleyas and Laelio-Cattleyas, several of the sections including examples of the blue-tinted class developed at Gatton Park, and a great variety of rare species of Orchids, many of a frail nature, but which have been retained in vigour for many years.

Baron BRUNO SCHRÖDER, The Dell Park, Englefield Green (gr. Mr. J. E. Shill), showed marvellous groups of Laelio-Cattleyas raised at The Dell, whilst his groups of white Calanthe Harrisii and other Orchids were superb.

At the last meeting of the R.H.S., G. F. MOORE, Esq., Chardwar, Bourton-on-the-Water (gr. Mr. Page), staged a group of his giant strain of Cypripediums.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), has been the most regular exhibitor of groups of good hybrids and rare species. Two good hybrids of his, for which awards were secured, were Brasso-Cattleya William Pitt and Laelio-Cattleya Misiones var. Venada.

PANTIA RALLI, Esq., Ashstead Park (Orchid grower, Mr. Farnes), showed groups on several occasions that were remarkable for the fine Odontoglossums included. Awards were given to Odontoglossum crispum Beauty Spot, O. c. Silver Moon, varieties of Odm. eximium and others.

J. J. BOLTON, Esq., Claygate Lodge, Claygate (gr. Mr. S. Lines), a keen collector of good Orchids and especially Odontoglossums, was awarded First-Class Certificates for O. Faustina Claygate Lodge var. at Chelsea, and later for O eximillus Tintoretto.

R. GERRISH, Esq., Milford Manor, Salisbury (gr. Mr. Sorrell), also a lover of Odontoglossums, secured awards for the richly coloured O. Tagus and O. Topaz on the same day, and on October 3 he obtained a similar award for O. Princess Yolande, Gerrish's variety.

The Rev. J. CROMBLEHOLME, Sir H. S. LEON, Bart., the DUKE OF MARLBOROUGH, C. J. LUCAS, Esq., and others have secured several awards and the numerous occasional exhibitors show how general the cultivation of Orchids now is

NURSERYMEN.

Messrs. CHARLESWORTH AND CO., Haywards Heath, who always endeavour to get showy novelties of new sections, have exhibited many superb novelties, some of which, with their one first flower, have secured First-Class Certificates; it is to be expected that, when these fine novelties have developed to the full, they will disclose still finer features. The awards won by this firm have been numerous, and reference to the best of those which secured First-Class Certificates at the R.H.S. will indicate the quality of the whole. They include Miltonia Lord Lambourne, one of the most remarkable home-raised hybrids; Odontoglossum Purple Emperor, wholly deep Tyrian purple, which was a centre of attraction at the Chelsea Show; Odontonia Merope var vivicans, a grand member of one of the special evolutions of Messrs. Charlesworths; Vuylstekeara Aspasia, of the same class; Laelio-Cattleya Pyramus, an ideal flower of fine colour; the fine yellow Brasso-Laelio-Cattleya Golden Crown var Prince Humbert, and the type of their new class of hybrid, Potinara Juliettae.

Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tunbridge Wells, obtained First-Class Certificates for several fine Odontiodas, all shown with fully developed spikes of richly coloured flowers. The best were O. Cordor, shown on January 31; the equally distinct O. Antinous, which secured an Award of Merit on the same day; and O. Opall, for which a F.C.C. was awarded on March 14. Among their fine novelties in Odontoglossums, the lead was taken by their marvellous O. Armstrongii var. Aureole, the second to flower with pure white ground and rich chrome yellow markings. Among others which secured awards were Sophro-Laelio-Cattleya Mars and Odontiodas Venus and Renown.

Messrs. J. and A. MCBEAN, Cooksbridge, specialists in Odontoglossum, Odontioda and Cymbidium, secured First-Class Certificates for O. Amethyst var. Garnet, and at the last R.H.S. meeting of the year they had a grand form of O. Vega, and also won a Cultural Commendation for O. Orosius with three strong spikes of thirty-six flowers, probably the finest specimen of a richly coloured form yet shown. Odm. St. George var. Solum, Oda. Radiant, and Cymbidium Alexanderi Imperial Prince were among the best of their other plants which won awards.

Messrs. SANDERS, St. Albans, received First-Class Certificates for the very beautiful Vanda luzonica Dulcis on October 31, the noble Cattleya Tityus var. Wedding Bells, and their remarkable bi-generic cross Angulo-caste Sanderae; and Awards of Merit for Odontoglossum Magnificent, a fine example of their frequent use of Odm. Magali Sander, with its distinct features as a parent; Cymbidium Nelly var. Golden Glow, distinct in colour; Dendrobium Perfection, a good advance in their fine crosses with D. nobile nobilius; and Miltonia spectabilis extraria, a find out of an importation, a field in which Messrs. Sanders were pre-eminent, and which is being again worked as circumstances permit.

Messrs. STUART LOW AND CO., Jarvisbrook, and Bush Hill Park, Enfield, have been among the best and most constant exhibitors of groups, in which Brasso-Cattleyas, Cattleyas, Laelio-Cattleyas were always fine features. At the R.H.S. Chelsea Show Brasso-Laelio-Cattleyas were well shown by this firm, their large and finely coloured B.-L.-C. Jupiter His Majesty obtaining a First-Class Certificate and B.-L.-C. Jupiter Jarvisbrook var. an Award of Merit, a similar award being also given to Brasso-Cattleya Ruby var. Rossetti; B.-L.-C. Truffautiana Low's var.; the bright yellow and crimson Laelio-Cattleya Mrs. Medo; L.-C. St. George var. Victory; and the elegant and richly coloured Oncidioda Stuart Low.

Messrs. COWAN AND CO., Southgate, successors of the firm of Messrs. Hassall and Co., which Mr. John C. Cowan had brought to a very high position for excellence, secured a First-Class Certificate for their new Laelio-Cattleya

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Dodona, one of the finest and most richly coloured hybrids, far superior to the ordinary run of Laelio-Cattleyas; and an Award of Merit for Cypripedium Moonlight var. Linda, a good example of their fine type of Cypripedium which was shown in their groups on many occasions.

Messrs. FLORY AND BLACK, Slough, who specialise in Sophronitis crosses, Brassavola hybrids, Cattleyas, Laelio-Cattleyas, and beautiful hybrid Disas, secured a First-Class Certificate for the showy Sophro-Laelio-Cattleya King George on March 28, and later an Award of Merit for Sophro-Cattleya Prince Shimadzu, a very brilliant and well-formed flower; Disa Julia A. Stuckey, the first rival of the rich scarlet D. uniflora (grandiflora). Brasso-Cattleya Viscount Toda, and B.-C. Dr G. G. Macdonald.

Messrs. J. CYPHER AND SONS, Cheltenham, have exhibited groups largely both at Vincent Square and Manchester. Their exhibits are always fine examples of cultural skill and tasteful arrangement of floral decoration, in which the best effect is obtained by using a limited number of plants, all of good quality and effectively displayed with Ferns and other foliage plants.

Among the Orchids illustrated in *The Gardeners' Chronicle* in 1922 are Angraecum Kotschyi, October 21, p. 298; Bonatea ugandae, November 4, p. 264; Cypripedium Gwen Dixon, November 25, p. 309; Cypripedium Idina, Beckton's var., March 18, p. 127; Cypripedium Lawrenceanum Hyeanum, February 18, p. 75; Cymbidium Alexanderi Westonbirt var., March 25, p. 135; C. Curlew var. Rosy Gem, March 11, p. 115; C. Kittiwake, April 22, p. 193; C. Miranda and C. Redstart, April 22, p. 193; Cirrhopetalum ornatissimum, October 28, p. 248; Dendrobium Ashworthiae, May 13, p. 240; D. atroviolaceum, May 13, p. 241; D. cruentum, August 19, p. 107; D. Phalaenopsis, June 10, p. 301; D. superbum Huttonii, July 1, p. 9; D. Schutzei, October 7, p. 205; D. Williamsianum, June 10, p. 301; and D. Leeanum, June 10, p. 301; Disa Julia A. Stuckey, August 5, p. 81; Lissochilus Horsfallii, October 21, p. 238; Listrostachys Brownii, November 18, p. 294; Miltonia Lord Lambourne, February 25, p. 9; Eulophia guineensis, November 4, p. 265; Odontioda James O'Brien, October 28, p. 249; Odontonia Merope var. vivicans, June 17, p. 323; Odontoglossum Armstrongii Aureole, December 9, p. 337; O. Faustina Claygate Lodge var., June 3, p. 287; O. Purple Emperor, May 27, p. 272; Polystachya species, November 18, p. 299; and Potinara Juliettae, March 11, p. 113. *J. O'B.*

RASPBERRY STEM BUD MOTH.

IN 1922 the attack of Raspberry Stem Bud Moth—Lampronia rubiella (Bjerk)—was prevalent throughout the North of England, at least in the writer's district, and a certain amount of damage was general in Raspberry plantations. The life history of this pest is briefly thus:—The moths appear in June and July and egg-laying commences after pairing has taken place. The eggs are laid usually in or near the flowers, from which the larvae appear in from seven to fourteen days. The larvae feed either on the receptacle of the fruits, or more rarely on the foliage. Generally the larvae leave the fruit before it is ripe, so that little damage is done up to that stage. The insects hibernate in dead leaves, or in the old stumps of the cut-back canes.

The damage from this pest takes place in the spring. As the buds of the new canes begin to break the tiny larva leaves its winter shelter and crawls up the Raspberry cane; a choice is made of a fairly forward bud, and it then eats its way in, feeding on the pith of the bud. The bud very soon wilts and dies. Pupation takes place either in the bud, or in the pith of the stem. When fully grown the larvae are about a quarter of an inch long, red, with a black head. The moth is shy and not easily seen, with a wing expanse up to about five-twelfths of an inch. The main stems of standard Apple and Plum trees appear to be a favourite resting-place for the moth, if such trees are near a Raspberry plantation.

Unfortunately this pest is on the increase, and it would be advisable for all Raspberry growers to be on their guard against it this spring. If the canes are examined carefully when the forward buds are about one inch in length, buds slightly shrivelled will be found, or, if the leaves are forward enough, wilting will be observed.

Infested buds should be removed at once and burnt; if this is done it will help considerably in keeping the pest in check. The canes should be examined several times. Neglect at this early stage will enable some of the larvae to get into the pith of the canes, and it then means cutting the cane away to a bud below the one affected, resulting in the greater part of the crop being lost.

Two factors seem to favour L. rubiella, and often enable the insect to remain undetected. The first is that when the buds are attacked in spring, the damage is often attributed to cold winds or late frosts, as the pest generally attacks the most forward buds. Secondly, after the larvae have got into the buds and caused them to shrivel up, a very weak growth starts from the base of the infested bud; this growth never bears fruit, but serves to mask the damage done.

These two factors often enable the pest to increase for some years undetected, and the grower loses his crop eventually.

The writer has found the larvae of Raspberry Moth appearing quite happy on the Loganberry in many plantations, therefore this crop should be examined as advised for Raspberries.

The destruction of the larvae in spring seems to be the best way of keeping this pest in check, as at any other period in its life history destruction is by no means easy. The method of hand-picking the affected buds is perhaps only practical in small plantations, but is most effective when carried out early enough to prevent the larvae from entering the pith of the canes. It then only means the loss of the buds affected, instead of having to cut the canes back. *Shephat.*

WITCHES' BROOM ON SILVER FIR.

IN Ireland, and some of the western parts of Great Britain, where the Silver Fir (Abies pectinata) is more plentiful than in the east, the disease known as Witches' Broom is very prevalent, and may be found on the stems and branches of trees of all ages. When the swellings which it produces occur on the stems of the trees they weaken them considerably, and they are therefore very liable to break down under wind pressure at the points where these are situated, while the timber is much depreciated in value. A very characteristic illustration of one of these globose or barrel-shaped swellings is shown in Fig. 6, which was made from a photograph of an affected tree in Ireland.

The disease is due to a parasitic heteroecious fungus—one which passes its stages of development on different hosts—Melampsorella caryophyllacearum, Schrött (Peridermium elatinum, Wallr.; Aecidium elatinum, Alb. et Schw.), of which it is the aecidiosporous stage, the alternating hosts being varius genera of Caryophyllaceous weeds, such as Stellaria, Arenaria, Cerastium, etc., on the stems and leaves of which the uredospores and teleutospores are produced. When a stem or branch of a Silver Fir becomes infected a small swelling at first appears, and this goes on increasing in size as the stem or branch grows. From such swellings are frequently produced erect shoots, and it is to the presence of these shoots that the "broom" appearance is due. The leaves produced from these shoots are short, very pale in colour, and they differ from the normal foliage of the tree in being of annual duration only, defoliation taking place in autumn. On the under side of these leaves the aecidiospores are produced, and not on the swollen portion of the branch, as in certain other fungi. The bark is ruptured and thrown off at the cankered swellings.

The disease is well known in Silver Fir forests on the Continent, and it has also been found on Abies Nordmanniana, A. cephalonica, A. Pinsapo, A. balsamea and A. sibirica. *A. D. Richardson, Edinburgh.*

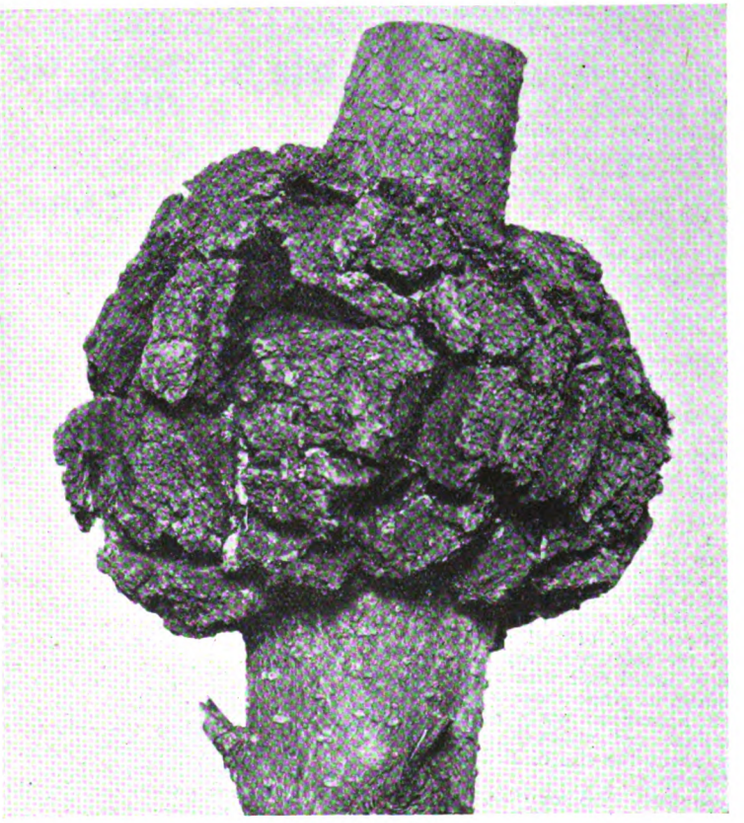

FIG. 6.—SWELLING CAUSED BY THE WITCHES' BROOM FUNGUS ON SILVER FIR.

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GREY-LEAVED SHRUBS FOR THE SEASIDE.

IT is an interesting fact that shrubs with grey or silvery leaves are best suited for planting by the seaside. This may be taken in a literal sense, as, although a few shrubs with green leaves succeed under similar conditions, yet the great majority of such as are able to withstand the first brunt of the sea breeze are of the opposite description. As examples, mention may be made of the Sea Buckthorn, Siberian Salt Tree, Sea Purslane, Shepherdia argentea, Atriplex Halimus, Lavender and Rosemary, all of which have grey or silvery leaves as if coated with a saline deposit. Even amongst trees that thrive under similar conditions, the white and grey Poplar, white or Huntingdon Willow, Beam Tree and Paper Birch are familiar examples. Of smaller growing plants with distinctly silvery foliage may be included the Sea Holly, Horned Poppy, Frosted Orach, Sea Heath and Sea Spurge, also quite a host of smaller growing and creeping species. The silvery glaucous hue of the Lyme grass, Marram or Sea Matweed, and both species of Spartina, all of which have been extensively made use of in the reclaiming of sandy wastes and mud flats by the seaside, are examples of grey-leaved members of the grass family.

All around the coast the Sea Buckthorn is the favourite shrub, where it succeeds admirably, down even to high water mark, and where its foliage is lashed by the salt spray. Strong winds and full exposure to the saline blasts have no effect on this valuable shrub; indeed, the beautiful silvery tint of the narrow, Willow-like leaves is never shown off to better advantage than when stirred by the breeze. From a purely ornamental point of view it is also highly appreciated, for not only is the foliage distinct and pleasing, but towards autumn it becomes heavily laden with bright orange-coloured berries, which often wreath the branch tips for fully a foot in length Though generally considered as a seaside shrub, the Sea Buckthorn is by no means exclusively so, as it thrives well and attains to large dimensions in many inland situations.

The Beef Suet Tree or Rabbit Berry (Shepherdia argentea) is a capital shrub for the seaside, and is rendered of particular interest on account of the intense silvery hue of the foliage, which is dotted over with rusty brown scales, especially on the under side. The flowers, which appear in early spring, are small and yellow, and unisexual, while the scarlet berries, about the size of Red Currants, are ripe in September.

In the Groundsel Tree or Sea Purslane (Baccharis halimifolia) is to be found another invaluable shrub for seaside planting, succeeding even at high water mark and where constantly exposed to the salt spray. The obovate leaves are thickly covered with a whitish powder, which imparts to the whole plant a peculiar and pleasing glaucous hue. The Groundsel-like flowers are white with a tint of purple. Along the South Coast in particular, the Siberian Salt Tree (Halimodendron argenteum) is to be found in greatest perfection. It is a somewhat straggling shrub, with silvery foliage and purplish pink flowers, which are sweetly scented. It grows naturally in salt fields and saline steppes in Siberia.

Atriplex Halimus is another of the silvery-leaved shrubs that thrive well by the seaside. A native of the Mediterranean Coast, this dwarf shrub, with leaves thickly clothed with a scaly tomentum and a plentiful supply of dirty yellowish-green flowers, though of little value from an ornamental point of view, is yet useful for planting in the seaside garden. It is known as the Tree Purslane.

Both the Rosemary and Lavender are familiar shrubs by the seaside, where they form excellent dwarf screen fences and garden subdivisions. Both have dusty green leaves, and bear an abundance of their much-valued flowers. At Walmer Castle, Kent, by the sea coast, there is a greatly admired hedge of the Rosemary, 70 yards long and 4 feet high, by a yard wide. Olearia Haastii, with its greyish-green leaves and Daisy-like flowers, which are produced in large flat clusters at the branch tips, is well suited for planting in maritime situations, but is not at home on cold, exposed inland places. The peculiar, silvery-green tint of the leaves of O. macrodonta, almost white beneath, render it an attractive shrub for the seaside, where it has been found to thrive well where the situation is not too exposed.

Other shrubs with light green leaves that are found suitable for shore planting are the Wayfaring Tree and Box Thorn or Tea Tree, both of which will grow in sandy soil and full exposure to the sea breezes. Aucuba japonica must not be omitted from my list, for as a seaside shrub it has few equals, and from Wigtonshire southwards it is freely planted for ornament and shelter along the coast.

Both the Lyme Grass and the Maram or Sea Matweed have leaves of an intense bluish-green or silvery colour, and wherever the plants occur in quantity have a striking and highly ornamental appearance. *A. D. Webster.*

SOME EFFECTS OF THE WAR ON GARDENING.

ONE of the most extraordinary things connected with the post-war conditions of horticulture was the remarkable way in which flowers seemed to "come back" soon after the Armistice. During the strenuous days of rationing, when women were largely employed to manage gardens in place of men, and there was little or no fuel to heat glass-houses, flowers did not seem to matter, and the value of a choice exotic plant was small compared to that of a bushel of Potatos. It seemed unpatriotic to be growing flowers in those days of war, and this idea was carried to the ridiculous in some gardens, where lawns in the front of the house were broken up and planted with Potatos, while the kitchen garden at the rear was allowed to produce weeds in abundance.

No sooner was the fighting over, however, than the flowers seemed to come back in a way which suggested they had only been in hiding until the struggle was over. As an illustration, take the first Chelsea Show after the war. If a regular visitor to this show before the war could have fallen asleep when hostilities broke out in 1914 and awakened on the day of the first Chelsea Show after the Armistice, it would have been impossible for him to believe the extent to which floriculture had fallen into neglect during the years that had intervened.

I remember on one occasion during the war visiting a nursery famous for its specimen plants, stove plants, and Orchids, which have won prizes at scores of the leading shows. They seemed to have vanished; half the houses were empty for the want of fuel to heat them, and the rest were planted with Tomatos which were looked after by a few old men and young girls. But the same firm is winning prizes again with groups of wonderfully well-grown plants, just as if nothing at all had happened. It is an exhilarating story, and bears tribute to the tenacity of British horticulturists and British love for plants and flowers, which only slumbered while the terrible game of destruction was being played.

One does discover instances, however, in which the circumstances of the war have been too much for the horticulturist. From time to time the train carries me past nurseries where, in pre-war days, shrubs, Roses, and herbaceous plants in bewildering variety grew in well-ordered profusion. But these things did not matter when German submarines were sinking our food ships. There was no labour available and no demand for this class of nursery stock. Twitch and other obnoxious weeds got the upper hand, and have kept it, for the cost of cleaning and renovation is prohibitive, and, to quote Goldsmith, these nurseries are now places "where once a garden smiled and still where many a garden flower grows wild." We have heard a good deal about the fortunes that were made during the war, but a strong case could also be made out for the money that was lost by those whose business it is to cater for the decorative rather than the utilitarian side of gardening.

Another sad part of the story of post-war gardening is the state to which the gardens attached to many princely mansions, the names of which are household words in the horticultural world, are reduced. One remembers these establishments as places to which young men used to flock in pre-war days in order to get their training, and where the bothy or living quarters of the journeymen was occupied by a band of high-spirited young fellows. The bothies were emptied to provide soldiers for the Army; too many of them have never been occupied since. When labour was wanted for more serious things, pleasure grounds were neglected, weeds took possession of walks and drives, and lawns grew meadow grass. It is sad to think that many of these gardens have not reached their pre-war standard, and it is hardly likely that they ever will, seeing how heavily the burden of taxation falls on their owners. And the gardeners, too, in many cases, instead of catering for the needs and pleasures of their employers, are engaged in competing with the bona-fide market gardener by selling most of the produce now grown. More than once since the war I have walked through an establishment with the gardener, who used to take a pride in its upkeep, and have listened to his apologies about this or that not being up to the old standard, just for all the world as though he were in some way to blame.

This is the aftermath of the war, but as a set-off against it another class has sprung up, who for the most part live in less princely homes and possess smaller gardens. Many of them are fond of their gardens and spend their money freely on them. It is well that this is the case, otherwise the post-war revival of horticulture would never have been what we see it to-day.

Turning to another and more humble phase, perhaps the most remarkable outcome of the war is the development of the allotment movement. Before the war the allotment holder was a very commonplace individual who worked a plot of ground if he could get it—which was not always easy—but when we were looking the possibilities of starvation straight in the face workers in every walk of life were appealed to to produce food, and it may be said to their credit that they did their best. Incidentally, too, the war made allotment holders keep an eye on the future. They became organised, formed themselves into registered societies and unions which to-day are a power in the land. An Allotments Act of the type which was recently passed would probably have been laughed at in the House of Commons before the war, and the idea of allotment holders having representation on corporations would have been treated as an absurdity. Yet this has all come about, and, though we have no member of Parliament directly representing allotment holders at Westminster, this is by no means outside the bounds of possibility. The fact of the matter is that thousands of men got a plot of ground to cultivate during the war which would never have been acquired under conditions less serious, and, in addition to finding out that the cultivation of the plot is a sound business proposition, they have discovered a new hobby and have learnt to love gardening for its own sake.

It was a revelation to me not long ago to walk over a thousand acres of allotments on the outskirts of one great city, where twelve thousand allotment holders are organised in upwards of a dozen registered co-operative societies, representatives of which form the Federation of Allotment Societies in the city referred to. It has been said, and certainly with some truth, that the allotment movement is one of the few good things that have come out of the war. But be that as it may, the workers were provided with their plots to help save the country in the hour of the direst need. They will see to it that they retain their allotments under peace conditions for their own pleasure, recreation, and profit. *G. H. H.*

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THE APPLE ROOM.

YOUR correspondent, *East Kent* (page 343, December 9, 1922), refers to the fact that though his Orleans Reinette Apples were quite sound when gathered they were so shrivelled by the first week in November as to be quite unfit for table. I observe that he had to gather them in October because they were dropping, and this unfortunately has been a fairly general experience this season; owing to early drought, few Apples attained their proper size and maturity, and I found it necessary to defer the harvesting of many varieties until a month later than usual as they were not ripe at the usual time, owing to lack of strong sun. The leaves remained on the trees longer this year than usual; in mid-December trees of Annie Elizabeth and Hambling's Seedling were in full green leaf, though they were transplanted three weeks previously.

To return more directly to the keeping of fruit, it is in the first place essential that the fruits should be fully ripened before they are gathered, and it will be found that such sorts as Reinette du Canada will often hang firmly on the tree until mid-December, despite a fairly open situation and strong winds, and they are best left out to the very last. This applies to all Apples that keep after Christmas. Apples will not always hang, however, so long as we wish, and it is essential to have a well-designed fruit-room to get the best results in keeping and ripening. My fruit-room has walls of solid masonry 14 inches thick, is about 14 feet long by 9 feet wide, and 8½ feet high; the roof is a flat slab of concrete 7 inches thick reinforced with iron bars embedded crosswise in the concrete. I attach the greatest possible value to thorough ventilation; the fruit-room requires a free circulation of pure air. In my fruit-house the entry of air without the admission of excessive light is secured by small chimneys or airways made in the walls during the process of building, by inserting about two feet from the ground a drain pipe or wooden roller about four inches in diameter and building around it, raising it as the work proceeds so that when finally withdrawn there is a cavity like a small chimney in the centre of the wall about five feet long, with an opening in the wall at the top to the outside air and at the bottom on the inside to the room; the chimney might be described as approximately like the letter Z. The outer apertures are covered with perforated zinc to keep out insects, etc., and I may add that they are twice the area of the drain pipe ends, so that the unperforated part of the zinc is compensated for, otherwise if of the same area the cavity would not admit so much air as it should. These airways are three to four feet apart on each long side of the building. On the top of the walls immediately under the concrete roof are two open windows, one foot by six inches each, and these also are covered outside with perforated zinc; they are on opposite sides of the house. These were an afterthought and were found to be necessary for efficient ventilation. The floor is of the natural subsoil, a very stiff but well-drained loam, but I intend to put a layer of concrete 1½ inch deep over this later on. I have divided a section about three and a half feet wide from the main fruit-room to serve as a pantry in which to store non-smelling foods, etc., that require cool conditions. The house stands alone; along the east and south sides it is sunk 3½ feet in the ground, owing to the slope of the land, and along the east wall are plants of Cupressus macrocarpa. No doubt if these were planted all round the house the interior would be still cooler. The door, a very substantial one, is in the north end; there are no windows, but the two open ventilators already described give a fair light, and the open door also admits light.

I use shelves for some of the fruit and put some in open boxes. The interior is limewashed. I may say that it is essential to mix the concrete for the roof with plenty of cement, otherwise it will not be impervious to wet. I found it necessary to paint my roof over with a waterproofing liquid to correct too much economy of cement in the original making of the roof. I think the cement should be in the proportion of one to three of gravel or sand for a flat roof like this. I find the waterproofing has made an effective cure, however. The concrete roof projects over the walls by about three inches, and this greatly improves the appearance of the building, which looks quite pleasing, contrary to what one might expect, and as it is within about 20 feet from my house, its appearance matters as well as its utility. It was placed so close that it should be convenient to the kitchen, an obviously desirable arrangement. This house has been in use several seasons, and has been found satisfactory. It may be shortly described as an overground cellar, if I may be permitted to call an overhead building a cellar just for this occasion. Without a proper fruit-room it will be found most difficult to ripen and keep late fruits with any satisfaction, and this fact forced me to put up this building. Such a building may easily be erected to suit the smallest or the largest needs, and the most modest garden need not lack its fruit-room; a little building eight feet by three feet would suit admirably and would hold a large quantity of fruit. Our late fruits are chiefly our best sorts and deserve good storage, otherwise it is little use to grow late Apples. *W. J. Farmer, Ye Hire, Redruth, Cornwall.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Tuber formation in Potato Seedlings.—With reference to my remarks on Thladiantha dubia, on p. 371, Vol. LXXII., and the raising of Potato seedlings in pots or pans, I have many times observed that the tuber-producing stems are from buds in the axils of the seed-leaves. This, I think, is because the seedlings are more or less upright, and I cannot suppose that any special habit is indicated. It is to be expected that seedlings having plenty of room would fall over, and that any leaf axils near the soil could produce tuber-bearing stems. I have never observed a tuber in the axils of a seedling. *R. I. L.*

Caustic Fruit Wash.—Replying to a correspondent on page 374, Vol. LXXII., you recommend that carbonate of potash should be added to caustic soda in the preparation of a winter wash for fruit trees. There cannot be the slightest doubt that the formula given is an excellent one which, carefully and correctly applied, will clean the trees of accumulations of moss and lichen. The question that arises in my mind, however, and one on which it is, I think, desirable that the practical views of your fruit-growing readers should be brought prominently to the fore, is whether the addition of the carbonate of potash does the slightest good. Admittedly it does no harm, but the addition of even one constituent to a solution increases the trouble of preparation, and should, therefore, be omitted, except in case of necessity. If a caustic wash is imperative, and very sound reasons can be raised against its use, I do not think that it is possible to find a better one than the simple 1 lb. caustic soda, 98 per cent. purity, dissolved in 10 gallons of hot water, and desirably used hot on the rough bark of an old tree. It is quite immaterial whether soft soap is added or not, as its sole advantage is to increase adhesiveness, and that is not needed when the wash is brushed on rough bark and exceedingly finely sprayed on all other portions of the tree. I have used caustic washes of this nature repeatedly, and have proved, to my own satisfaction at least, that neither carbonate of potash nor soft soap improves their effectiveness, and have consequently refrained from their use for several years. The principal objection to the application of such caustic washes is that bud injury is almost inevitable, unless extreme care is taken in applying the specific, while there is the further decided disadvantage that, owing to their intense burning properties, they are peculiarly objectionable to handle. Unless trees are extraordinarily filthy, when scraping will become an essential part of the cleansing process, a fine grade lime-sulphur solution will bring about equally satisfactory results, and it will be found infinitely preferable to apply, notwithstanding the pungent odour. The subject is one of sufficient importance for discussion in your columns, and I hope that all your experienced readers will give their views on it. *W. Tiplow.*

SOCIETIES

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THURSDAY, December 7.—Committee present: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, H. Astley Bill, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, A. T. Cussons, D. A. Cowan, J. C. Cowan, J. Cypher, A. G. Ellwood, J. Evans, W. Giles, A. Hanmer, J. Howes, J. Jackson, W. M. Jackson, A. Keeling, D. L. Thorpe, D. McLeod, F. K. Sander, E. W. Thompson, J. Whitham, and H. Arthur (secretary).

FIRST CLASS CERTIFICATES.

Cypripedium Britain's Monarch (*Alcibiades* × *Earl Tankerville*), a good shaped flower with a white dorsal sepal, the green base being covered with red spots; the petals and pouch are coloured light brown; *Cyp. Minotaur* (*Hera* × *nitens Leeanum*), the flat dorsal sepal is white with red spots, the green base having black spots; the petals and lip are light brown. From S. GRATRIX, Esq.

Odontoglossum Llewelyn var. Radiant. One of the largest and most highly coloured of the type, with broad sepals and petals; *Cypripedium Moonlight var. Delicata.* A flower having a large, flat, white dorsal sepal with a greenish-yellow base, and petals and lip of the same shade. From Mrs. GRATRIX.

Eulophiella Rolfei (*Peetersii* × *Elizabethiae*), a fine deep pink flower with white inside the lip. From B. J. BECKTON, Esq.

Cypripedium Monialis var. Hilda Sharp. The finest Niobe hybrid yet seen. The large, flat dorsal sepal is claret colour with a white margin, the petals and lip being deep brown. From the Rev. J. CROMBLEHOLME.

Odontoglossum crispum var. Fred Hardy, a flower heavily blotched with purplish-red. From FRED HARDY, Esq.

Cypripedium Godefroyae splendens, a beautifully marked flower with a white lip. From P. SMITH, Esq.

AWARDS OF MERIT.

Calanthe Glad Eye (*Bryan* × *rubro-oculata*); *Calanthe revertens*, and *Cypripedium Torelor Beckton's var.* (*burtonense* × *Amazon*). From B. J. BECKTON, Esq.

Cypripedium Cappa-magna var. Victoria; *Cyp. Othello St. Mary's var.*; *Cyp. Verona var. Furens* (*leeanum* × *Beckmanii*). From the Rev. J. CROMBLEHOLME.

Cypripedium Troilus var. Jupiter; *Odontioda Antinea* (*illustrissimum* × *Odta. Wilsonii*); and *Laelio-Cattleya Britannia var. plumosa.* From P. SMITH, Esq.

Cypripedium Lord Wolmer Westonbirt var., and *Cyp. Lady Gray.* From Mrs. GRATRIX.

Cypripedium Sir H. Rawlinson Chardwar var., and *Cyp. Nydia Westonbirt var.* From Dr. CRAVEN MOORE.

Cypripedium Kervallii (*Actaeus langleyense* × *Mary Gratrix*), and *Cymbidium Mastersii Cusson's var.* From A. T. CUSSONS, Esq.

Cypripedium Chorltonville (*Shogun* × *Pyramus*), and *Cyp. Alethea* (*Gaston Bultel* × *Euryades splendens*). From S. GRATRIX, Esq.

Odontoglossum Ardendora var. Radiance. From A. HANMER, Esq.

Cypripedium Chrysotens Usk Priory var. From Messrs. CYPHER AND SONS.

Odontoglossum Florence (*Rolfeae* × *Rosalind*). From Messrs. MANSELL and HATCHER.

Cypripedium Emerald (*Curtisii Sanderae* × *Maudiae*). From Messrs. SANDERS.

GROUPS.

S. GRATRIX, Esq., Manchester (gr., Mr. J. Howes), staged a group for which a Gold Medal was awarded. B. J. BECKTON, Esq., Irlams-o'-

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th'-Height (gr., Mr. W. A. Stewart), was also awarded a Gold Medal for an interesting group of Orchids.

Mrs. BRUCE and Miss WRIGLEY, Bury (gr., Mr. A. Burns), staged a group of Cypripediums in great variety, for which a large Silver-gilt Medal was awarded. A. HANMER, Esq., Buxton (gr., Mr. G. Giles), was also awarded a large Silver-gilt Medal for a group.

The Rev. J. CROMBLEHOLME, Clayton-le-Moors (gr., Mr. Marshall), staged a group principally of home-raised seedlings, and was awarded a large Silver Medal.

A. T. CUSSONS, Esq., Prestwich (gr., Mr. F. Cookson), also received a large Silver Medal for a group.

Messrs. CHARLESWORTH AND Co., Hayward's Heath, were awarded a Silver-gilt Medal for a miscellaneous group.

Messrs. J. CYPHER AND SONS, Cheltenham, staged a group to which a Silver-gilt Medal was awarded.

Messrs. MANSELL AND HATCHER were awarded a large Silver Medal for a group of Orchids.

Mr. D. MCLEOD, Chorlton-cum-Hardy, was also awarded a large Silver Medal for a group.

Messrs. KEELING AND SONS, Bradford, staged a group for which a Silver medal was awarded.

Mr. E. SHAW, Congleton, was awarded a Silver-gilt Medal for a collection of paintings of Orchid flowers.

ROYAL HORTICULTURAL OF IRELAND.

THE 93rd annual general meeting of the society, the President, the Marquis of Headfort, presiding, held at the Engineer's Hall, Dawson Street, Dublin, on the 22nd ult., proved a pleasing function. The occasion was availed of for presenting the testimonial to Sir Frederick and Lady Moore from 246 members and friends, on Sir Frederick's retirement from the Royal Botanic Gardens, Glasnevin, as a mark of their appreciation of his great services to horticulture.

Business proceedings included the adoption of the report a statement of accounts for the year ending December 1, 1922, which was considered satisfactory under the trying times of the past year, the accounts closing with a cash balance to credit of £66 17s. 1d. Special votes of thanks were accorded to the Earl of Iveagh, K.P., for his kindness in allowing the shows to be held in the fine covered court attached to his Dublin residence, and to Mr. E. H. Walpole for his concession in affording members the privilege of visiting his unique gardens at Mount Usher, Co. Wicklow.

At the conclusion of the business the testimonial, which took the form of a silver kettle specially made to match some silver presented to Sir Frederick's father, Dr. David Moore, some 65 years ago, was handed by the Chairman to Lady Moore, and a cheque was handed to Sir Frederick accompanied by an inscribed roll of the subscribers, with felicitously expressed remarks on Sir Frederick's distinguished career. The noble Marquis said he was thankful to say the society still had the benefit of Sir Frederick's services as Hon. Secretary, and trusted it would have them for long years to come, and that it was a remarkable record that he, Sir Frederick, with his father before him, had ruled for over 80 years in a kindly and helpful way in Glasnevin, and raised it to the status it now held of being second to none of the great horticultural gardens of the world. He esteemed it an honour to be permitted to make the presentation which had been subscribed by friends in England, Scotland, and Wales, as well as Ireland. Sir Frederick, in his reply, evinced the keen interest he has in the society's work and welfare, and acknowledging the testimonial, said he regarded that day not as a milestone but a monument in his life. Lady Moore briefly but happily expressed her evident pleasure and appreciation of the gift.

Obituary.

M. Gaston Bonnier.—We learn that M. Gaston Bonnier, a French botanist and scientist of considerable repute, died during the early part of this week

TRADE NOTES.

WE have received the following letter from Mr. C. J. Thomson, Editor of *The Canadian Horticulturist*, Peterboro, Ontario :—

Recently a well-known seed and nursery firm in England called our attention to the fact that Canada does not allow any nursery stock, such as trees, shrubs, vines, plants, etc., to be imported, and went on to say that Canada was doing what she could to strangle this trade.

This is an entirely wrong interpretation of the regulations relating to the importation of the stock mentioned into Canada, and we are bringing the matter to your attention, in case this misunderstanding is held by other nursery firms who would like to develop a trade with the Dominion. Nursery stock can be imported into Canada, but only by express or freight. Bulbs and herbaceous perennials may be imported by mail.

In order to secure authoritative information, the matter was taken up with the Chief of the Division of Foreign Pests Suppression of the Department of Agriculture, Ottawa, who replied in a letter as follows :—

"I am in receipt of your letter of the 16th inst., in which you enclose a communication from an English nursery firm in reference to the importation of nursery stock from Great Britain into the Dominion of Canada. I may say that this is not the first rumour of this kind that has reached us during the past eighteen months, and we have been endeavouring to trace the source of this rumour, which states that Canada has prohibited the importation of nursery stock from England, but have met with no success so far. The only explanation that we have been able to obtain so far is that the present regulations have been misquoted as the importation of nursery stock through the mail is prohibited. This applies to importations from any country. There have been no changes in the regulations under the Destructive Insect and Pest Act up to the present time. Bulbs, herbaceous perennials, etc., may be imported via the mails, but all nursery stock must come in either by express or freight."

We believe this matter is of sufficient interest to bring before your readers, and so would ask you to give it some publicity.

EXPORTERS of Potatos should note that by a decree dated November 4, 1922, Potatos destined for consumption which are imported into the French Zone of Morocco in future will be subject to the existing regulations respecting the importation of plants and parts of plants for propagation. These regulations provide that consignments may only be imported through ports open to commerce and through Oujda, and each consignment must be accompanied by a certificate issued by the official phytopathological service of the country of origin. Application for such certificates in respect of Potatos grown in England and Wales should be made to the Ministry of Agriculture and Fisheries, at least ten days before the Potatos are to be shipped, in order that arrangements may be made for an inspection of the Potatos at the time of bagging.

CATALOGUES RECEIVED.

HEWITT & Co., LTD., Solihull.—Gladioli.
D. G. PURDIE, 6, Waterloo Street, Glasgow.—Seed Potatos.
H. J. JONES, Hither Green, Lewisham.—Chrysanthemum novelties.
SAMSONS, LTD., 8 and 10, Portland Street, Kilmarnock. —Seeds and Plants.

Flower and Vegetable Seeds.

SALE AND SON, Wokingham, Berkshire.
FOGWILLS SEED HOUSE, Guildford.
LEIGHTON'S, 36, Renfield Street, Glasgow.
FISHER, SON & SIBRAY, LTD., Handsworth, Sheffield.
MCHATTIE AND CO., Chester.
WATKINS & SIMPSON, LTD., Drury Lane, W.C.2.
DAVID BELL, LTD., Leith (Wholesale).
ROBERT VEITCH AND SON, 54, High Street, Exeter.
ALFRED DAWKINS, 408, King's Road, Chelsea.
DICKSON, BROWN & TAIT, Manchester.
DICKSON & ROBINSON, Cathedral Street, Manchester.—

Foreign.

ZWAAN & DE WILJES, LTD., Scheemda, Holland.—Seeds (wholesale).

ANSWERS TO CORRESPONDENTS.

CYANIDING A PEACH HOUSE: *H. C.* It would be quite safe to cyanide your Peach house while the trees are dormant, in the same way as you have treated your vinery for the extermination of mealy bug. At the same time a winter wash, such as V.I. Fluid, used according to directions should clean the trees. If the trees are old, stop all holes and cracks with neat Gishurst Compound. Thoroughly wash the house, and remove all loose and exhausted soil, especially from dry places, before top dressing the border. If you do this and keep a sharp watch for insects when the buds are breaking, you should have no difficulty in keeping the trees clean.

DISEASES OF ONIONS: *G. L.* Onions are attacked in summer by two distinct diseases —one, a mildew, caused by the fungus Peronospora Schleideni, and the other a totally different disease called White Rot (though sometimes erroneously alluded to as mildew), caused by the fungus Sclerotium cepivorum. With regard to the mildew, the plants are attacked in the leaf, and the mildew is carried by spores from leaf to leaf, and shows as a minute, downy mildew on the leaves. The roots are not attacked. A spray or powder fungicide is the best remedy. The second disease White Rot has an entirely different life-history. The fungus lives in the soil, attacks the roots of the plants from about the month of May onwards, and grows up into the bulb, causing its more or less complete destruction. The leaves are not affected, though they turn yellow and die as a result of the injury at the root. Spraying is of no use for this disease; a soil fungicide is required, but so far nothing effectual has been discovered. When the soil is badly infected, the only course is to plant the Onions on clean ground.

NAMES OF FRUIT: *G. E. G.* 2, Woodcock; 3, Cockle Pippin; 4, Cox's Pomona. *J. P. B.* 1, 2, 5, and 7, decayed, not recognised; 3, Mdme. André Leroy; 4, Glou Morceau; 6, Beurré Rance; 8, Chaumontel. *W. B.* 1, Fearn's Pippin; 2, Broad Eyed Pippin; 3, Radford Beauty; 4, Dumelow's Seedling (syn. Wellington); 5, Cox's Orange Pippin; 6, Tower of Glammis. *W. T.* Not recognised; shrivelled, gathered before mature. *G. T.* 1, Kerry Pippin; 2, Calville St. Sauveur; 3, Brabant Bellefleur; 4, Egremont Russet; 5, Allington Pippin; 6, Annie Elizabeth; 7, Washington; 8, Roundway's Magnum Bonum; 9, Dutch Mignonne; 10, Dean's Codlin; 11, Dumelow's Seedling (syn. Wellington); 12, Lady Henniker. *I. H., Dingley.* 1, Rymer; 2, American Mother. *S. L. H.* 1, Lady Henniker; 2, Mère de Ménage; 3, Sturmer Pippin.

NAMES OF PLANTS: *R. I. H.* 1, 4, and 6, Cupressus Lawsoniana vars.; 2, Abies nordmanniana; 3, Cupressus pisifera var. plumosa; 5, Thuya occidentalis; 7, Cedrus Libani; 8, Juniperus chinensis; 9, Abies lasiocarpa; 10, Tsuga canadensis; 11, Pinus Cembra; 12, Sequoia gigantea.

PAINTING HOT WATER PIPES: *T. H.* Lamp black and boiled linseed oil, mixed to the consistency of paint, is all you require for painting your hot water pipes. Have the pipes just warm when painting them, and use neither turpentine nor raw oil, or the pipes will remain dull after painting.

WEEDS IN A CRAZY PATH: *B. R.* The best method of destroying weeds in the crazy path is to use weed killer, but if this is objected to, the plants may be destroyed by boiling water, in which a pound or two of salt has been dissolved. Salt alone would be sufficient to kill the weeds, but its application to each individual weed would be a rather tedious method

Communications Received—J. A.—R. A.—P. S.—H. A. I. M.—W. M.—B. and W.

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THE
Gardeners' Chronicle
No. 1881.—SATURDAY, JANUARY 13, 1923

CONTENTS.

Allotments in Scotland 16
Alpine garden, t e— Douglasia Vitaliana .. 21
Synthyris 21
Anthemis cupaniana .. 26
Apple, a seedless and coreless 16
Apples, home-grown *versus* imported .. 27
Arnold Arboretum .. 15
Australia, notes from— 20
Books, notices of— Fruit Trades Year Book and Diary 17
"Gardeners' Chronicle Directory and Year Book 16
British Carnation Society's annual meeting and dinner .. 15
Cottle's, Dr., expedition to the East .. 15
Cumberland and Westmorland Potato Growers' Association .. 16
Fernery, the— Gymnogramme leptophylla 17
Flower border, hardy— Campanulas 21
Rudbeckia pinnata .. 21
Tricyrtis hirta 21
Fruit garden, the market 24
Galt, Mr. Alex. S. .. 16
"Gardeners' Chronicle" seventy-five years ago 17
Ghent quinquennial exhibition 16
Indoor plants— 20
Legacy to a nursery manager 17
Lithospermum prostratum 26
Lonicera Hildebrandtiana 26
Orchid notes and gleanings— 17
Pear, prolification of .. 19
Plants of special garden merit 23
Potato, degeneration of the 25
Rainfall at Tirley Garth Gardens in 1922 .. 15
Rhododendron on limestone 26
Roville Horticultural College, centenary of the 16
Societies— Tenure of land for 900 years 16
Teucrium fruticans .. 26
Tithe rent charge, redemption of 16
Trees and shrubs— Brooms for woodland planting 23
Vegetables— Early Potatos .. 26
Ward's, Mr. Kingdon, seventh expedition in Asia 22
Week's work, the .. 18
Wisley, notes from .. 19

ILLUSTRATIONS.

Anzrecum mirabile 17
Fruit, a fine exhibit of dessert 29
Galt, Mr. Alex. S., portrait of 16
Pear, prolification of 19
Pyracantha Gibbsii 23
Rubus biflorus var. quinquefiorus 22
Rudbeckia pinnata 21

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 37.9°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 10, 10 a.m. Bar. 30.2; temp., 43°. Weather—Dull.

The Arnold Arboretum.

Within the compass of less than fifty pages* Professor Sargent, the veteran Director of the Arboretum, has recorded the history of the past fifty years of the greatest arboretum in the world—that at Boston in Massachusetts. It is a history of splendid achievement enhanced by the laconic style in which it is written. In it there is none "of Caesar's thrasonical brag"—I came, I saw, I overcame—yet none the less the reader of this quietly told story cannot fail to perceive—what all horticulturists know—that the achievements of the Arnold Arboretum have been great, because they are, in the main, those of a great man—Professor Sargent. The Arboretum owes its origin to James Arnold, a merchant of New Bedford, Massachusetts, who bequeathed a part of his estate to trustees for the promotion of agricultural or horticultural improvements. The trustees were well chosen. The senior, G. B. Emerson, was greatly interested in trees, and the author of a report prepared for the Commonwealth on "The Trees and Shrubs growing naturally in the Forests of Massachusetts." Mr. Dixwell, the second trustee, was also a lover and student of trees and the creator of an arboretum in Jamaica Plain. They determined to apply the Arnold bequest to the establishment of a station for the cultivation and study of trees, and to give greater prominence to the station the trustees placed it under the control of Harvard. The beginnings of the Arnold Arboretum were auspicious, for the first director appointed in 1873 by the President and Fellows of Harvard was Sargent. The task which lay before the Director might have appalled a weaker man. From a worn out farm encumbered in part with natural plantations of trees nearly ruined by excessive pasturage, he had to create a scientific garden with a revenue of less than three thousand dollars a year. With rare foresight Sargent recognised that the way to provide for developments and to give assured prominence to the Arboretum was to link it with the city of Boston in such a way that whilst the land should serve as a public park, it should still be available for the purposes of an Arboretum. As years went on, more land was acquired until now the Arboretum covers approximately two hundred and fifty acres. Within it are meadows and hills and valleys, and its most prominent feature is Hemlock Hill, with high, steep cliffs covered so thickly with Hemlock trees that the rays of the sun scarcely penetrate to the ground beneath them. In the arboretum the trees are planted in family groups in botanical sequence, beginning with the Magnoliaceae and ending with Pinaceae. Each kind is planted in a group and of each there is also a single specimen planted near the drive. In addition to trees, hardy shrubs are planted in beds ten feet wide and covering a length of 7,765 feet, grass paths separating the beds. The specimens are representative of the cool temperature and colder parts of North America, Europe and Asia, including the higher altitude of the Himalayas and more southern mountains. Plants from the southern hemisphere are, however, not represented, as none—not even those from the high Andes, Southern Chile, nor the higher mountains of New Zealand—have proved hardy in the Arboretum. The collection nevertheless numbers between five and six thousand species and varieties of tree and shrub. In the work of making so vast a collection North America, Europe, the Caucasus, Siberia, Korea, the Empire of Japan, have been each laid under contribution. Of the collectors for the Arboretum, Mr. E. H. Wilson, the Assistant-Director, has won for himself, and for the Arboretum, great renown. There is, indeed, scarcely a country in the world which has not been visited and explored by Wilson or by other of the agents of the Arboretum. The list of introduced plants, which covers eighteen pages, is a tribute to the energy and success with which the work of discovering and introducing valuable plants has been conducted. Those who have had the good fortune to visit the Arboretum will have the memory of its beauties quickened as they scan the list of species or varieties of Acer, Berberis, Crataegus, Lonicera, Malus, Prunus, Rhododendron, Rubus, Viburnum and other ornamental trees and shrubs which embellish it; of Hawthorns alone there are 735 species and varieties. No account of the Arnold Arboretum would be complete without reference to Jackson T. Dawson, the sturdy Yorkshireman, the first superintendent, who held his office till 1916. As Professor Sargent states, Dawson was unrivalled as a propagator of plants. It is estimated that during his forty-two years of service, Dawson raised over a million plants, and it is certain that there are few public or private gardens in the northern hemisphere which do not owe some of their beauty to his talent. And now, after looking back on his labours of fifty years, Prof. Sargent turns in the concluding pages of his history to indicate what should be the future developments of the Arboretum. He sees in it a great organisation for the advancement of knowledge of trees, one which shall continue to be even in increasing measure a help and inspiration not only to American students and growers of trees, but to those of all nations. It will be the hope of all horticulturists that Prof. Sargent's aspirations for the further development of the Arboretum may be fulfilled; but no matter how brilliant the future of the Institution may be, it will always gain lustre in the eyes of men by reason of the present Director's great and continued good work in promoting knowledge and love of trees.

*The First Fifty Years of the Arnold Arboretum. *Journal of the Arnold Arboretum.* Vol. III., No. 3, January, 1923.

Our Almanac for 1923.—Continuing our usual custom, we present our readers with an Almanac for the ensuing year. Every endeavour has been made to secure accuracy in the dates of meetings and exhibitions, and those given have been sent us by the secretaries of the societies concerned. It may save some correspondence if we point out that the meetings of the Wakefield Tulip Society are held on Sundays. Some dates are provisional, and, of course, circumstances may combine to necessitate the alteration of certain exhibition dates given, but readers will understand we are not responsible for inaccuracies arising in this way. *The Gardeners' Chronicle* Almanac for 1923, printed in two colours and on better paper than usual, will, we believe, prove as useful to readers as its many predecessors.

Dr. Cottle's Expedition.—It is interesting to learn that Sir Jeremiah Colman, Bart., Gatton Park, has received the first consignment of Orchids collected by Dr. Cottle. On his way to the East, Dr. Cottle called at Paramaribo and stayed for some weeks in Dutch Guiana. Leaving the "Malaya" he made a motor boat trip of 120 miles up the Saramocca River; and thence by canoes he explored many creeks. Orchid collecting in the Guiana swamps he found difficult, and his journey was associated with fevers and insect pests. Included in the species collected are: Aspasia, Brassia, Epidendrum, Stanhopea, Stelis, Gongora. Ornithidium Ornithocephalus, Zygopetalum, Maxillaria, Polystachya, and Rodriguezia. At the present time such an importation is specially valuable, as new species will probably be included as well as some already known to science, but possibly not now represented in gardens.

British Carnation Society's Annual Meeting and Dinner.—The Annual General Meeting of this Society will be held on Tuesday, January 16, at the Hotel Belgravia, Victoria, London, S.W., at 7.30 p.m., preceded by dinner at 6.30 p.m.; tickets 5s. 6d. each. The Society's Floral Committee will meet at the Royal Horticultural Hall, on Tuesday, January 16, at 10.30 a.m., for the consideration of new varieties. Meetings will also be held for a similar purpose, at the same place and hour, on the occasion of the first meetings of the R.H.S., in February and March. Raisers are invited to correspond with the Hon. Secretary, Mr. P. F. Bunyard, 57, Kidderminster Road, Croydon.

Gardeners' Royal Benevolent Institution.—The annual meeting of this excellent charity and the election of beneficiaries to its fund will take place on January 25, at Simpson's Restaurant, 101, Strand, W.C.2, commencing at 2.45 p.m. The voting papers have been sent out to subscribers and these, duly filled in and signed, should be forwarded to the Secretary, 92, Victoria Street, S.W., on or before January 24, or failing that, should be delivered to the chairman at the place of meeting before 4 o'clock on January 25.

Rainfall in 1922 at Tirley Garth Gardens, Tarporley.—Mr. J. B. Allen informs us that the rainfall at Tirley Garth during the past year amounted to 29.98 inches, or 8.67 inches more than in 1921. The heaviest rainfall occurred on July 5 and December 18, when on each day 1.18 inch was registered. October was the driest month, with .39 of an inch. In September the

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rainfall amounted to 4.13 inches, and this was the wettest month of the year, with 14 rainy days. December had the largest number of rainy days, with a total of 25. There were 190 days in the year on which .01 of an inch or more of rain was registered, and 146 rainy days on which .04 of an inch or more was registered. The driest spell of weather was from May 21 to June 11, when there were 21 dry days. The hottest day was May 31, when the thermometer rose to 87° in the shade. The coldest day was February 5, when 14° of frost was registered.

Redemption of Tithe Rent Charge.—The Minister of Agriculture and Fisheries gives notice that, for the purpose of the redemption of tithe rent charge for which application is made after December 31, 1922, until further notice, the "gross annual value" for the purposes of the Tithe Act, 1918, will be at the rate of £104 for each £100 of tithe rent charge (commuted value) and the compensation for redemption will be twenty-two times the "gross annual value" after the deductions therefrom prescribed by the said Act have been made. The above figures have been settled on the recommendation of a Departmental Committee consisting of Sir Charles Longmore, K.C.B. (Chairman), Sir Henry Rew, K.C.B., and Mr. W. R. Le Fanu

Continuous Tenure of Land for 900 Years.—According to *The Times*, investigations made by the French Ministry of Agriculture with a view to the award of the Croix de Merite Agricole have brought to light a case of continuous tenure of the same lands by the same family since the year 1023. M. Lascassiès-Pouplan, of Lucgarrier, near Pau, the present holder and the twenty-fourth in succession as head of the family, keeps the old family documents which have proved his claim in a cupboard, bound with iron, which is itself so old that its exact age is not known. Among the documents is a book in which an ancestor has entered the names and dates of births of all his predecessors as far back as he could trace them. M. Lascassiès-Pouplan now holds about two hundred acres. He has been Mayor of Lucgarrier since 1907.

Allotments in Scotland.—The Glasgow Corporation has been invited by the Secretary for Scotland to consider the expediency of encouraging an enlarged type of allotments around the city. According to the *Glasgow Herald*, the scheme is intended to be a relief measure for unemployment, by affording means for the maintenance on the land of numbers of persons who are at present entirely dependent on urban industry. As the proposal is to provide four or five acres of arable land for each holder the scheme is intended to provide a means of livelihood. It would require a person's whole time to cultivate such an area; indeed, we doubt whether a skilled person would be able to manage a plot of that size alone. The *Glasgow Herald* is, we think, right in its contentions that the time is inopportune for the launching of such a scheme, as skilled cultivators of the soil are finding it exceedingly difficult to make small holdings profitable, owing to a variety of causes, the chief of which is the great slump in prices for produce. In rural areas it might be possible to retain on the land men already engaged in such cultivation, but it is doubtful if townsmen would take kindly to such work, for experience has proved that in the majority of cases they are entirely unfitted for a rural occupation of this nature.

Cumberland and Westmorland Potato Growers' Association.—A meeting of Cumberland and Westmorland farmers, Potato-growers, and seed merchants, called by Principal R. Lindsay Robb, Newton Rigg Farm School, and Mr. R. B. Strang, of the Ministry of Agriculture, was held in the George Hotel, Penrith, on Tuesday the 2nd inst., to consider the advisability of forming a Potato Growers' Association for the two counties. The meeting was very largely attended, and those present unanimously decided to form such an association. Mr. F. Armstrong, White Ox Farm, was elected chairman, and Principal R. Lindsay Robb, Vice-Chairman, with a strong committee consisting of twelve representatives from each county. Mr. D. S. Anderson, Horticultural Department, Newton Rigg Farm School, was appointed Secretary and Treasurer.

Mr. Alex. S. Galt.—The lecturer and adviser in horticulture to the University of Leeds, though still a young man, has had a wide and various experience in horticultural matters, and this experience has been of incalculable value to him since he became associated with horticultural activities in Yorkshire. His father, an old Kewite, was a famous gardener, and for many years had charge of the beautiful gardens at Aldermaston Court, near Reading, where the subject of this note was born. His early education was acquired at Aldermaston and at Mortimer West, but this was supplemented by study at the science and art classes at the University College, Reading. Commencing his horticultural training at home, he obtained experience at several gardens and nurseries in various parts of England and in Wales, including a period of two years in the Royal Gardens, Kew. After this practical training,

MR. ALEXANDER S. GALT.

Mr. A. S. Galt became a journalist and for some time was on the staff of *The Gardening World*, under Mr. Brian Wynne, and subsequently under Mr. J. Fraser; eventually he joined Messrs. Cassells and edited *Popular Science*. Leaving journalism, he became Instructor in Horticulture to the Technical Education Committee of the Berkshire County Council, but gave up this appointment to take over a market nursery and fruit farm, where the principal crops he cultivated were Cucumbers, Tomatos, Grapes, Nuts and hardy fruits generally. Concerning this business Mr. Galt naïvely observes that although he did not make much money out of it, he obtained a lot of invaluable commercial experience. In 1908 he became Instructor in Horticulture in Yorkshire, and was appointed Horticultural Lecturer and Organiser in 1917. At this period his activities covered the three Ridings of Yorkshire, a huge area with varied soil and climatic conditions, and his work included lecturing to allotment holders, the training of teachers, University classes, Training College classes, advisor in cultural problems, the oversight of school gardens, and administrative work generally. During the war Mr. Galt was occupied largely in lecturing on food production in various parts of the county, and his record attendance for any one meeting was an audience of 3,500. During the same period he was adviser to the Northern Command in connection with the cultivation areas attached to the numerous camps, and he also assisted Mr. F. J. Chittenden at Wisley in connection with the Horticultural Lecturers' training classes. His present position is that of Lecturer and Adviser in Horticulture at the University of Leeds and supervisor of the University grounds and playing fields. He is Lecturer in Horticulture at Leeds and Bingley Training Colleges, the representative of the University of Leeds to the Chamber of Horticulture, and garden editor of the *Yorkshire Weekly Post*. Mr. Galt is the author of numerous pamphlets published by the University of Leeds, and has for the last four years been examiner in horticulture at University College, Reading.

Centenary of the Roville Horticultural College.—On November 18, 1922, the centenary of the founding of the training college at Roville was celebrated at Nancy, France. M. Henry Chéron, Minister of Agriculture, was present, and gave an interesting address dealing with the life and work of Mathieu de Dombasle, the founder of the college. M. Chéron said that what he chiefly admired about de Dombasle was the indomitable faith which saw a great future for French agriculture. All great men had faith; without it they could never influence their fellow-men. It was for those who profited by de Dombasle's great work to continue it to the best of their ability, and, like him, to have faith.

Horticultural Directory and Year Book.—Our *Horticultural Directory and Year Book*, containing a list of the principal gardens in the country, together with an alphabetical list of gardeners and their addresses, and other useful matters of reference, has been thoroughly revised, and is issued by our Publishing Department for 3s. 6d. net; 4s. post free. The previous edition was revised in 1919, and as there have been many changes in gardens since that time the new work forms a valuable up-to-date list of gardeners and their addresses, such as is especially useful to nurserymen and horticultural traders generally. The old features of the work are retained, including postal information, names and addresses of county staff instructors in horticulture; a list of the principal horticultural societies in Great Britain and Ireland; botanical gardens at home and abroad; the principal public parks and gardens in Great Britain and Ireland; and addresses of nurserymen in Great Britain and Ireland. Every effort has been made to ensure accuracy, and the work, now the only one of its kind, has been reissued in response to numerous applications from those who find it a valuable companion for the desk.

Ghent Quinquennial Exhibition.—The Joint Sub-Committee of the Chamber of Horticulture and the Royal Horticultural Society has arranged to hold a conference at 18, Bedford Square, on Wednesday, January 17 next, 11.30 a.m., to which all growers and firms interested in taking part in the Ghent Quinquennial Exhibition are invited. The show takes place at Ghent from April 14 to 22. Many leading firms already have intimated their intention of making an individual display and taking part in a collective English exhibit. It is hoped that others contemplating taking part will make a point of attending the above conference, when plans will be discussed.

A Seedless and Coreless Apple.—An exhibitor in Canada, at a meeting of the Pomological and Fruit Growing Society of the Province of Quebec, showed a seedless and coreless Apple of the Fameuse type. According to the American *Florists' Exchange*, the business of the meeting was almost forgotten in discussing the strange specimen. The Apple is said to be slightly more flattened at the end and a little longer than the ordinary Fameuse, but has the typical colouring and flavour of that variety. Except for a faint colouring of the flesh at the centre, the Apple is said to be without even a vestigial core. It was found by Mr. Buzzell, of Abbotsford, Quebec, in a new orchard where the trees are just coming into bearing. Whether or not the tree will bear coreless Apples again is not certain, but if it can be perpetuated it would prove, as the *Florists' Exchange* states, of enormous value.

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A Handy Diary for the Desk.—The diary issued by the Lockwood Press, under the title "The Fruit, Flower and Vegetable Trades Year Book and Diary," is of more service than the majority of such publications, for the diary section allows plenty of space for making records each day of the year, and each page of the diary is conveniently inter-leaved with blotting paper. The book would serve the purpose of gardeners for making notes of sowing and planting and other routine work of the garden, as well as for recording events, dates of shows, meetings, etc. The pages are also ruled for entering moneys received and paid, whilst those for recording memoranda are handy to jot down particulars that might otherwise pass from the memory. Those engaged in the fruit, flower and vegetable trades are presented with a mass of useful information, much of which, such as a spraying calendar, monthly operations in the orchard, garden and nursery, tables of weights and measures, distances at which to plant, sizes of flower-pots, a ready reckoner, and postal information, are of value to gardeners. Traders will be especially interested in the very complete returns of prices realised for garden produce in Covent Garden Market, each month of the year, the statistical tables of imports, and the various Government enactments having a direct bearing on their particular industry. The diary is good value for the small sum of 2s. net at which it is sold.

Legacy to a Nursery Manager.—The late Mr. Wm. Whorlow Bunting, J.P., of Trinity Lodge, Colchester, head of Messrs. Bunting and Sons, bulb merchants, who died on August 8, leaving property to the value of £28,806, bequeathed his freehold nursery ground, with the dwelling-house and greenhouses in Lexden Road, also his business capital and stock, to Ernest Joseph Barnes, his manager, subject to the payment by him of £250 a year to the executors during the life of his wife, an annuity of £52 to Martha Smee, any amount as the net value of the premises should exceed £20,000, and all death duties. Mr. Bunting also left £100 each to his foremen, Alfred Schafle, Walter Glayden, and William Wilsher.

Appointments for the Ensuing Week.—Monday, January 15.—Royal Oxfordshire Horticultural Society's annual meeting. Tuesday, January 16.—Royal Horticultural Society's committee meet; National Rose Society's annual meeting. Thursday, January 18.—Manchester and North of England Orchid Society's meeting; Aberystwyth Chrysanthemum Society's annual meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Eshton Hall Vines.* In last week's paper you allude to Mr. Roberts' success in Vine growing at Eshton Hall up to 1841. But Mr. Roberts did not leave Eshton Hall till May 16, 1844. I went on the 15th of the same month, and found the Vines in a good growing state, with plenty of Grapes on them, and they still remain in good condition. I have, on the rafters, thirty-four Vines, and on the back wall thirty, making in all sixty-four Vines, each of which produces yearly twenty pounds of Grapes. My plan is not to allow a Vine to bear more than twenty bunches of Grapes, which swell finely, and we might travel a long way ere we met with Vines to match those at Eshton. I have this year obtained eleven prizes for Grapes at three shows, and last year seven prizes at two shows. In fifteen years I have received sixty-four prizes for Grapes in Lancashire and Yorkshire. Mr. Roberts and I do not essentially differ in the treatment of the Vine. I agree with the maxims laid down in his book, with one exception, viz., the carrion. For a border I like fresh sods and dung in a fresh state—say, six cartloads of good sods, one cartload of leaf mould, and one cartload of horse-droppings, in the same state as used for Mushroom beds; this mixed up together, and also applied as top dressing every year, will keep Vines in a flourishing condition. This compost is what I have used for new borders, and for top-dressing old borders, for above thirty years, and I have always met with success.—*George Cherry, Eshton Hall, Dec. 29. Gard. Chron., Jan. 8, 1848.*

ORCHID NOTES AND GLEANINGS

ANGRAECUM MIRABILE, HORT.

THE charming Angraecum exhibited by Messrs. Sanders, St. Albans, at the Royal Horticultural Society's meeting on December 12, 1922, attracted considerable attention, as new or rare Orchid species are rarely seen nowadays. This newcomer is of small growth and has arching spikes, on which the dainty flowers are borne in two rows. The individual blooms are of fair size for so small a plant, and they are white or cream tinted, with a reddish-coloured apex to the column. A spike of flowers bears, at first sight, some resemblance to a small inflorescence of A. citratum, but there are many differences, while the leaves are not broad and rounded, as in the last-named species.

This Angraecum has not been determined at present, and until the Kew authorities have had an opportunity of studying it the name of A. mirabile will suffice to distinguish it. The speciment is now in the collection of H. T. Pitt, Esq., Stamford Hill, which includes many uncommon and interesting Orchids.

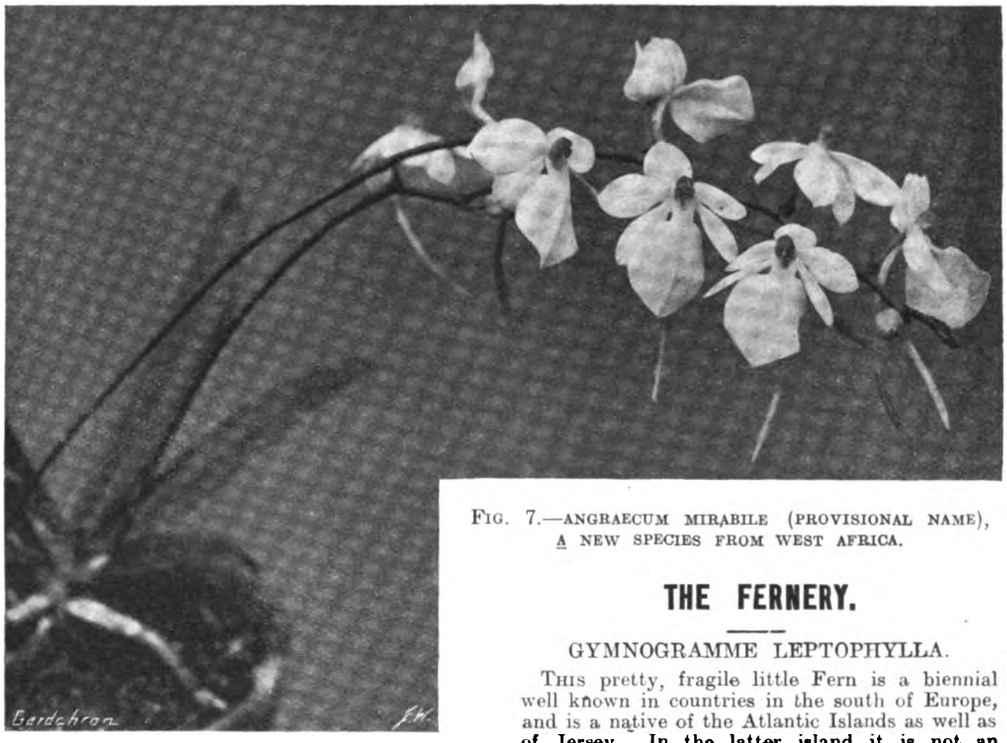

FIG. 7.—ANGRAECUM MIRABILE (PROVISIONAL NAME), A NEW SPECIES FROM WEST AFRICA.

Angraecum mirabile (Fig. 7) was sent to Messrs. Sanders by Mr. C. N. Lankester in 1921 from the West Coast of Africa, together with a Polystachya with small lilac-coloured flowers, Eulophia lurida and one or two other Angraecums. Mr. Lankester was impressed by the beauty of this Angraecum, and as Messrs. Sanders knew of no species in which the flowers showed such contrasting colours, they gave it the provisional name of A. mirabile. Two plants were sent by Mr. Lankester, but unfortunately only one reached St. Albans alive; this, however, has flowered, and is the one reproduced in the illustration.

CATTLEYA DOWIANA.

SOME three hundred direct crosses have been made with this grand Costa Rica Orchid, and its Colombian variety called C. Dowiana aurea, which has no botanical difference, but which in the earlier days of Orchid hybridisation raisers attempted to record under a separate name, thus introducing a difficulty in the recording of the hybrids of this section. Messrs. Sanders, in the last edition of their book on Orchid hybrids, wisely gave the name of the typical plant as that of both varieties, using, with the concurrence of the late J. Gurney Fowler, Esq., then chairman of the Orchid Committee of the Royal Horticultural Society, C. Dowiana for all forms of the species, excluding C. aurea which, with the contemporary garden name of C. gigas for C. Warscewiczii, was not admissible. It therefore appears that to follow Messrs. Sanders' lead in records subsequently published by hybridists would be the best and only reliable plan. The difference between the two forms of C. Dowiana is the somewhat softer substance of the leaves of the Costa Rica plant, induced by climatic conditions, but this character soon gets lost in hybrids. A curious difference in their native habitats is the frequent production among C. D. aurea of natural hybrid variations classed as forms of C. Hardyana, while the Costa Rica plants have given but one such—C. Dowiana Rosita, sent by the late Mr. Richard Pfau of Costa Rica in 1893, the small plants being from one specimen collected by him. It has rose-mottled petals and a large and richly coloured lip, and Mr. Pfau, who collected it, and knew the Costa Rica Orchid flora perfectly, was quite at a loss to account for its colour, as there was no species near it in its habitat to admit of hybridisation. He favoured the idea that it was an abnormal floral variation. *J. O'B.*

THE FERNERY.

GYMNOGRAMME LEPTOPHYLLA.

THIS pretty, fragile little Fern is a biennial well known in countries in the south of Europe, and is a native of the Atlantic Islands as well as of Jersey. In the latter island it is not an uncommon plant on grassy hedge-banks, and by the side of rivulets.

The common name of this Fern is Annual Maidenhair, from its general resemblance to some of the Adiantums.

For some years past its growth in Jersey has led some botanists to enumerate it among British Ferns, and it has been stated, on good authority, that it grows in some spots of the United Kingdom; the locality, however, is not revealed, doubtless from the apprehension that some botanists might visit the spot and entirely eradicate the plants.

It requires a clay soil, a very damp and densely sheltered situation, and generally a large quantity of Asplenium lanceolatum is found growing near by.

When cultivated, this is indeed a very pretty Fern. At the end of the summer its fronds arise from spores sown in the spring and are very small, but early the following year some taller fronds gradually develop, and these when fully grown are 3 inches to 4 inches high, and extremely delicate in texture.

They are thrice pinnate, and the end pinnules, bluntly wedge-shaped, or rounded, are three-lobed, the lobes terminating with two blunt teeth.

This Fern needs to be grown in deep shadow where the atmosphere is very moist. *W. Miller, Mill House, Warley, Essex*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Watering.—During the recent wet, sunless weather the watering of Orchids has called for special care. Too much water at the roots not only does the plant much harm, but spoils the compost, and with it the roots. The greatest responsibility rests on those who are entrusted with the watering of valuable plants. The cause and effect of too much water is the same as too little, one resulting in the decay of the roots, the other causing them to shrivel and die, the loss from either cause being extremely harmful. Should there be any doubts as to a plant requiring water, pass it over until thoroughly convinced it requires it. Plants differ very much, even of the same species, in the amount of moisture they are capable of assimilating, and the grower should use his discretion as to whether water is required or not. Again, at this season certain plants of different species are at rest; some of these will require water at the roots from time to time, whilst others may be kept quite dry, but in no case should any plant be allowed to shrivel. The condition of the compost in which the plant is growing will have some effect on the quantity of water required, as some composts retain moisture longer than others; again, the house may be either a dry or damp one, and this must be taken into account. At this season it is wise to err on the side of too little moisture. The great thing to prevent at all times is a saturated compost and atmosphere, as many so-called plant diseases are attributable to faulty watering and a cold, wet atmosphere. A safe rule is to keep the plants on the dry side until growth or root action commences, trusting principally to the humidity in the atmosphere to bring them safely through the winter. These remarks are chiefly applicable to Orchids with pseudo-bulbs which store up sufficient food for them during their resting period. Plants without pseudo-bulbs need watering whenever the roots become dry. Those plants that are in full growth should have sufficient water applied to them to enable them to form strong growth. During severe weather, when much fire heat is necessary to maintain the temperatures, care should be taken that plants near the hot-water pipes do not suffer from severe dryness. Too much care cannot be taken in making the conditions and surroundings of the plants to their liking, especially during the winter months. In applying water always saturate the compost.

THE HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Pruning.—Contrary to our usual practice, we made the summer and winter pruning practically one operation, leaving only the pruning of doubtful shoots and leaders and spur reduction until the winter; the work is now completed. Wounds and cuts on all wood made previous to last season should be dressed with tar or foresters' styptic. This is especially necessary in the case of trees subject to silver leaf disease or canker. Large wounds from broken or dismembered limbs should be cut level with the main branches. The use of a chisel will be found necessary in awkward positions. Stone fruits are particularly liable to develop coarse wood, too often through a loose rooting medium. Instead of wood suppression it will be found more advantageous to lift and replant the trees.

Bush Fruits.—In pruning bush fruits it is very important that shoots to be retained should have sufficient room and light. To obtain good results new growths should be encouraged to develop. In the case of Red Currants and Gooseberries, keep the main stem a suitable height, sacrificing, if necessary, the lower branches. The method of growing the main branches of Red Currants from the base has the advantage, in exposed districts, of lessening damage by the wind. The main principle in pruning fruit generally should be to keep the tree or bush furnished with young, vigorous growths. In dealing with older bushes a medium course may be adopted by which a certain quantity of old, spur-producing wood is retained, while encouraging growth from those that have been cut back. Wood that has been allowed to become stunted, especially on Red Currants, produces large quantities of racemes, with small berries. The importance of summer pruning bush fruit is often overlooked. Where not already done, bush fruits should be mulched with rich farmyard manure.

Wall Trees.—Proceed with the training and nailing of wall trees. Peaches and Nectarines should not be allowed to develop long, thick, useless wood. Sufficient space should be allowed for training in the young shoots, which should never be cramped for space. Mal-nutrition is sometimes mistaken for silver leaf; suspected trees should, however, be watched. Should the winter form of silver leaf disease develop at the base of trees, such trees should be destroyed. These, and a layer of at least two inches of surface soil round the tree should be removed and burnt.

Strawberries.—Young plants that have become loosened by frost should be made firm in the soil. If not mulched with manure the surface around the plants should be cleared of weeds, and hoed on favourable occasions.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Isoloma hirsutum.—This is a very useful plant, and by growing successional batches it may be had in flower all the year round. Good plants are quickly obtained by inserting five or six cuttings in a sixty sized pot. When rooted, the cuttings should be potted on intact. Plants rooted in this way last autumn are now ready for re-potting. This plant may also be increased by means of its scaly rhizomes. It grows well in a house having an intermediate temperature; during the summer, when in flower, it will give a bright display for a long time in the cool greenhouse.

Tuberous-rooted Begonias.—Seed of tuberous-rooted Begonias should be sown now, and the seedlings, if well grown, will flower during the autumn, making a succession to the plants grown from dry tubers. The seed pans should be well drained and filled with light, rich soil, which should be watered with a fine rose can some hours before sowing. The fine seed should be placed on the surface, afterwards covering the pans with a piece of glass until germination takes place. If water is necessary, stand the pans in a vessel of water and thus prevent disturbance of the surface.

Grevillea robusta and Jacaranda ovalifolia.—These elegant foliage plants are very popular for decorative work, and may now be sown. Grevillea seeds often fail to germinate successfully if they are sown in the ordinary way; being thin and flat they are apt to rot. Successful germination is generally assured if the seeds are placed on edge in the compost.

Hippeastrums. — A number of bulbs of Amaryllis, according to requirements, should be started in a warm-house. For this earliest batch select plants that were started early last year, as they naturally finished their growth early, and should respond to forcing more readily than later plants. Plants should also be selected that have plenty of active roots and do not require repotting. After thoroughly soaking the roots with water turn them out of the pots and correct the drainage, if necessary. The plants should also be examined for mealy bug, which is apt to prove troublesome. Some of the top soil should be removed, and rich compost, to which fine bone meal has been added at the rate of a 6-inch potful to every bushel of soil, substituted. The pots should then be plunged to the rim in a bed of fibre, over plenty of bottom heat.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Sites for Planting.—In many gardens all planting was finished by Christmas, but where the work has been delayed it should be continued in the New Year when the weather and condition of the soil are favourable. Should it happen, as it does occasionally, that the weather of winter is too inclement to undertake planting for a time, it will greatly facilitate the work—when it can be done—to have the station prepared in advance for trees or flowers. Discretion should be exercised in getting the sites ready, as there is no need to loosen the subsoil unduly where strong-growing trees or shrubs are to be planted, but the chosen subjects will require all the help good tillage can give. The nature of the soil should also be studied—adding manure here, leaf-mould there, as the need may be, and dispensing with the use of either where the condition of the ground suggests high fertility. If in preparing any position for planting stagnant water is noticed, means must be adopted to ensure a free passage for moisture by some form of drainage best suited to the surroundings.

Protecting Plants.—Little of this work has been necessary up to the moment of writing; but it will be advisable to have the protective material in readiness so that it can be quickly adjusted should the occasion arise. Choice shrubs growing in the open are best protected by placing tall stakes gipsy-tent fashion around them, so that some covering material may be hung over them in severe weather, and easily taken off when not required. Where tender subjects are growing against walls or fences, and are still thought unsafe, a few evergreen branches interlaced between a few pieces of string stretched across the plant will, in most cases, be sufficient. Newly-planted Roses should have light soil placed around their bases so as to form small mounds, while straw or Bracken Fern may be strewn among the tops of the plants in very cold districts. Established Tea Roses also may call for a little extra care in extremely cold weather.

Flower Beds.—Flower beds and borders that have not been planted with spring-flowering plants should be dug deeply after having applied such enriching materials as may have been considered necessary. The ground where Sweet Peas are intended to be grown either in rows or clumps should also be got in readiness—in fact, this work should have precedence over that required for the usual summer beds, because the seeds or seedlings of this popular annual will be ready for their places first. Some manurial assistance is necessary for Sweet Peas if they are to be expected to continue blooming all the season, and where farm-yard manure is not available a good substitute will be found in the lawn grass-mowings and fallen tree leaves of last season mixed together. These materials should be placed well below the surface.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Early Peaches and Nectarines.—Take advantage when the days are bright and sunny to thoroughly spray the trees, as it is not desirable to spray them during dull, cold weather, for an excess of moisture during the early stage of growth will unduly hasten the growth of the young shoots. In forcing Peaches and Nectarines the most important point is to keep the house comparatively cool up to the flowering period, as this will ensure an even balance of growth between flower-bud and shoot. Plenty of moisture should be maintained in the atmosphere and air should be admitted freely whenever the weather is favourable. Use a minimum amount of fire heat, closing the house fairly early in the day to conserve the sun-heat. It is far better to allow the temperature to drop a few degrees than to make the pipes very hot in an attempt to keep up the temperature; about 45° at night and 50° without sun-heat through the day will

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suffice to commence with. See that the border is not dry near the pipes, and, if necessary, water it freely with tepid water.

Pot Vines.—Pot vines which were started with bottom heat in November may now have the laterals tied down and stopped. The earliest varieties will be coming into flower, at which stage afford a temperature of 60° to 65° at night, and by day from 70° to 75°, with a further increase up to 80° when the sun shines. Maintain a moderate amount of atmospheric moisture by damping the paths and other available spaces. Add fresh fermenting material if the hotbed shows signs of losing heat. A little air should be admitted through the top ventilators when the weather is favourable, taking care to prevent cold draughts. Watering should receive careful attention, and, as the roots are active, feeding may be resorted to, very mildly at first. Pot Vines introduced at a later period will soon require disbudding. The strongest and best-placed shoots should be selected, leaving the laterals 18 inches to 20 inches apart on either side. The night temperature may range from 55° to 60°, with a rise of 10° during the day; a slightly lower temperature is more desirable during severe weather than overheating the pipes to obtain a fixed degree of warmth. For watering the vines use tepid water only.

Early Vinery.—Vines started in the latter part of November or early part of December require disbudding. It is advisable to allow two of the strongest growths on each spur to remain until an inflorescence is seen, and then remove the weaker one. Early forced vines are at times somewhat erratic in showing bunches, and by reducing the laterals to one at too early a stage the retained shoot may fail to fruit. The atmospheric conditions should be regulated according to the state of the weather; undue forcing is not advisable, as a very high temperature with excessive moisture would cause the growth to be weak and spindly and render the foliage liable to an early attack of red spider.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Hot-beds.—Plenty of leaves being available, hot-beds should now be made with them and long stable litter, using two parts of the former to one of the latter. Mix the leaves and dung and make the bed firm to conserve as much heat as possible. Allow the beds a few days to settle, and then place the frames thereon. The hot-bed should be two feet wider all round than the frames to permit of adding fresh material as linings. Plunge a stick into the centre of the bed and examine it every day; when the heat is on the decline the frames may be filled with prepared soil. The old compost in which Chrysanthemums and other plants have been grown is suitable for the purpose; it should be sifted through a half-inch sieve and mixed with its bulk of loam and leaf-mould.

Work during Inclement Weather.—During wet weather take advantage of the opportunity to sharpen Pea and Bean sticks, make labels, and clean out sheds and storehouses. Examine the stocks of Potatos, removing all bad and faulty tubers. In the event of frost, wheel manure to vacant land intended to be dug or trenched; a certain portion of the vegetable garden should be trenched every winter. Deeply-dug ground is especially necessary for such crops as Onions, Cauliflowers, Peas and Beans. All rubbish should be burnt, the ashes spread on the ground, and dug in, as they form a valuable fertiliser.

Plants in Frames.—Autumn-sown Cauliflowers that are being wintered in frames should be examined occasionally, and leaves that have damped off removed, and the surface soil stirred lightly with a stick. Remove the lights on mild days, but cover the frame well at night in the event of severe frost. Do not, however, coddle the plants on any account, or they will become weak and spindly. Endives and Lettuces should also be kept clean, and sufficient of the former tied up to blanch as required. Keep a close watch for mice or rats, as they will cause much damage amongst young plants, especially Cauliflowers.

PROLIFICATION OF PEAR.

THE illustration in Fig 8, shows a remarkable example of prolification of Pear, the branch growing from the apex of the fruit being a normal one in every respect, and measuring one and a half foot in length. The buds and leaves were quite normal, the foliage, as will be seen on reference to the illustration, being as large and well developed as that on the shoot below the fruit. The tree on which the remarkable abnormality occurred was a maiden Pear of the

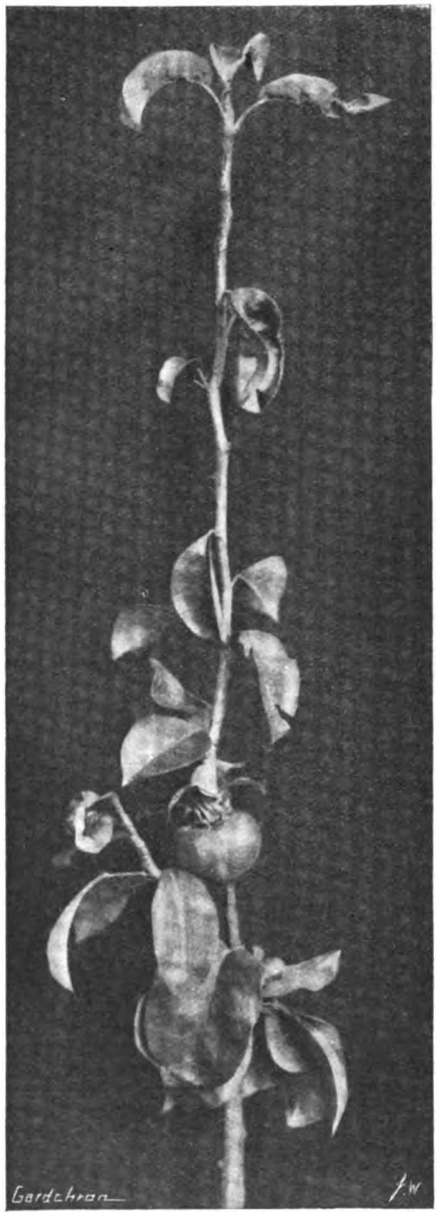

FIG. 8.—PROLIFICATION OF PEAR.

variety Marguerite Marillat, in the nursery of Mr. J. C. Allgrove, Middle Green, Langley, Slough. The stock was budded in August, 1921. In the following spring the bud developed a growth shoot and a flower bud; the latter expanded, set, and a fruit formed. The fruit swelled, and at the end of May a shoot growth developed from the eye, and continued to grow strongly throughout the whole of last summer By the end of September this proliferous shoot was 18 inches in length. The fruit also continued to swell until it was the size of a hen's egg. The third week in October the fruit began to soften and gradually wasted until only the loose skin hung round the base of the shoot. The stalk of the fruit gradually withered and died, and the proliferous growth, having nothing to support or connect it with the stock, also died. The other growth from the original bud remains healthy and has grown about eight inches long.

Masters, in *Vegetable Teratology*, refers to prolification in Pears as follows: "In some of the instances of so-called proliferous Pears the carpels would seem to be entirely absent, and the dilated portion of the axis to be alone repeated. Thus, the axis dilates to form the lower fruit without any true carpels being produced, but at its summit a whorl of leaves (sepals) is formed; about these another swelling of the axis takes place also without the formation of carpels, and this, it may be, is terminated in its turn by a branch producing leaves. In these cases there is no true prolification, but simply an extension of the axis." In Mr. Allgrove's example there were no rudimentary leaves on the fruit and the branch grew direct from the eye.

NOTES FROM WISLEY.

THE greatly increased cost of heating greenhouses has had the result of stimulating the cultivation of plants requiring little or no heat to flower early. Continuous trials are held at Wisley for the purpose of acquiring further information in this respect, and to discover the most suitable plants. Last year Antirrhinums were grown, and made a good show. Recently a house has been filled with Salpiglossis which are expected to flower about April, just sufficient heat being given to keep out the frost.

Many varieties of perpetual-flowering Carnations are now on trial, and among those flowering well at Christmas, Benora, a white and red fancy, was conspicuous. White Benora was also good, but almost all the flowers show specks of red. Among the shades akin to claret, Mrs. K. Kyffin has well-formed flowers and noticeably erect stems. Perpetual Malmaisons are in good form, several varieties under trial possessing long stems and consequent freedom from the defects of dumpiness.

In the Alpine house some members of the Primrose family are flowering freely, including Primula × Juliana, with its large purple flowers, and Soldanella montana. A pan of the latter in full bloom makes a delightful picture. The petals are almost a violet colour when the buds burst, but, as the stems elongate and carry up the feathery bells, so the colour pales. This species generally precedes by about three weeks S. alpina, which is also to be seen in the Alpine house. Among the Saxifrages, the grey rosettes of S. Griesbachii are beginning to throw up their flowering shoots, exposing crimson hairs, while some of the Burseriana group are already in bloom.

On the rock garden there is little to be seen, as is usual at this time of the year, and although occasional blooms are to be seen on Rosemary, Primula Juliae, and a few other plants, the only one flowering whole-heartedly is Primula Winteri. This is now comparatively well known, and a colony of it has been established for some time at Wisley.

The present barrenness of the portion of the wild garden devoted to Lilies and Primulas is relieved by bold groups of New Zealand Flax (Phormium tenax) and some of the light and feathery foliaged Bamboos which contrast favourably with their sombre surroundings. The chief disadvantage of these hardy Bamboos is their habit of spreading into an unshapely mass which presents a ragged and untidy appearance in May and June. The silver stems of the Birches and the warm red trunk of Arbutus Menziesii gain in interest by the absence of other attractions.

In other parts of the wild garden there is every sign of activity, and several shrubs are on the point of flowering, such as Pieris (Andromeda) japonica, which even in bud is a most charming object. Where it grows well, as at Wisley, it is in many ways superior to its relative P. floribunda. The inflorescence is longer and pendulous, and the foliage far more attractive. A variegated form of this plant, bearing silver-margined leaves, makes a handsome shrub, but appears to be shy of flowering. *J. E. G. White.*

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INDOOR PLANTS.

GREENHOUSE FLOWERING PLANTS.

BOUVARDIAS constitute a most useful group of plants for making the greenhouse or conservatory gay during the autumn and winter. There is a charm and daintiness in the cluster of Jasmine-like blooms, and the flowers are favourites for use as buttonholes, the making of wreaths, or filling small vases. The plants may be had in flower up to the end of the year. After flowering, they should be allowed to rest for a period, in a house having a temperature of about 45° to 50°, by giving them only sufficient water to keep them alive. In the middle of February they should be cut back, cleaned carefully, and placed in a warm, moist house having a temperature of 55° to 60°. They should be syringed lightly with clear water two or three times during the day, when the weather is favourable, to start them into new growth to provide cuttings. Suitable shoots will soon develop, and when they are sufficiently strong they should be inserted, several together, in a 3 inch or 4 inch pot containing sandy soil. Place them in a moderate bottom heat under a bell glass or hand light, and keep the atmosphere moist. Roots will soon appear, and, when the plants are well rooted, they should be potted singly in small pots. Accustom them gradually to a cooler temperature, and keep them shaded from the sun to prevent flagging. Prick out the growing points occasionally to obtain sturdy plants. Repot them, as necessary, in a mixture of light, turfy loam, fibrous peat, or leaf-mould and sand; do not over-pot them. During the summer they may be grown in a frame, pit, or an ordinary greenhouse with plenty of atmospheric moisture. They will succeed well planted out-of-doors in a warm, sheltered situation, but should be taken up and potted early in the autumn. Fumigate occasionally the house in which they are grown, to prevent green fly or thrip from attacking them, which, if allowed to spread, would be fatal to their growth. The following are a few of the best species and varieties: B. elegans, scarlet, a fine truss; Priory Beauty, delicate light rose; King of Scarlets; Mrs. Robert Green, delicate light pink; Bridal Wreath, white; Dazzler, rich scarlet; Vreelandii, pure white; Bridesmaid, double pink flowers; President Cleveland, vivid scarlet; candidissima, white, with a very compact truss; Alfred Neuner, pure white, double flowers; Triomphe de Nancy, bright orange red, also a double-flowered variety; The Bride, white, tinted with blush, one of the best for use in bouquets; and jasminiodes, white, a free grower.

The Daphnes include very sweet-scented, cool greenhouse plants, and are comparatively hardy planted out in the South and West of England in warm, sheltered situations, protected by a slight covering during severe weather. The perfume of the flowers is delicious. They make good, bushy plants with bright, evergreen foliage and small, compact trusses of flower which are produced freely in February and March. The two best Daphnes for greenhouse culture are D. indica alba, white, and D. indica rubra, rosy pink. Both are very fragrant. These Daphnes may be grown in a cold frame throughout the summer and autumn. There are several other kinds suitable for greenhouse cultivation, but those named are the best. They do not root freely from cuttings, but are generally grafted on D. Laureola (Spurge Laurel). Well-ripened wood should be selected as scions in March or April, and the grafted plants should be placed in a close pit or frame and kept shaded from the sun until the stock and scion have united. D. Laureola for use as stocks is generally raised from seed.

Eupatoriums include white, scented plants invaluable for winter decorative work when other flowers are scarce. They do not require a high temperature, and will flower freely in 5 inch to 7 inch pots. If grown in a very close, warm house, the shoots will develop weakly and the flower be small. They are best grown in a cold frame with plenty of air in summer to make them strong and sturdy. After flowering, the plants should be cut back and started into growth in slight warmth to procure cuttings. The latter will root freely in a hand-light or frame over slight bottom heat. When rooted, pot and place the plants in a warm house or frame near the glass, and do not allow them to flag. When established, give them cool treatment. Pinch the leading shoots from time to time to make them bushy. The most useful species are E. vernale (syn. grandiflorum), a dwarf, compact, free-flowering plant with dark green foliage; the flowers are blush, changing to white, and last for several weeks; E. Weinmannianum, a free-flowering variety with fragrant, white blossoms. The plant grows to a height of 2 feet, and is most useful for conservatory or other decoration. E. petiolare, E. odoratum, and E. riparium are also useful garden species and of easy culture. The most suitable soil is rich, turfy loam mixed with a little peat or leaf-mould and lightened with silver sand. Do not allow the roots to get dry, otherwise the foliage will turn yellow and drop. When the flower buds show, a little liquid manure is beneficial to the plants.

Lantanas are charming, free-flowering evergreen shrubs and worthy of special attention by growers. Not only are they invaluable as pot plants for the greenhouse on account of their compact habit and freedom of flowering, but they may be utilised for summer bedding, commencing to flower early in the season and continuing in bloom until late in the autumn. They are pretty perennials, with flowers of a distinct range of colours, including orange red, salmon, rose, yellow, and reddish crimson, also white. There are numbers of named varieties of dwarf habit. Amongst the best are Drap d'Or, a charming plant, most useful for edging, of dwarf, compact habit and with bright yellow flowers; Raphael, yellow and maroon; odorata, white; Chelsea Gem, rich maroon; Magenta King, bright purple scarlet; Eclat, rich reddish crimson; and salviaefolia (syn. delicatissima). The last is distinct from any other, and most effective when grown as a bush 2 feet to 3 feet high for pot culture, as a summer bedding plant for large beds, or for associating with other miscellaneous plants, remaining continually in flower until late in the autumn. In recent years many choice hybrids have been raised with large heads of flowers of a beautiful range of colour. Seed sown early in the spring will produce plants that will flower during the summer and autumn. *John Heal, V.M.H.*

STREPTOCARPUS.

THE various species from which the present-day race of Streptocarpus originated are seldom seen in cultivation except in botanic gardens. During recent years many fine strains of Streptocarpus have been placed on the market, there being a marked increase in the size of the flowers, also a decided improvement in the rose and red-coloured varieties. Considering how beautiful they are, it is surprising Streptocarpuses are not more generally cultivated. If seed is sown now, the resulting plants will make useful specimens for autumn flowering. They grow best in a light, rich compost. The fine seeds should be sown on the surface of seed pots that were well watered a few hours before sowing. The seeds should be germinated in a house having a temperature of 60° to 65°. Young plants in 60-sized pots from last year's sowing may be potted on, using good medium loam mixed with flaky leaf-mould, collected from under Oak or Beech trees; manure from a spent mushroom bed is also suitable for mixing with the soil.

The Streptocarpus is very subject to attacks of mealy bug, which must be carefully guarded against, or it will soon ruin the plants.

The caulescent species, S. Holstii, is a native of East Tropical Africa, and very different in appearance from the stemless species and varieties; so far all attempts to obtain hybrids between them have failed. This species makes a neat, compact, freely branched plant some 18 inches in height. Its small, bluish-purple flowers, with a white throat, are produced freely during the winter and spring. The plant is easily propagated by means of cuttings, and grows freely in a temperature of 60° to 65.° *C.*

NOTES FROM AUSTRALIA.

FIELD NATURALISTS' SHOW.

AT this annual exhibition, held in Melbourne on October 3 last, the most comprehensive collection came from the local Botanic Gardens, where many hundreds of species of the Australian native flora find a congenial sanctuary. Although the Grevilleas are nowadays planted in most gardens and parks—the 24 inch G. dallachiana frequently being seen beneath the 100 foot G. robusta—only four species were on view. Olearia argophylla, O. pannosa, O. stellata, and O. Gunniana represented the large "Tree Daisy" family. Chorizema cordata, Tecoma australis, Chamaelaucium uncinatum, Oxylobium ellipticum, Anopterus glandulosa, Thryptomene, Boronias, Rhodanthe Manglesii, Brachysema lanceolata, Clematis aritata, Pultenaea in variety, Leschenaultia biloba, Telopeas, and Eriostemons were included in this exhibit, these being common as favoured shrubs and climbers in our gardens. Equally attractive but less known were Dianellas, Stypandra, Hypocalymma, Verticordias, Beckias, and various Acacias. Eucalyptus ficifolia, E. leucoxylon, and E. calophylla are everywhere grown in Australia, but the Pear-fruited Gum, E. pyriforme (a beautiful, crimson-flowered species), and E. preissiana (soft yellow) were novelties to most visitors. The Orchids must have numbered 60 species, mostly of Chiloglottis, Sarcochilus, Acianthus, Glossodia, Diuris, Pterostylis, and Caladenia.

GLADIOLI.

On p. 149, Vol. LXXII., *Smilax* refers to the "whiteness" of various varieties, and having grown the varieties under notice, with the exception of Perfect Peace, I would venture to disagree with him. Alice Carey, Rochester White, and Chicago White, as flowered here many years ago, were not any more white than they were pink, also they were very inferior in form and size. White Glory and Snow Glory both have well defined, bluish lines through the petals—at times the lines become a definite blotch. Mary Pickford and Fern Kyle are cream or ivory, the latter variety having a lilac line in the petals. Europa and White Giant are the whitest we have yet seen here, although L'Immaculée runs very close to Europa when flowered in cool weather. Zeppelin (Pfitzer, 1914) is my fourth choice as a white. Incontestable I bought in 1914 from a Continental nursery, but it proved to be M. M. Sully, as sent me by Messrs. Lemoine, of Nancy, two years earlier.

With regard to the awards made to Gladioli varieties by the Royal Horticultural Society, I should like to ask why some are made. I can understand a variety such as Perfect Peace receiving an award of merit, as it has a fine form, although possibly a short spike. But why should Butterboy and Snow Glory receive the same award?

In Australia, an award by the R.H.S. of England is looked upon as a proof of merit. Gladiolus Snow Glory has been widely tested locally for several seasons past, and unanimously rated as useless—"inferior to L'Immaculée," as one correspondent puts it. For monetary reasons there always will be seedling raisers who name every slight variation in their garden progeny; but we in distant parts of the Empire look to the head Horticultural Society to set their seal of approval only on introductions of undoubted merit. I have several spikes of the variety Butterfly in bloom at the time of writing, but, compared with a standard collection of primulinus varieties and hybrids from world-wide sources, it would not obtain an award as of outstanding merit.

Varieties such as Eugene Sandow, Edward VII, J. W. Kelway, Orby, Duchess of Somerset, and Rouget de L'Isle, have been introduced here through their awards from the R.H.S., and the Société Nationale d'Horticulture de France, and are properly included in our lists of highest grade Gladioli. *G. Errey, Warburton, Victoria, Australia, December* 2, 1922.

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THE ALPINE GARDEN.

SYNTHYRIS.

THE species of Synthyris are little known to the average gardener, and there are even many who take special interest in alpine flowers who are unacquainted with the genus. As a rule they are attractive little plants which do not appeal to us so much on account of their showiness as for their less obtrusive charms. They are generally of easy culture, loving, however, a soil which is cool and rich and with an abundance of moisture during the spring and summer months. They dislike being parched, and full exposure to the sun does not suit them unless they have plenty of water within reach of their roots. These plants form bonny little tufts of foliage and send up pleasing spikes of flowers. They belong to the great family of Scrophulariads.

The first to be distributed through the trade in this country appears to have been Synthyris reniformis, with which the writer was delighted soon after it came into commerce in Britain. The plant was in a pot and in a frame, as being a rarity whose requirements were not well understood. It was charming, with its pretty kidney-shaped, glossy leaves and its four-inch or five-inch spikes of beautiful, small, violet-blue flowers. It has many charms, not the least of which are the scallopings of the thick and varnished leaves. One of its merits is that of coming very early into bloom. According to some authors it flowers in April, but I have had it in flower in February in mild seasons.

The next to come under my notice was S. pinnatifida, but this proved a disappointing plant, inasmuch as it does not compare favourably with S. reniformis, which is, undoubtedly, the best of all. S. pinnatifida has taller spikes, with flowers of a pretty shade of blue, and the leaves are more deeply cut than those of S. reniformis. It seems to like similar soil. This species comes from Wyoming and Idaho, and blooms about the same time as S. reniformis.

S. plantaginea, which comes near S. pinnatifida, is rather more tardy in blooming and its pleasing flowers have a tinge of pink in blue ground. S. alpina I have not grown. It is a neat little plant with rather rounded, scalloped leaves and rich blue flowers. It hails from the same region as S. pinnatifida.

Another species which is recorded, called S Bullii, is said to be dull yellow and a poor plant. I should like to obtain the white variety of S. reniformis, which is said to exist, but I am not aware if it is in commerce.

DOUGLASIA VITALIANA.

THE possession of several aliases does not tend to increase the favour shown to any plant. This little beauty is still frequently known as Androsace Vitaliana, under which name it first came to the writer many years ago It has also been called Gregoria and Dionysia, as well as Aretia, under which it is occasionally met with still. Its botanical relationship to all these genera is so close that it is little wonder that confusion has arisen. Fortunately its beauty is sufficient to secure admission into the choicest and most exclusive of alpine collections, where, when it flourishes, it is an object of admiration to everyone. Douglasia Vitaliana forms a low carpet of small Juniper-like-arranged, greyish leaves, and from among these arise the exquisite little yellow flowers, almost citron in their hue. It meets the desire of those who wish for a yellow Androsace, for such it is in all but name, and it is a good consort to these favourites in the best places in the rock garden. The plant does not always flower successfully; it dislikes disturbance and is best left alone, even if it is at first a disappointment, until it has become established. One point should be considered i.e., that it is not a lime or chalk lover. It favours, and indeed, only occupies the non-calcareous rocks of its native Swiss Alps. A soil of loam and sand with some grit or one of peat and loam, or loam and leaf-soil, will suit Douglasia Vitaliana, but it should be made firm; while in the moraine it does well, provided the soil is not too dry in summer. *S. Arnott.*

HARDY FLOWER BORDER.

RUDBECKIA PINNATA.

MANY of the old border flowers are still among the most desirable, even though certain gardeners may overlook their merits. For instance, in how many gardens can now be seen the slender and beautiful Rudbeckia pinnata? This plant was introduced well over a hundred years ago, but many young gardeners have never seen it. It is just one of scores of good old plants that have been forgotten by the present race of gardeners in Great Britain.

Rudbeckia pinnata (Fig. 9) is a free-flowering and graceful Coneflower of slender habit and extremely decorative. The narrow, drooping, strap-like ray florets are of clear transparent light yellow, and the central cone is prominent and almost black. The drooping ray florets are two inches or more in length, and are much longer than the oblong disc. R. pinnata grows from three feet to five feet high, is much branched, with finely cut, pinnate leaves, and it flowers from July to September. No plant is more easily grown, and it is quite at home in a sunny border, no matter what the soil may be. Moreover, it is invaluable for cutting, as the flowers last well in water, while the floral receptacle exhales a pleasant odour.

Although Rudbeckias have been in cultivation for centuries, apparently the only full double-flowered form is the well-known Golden Glow, a variety of R. laciniata. Another well-known species is R. hirta, or Black-eyed Susan, which has another very appropriate popular name in Nigger-head, but it is biennial and should be raised from seed regularly. The subject of this note is a true perennial, and by some authorities is placed under the genus Lepachys. Of slender form and of luminous quality when in flower, this is just the border plant so many garden lovers require. *Herbert Cowley, Tunbridge Wells.*

FIG. 9.—RUDBECKIA PINNATA.

TRICYRTIS HIRTA.

ONE great defect of Tricyrtis hirta, from a garden point of view, is its late flowering. With some plants this is an advantage; but, as this Tricyrtis blooms in October, and is generally damaged by frost before it has time to open its flowers, its value is sadly discounted as a garden plant. Of course, this defect is less pronounced in the milder parts of the country. The flower-buds emerge from the axils of the rough, almost corrugated dark green leaves, which clothe the rather arching stems, a foot or more in length. Then is recognised the appropriateness of the popular name of the "Toad Lily," as applied to this Japanese plant. The flowers are Lily-like in their shape, but are of a curious, unpleasing pinkish tone, spotted and freckled with purple. There is little, indeed, to redeem the plant in the eyes of those who love flowers with ordinary charm, and many of our own wildings, which are neglected because of their want of colour, have more to commend them than this native of Japan. T. macropoda has one advantage; it blooms in June and July. Those who wish to try this Tricyrtis should plant it in a warm, sunny place, and in fairly good but not excessively rich soil, so as to give it every chance of blooming ere winter sets in. Propagation may be effected by division when the plant has reached a fair size. *A.*

CAMPANULAS.

MR. W. LOGAN'S interesting note on Campanulas, on p. 7, includes almost all the best garden species and varieties suitable for the border, but he omits any reference to Telham Beauty, a variety of C. persicifolia, and one of the most glorious of all blue border flowers. This beautiful Campanula is worthy of inclusion in a list of the best dozen blue hardy border flowers. *T.*

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. VI.—BACK TO MU-LI.

ON May 18 we left Mu-li, following the Litang river due north, our objective being War-chen, where the king was in residence. On our left towered the splintered spires of Mu-li cliff, here facing north-east, thinly covered with forest, which striped the gullies. Opposite us, across the river, was a range of limestone peaks with rounded summits, rather bare above, but Pine-clad below.

Our road, between a thousand and fifteen hundred feet above the river, lay through a thick growth of shrubs, but here and there we crossed a deep gulley filled with trees—Alder, Lime, and others—which, however, only served to emphasise the absence of forest from the river gorge.

On the second day we descended to the river and crossed to the left bank by a very rickety-looking bridge. Now we entered a deep gorge, through which the river crashed in a welter of foam. On the wet cliffs was a pretty combination of Ivy and Maidenhair Fern, also a dull form of Campanula colorata. Few of the trees and shrubs, amongst which I noticed species of Bauhinia and other Leguminosae, twining Asclepiadaceae, Jasmine, Rose, Buddleia, Berberis, Ailanthus, etc., were in flower. The vegetation was very similar to that of other arid river gorges in this part of the country. In flower were Sophora viciifolia and a curious Arisaema.

On May 20 we climbed some 3,000 feet out of the river gorge to the monastery of War-chen, perched high up on the flank of the range, but concealed in a fold. Up here a fine, Lavender-blue, dwarf Rhododendron was a mass of bloom, and yellow Paeonies abounded. The open slopes, however, were covered with scrub Oak mixed with dwarf Rhododendron (purple-flowered intricatum), and then Pine woods; we were still, at 10,000 feet, below the normal forest line, though trees—Poplar, Maple, Oak, etc.—filled the deeper gullies. It may be noted that in this region there is no forest in which Conifers do not predominate, in striking contrast to the ranges west of the Yang-tze, where there are extensive belts of forest in which Conifers are either subordinate or entirely lacking.

Rhododendron yunnanense and R. decorum were still in flower, and the grassy slopes were dotted with purple Roscoea. Bushes of wine-red Paeony also occurred, but during two days spent here we found little of interest.

On May 23 we set out for Ku-lu, which lies to the south-east, on the other side of the Yalung river divide. Our road lay up a narrow limestone gorge, the cliffs of which were covered with purple-flowered Intricatum Rhododendron, a magnificent sight in full bloom. There are really two forms of this species, which is easily recognised by its polished leaves and long style. In the sub-

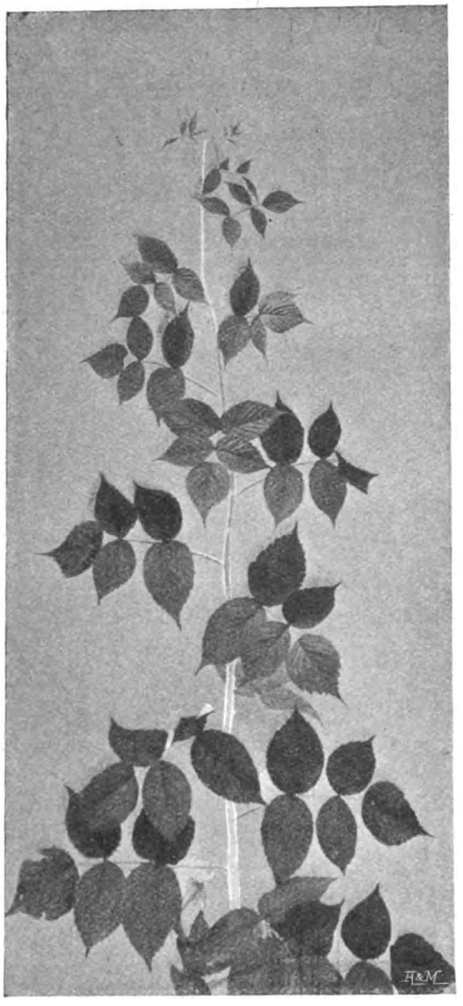

FIG. 10.—RUBUS BIFLORUS VAR. QUINQUEFLORUS. R.H.S. AWARD OF GARDEN MERIT (SEE P. 23).

alpine form, the species is a loosely branched shrublet, studded over with large, brilliant flowers. The alpine form is more compact, with smaller leaves.

Another Rhododendron which was now at its best was a pink-flowered form of R. decorum, or more probably a distinct species allied to the latter. This, a shrub of 6 ft. to 10 ft., was crammed with blossom, and in the neighbourhood of 12,000 feet altitude was a fine spectacle. Down in the bed of the stream a Muscarioid Primula, of which I secured seed last year (K.W. 4436; it has germinated well, so we shall soon know what it is), was coming up, and in the forest P. Cockburniana was already in flower.

Crossing the pass over the Litang-Yalung divide, we found the moorland a mosaic of colour, where half a dozen dwarf Rhododendrons were in bloom, including "Lemon Dwarf" (K.W. 4023), which is far more abundant on the east side of the Litang river than it is on the west. Other plants in flower were Meconopsis integrifolia, Incarvillea grandiflora, Primula sinopurpurea—a clumsy-looking plant, this—species of Pedicularis, etc.

On May 25 we began to descend towards the Yalung river, and as we got lower down Primulas appeared in the streams, P. vittata and P. pseudo-sikkimensis, always inseparable, just coming into flower; P. Poissonii, also, and with them P. Wardii, with its curiously attached bracts. Better than all these was a Capitata Primula, which I had not met last year. The flowers were long over, so I collected seed; but next day, along the edge of a wood, I found plants in flower. Not only had I not found this species in 1921, I had not found any Capitata Primula in the Mu-li country; so the discovery was all the more pleasing on that account.

We had to cross a high ridge before we reached Ku-lu. There was a beautiful Violet-flowered form of Primula pulchella on the open, sunny downs; and a combination of Rose-pink Rhododendron racemosum with "Lemon Dwarf" was one of those bold colour schemes which Nature can do with impunity, but which man dare not copy. The Intricatum Rhododendrons were all in full bloom now, and a wonderful mosaic of purple, lavender, and yellow covered the slopes. Another pleasing colour scheme was the combination of sulphur-yellow Roscoea with Primula pulchella.

On May 26 we came in sight of the monastery of Ku-lu, and descended to the high valley in which it is situated. It is much higher than Mu-li—about 12,000 feet, shut in by wooded hills, where, however, few species of trees are to be seen. The forest is composed almost entirely of Picea and Oak, with a few bush Rhododendrons of the Campylocarpum group, Pyrus and Bamboo soon giving place to Pine forest as one descends.

It was still too early in the year for flowers in large numbers—the bulk of them do not open before the first rains. Cypripedium tibeticum was in flower, and another curious little pink and white species was growing on the dry, sunny slopes down in the Oak forest; but this, too, I had found at Mu-li last year. By far the best plant I found was a Primula of the lichiangensis type, with rich crimson flowers, the deepest crimson imaginable. The calyx and foliage are quite different to those of true P. lichiangensis, even if the flower colour were not so distinct I should like to have gathered seed of this woodland plant—it grew in the Oak forest at about 11,000 feet—but it was only just coming into flower, and last year's seeds were all gone. Someone else will have the pleasure of introducing it.

This plant was discovered on May 29, the day we started back to Mu-li, having spent two days at Ku-lu. There seemed to be an excess of yellow on the open alpine pastures now—Roscoea, dwarf Lloydia, Stellera, Viola Delavayi, a bright Crucifer, Rhododendron, Ranunculus, and others, all yellow, from lemon to orange.

Passing through a gorge, where the brawling torrent was shaded by truly magnificent Oak and Pseudo-tsuga trees, we climbed up to the secluded monastery of Ko-pa-ten, a small but picturesque place hidden amongst the trees. This monastery is under a cloud, and not much used, owing to a sordid scandal connected with it.

On May 31 we ascended to the summit of the ridge, and, crossing the pass, 11,000 feet, saw the Litang river below us once more. Cornus capitata, conspicuous by its large, cream-coloured bracts, grew in the thickets here, in the midst of Pine forest; and in a bog I came across a small species of Strobilanthes new to me. What was more surprising was to see several trees of a species of Acacia familiar on the Ta-li plain, and thence right away westwards to the North-East Frontier of Burma.

We camped close to the bridge that night, in view of Mu-li cliff and monastery; and on June 1, crossing the river and, climbing the 2,000 feet of patchily cultivated slope, reached our starting point after an absence of a fortnight. On the whole, the result had not been very satisfactory, though we had found two Primulas and several Rhododendrons which were new to me. On the other hand, I had failed to locate the expected snow peak of Ku-lu. *F. Kingdon Ward.*

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 22, May 6, May 20, June 3, June 17, July 1, July 15, July 22, August 5, August 26, September 9, September 23, October 7, October 21, November 4, November 18, December 2, December 16, and December 30, 1922.

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PLANTS OF SPECIAL GARDEN MERIT.

MR. F. J. CHITTENDEN, Director of the R.H.S. Gardens, Wisley, sends the following descriptions of the plants which received the Royal Horticultural Society's Award of Garden Merit in November, 1922.

STRANVAESIA UNDULATA.

Evergreen shrubs are always valuable in the garden, and when to the winter green of their foliage they add pleasant flowers in summer, bright red fruits in autumn, and brilliant dying tints to their leaves, they are particularly valuable. All this one finds in Stranvaesia undulata. Its long-oval, glossy green leaves, sometimes but not always undulate at the margins, turn bright red before they fall, but not all at once. Here and there on the bush are a few red among the green almost the year round. It bears groups of small white flowers at the tips of the shoots in June, and though these are rather fleeting they help to keep the shrub border bright when the more commonly grown shrubs are passing. And in autumn their place is taken by brilliant groups of red Haw-like fruits, fortunately not so loved of birds as so many of our autumn fruits are that they vanish in a day just as or even before they are ripe. The bush is of rather open habit, so that its characters are easily seen, and it grows to a height of 6 or 8 feet, and possibly eventually even taller.

Like so many of our beautiful shrubs, this is a native of Western China, whence it was first introduced by Mr. E. H. Wilson, who sent seed in 1900 to Messrs. Veitch. It appears to present no difficulty in cultivation; it seems not at all particular as to soil so long as the drainage is good; it is perfectly hardy, having withstood unharmed the severe winter of 1917 at Wisley; and is altogether a great acquisition among hardy evergreens. S. undulata was figured in the *Botanical Magazine* at t. 8418. Award granted on November 27, 1922.

PYRACANTHA GIBBSII.

No trees or shrubs have more justified in 1922 their inclusion among garden plants than the well-known coral red Pyracantha coccinea (or Crataegus Pyracantha as it is still often called) and its beautiful variety Lalandei with larger, more orange fruits. That came to us from Asia Minor and South Europe, but China has much more recently yielded some beautiful shrubs apparently nearly related to the Nepalese representative of the genus, P. crenulata, but sufficiently distinct to warrant separate names, at any rate in gardens. It is difficult to say which is the most beautiful of these new-comers, and not all are yet widely known, but among them P. Gibbsii (Fig. 11) will certainly hold its own. Quick-growing to about 10 feet in height, with glossy dark evergreen foliage considerably larger than that of P. coccinea, making a tall, rather fastigiate bush, flowering abundantly just after the Hawthorn ceases with dense bunches of white flowers, and never failing to bear great bunches of brilliant scarlet fruits as large as Peas and contrasting beautifully with the foliage from October to December, this is a species worthy and capable of filling a place in any ordinary garden, and in any part of Great Britain. The seeds grow freely, and may give rise to forms differing somewhat in the shape of the leaves, the exact shade of the ripe fruits, and the precise time of ripening, but all alike worth growing; and if it be desired to propagate any one of the forms it may readily be done, either by cuttings or by layers. Award granted on November 27, 1922

RUBUS BIFLORUS QUINQUEFLORUS.

Many Rubi have come out of China, and some have little perhaps to recommend them for our gardens, but the subject of this note is not one of the latter. It is a striking plant, robust and handsome and graceful in habit. It owes its value to the remarkable stems, which are covered all over with a thick coat of wax so that they look as though they had been whitewashed (see Fig. 10), and strike a note in the shrub border which is almost unique in its effect. The canes reach about 10 feet in length, but arch over and root at the tip. This habit makes them easy to propagate, and the palatable fruits are also freely produced, seedlings appearing to come true. The plants are best treated in the same way as summer fruiting Raspberries, old canes being cut out after flowering, about August, leaving the strong young canes for their winter effect. The plant is all the better for liberal treatment. Award granted on November 27, 1922.

TREES AND SHRUBS.

BROOMS FOR WOODLAND PLANTING.

SOME years ago the problem as to how to make the best use of some very dry, freely drained parts of a woodland garden was solved by planting in the more open parts various species and varieties of Cytisus and Genista. These, generally, are naturally sun-lovers, but most of them succeed quite well where they do not get full exposure to sun, in situations partially shaded by the high branches of deciduous trees. We made no special soil preparation for these Brooms, which were put, when young, direct into the light, woodland loam, and their adaptability to such treatment is not the least of the good characters of these shrubs. Some one or another of them are in bloom from spring to December (if we may include Spartium junceum) and, apart from being among the most graceful and beautiful of all hardy flowering shrubs, the Brooms may be relied on for regular and prolific blossoming every season. Yet another admirable attribute of most of the Brooms is the readiness with which they may be raised from seed, and the very brief period—two or three years—which elapses before seedlings attain the flowering stage.

Despite the introduction of many novelties, and the high general level of excellence possessed by the Brooms, I consider the old White Spanish Broom, Cytisus albus, the most beautiful, as it is also one of the easiest to cultivate. In habit it is the embodiment of lightness and grace, the yard long racemes of pure white flowers wreathing the sweeping twigs from base to tip. There are a few varieties of this excellent species, the best of which is, perhaps, grandiflorus, with rather larger blossoms, C. albus comes freely and true from seed sown in the open, and though it prefers full exposure it is by no means averse to half-shade.

These last remarks may be applied also to another first-rate Broom, Genista virgata. Though a native of Madeira, this appears to be perfectly hardy and will grow into a dense and large bush eight feet high, and as much through. The small leaves, with which the branches are thickly furnished, are pale green, and so covered with silky hairs that the bush has a greyish tint. The blossoms are small, but produced in such abundance at the ends of the fresh growths that the whole shrub becomes a mass of yellow in mid-summer. Seedlings of G. virgata grow at a remarkable rate, and, like most others, do not resent being moved from open ground if this is done when they are young.

FIG. 11.—PYRACANTHA GIBBSII. R.H.S. AWARD OF GARDEN MERIT.

C. praecox, a hybrid between the White Broom already mentioned and the thick-set, bristly C. purgans, ranks high in any selection of Brooms, for it has inherited the best qualities of each of its parents. It possesses much of the elegance of C. albus and some of the rich colour and all the fragrance of purgans. The flowers open in spring—often as early as March, with us—and the shrubs are invariably heavily laden with blossom, causing the branches to droop gracefully. The perfume from a group of C. praecox is like that of a Bean-field, and for many weeks in spring will pervade the whole air for a great distance.

Though admirable when grown as a single specimen in the rock garden, C. praecox is better grouped in the woodland, on open banks or on the lawn. It also will succeed in no more than part-day sun. When old plants begin to fail, though they are remarkably long-lived for their race, a fresh stock from cuttings should be ready to replace them.

For an open, warm, dry situation, the three-feet C. purgans is a useful little shrub. Its dense, stiff, upright growths and compact habit are somewhat uncommon features in this family.

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and well-grown specimens will often be as golden with spring blossom as a mass of Genista hispanica, and much more fragrant.

Good as are most of the many forms of our common Broom (C. scoparius) for bold effects, the most beautiful of them all is, I think, "Moonlight" (pallidus). This splendid variety possesses all the grace and vigour of the type, but it appears to be even more floriferous than the latter; the blossoms are slightly larger and they are of a most enchanting shade of ivory, or nankeen, which is peculiarly attractive in subdued or evening light. C. s. Andreanus, together with several others of its class, must also be mentioned, but the dappled impression created by the parti-coloured blossoms of these gorgeous varieties does not always seem a happy one in woodland surroundings. That, however, is a purely personal opinion; I prefer self-coloured Brooms for the purpose in view.

There is a late-flowering form of C. scoparius sent out from the Newry Nursery, which is deserving of mention, for it enables us to maintain a succession of C. scoparius from the time the type ceases blooming at midsummer right on to August and often later. These late Brooms, moreover, are more robust in habit and growth, more leafy and even more prolific in flowering than the common form. They come true from seed and, needless to say, are quite easily raised.

The pretty C. Dallimorei, a hybrid raised at Kew from C. albus × C. Andreanus, is still uncommon. It has not done very well in our soil, though most kinds prosper so well, but it is worth much perseverance since the mauve and rosy-mauve flowers are very lovely, and the plant is decidedly distinct.

The Sicilian Genista aetnensis is hardy enough for most places provided the soil is light and the aspect warm. This species grows to a considerable height (8 ft. or more) and old plants are often leggy and ugly, but this defect can be overcome if care is taken in selecting the site and G. aetnensis is planted with suitable companions. At any rate G. aetnensis is worth a deal of trouble, for the thin, drooping twigs, which are destitute of leaves, are exceedingly graceful. The pretty and sweetly-scented flowers are borne on the silky new growths at the tips of the branches, in July.

Another first-rate Broom for open or partly shaded places is Cytisus monspessulanus, which in habit, form and blossom is much like C. fragrans of greenhouses. It is a perfectly hardy shrub of about 5 ft., very leafy, and bears a most prolific crop of small yellow flowers in spring and often again in autumn. Being easily raised from seed, there is no reason why any garden should be without a group of this fine Broom, yet it is by no means common. As for C. fragrans I can only state that this is very much hardier than is generally supposed. We have recently been trying it in the open, and it has done splendidly. Last winter we had 15-20 degrees of frost on several occasions, but our plants were not injured in the least.

C. nigricans is valuable as an August bloomer, and the best form will produce spikes of yellow blossom nearly a foot long. It will do in the poorest, hottest soil, and is readily propagated from seed. C. n. var. Carlieri is an admirable variety, or sub-species, of the above, which comes into flower as the latter goes off, often continuing in bloom into October. Both kinds should be cut fairly hard back in February. During the later autumn we have the fine golden yellow spikes of Genista tinctoria, the tall variety of which will make a shrub 4-5 feet high, and then there is the semi-prostrate Genista (syn. Corniola) mantica, which appears to be closely allied to, if not a form of G. tinctoria, an effective early bloomer in partial shade. The foliage of these plants is distinct, the leaves being comparatively large, dark green and glossy.

Genista cinerea, of southern Spain, is a species of great merit, yet one that is seldom seen in gardens. It is a late summer and autumn bloomer, which in itself will be a recommendation to many, but it is also most prolific in its yield of blossom and one that makes a neat and compact bush some three feet high. This species should be planted in a warm, sunny corner. *J.*

MARKET FRUIT GARDEN.

DECEMBER opened dry, but in the latter half of the month there were only three days without rain, the total amount at my place being 3.52 in., making it the wettest month of the year with the exception of January and August. This brought the rainfall for the year up to 29.96 in., which is nearly double what we had in 1921, but only about half-an-inch over the average of the last twenty years (29.47 in.). The number of rain days was 160, or eight above the average, which proves that 1922 was a dull and showery year rather than a very wet one. Only lately have wells filled appreciably, springs started to run, and water remained on the surface of the ground for any length of time after rain. There is no doubt that this is all to the good so far as fruit trees are concerned, and that they will thrive all the better in the coming season for having the soil well stored with moisture this winter.

THE PAST SEASON.

From a fruit-grower's point of view there was only one serious blot on the season of 1921, and that was the poor trade for the produce in glutted and depressed markets. Apart from this it was not a bad year. Rather more sunshine would have been welcome, no doubt; but in spite of its absence, bountiful yields of most of the important crops were secured with exceptionally little trouble from pests and diseases. Unfortunately the financial result of the year's working was so poor in many cases that the pleasant features of the season are obscured. Personally, I must consider myself very lucky, for, even after balancing up the year's accounts, I can look back on 1922 with pleasure. In some of the provincial markets to which I have easy access, prices did not slump quite so badly as they did in Covent Garden, always provided that the fruit was thoroughly well graded and packed. The following comparison of gross prices in certain years may not be without interest:—

	1922.	1921.	1920.	1913.
APPLES.				
Beauty of Bath ...	7/6 to 8/-	8/6 to 17/-	10/- to 21/-	5/6 to 6/-
Mr. Gladstone ...	6/- to 7/-	5/- to 6/6	11/8	3/- to 4/6
Lord Grosvenor	1/6 to 3/6	2/- to 6/-	9/- to 12/-	2/3 to 2/6
Worcester Pearmain	2/9 to 6/6	5/- to 6/6	10/- to 20/-	4/- to 4/6
Chas. Ross	4/6 to 8/6	9/- to 10/-	20/- to 24/-	4/-
Cox's Or'ge Pippin ..	7/- to 12/6	7/- to 14/-	20/- to 30/-	6/6
Allington Pippin ...	3/6 to 5/-	3/6 to 7/6	11/- to 15/-	
Lane's Pr. Albert	2/6 to 3/-	3/6 to 6/-	10/6 to 11/6	1/6 to 2/4
Bramley's Seedling	3/-	3/6 to 3/9	11/- to 12/-	2/3 to 3/6
Blenheim Pippin	5/6	8/6 to 9/-	13/6 to 17/-	
PLUMS.				
Early Rivers ...	6/- to 12/-	21/- to 25/-	19/- to 17/6	7/6 to 8/-
Czar ...	5/- to 6/-	18/6	14/- to 15/6	5/6 to 8/-
Victoria ...	4/6 to 8/6	23/- to 25/6	11/- to 16/6	4/6 to 16/6
Pond's Seedling	5/- to 8/-	21/-	11/- to 15/-	5/3 to 6/6
Monarch ...	7/6 to 9/-	20/-	15/- to 18/-	5/-
OTHER FRUITS.				
Black Currants	22/6 to 26/-	22/- to 24/-	24/- to 32/-	5/6 to 8/-
Cob-nuts	4d. lb.	6½d. to 8d. lb.	1/- to 1/3 lb.	8d. to 10d. lb.

With the exception of Cobs, the prices are all per half-sieve; and in the case of Apples they are for first grade fruit only.

It will be seen that most varieties of Apples dropped in value as compared with 1921, although the crop in that year was heavier. Chief interest, however, lies in the comparison between 1922 and the pre-war year 1913. We are not quite down to pre-war values, but we are much nearer to them than we ought to be, considering the difference still felt in the cost of production and marketing. As a matter of fact, in my case, any slight advantage in last season's prices over those of 1913 might fairly be credited to decidedly improved grading. The combined influence of restricted imports, a very short crop, and "plenty of money about," is shown by the extraordinary prices of 1920, which are not likely to be seen again by this generation of growers.

Prices of Plums are notoriously greatly influenced by the season and crop. Thus it is useless to compare the price realised for the huge crop of 1922 with those obtained for the light yield of the previous year. Mid-season Plums fell below pre-war values, but late varieties, which were scarcer, were slightly above.

Black Currants are still a very cheerful feature, but chiefly because bud mite and reversion have made their culture such a difficult matter. The low price of Cobs in the past season can only be ascribed to a heavy crop and poor trade.

MANURING ORCHARDS.

All my arable plantations have now been dressed with shoddy, as anticipated in last month's notes, or rather with wool combings. These combings are now commonly sold as grey shoddy, though they are not shoddy at all in the strict sense of the word. This material was selected because of its fine, short condition, which makes it easy to spread as little as one ton to the acre, if necessary. But it has one rather serious drawback, from which true shoddy is quite free; it contains many weed seeds which had become entangled in the fleeces of the sheep whilst grazing. However, I decided to put up with this rather than buy a more lumpy shoddy which could not be distributed so well. We are always fighting weeds, and a few extra will hardly be noticed.

With regard to the grass orchards, I stated my intention of applying two cwt. per acre of nitrate of soda just before the trees bloom. On consideration, I have altered my plans. I am afraid that giving the manure at that time would benefit the grass much more than the trees, for the grass would then be starting into active growth. It will therefore be applied in January. The grass is not growing then, so is not able to appropriate it; and the very soluble manure should pass down to the roots of the trees. I do not think there is any danger of much of it washing out of the soil altogether before the trees are ready for it. In Dr. Bernard Dyer's experiments at Hadlow, it was found that nitrate of soda can be given during the winter with benefit to fruit trees, even in cultivated orchards.

WINTER MOTHS.

It is reported from several districts that winter moths are being caught in large numbers on grease-bands this winter. I have not done any banding, as I prefer to rely on spraying; but I have noticed many of the winged male moths flying against the windows at night. Those who have not banded will be wise, therefore, to be prepared for more caterpillars on the trees next summer than we have had in the last two or three years. The great thing is to spray early, before much damage can be done. I have generally sprayed with nicotine and soap just before the opening of the bloom (chiefly for sucking insects), and with lead arsenate immediately after the fall of the petals, if rendered necessary by the presence of caterpillars. Any young caterpillars that are wetted by the nicotine are killed, but others hatch out afterwards. It would therefore be a great advantage if a protective spraying of lead arsenate could be applied with the nicotine before blooming, so that any caterpillars that escaped the nicotine would find their food supply poisoned by the arsenate. Hitherto this has not been possible without either risk or sacrifice. To mix lead arsenate with soap is to risk scorching the trees, and to leave out the soap renders the nicotine much less effective, because it does not spread and wet thoroughly. It is to be hoped that we may in future be able to overcome this difficulty by substituting the new calcium caseinate spreader for the soap. My present intention is to try this in the coming season. I do not know whether the spreader is as effective as soap, but it will probably be good enough to increase the spreading power of the nicotine, whilst it will certainly improve the arsenate. Casein spreaders are already on the market, but they appear to be none too cheap at present.

REVIVING OLD TREES.

Apple trees of weak-growing and prolific varieties frequently cease to grow after a time

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unless the leaders are pruned every year. The branches become thickly studded with fruit buds and spurs right to the tip, and little further extension is possible. In pruning last winter I tried to induce some trees of this description to start into growth again, and success has followed in most cases. The method is to search for a wood bud somewhere near the end of the branch, prune to that, and then clear the end of spurs and fruit buds for about six inches. Thus a new growing point is formed, which will produce some new wood provided that the manurial needs of the tree are not neglected. I hope, by tipping the leaders of all trees every year, never to allow any of my younger trees to get into a state needing the above treatment. When the place was planted 22 years ago, there was urgent need to get the trees into bearing in the shortest possible time, and the policy of reducing pruning to a minimum after the first two or three years of foundation work was no doubt the best way to achieve this. In the case of trees planted in recent years, there is less hurry to obtain returns; so leaders will be tipped every year sufficiently to keep the trees growing.

APPLE ALLINGTON PIPPIN.

Personally, I consider that for flavour Allington Pippin easily comes next to Cox's Orange Pippin amongst the Apples commonly grown for market. Yet it is never a favourite with the public. Last autumn it was particularly hard to sell, and the bulk of the first-grade fruit made only 3s. 6d. per half-sieve. There are two reasons for this. One is that Allington Pippin does not colour well in some districts, particularly in a sunless season. The other and more potent reason is that so many growers market this variety long before it has acquired any flavour, and this gives it a bad name with consumers. Allington Pippin must mature so far as possible on the tree. I pick it last of all. There is no hardship about this, for it hangs on remarkably tight. I have had the fruit on the trees after the leaves have fallen.

Allington Pippin, by the way, is an awkward tree to prune and train. Mr. H. N. Grubb has found this in his pruning experiments at East Malling, and he gives some hints on the subject that are worth having. He says in his report :—"One cannot leave a bush Allington without any tipping at all, for the natural habit is so spreading and the branches are so slender (when not tipped) that the first heavy crop of fruit brings them right down on to the ground; and, further, the fruit soon becomes very small if no tipping is done. Yet when the leaders are tipped one-half, as ours have been, the result is a hedge. Some growers have actually top-worked bush Allingtons because of the hopeless result of tipping. Yet the problem, I believe, is easily solved. Tipping must be done for some years after planting to keep the branches up off the ground, but when the tree is due to come into bearing—say, about the sixth or seventh year—the tipping should almost, if not entirely, cease until the crops of fruit are heavy enough to keep the growth in check. Then a moderate tipping may begin again, and may increase in proportion to the crop." *Market Grower*

FRUIT REGISTER.

YELLOW-COLOURED DESSERT APPLES.

SOME of the yellow-coloured dessert Apples are well worth growing, for not only are they of attractive appearance, but of excellent quality. Amongst the best of this type are Golden Reinette, fruit of medium size, in season from November to December; Werder's Golden Reinette, a mid-season variety, in perfection in October; Golden Pippin, a very attractive variety, with skin of rich gold colour, and a late variety that keeps well until April; Cockle Pippin, a very pretty, medium-sized fruit, richly flavoured and highly aromatic, keeping sound until April and May; and the old Lemon Pippin, which is extensively used for cider-making in some parts, but well worthy of the attention of growers of Apples for private establishments, as it possesses good flavour and is one of the richest yellow-coloured Apples grown. *Pomona.*

DEGENERATION OF THE POTATO.*

IN so far as it shows itself in cultivation, degeneracy in the Potato may be attributed to various causes, which for their better understanding should be distinguished, and separately studied. It is due :—

(1) To the influence of various diseases, notably Frisolée (Leaf Curl?) and its mosaic form, rolling, or Leptonécrose; to Crinkle (recently diagnosed); and perhaps to other diseases as yet imperfectly understood, which are generally admitted to be the most direct causes of the impoverishment experienced at the present time in nearly every country.

(2) To the imperfect adaptation of certain varieties to the conditions of soil and climate in which they are cultivated.

(3) To the exhaustion of the nutritive elements in the soil, and also perhaps to the toxins left behind by plants previously cultivated in the same ground.

(4) To the progressive impoverishment of the varieties themselves, by reason of their continuous propagation by asexual methods.

Leaving out of account the parasitic pests, the latest researches in which have been the subject of numerous publications, and which were fully considered at the Conference in London on the subject of the Potato, there is no doubt that, in the case of the Potato, as in that of the greater number of cultivated plants, notably Wheat, varieties possess particular requirements in the way of soil and climate which render one or the other preferable for a certain locality. It must, however, be recognised that little is known in this respect beyond the fact that certain varieties are more largely cultivated in some localities than any others, notably Merveille d'Amérique in the Charolais, Early Rose in the south-west of France, Institut de Beauvais in the Midi, Fluke Géante in Brittany, Jaune Ronde in Limousin, etc. Thus, the imperfect adaptation of varieties to the conditions of the locality may form a cause of premature exhaustion.

The exhaustion of the soil by previous crops, even other than the Potato, can no longer be doubted. It is well known that manures, animal or mineral, do not restore all, or proportionately, the elements drawn from the soil by the last season's crops, besides which they are apt to leave the germs of maladies, and certain secretions known as toxins, which may injure succeeding crops.

All practical gardeners know that in virgin soil, or soil which has for a long time remained uncultivated—fallow ground, woods, fields, or newly-made gardens—the plants grow more luxuriantly than elsewhere, and are usually less easily affected by disease. Different conditions prevail in new greenhouses, where, on the contrary, it is difficult to make Ferns germinate, while in old structures they will frequently sow themselves and flourish abundantly. It will easily be seen that the conditions which contribute to the exhaustion of the Potato are diverse and very complex.

FIG. 12.—EXHIBIT OF DESSERT FRUITS WHICH WON THE SOUTHAMPTON HORTICULTURAL SOCIETY'S CHALLENGE CUP ON NOV. 1, 1922. SHOWN BY CAPT. J. M. DRUMMOND (GR., MR. LEWIS SMITH), CADLAND PARK, SOUTHAMPTON.

We now come to the question of physiological degeneration, that is to say the degeneracy which, excluding the causes above-mentioned, is brought about by the exhaustion of the varieties themselves owing to their continuous propagation by tubers. This is at the present time a much discussed subject, some denying that it has an unfavourable effect, others admitting it in principle, if not—for want of conclusive proofs—in fact.

I should like to be permitted to take the affirmative view, and to express some personal opinions on the subject not only as affecting the Potato, but as affecting a large number of cultivated plants, including fruit trees, Chrysanthemums, Carnations, Gladioli, etc., all of which, like the Potato, are propagated vegetatively.

Vegetative propagation, such as grafting, advances the evolution of plants in which it is employed, making the flowering period not only earlier, but more abundant, and of longer duration than in the same kinds of plants raised from seed. Propagators, many, at any rate, multiply Glycines, Bignonias, etc., by layering; and they employ grafting to judge earlier than they could otherwise the value of fruit trees raised from seed. The graft thus inherits the physiological age of the plant which has produced it, and is thus, as it were, born adult.

* A paper read by M. S. Mottet and translated from the *Journal* of the French National Horticultural Society.

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Now, the propagation by tubers of the Potato is really nothing but vegetative production by its extremities, which are actually subterranean branches infinitely ramified, and of which the vigour decreases with age, like that of the branches of a tree. The branches of the common Acacia, very spiny when young, become inermous in age. Why should the Potato remain immune to the effects of age, which are common to all organisms? Diseases are capable of shortening, even considerably, the period of productivity, and such is the case, no doubt, with the diseases already mentioned, though I cannot admit that they are the sole cause of degeneration in this vegetable.

In the case of degeneracy, then, we can distinguish at least two principal causes :—

(1) That inherent in the variety itself, which we will call exhaustion by natural ageing; and

(2) That due to the depressing influence of disease, ending in premature exhaustion.

The latter condition would naturally act more quickly in the case of a variety which is originally less robust, less resistant, and cultivated in less favourable conditions. Of the innumerable varieties which have been put on the market since the beginning of the last century, especially during the latter half, and most of all in our own time, nearly all the old ones have disappeared, and the greater number of the novelties only last a few years. Of the old ones we may instance La Chave, Marjolin, and Vitelotte (the three senior ones, dating from before 1815), Pousse Debout, 1847; Saucisse, 1847; Jaune Ronde Hâtive, 1851; Farineuse Rouge, 1870; Merveille d'Amérique, 1874; and Magnum Bonum, 1876; to mention only a few of those still widely grown. These varieties possess at the same time longevity, and resistance to diseases caused by degeneracy, of which one, Frisolée, though imperfectly understood even to-day, is not less than a hundred years old.

It may be advanced that many new varieties of Potatos have been abandoned as being found inferior in point of productivity, vigour, quality, etc., before they had time to degenerate, but the greater number disappeared because they lost, more or less rapidly, their original merits, either on account of congenital feebleness—and we shall see later on that this makes its appearance in the seedlings, from their earliest appearance—or on account of disease.

In all important genera of plants which are highly bred, and all the more, perhaps, because they are subjected to intensive cultivation, the same phenomenon is observable of the successive and more or less rapid disappearance of varieties which, after a period of luxuriance, cease to be valuable for cultivation in our gardens.

(To be concluded.)

VEGETABLES.

EARLY POTATOS.

EXPERIENCE shows that the Potato is a fastidious vegetable. Certain varieties turn out very well on some soils, fair on others, and poor in certain cases. In these gardens the vegetable quarter is on a hill sloping south. The soil is gravelly and a few feet below the surface is chalk.

During recent years I have tried several varieties of Early Potatos. The one variety that has surpassed all others in this section, both in cropping and cooking qualities, is Ninetyfold. It is ten days earlier than Sharpe's Express. Our soil apparently suits this variety. It forces extremely well in brick pits, and its dwarf haulm is also a favourable item. A visitor from Ireland was so impressed with its quality when cooked that he made a special note of the variety and remarked he had eaten no better Potato. May Queen and Eclipse we cannot grow at all well. The main crop variety, Kerr's Pink, makes strong growth and gives a heavy crop of tubers, but the latter are absolutely uneatable, and no cook will try them twice. *Geo. W. Stacey, Chorley Wood Cedars, Herts.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Flowers for Glasgow Market.—Apropos the note (see p. 367, December 28, 1922), on the garden produce passed through Glasgow, I recently went over one of the most extensive of the Scottish nurseries, where flowers, etc., are grown for market. Some 95,000 Carysanthemums were either over, in bloom, or yet to open. The plants were all disbudded and carried a crop of perfect flowers. December Yellow and Romance were especially fine; John Thorpe had been all cut, but Western King and a few more whites and coloured sorts were only less beautiful. To a gardener all this may not be anything wonderful, but when it is told that, by chance, I saw these plants being set out in a quarter in the open which the previous day had been cleared of a crop of Cabbages; that men with an ingenious implement scooped out a hole in the ground just large enough to hold the roots, and that the plants were put in and left to themselves till autumn, when they were transferred to structures cleared of Tomatos, the results, to me at least, were astonishing. I learned that the blooms realised 4s. to 5s. per dozen up to Christmas. When the proprietor commenced business about forty years ago, flowers in Edinburgh could only be sold in little bouquets, and it is related that a benighted individual took a few Arums to market one morning, and was unable to find a purchaser; while another, who had a few pounds of Tomatos, resolved to tempt the Edinburgh folk, but he also was disappointed. No one would buy. Now growers cannot produce enough early Tomatos, and in the establishment of which I write, another block of glass was erected last summer especially for the production of these fruits in May and June, the Chrysanthemums with which they were lately filled being early sorts. Some of the old structures were erected by specialists, but more recently all work on buildings, whether of glass, packing sheds, motor garage, and even a deep artesian well, has been carried out by the garden staff. All the packing boxes, of whatever description, are made on the premises, and the high prohibitory railway rates made it imperative to set up a motor van for marketing, so that to a great extent the establishment is self contained. I am informed that in the busy season this van makes three journeys of over 20 miles each in a day. *R. P. Brotherston.*

Lonicera Hildebrandtiana.—Mention of this plant in a recent issue of *Gard. Chron.* prompts me to inquire if, after 30 years of cultivation, its approximate worth as a flowering climber has yet been determined. After seeing it flowering sixteen years ago, with Mr. McIver, in the long plant corridor at Queen's Park, Glasgow, and at other times in the Botanic Gardens there, it appears to be a rampant climber, but very shy of flowering, and interesting as being the giant of the genus. But for floral effectiveness, it seems much the inferior of other species, L. sempervirens, for example. *Mid-Lanark.*

Lithospermum prostratum.—Mr. W. Somerville on page 353, Vol. LXXII., states that he would like to get at the truth as to the cultural requirements of this beautiful plant. In the Hindhead and Haslemere district this plant thrives in an amazing manner in full sun, grown on a raised bank in the ordinary sandy soil of the district, well trenched and thrown into a heap about 5 feet high, mixed with some well-rotted peat formed of the top Heather sod about two years old, and plenty of broken stones. I consider efficient drainage the most important detail in the cultivation of this plant. In these gardens, previous to the war, very large specimens existed on the rockery, but with years of neglect most of them have disappeared. Were I planting afresh, I would most certainly plant in full sun, on a raised position in porous soil, where the roots could ramify for yards in all directions. The type plant is the more vigorous, and appears to always have a few flowers, even in the depth of winter. The variety Heavenly Blue is very fine when well grown. *H. Eavis, West Down Gardens, Hindhead, Surrey.*

Rhododendron on Limestone.—Mr. Kingdon Ward, in his last two notes (pp. 352 and 378 of *Gard. Chron.*, Vol. LXXII.), mentions Rhododendrons growing on limestone; it would be of interest to know what kind of limestone he refers to? If it is limestone, is it not in centuries old vegetable matter that the plants find a rooting medium? This is an old subject, but one which requires to be cleared up. Some of your readers may be able to throw a little light on it. It used to be considered that Rhododendrons required peat, but we know now they will succeed well in clay or even a sandy or other soil of a porous nature. *J. P.*

Caustic Fruit Wash (p. 13).—Carbonate of potash has little or no insecticidal nor cleansing properties, and its addition to a caustic winter wash is quite useless. If it is used in substitution for part of the caustic soda, as is sometimes recommended, it does actual harm by weakening the wash. Some recipes still give half caustic soda and half caustic potash. This makes a good wash, but is no improvement on caustic soda alone, whilst the caustic potash is a good deal more expensive. A simple solution of 2 lb. caustic soda of 98 per cent. purity in ten gallons of water is completely successful in cleansing trees of moss and lichen, and no additions of any kind are required. I have used this simple wash on a large scale, and know nothing that cleanses the bark more thoroughly. Mr. W. Tiplow (p. 13) recommends half this strength, which I should not have thought would be effective. The standard strength is 2 lb. per ten gallons, and I have never known it do any damage to fruit buds if used whilst the trees are dormant. *Market Grower.*

Anthemis cupaniana (see p. 7).—I agree with Mr Arnott, that Anthemis cupaniana is a very pleasing plant, and one that flowers very late; my plant has a stray bloom or two open, and a few buds, whilst it comes into flower very early. My object in writing is to warn growers that this plant spreads to an unusual extent, and, unless kept within bounds, would soon smother and kill any neighbouring plant of a frailer nature. My specimen was inserted as a small cutting two years ago and it rooted with ease; it now measures five feet across. It is growing in stiff, clay soil, and seems to enjoy the cool, moist surface beneath its mass of growth. The flowers are useful for indoor decoration as cut blooms, and have much the appearance of small Marguerites. There is no difficulty in keeping the plant within reasonable bounds by clipping it back with the shears or knife. *T.*

Teucrium fruticans.—I read with interest Mr. J. Jeffery's note on Teucrium fruticans in your issue of January 6. The plant, although it hails from the Western Mediterranean region, will withstand our winters well, at any rate if grown under the protection of a south wall. A specimen grown in my garden has thriven for about ten years, and it is seldom out of blossom, though a heavy frost, as Mr. Jeffery observes, is apt to cut it back. I regard it as far more worth growing than many of the creepers and climbers that are allowed to monopolise good situations. Another good plant, which, however, is too seldom seen out of doors, is Grevillea rosmarinifolia. About twelve years ago I had a rooted cutting planted out in a somewhat sheltered bed, made up of peat, overlying a mound of burnt clay. It grew well until the dry summer of 1921, which proved too much for it. By that time it had become a bush nearly five feet through, and except for two months in late summer, was never without a plentiful display of its red, coral-like flowers. The cuttings root like weeds in moist sand in a cold frame, and indeed, it is probably better to keep relays of young specimens, as the shrub is inclined, at least with me, to become rather straggling as it grows older. Some cuttings inserted a year ago are already flowering in the open ground. *J. B. F., Gerrards Cross.*

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Caustic Fruit Wash (see p. 13).—W. Tiplow's experience with caustic fruit washes is absolutely the same as mine, extending over very many years. The trouble is that these various washes do nothing more than cleanse the tree without destroying insects. I have tried almost all the different washes on the market, and have not found one that will destroy or clear a tree of Mussel Scale. My object in writing is to ask any of your correspondents if they have done so, and if so, would they kindly give their experience. I think you will agree that spraying is costly, involving labour, machines and materials, and to get no results is disappointing. *E. F. C.*

Electrification of Crops.—Attempts to hasten growth by means of electricity seem to have engaged attention many years ago, and may be worth mentioning in the light of the recent article (*Gard. Chron.*, December 30th, 1922) on more modern trials. Haply, I lately came across *Tracts on Practical Agriculture and Gardening*, "2nd Edition, greatly improved, London, 1773," by R. Weston, who apparently, from the bibliography, was a knight, though that does not appear on the title page. Chapter XXV., "Proposition of electrical experiments to destroy insects on trees and particularly on plants in stoves and greenhouses, with an account of a newly invented bellows calculated to kill all sorts of insects," contains an allusion to experiments made by the Abbé Nollet, who electrified pots of seeds for 15 days, the electrification having been maintained for 2, 3 or 4 hours a day; he observed that the seeds were raised two or three days earlier and that there were a greater number of shoots as contrasted with the non-electrified pots. On June 2nd, Weston sowed four pots of Mustard and Cress; two of them were electrified for ¼ hour four times a day. On the 4th the electrified seeds were more turnid and bursting than the controls, and on the 6th, when the experiment was stopped, the electrified seedlings were more in number and of greater vigour. On p. 295, reference is made to the *London Magazine* of "10 years ago," bringing the date back to 1763, as containing "a plan of a perpetually electrified garden." Weston's description is meagre, and no details are given as to how the electricity was applied; it may be presumed, however, that the old statical machine was employed, otherwise the word *galvanised* would probably have been used in place of *electrified*. Perhaps owing to the labour of turning the machine the experiments were few and curtailed. I remember seeing an account of a much more recent plan, if memory serves me, of Dutch origin, but have not a reference by me; this was to utilise the earth's electricity by attracting it from the air. This was done by planting numbers of metal rods amongst the crop, and it was claimed that thereby much more prolific effects were produced than on unrodded ground. I rather incline to the opinion that no electrification experiment is complete without controls which are treated with peroxide of hydrogen and also nitric acid (or nitrous) in dilutions containing infinitesimally small amounts of the drugs. *H. E. Durham.*

Home Grown versus Imported Apples.—When recently in Covent Garden Market I was greatly impressed with the appearance of imported Apples as compared with those from home growers. I noticed on one salesman's stand English Apples in baskets offered side by side with American and Colonial Apples in boxes and barrels, and the condition of the fruits bore no comparison; those from home growers were, apart from their inferiority in grading, mostly bruised and dull looking, while those even in the barrels from abroad were fresh and brightly coloured, with scarcely a blemish. Are imported Apples firmer in the skin than those cultivated in this country? It is remarkable that the imported fruits after a journey of several thousand miles show little effects of travel. Imported Apples in barrels, at a time when our markets were flooded with the home grown crop, were realising in my town in the country 4d. per lb., whereas others from local growers were on sale for as low as 1d. or 2d. per lb. The retailer informed me that he made more profit on the imported fruits. *F. B.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THURSDAY, December 21, 1922.—Present: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Coningsby, A. G. Ellwood, J. Evans, J. Howes, J. Jackson, W. M. Jackson, A. Keeling, J. Lupton, D. McLeod, E. W. Thompson, J. Thrower, and H. Arthur (secretary).

FIRST CLASS CERTIFICATES.

Cypripedium Christopher var. Grand Monarch. A fine flower more densely spotted than the original Christopher; *C. Eurybiades var. The King.* A flower of good shape, with a wide white margin to the dorsal sepal, the petals being richly striped mahogany colour; *C. Matthewsianum Usk Priory var.* The dorsal sepal is spotted with rich purple; the petals and pouch are mahogany red. From S. GRATRIX, Esq.

Cattleya Enid alba Bletchley Park var. A form with broad, white petals and rich rose-purple lip. From Sir H. LEON, Bart.

Odontoglossum crispo-Solon Pitts' var. A rich, purple-coloured Orchid with a margin of clear white on the sepals and petals; the broad, flat lip has a purple blotch and white tip. From H. T. PITT, Esq.

AWARDS OF MERIT.

Cypripedium Mandarin (*Shogun* × *Earl Tankerville*). From Mrs. GRATRIX.

C. Noel (*Becktoniae* × *Nirvana*). From Dr. CRAVEN MOORE.

C. Swallow (*Arthurianum* × *Satyr*). From Capt. W. HORRIDGE. *C. Helena* (*Shogun* × *aureum*). From S. GRATRIX, Esq.

C. Statul (*clinkaberryanum* × *Mrs. Carey Batten*). From Col. Sir J. RUTHERFORD, Bart.

GROUPS.

S. GRATRIX, Esq., Manchester (gr., Mr. J. Howes) was awarded a Gold Medal for a group.

H. T. PITT, Esq., London (gr., Mr. Thurgood), was awarded a Gold Medal in addition to a First-Class Certificate for his plant of Odm. crispo-Solon Pitt's var.

A. T. CUSSONS, Esq., Prestwich (gr., Mr. F. Cookson), staged a group to which a large Silver Medal was awarded.

Messrs. SANDERS, St. Albans, were awarded a Silver Medal for a group.

READING HORTICULTURAL BRANCH OF YOUNG FARMERS' CLUBS.

THE Annual General Meeting of the Reading Horticultural Branch of Young Farmers' Clubs; promoted by Sutton and Sons, was held in the Club Room of the Abbey Hall, Reading, on Friday, December 8. The Club Room was crowded, every member of the club being present, and also a large number of prospective candidates who were anxious to secure the plots of ground rendered vacant by those members who have commenced work or left the district.

The Secretary reported that 12 of the 20 original members wished to continue during the coming year, and that there were eight plots available for new members.

The election of officers for 1923 then took place. Mr. M. Cousins was appointed Chairman; Mr. A. Irving, Vice-Chairman; Mr. P. Pym, Secretary; and Mr. W. Langford, Treasurer.

Mr. W. F. Giles then announced that the *Daily Mail* had judged the books in the Note Book Competition, and had asked him to say how pleased, and even surprised, they were with the splendid way in which some of the members had kept them, and sent their heartiest congratulations.

The winners were: 1st prize MASTER R. E. L. JOHNSON, 2nd prize MASTER G. WARWICK, 3rd prize MASTER P. PYM.

The Treasurer reported that the members had paid in about £18 from the sale of produce from the plots, M. COUSINS (the first prize winner of the best plot) being top with £2 3s. 1½d., closely followed by others, all of whom had sums between one and two pounds standing to their credit, realised from the three pole plots.

Obituary.

John Clark.—Sincere regret will be felt among Scottish arboriculturists on learning of the death of Mr. John Clark, who for about 30 years held the position of head forester to the Marquis of Aberdeen and Temair at Haddo House, Aberdeenshire. He retired through failing health over three years ago. Mr. Clark was the son of the late Mr. John Clark, forester, Keith Hall, Aberdeenshire, under whom he acquired a thorough knowledge of his profession. He afterwards went south for further experience, and eventually held the positions of forester at Kelly Castle, Renfrewshire, and on the Arran estates of the late Duke of Hamilton, from whence he was appointed to the Haddo estates. He was a member of the Royal Scottish Arboricultural Society for nearly half a century, and was one of the principal promoters in establishing the now prosperous branch of that society in Aberdeen. Mr. Clark's long practical experience, combined with keen observation, made him a much sought-after man by those interested in forestry, and time and again his advice proved highly advantageous to those consulting him. A most intelligent man, he was highly respected throughout the wide domain under his charge, being a warm-hearted, genial neighbour and sterling friend. He is survived by two sons and two daughters. The eldest son is forester to the Duke of Richmond and Gordon on the Gordon Castle estates, Fochabers, Morayshire, and the younger son is in Australia.

TRADE NOTES.

THE seed testing laboratory maintained by Messrs. Clibrans, Altrincham, has been approved and licensed by the Ministry of Agriculture and Fisheries for the purpose of testing all kinds of seeds in accordance with the requirements of the Seeds Act, 1920. Messrs. Clibrans have been working for many years on scientific lines in the cleaning and testing of seeds to enable them to produce stocks not only pure, but unsurpassed for quality. It is satisfactory to note that their methods of seed testing have been recognised by the authorities.

A CONFERENCE was held on the 3rd inst., under the ægis of the Chamber of Horticulture, in connection with the Departmental Committee Inquiry into the methods of selling and distributing horticultural produce. The meeting was fully representative of the Lea Valley Growers' Association, Federation of British Growers, N.W. Kent Growers' Association, British Glasshouse Produce Marketing Association, the Fruit and Vegetable Section of the National Farmers' Union, and the Chamber of Horticulture. Mr. G. W. Leak, President of the Chamber, was in the chair. A letter was submitted from the Secretary of the Departmental Committee, giving details as to purport of the Inquiry, the terms of reference being: (*a*) Methods and conditions of sale; (*b*) Disparity between producers' and consumers' prices. The Secretary of the Chamber explained that this meeting was convened in order to bring the various sectional interests together, with a view to giving mutual assistance and preventing possible overlapping. The Chairman then invited discussion as to giving evidence and appointing witnesses, and as to whether the Chamber should present the evidence on behalf of the whole industry or whether separate evidence should be presented by sectional associations. He emphasised the importance of eliminating any overlapping. Mr. A. B. Lister, Secretary of the British Glasshouse Association and the Lea Valley Growers' Association, stated that these two Associations had informed the Departmental Committee that they

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desired to give evidence, and had since been allocated a definite time for hearing. Mr. E. C. Boughton, Secretary of the Federation of British Growers, stated that his Federation had decided that they should offer evidence independently, and that they were conferring with the Fruit and Vegetables Section of the National Farmers' Union in that respect.

Mr. Edmunds stated that the National Farmers' Union had decided to act in close co-operation with the Federation of British Growers.

A general discussion then ensued of an exceedingly helpful nature to witnesses, also for preparation of proofs of evidence dealing with: various methods of distribution; suggested improvements; railway rates as a large factor; improvement in transport facilities as a means of reducing the excessive amount of handling; markets; tolls and charges; parcels rates; railways and centralisation of distribution, and so on. The conference then unanimously passed the following resolution: "That the Federation of British Growers in connection with the Fruit and Vegetables Section of the National Farmers' Union, be asked to prepare proof of and give evidence in respect of orchard fruit and outdoor vegetables, and that the Lea Valley Growers' Association in conjunction with the British Glasshouse Produce Marketing Association be asked to act in a similar capacity in respect of Tomatos, Cucumbers and Grapes."

A resolution was also carried asking Mr. John Poupart to submit evidence as to London market tolls and charges, the necessity for a special low agricultural produce parcels rate, and methods of distribution by the grower-salesman. Mr. Poupart has agreed to do so, and will appear as the Chamber of Horticulture witness.

LAW NOTE.

A NURSERYMAN'S FAILURE.

At Bankruptcy Buildings, Carey Street, W.C., on Tuesday last, the first meeting of creditors was held of Arthur Douglas Thompson, described as of 11, Adam Street, Adelphi, London, and residing at Hill Crest, Merry Hill Road, Bushey, Herts, against whom a receiving order was made on December 21, 1922, on a creditor's petition. Mr. D. Williams, official receiver, presided.

Debtor came to London from Dover in December, 1912, and shared an office at 11, Adam Street, Strand, where he and Mr. H. Charman started in business as nurserymen under the style of Thompson and Charman. It was arranged that debtor should have two-thirds and his partner one-third of the profits. The business was fairly successful until the war broke out, when his partner withdrew, and debtor continued on his own account until July 25, 1916, at which date he was compelled to execute a deed of assignment to Mr. B. T. Crewe. From August, 1916, to March, 1917, debtor continued the business under the supervision of Mr. B. T. Crewe, when the creditors decided to realise the assets. In April, 1917, he started business at 11, Adam Street, Strand, as a consulting horticulturist. He attributed his present position to the failure of a new invention in relation to a new form of tennis court which he had been laying in various districts, and which had not been a success, and in this connection he had lost from £300 to £400. He further attributed his present position to the fact that a firm of seedsmen offered to finance and form a company to float the tennis court, but debtor alleged that the firm in question subsequently refused to provide the working capital.

He estimated his liabilities at £2,000. and had assets consisting of book debts £300, and farming stock £10, also a claim against a limited company for £2,000, in respect of bad workmanship to tennis courts and excessive charges.

The estate was left in the hands of the official receiver.

THE WEATHER.

THE WEATHER FOR DECEMBER.

A large anti-cyclone maintained the generally dry weather until nearly the middle of the month, when a great break-up occurred, rain afterwards falling almost daily. Both spells, however, were very mild and equable, and the dry period was extremely dull. Winds from west-north-west at first, and from southerly points after the 9th, greatly predominated. Ozone was exceptionally abundant. The mean temperature was 43.3°, or 3.8° above the average. Of sunshine, only 29 hours were recorded, there being a deficiency of 5½ hours. Rain fell on 23 days, or four more than the normal number; and the total amount was 4.17 inches, or exactly an inch above the average. More than nine-tenths of the total was experienced after the 15th, barometric pressure until then being high and steady, but subsequently low and very unsteady, with a minimum of 28.50 inches on the early morning of the 30th. During the closing weeks the subsoil water level rose materially. Southport escaped serious gales, only slight ones being felt on four dates. Definite frost was limited to two nights, and even then to the grass. There was no snow. Hail fell on four days. Thunder occurred on the 18th and 22nd. Fog was restricted to the night of the 14th to 15th. *Joseph Baxendell, The Fernlea Observatory, Southport.*

THE WEATHER IN SCOTLAND.

Weather and the calendar were so much "out of joint" during 1922 that the mildness of the closing month of the year seemed quite appropriately unseasonable. The mean temperature was about 2° above the normal, only at night did the minimum fall below the freezing-point, while the lowest day temperature recorded was 37°. No snow fell during the month, and the rainfall was little more than half the normal, being 1.43 inch on 14 days; the wettest day was the 16th, with a fall of 0.51 inch. Bright sunshine, with a registered total of 39.2 hours, was nearly normal, the daily average being 1.27 hour, and the percentage 18; there were 12 sunless days. From the 17th to the end of the month the atmospheric pressure was exceptionally low, reaching its "deepest deep" of 28.80 inches on the 23rd; the highest reading of 30.38 inches was obtained on the 11th, while the mean works out at 29.63 inches. The mean temperature for the month was 39.5°, with a mean maximum of 44° and a mean minimum of 35°, giving a mean range in 19°. The highest maximum of 54° was recorded for the 12th, and the lowest minimum of 28° for the 11th. On the grass, the mean minimum was 32°, with a lowest of 25° on the 11th; there was ground frost on 12 nights. At 1 ft. deep, with a mean of 39° the soil temperature fell, with fluctuations, from a highest of 42° on the 1st to a lowest of 38° on the 31st. The prevailing winds were from the west and south, with a gale on the 25th. *John Davidson, Director of Studies, Meteorological Station, St. Andrews Provincial Committee, Training College Gardens, Mayfield, Dundee.*

ANSWERS TO CORRESPONDENTS.

Beech Trees Infested with a White "Fungus": *Beeches.* The tree is attacked by an insect, Cryptococcus fagi, known as the Beech coccus. The best remedy is paraffin emulsion, to which has been added a solution of caustic soda at a strength of one pound in ten gallons of water. Spraying should be done for two or three seasons, and should be undertaken as soon as the pest is noticed. The trunk and main branches should be scrubbed with a wire brush, or a stiff scrubbing brush, dipped in the emulsion.

Cacti: *W. J.* You will probably be able to obtain specimens of Cacti and other succulents from Messrs. Cragg, Harrison and Cragg, Heston, Hounslow; Mr. H. Ellison, West Bromwich, or Miss Thompson, Handsworth, Birmingham.

Chrysanthemum Sport: *T. H.* The flower of your sport from Chrysanthemum H. W. Thorpe was not in sufficiently good condition to enable us to form a proper opinion of its merits. However, if, as you suggest, it is quite distinct from the type, you should certainly propagate a stock of it if possible, so as to be able to test it fully by the side of its parent during the present year.

Figs and Tomatos in Same House: *P. L.* Provided you get the first truss of fruit set on the Tomatos before giving too much moisture to the Fig trees, you should be able to grow the two crops together. You must understand that the Cucumber and Fig are both moisture-loving plants, whereas Tomatos require a much drier and cooler atmosphere to grow them successfully; too much moisture would favour spot and other diseases.

Grapes Out of Doors: *N.* The summer of 1921 was most favourable for the setting and ripening of outside Grapes, and with a favourable season your vines will again ripen their fruit, as only in the most favourable localities did outside Grapes mature properly in 1922. Prune last year's shoots to three or four buds and tie in the rods fairly close to the wall, so that they may receive as much benefit as possible from sun heat. Little or no good would be done by manuring the small space at disposal, as the roots will have passed beyond the asphalt, and you must go beyond this. Apply two or three light dressings of Thompson's vine manure to the root area during the season of growth.

Grape Spot Disease: *P. L.* If you are certain the vines have suffered from spot disease, dissolve 6 lb. of sulphate of iron in a gallon of water and use the solution as a wash before the buds swell. Many growers believe spot disease is caused by a sudden chill, such as admitting an excess of cold air on bright mornings after the house has been kept close and moist. Prevent any checks of this kind and you will not be much troubled with Grape spot. Give the vines the usual application of Gishurst compound after the copper sulphate dressing.

Names of Fruit: *J. E. I.* 1, D'Arcy Spice; 2, Alfriston. *J. M.* Waltham Abbey Seedling.—*W. S. E.* 1, Orange Goff; 2, Hambling's Seedling.

Names of Plants: *G. H.* For purposes of identification, the specimens were far too small; we believe, however, that the berried plant is Cotoneaster frigida, and the grey-leaved one Senecio laxifolius.—*J. T. S.* Not recognised; send larger specimen.—*B. and W.* Ornithogalum thyrsoides.—*F. A. F.* and *J. W. B.* We cannot undertake to name Chrysanthemums; send blooms to some grower who makes a speciality of these flowers.—*R. E.* 1. Carpinus Betulus; 2, Pyracanthus coccinea; 3, Prunus lusitanica (Laurocerasus lusitanica).—*J. M., Perth.* 1, Stretlitizia Reginae; 2, Ruscus Hypoglossum.—*D. T. S.* Haemanthus virescens.—*J. A., Brighton.* Rhodostachys pitcairniaefolia (syn. Pourretia mexicana).—*W. F.* Garrya elliptica.—*J. W.* Schinus molle, no doubt imported from the South of France.—*C. S. B.* 1, Acacia Baileyana; 2, Moschosma riparium; 3, Hibiscus Cooperi; 4, Leycesteria formosa.—*M. S.* 1, Cupressus Lawsoniana; 2, Olearia Haastii; 3, Jasminum nudicaule; 4, Genista fragrans.

Forcing Hydrangea hortensis: *P.* Plants that are intended for flowering early should be chosen from those that have made good, plump buds, and have well-matured wood. Plants that have been subjected to a little frost will be found to start into growth much better than those that have been given protection. Place them in a cool house and reduce the supply of water at the roots for a short time. Before placing them into warmer quarters it would be well to overhaul the plants; those that require larger receptacles should be repotted, while others that are considered to have sufficient root space may, after removing the surface soil and correcting faulty drainage, receive a top dressing of rich compost.

Market Nursery: *L. W.* If the employee who is in charge of the nursery is of the opinion that the place could be made to pay, his advice would be better than that of one unacquainted with the business. As you state there is a ready market for your produce and good prices, there should be a reasonable prospect of the business proving remunerative. As you yourself have no knowledge of market gardening, you could place the foreman in full charge and give him a bonus on the profits in addition to a salary. This would be of mutual advantage, as he would then have an interest in increasing the turnover and profits.

Communications Received.—W. S.—W. R.—H. C.—S. W. McL. B.—H. E. D.—J. I. G.—J. C.—J. A.—J. E. A.—Enquirer—D.—E. B.—H. E. D.

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THE
Gardeners' Chronicle
No. 1882.—SATURDAY, JANUARY 20, 1923.

CONTENTS.

Alpine garden, the—
Mesembryanthemum uncinatum .. 34
Papaver alpinum .. 34
Apples: home-grown versus imported .. 39
Association of Economic Biologists .. 30
Bibliographical rarities 37
Botany, Advanced lectures in 30
Bulb garden, the—
Lilies for planting in January and February 33
Cultural memoranda—
Freesias 34
Home grown Lily-of-the-Valley .. 34
Flower packages and flower packing .. 30
Fruit register—
Apple Herring's Seedling 38
Apple King of Tompkins County .. 38
Fruit wash, caustic .. 39
"Gardeners' Chronicle" seventy-five years ago 30
Garden notes from S. W. Scotland 36
Gladioli, white 39
Hardy flower border—
Geranium atlanticum 34
Jones, Mr. H. J. .. 30
Legacies to gardeners .. 30
Obituary—
Hughes, J. 42
Orchid notes and gleanings—
Angraecum mirabile 35
Big Cypripediums .. 35
Pear trees and Pears .. 38
Potato, degeneration of the 38
Raspberries 29
Seeds, effect of moonlight on the germination of 30
Schinus Molle 37
Societies—
National Rose .. 41
Royal Caledonian .. 41
Royal Horticultural .. 40
Turton, Mr. T., retirement of 30
Trees and shrubs—
Raphiolepis Delacouri 34
Stranvaesia undulata 34
Uganda, mystery plants of 36
Week's work, the .. 32

ILLUSTRATIONS.

Cytisus Battandieri, the home of 36
Cypripedium Chrysostom var. Amy Moore 35
Jones, Mr. H. J., portrait of 30
Lilium auratum var. platyphyllum 33
Pear trees: grafted on the free stock 39; on Pyrus salicifolia 38
Schinus Molle, fruiting branches of 37

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 38.5°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 17, 10 a.m. Bar 30.5; temp., 37° Weather—Foggy.

Raspberries. The investigations which are being carried out at the Research Stations at Long Ashton and East Malling, on the cultivated varieties of Raspberry, are of great interest both to the grower and to the scientific horticulturist. The first instalments* of the results which have been obtained at these stations show the confusion which exists in the nomenclature of varieties of Raspberry in common cultivation and indicate the importance of the introduction of more accuracy in the use of varietal names. Of cultivated Raspberries few are good doers in all soils; some do well nowhere and others only under certain limited soil conditions. If, therefore, more than one variety be included under one name, there is every likelihood that the confusion of nomenclature will result in disappointment to growers. How great is this confusion at the present time is shown by the tables prepared by Mr. Grubb. Having made a large and representative collection of commercially grown varieties he proceeded to sort them out. He discovered that in many cases one name covers numerous varieties. Black Antwerp does duty for two, Red Antwerp for no fewer than eight, Baumforth's Seedling includes a like number of varieties, and the names Hornet and Fillbasket are each used for seven distinct kinds. Not only is one name used for more than one variety, but one and the same variety often has more than one name. Superlative, Baumforth's Seedling, Hornet, Red Antwerp, Abundance, Marlborough, are the aliases under which Mr. Grubb has found Bath's Perfection masquerading, and the same is true to a greater or less extent of other important varieties. Out of fourteen varieties examined, not one is known universally by the growers who cultivate it exclusively by its right name. To discover the origin of this confusion is no less important than to remedy it. Mere error in transposing names, though it doubtless occurs, will not account for this wholesale confusion. The growth of seedlings from fallen fruit doubtless accounts for some of the misnaming, but not by any means for all or even the larger part, for the rogues contained in stocks are often found to be definite, named varieties, which would hardly be the case were they seedlings. A vigorous rogue producing many canes will in time tend to oust a variety of a weaker growing kind, and this actually occurs in the cases of Superlative, and Norwich Wonder, which in many soils produce only a few canes. Bud sporting from the roots is also a possible cause of the confusion, and it also may be responsible for degeneration, which commonly overtakes certain varieties. Although a complete explanation of the causes for the misnaming of varieties cannot yet be given, the fact remains that it is high time the confusion should be cleared up, and this Mr. Grubb has undertaken side by side with an investigation of the cropping powers of the chief varieties. The results of the latter investigation show incidentally the loss which is bound to attend wrong nomenclature. Thus the average crop for four years of Baumforth's Seedling, described for convenience as seedling B—was 85 per cent. (Pyne's Royal being taken as 100 per cent.); whereas another distinct variety closely resembling it and called Baumforth's Seeding C., yielded only a 58 per cent. crop. Anyone who has grown Raspberries on a large scale must be aware of the way in which their characteristics vary. Hence it becomes of great importance to choose for descriptive purposes characters which are not only easily recognised but fairly stable. Mr. Grubb, after four years' close study, suggests that the surest means of identification are provided by the young, growing canes during June, July and August. They, together with the fruit and characters of the fruiting canes, have proved sufficient for diagnostic purposes.

All known varieties of Raspberry may be separated into two groups, pubescent or glabrous, according to the presence or absence of a dense growth of fine hairs on the new canes. The glabrous canes are shiny and the pubescent canes are dull, and the character is best seen in the young canes by examining them at a few inches from their tips. It is noteworthy that both pubescent and glabrous varieties occur in the wild state. Another character of the new canes which is also useful is the colour of the bases of the spines. It may be that of the cane (pale spined), or conspicuously darker (dark spined). Needless to say, other characters have also to be taken into account, shape of spines; shape, colour and condition of leaf (curled or not); and so on. By these means it is possible to devise a key to the varieties which will serve for working purposes. For the benefit of those who desire to verify the names of their varieties, we append Mr. Grubb's provisional key; but would recommend that his admirable paper, with its full descriptions of all the chief varieties, should be perused in its entirety.

KEY TO VARIETIES OF RASPBERRY.

A. New canes densely pubescent.

B. Base of spine conspicuously darker coloured than stem; spines short, stout.
- c. Leaves considerably curled, petiole very short ... ... — Norwich Wonder. Steele's Victoria.
- cc. Leaves nearly flat, petiole long ... ... — Lloyd George.

B.B. Base of spine nearly same colour as stem.
- c. Leaves strongly convex or slightly curled ... ... — Red Cross.
- cc. Leaves nearly flat.
- d. Leaflets large, long, rather narrow, light green ... ... — Park Lane.
- dd. Leaflets small, broad, rather dark green ... — Red Antwerp B.

AA. New canes glabrous or sparsely pubescent..

B. Base of spine conspicuously darker coloured than stem.
- c. Leaves much curled, much rugose.
- d. Canes dark purple (except early in season) ... ... — Pyne's Royal.
- dd. Canes green or pale purplish red ... ... — Superlative.
- cc. Leaves flattish or slightly curled, often very convex.
- d. Leaflets long, narrow, light-coloured, fruit very acid ... ... — Semper Fidelis.
- dd. Leaflets not as above, fruit mostly sweet ... — Red Antwerp C. Red Antwerp D. Red Antwerp E. Baumforth's S.B. Carter's Prolific. Fillbasket A. Hornet A. Laxton's Bountiful. Michell's Seedling. Reader's Perfection

BB. Base of spine nearly same colour as stem.
- c. Leaves almost flat.
- d. Canes little glaucous, spines few ... ... — Bath's Perfection. Canadian Red.
- dd. Canes glaucous, spines usually many — Baumforth's S.A. Hornet B.
- cc. Leaves considerably convex ... ... — Devon. Profusion.

Presentation to a County Horticulturist.—On the occasion of the recent monthly meeting of the Hexham Gardeners' Society, the lecturer for the evening, Mr. Chas. W. Mayhew, Northumberland County Horticulturist, was made the recipient of an attache-case "as a mark of the members' esteem and appreciation for many valuable services rendered." Mr. Joseph Robson, the venerable head of the firm of Messrs. J. Robson and Son, Hexham, in making the presentation, expressed the pleasure it gave him to do so. He remarked that the recipient, having a whole county to cover, had a busy time, yet was ever willing to oblige them, and carried out his duties with enthusiasm. He hoped the lecturer's services would long continue to be at their disposal. Mr. Mayhew, in returning thanks, said that, when entering upon his duties ten years previously, he realised the difficult task he had in following two such renowned predecessors as the late Mr. Geo. P. Berry, and Mr. Chisholm, now of Edinburgh University. Their gift that evening encouraged him, and indicated that his services were appreciated.

A New Cure for Big Bud in Black Currants.—A provincial newspaper publishes a remedy for Big Bud in Black Currants in which ordinary cart-grease is the active agent. The writer recommends smearing the shoots and buds with ordinary cart-grease, placing the grease in the hand and drawing the latter from the bottom of the branch to the top, taking care to cover the buds as well as the shoot with grease. The most effective time for applying the grease is said to be in the spring, just when a little of the edges of the green leaves can be seen at the points of

* "A Note on the Impurity of Raspberry Stocks," by N. H. Grubb and G. S. Peren; and "Commercial Raspberries and their Classification," by N. H. Grubb; *Journal of Pomology and Horticultural Science*. Vol. iii. 1. Nov., 1922.

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the buds. It is claimed that the grease makes it impossible for the mites to crawl from the old buds to the new ones. This remedy is apparently only effective in the case of young trees, say, up to five or six years old, and for older specimens it is recommended to thin the shoots drastically in order to obtain strong, fresh growth that can be treated with the grease before the buds on them are badly infested.

The Colorado Beetle.—In view of the fact that the Colorado Beetle has established itself in France, in the neighbourhood of Bordeaux, the Ministry of Agriculture has made an Order, dated December 15, containing certain regulations with the object of preventing the introduction of the insect into this country. The Order, which is entitled the Colorado Beetle Order of 1922, comes into operation on February 1, 1923. It requires that the landing in England and Wales of any living plants or vegetables shipped from France shall only be permitted if they are accompanied by a licence of the Ministry, or by a declaration of the grower or exporter in the form prescribed by the Order, the declaration being to the effect that none of the plants or vegetables was grown in certain named departments of France.

British Mycological Society.—This society will hold a meeting in the Botany Department, University College, Gower Street, W.C., on Saturday, January 20, 1923, commencing at 11 a.m. Dr. W. Brown and Dr. A. S. Horne will discuss "Fusarium"; Mr. J. Ramsbottom, M.A., will lecture on "Berkeley and Broome"; Miss W. Ridler, B.Sc., will discuss "The Fungus Present in Lunularia cruciata," and Dr. H. Wormald will deal with "Crown-Gall in Nursery Stock."

Effect of Moonlight on the Germination of Seeds.—A correspondent in *Nature*, Elizabeth S. Semmens, gives results of experiments conducted by her on the effect of moonlight on the germination of seeds. The investigations showed a greatly increased rate of germination when the seeds were exposed to moonlight, and this is attributed to the fact that at certain periods moonlight is plane-polarised, for an increased amount of hydrolysis was always noticed when polarised light was used. Estimation with Fehling's solution of the sugar produced showed that there was an increased yield of about 15 per cent. caused by the moonlight.

Retirement of Mr. T. Turton.—After a long period of able service, and owing to failing health, Mr. T. Turton is retiring from the charge of the Castle Gardens, Sherborne, Dorset. We are glad to learn that he is receiving a gererous retiring allowance from his employer, Major Wingfield T. Digby. Mr. Turton has been particularly successful as a cultivator and exhibitor of fruits, and during his long life he has made a success of nearly every class of plant he has cultivated. A portrait and appreciation of Mr. Turton appeared in *The Gardeners' Chronicle* of July 23, 1921.

Advanced Lectures in Botany.—A course of ten lectures on "The Micro-Organic Population of the Soil" will be given in the Lecture Theatre of the Botanical Department, University College, London, Gower Street, W.C.1, by Sir John Russell, F.R.S., and Members of the Staff of the Rothamsted Experimental Station, at 5 p.m. on February 5, 7, 12, 14, 19, 21, 27, March 1, 5, and 7, 1923. The syllabus is:—Monday, February 5, Sir John Russell, F.R.S., on "Development of the Idea of Soil Population." Wednesday, February 7, Mr. H. C. Thornton, B.A. (Head of the Bacteriological Department), on "Occurrence of Bacteria in Soil—Activities connected with the Acquirement of Energy." Monday, February 12, Mr. H. C. Thornton, B.A., on "Conditions affecting Bacterial Activities in the Soil—Activities connected with the Intake of Protein Building Materials." Wednesday, February 14, Mr. D. W. Cutler, M.A. (Head of the Protozoological Department), on "Protozoa of the Soil." Monday, February 19, Mr. D. W. Cutler, on "Protozoa of the Soil" (continued). Wednesday, February 21, Dr. B. Muriel Bristol (Algologist), on "Soil Algae." Tuesday, February 27, Dr. W. B. Brierley (Head of the Mycological Department), on "Soil Fungi—The Occurrence of Fungi in the Soil."—Thursday, March 1, Dr. W. B. Brierley, on "Soil Fungi—The Life of Fungi in the Soil." Monday, March 5, Dr. A. D. Imms (Head of the Entomological Department), on "The Invertebrate Fauna of the Soil (other than Protozoa)." Wednesday, March 7, Sir John Russell, F.R.S., on "The Chemical Activities of the Soil Population and their Relation to the Growing Plant." The lectures are intended for advanced students of the University and others interested in the subject. Admission is free, without ticket.

Mr. H. J. Jones.—For many years past Mr. H. J. Jones, of the Ryecroft Nursery, Hither Green, Lewisham, has held a foremost position amongst British florists, and has made his name famous in this and other lands by reason of his successes as a raiser and grower of Chrysanthemums, Michaelmas Daisies, Pelargoniums and Phloxes. In his earlier years Mr. H. J. Jones was in business with Mr. Norman Davis, at Camberwell, but eventually the partnership was dissolved, and Mr. Jones set up on his own

MR. H. J. JONES.

account. After many struggles and a considerable period of intensely hard work, Mr. Jones built up an extensive business at Lewisham, and at one period he also had a large branch establishment at Keston, in Kent. Mr. Jones has excellent taste in arranging plants and flowers to obtain the best decorative effect, and his success as an exhibitor, both at home and on the Continent, has been due as much to his artistic skill as to his cultural ability. During the course of his business-career, Mr. Jones has won about one hundred and twenty gold medals, and his record for the year 1922 is probably unique, as he was awarded the Gold Medal of the Royal Horticultural Society for Phloxes, on August 9; a Gold Medal for Delphiniums and Phloxes, on September 5; a Gold Medal for Dahlias, on September 19; a Gold Medal and piece of plate for Chrysanthemums, on October 3; a Gold Medal for Michaelmas Daisies and Chrysanthemums, on October 17; a Gold Medal for Chrysanthemums, on October 31; and a Gold Medal and special congratulations from the President and Council of the R.H.S. for the most meritorious exhibit of Chrysanthemums on November 14. In addition to these awards from the R.H.S., Mr. Jones was also successful in winning the Gold Medal of the National Dahlia Society on September 6; the large Gold Medal of the National Chrysanthemum Society, together with the Clay Gold Medal, and congratulations of the officers and committee of that Society, for the magnificent display of Chrysanthemums at the exhibition on November 16. As a lecturer on the cultivation of Chrysanthemums, Mr. Jones is much in demand, and in that capacity he has visited a large number of the principal gardening and Chrysanthemum Societies throughout the country. He is a loyal supporter of the National Chrysanthemum Society, a most useful member of the Committee of the Royal Gardeners' Orphan Fund, and for many years he has had a seat on the R.H.S. Floral Committee.

National Chrysanthemum Society.—The Annual General Meeting of the National Chrysanthemum Society, for the presentation of the committee's annual report and the election of officers, will be held in the Lecture Room, Royal Horticultural Hall, Vincent Square, Westminster, on Monday, February 5, at 6.30 p.m.

Damage to Crops by Rooks.—Shropshire farmers are complaining of the damage done on their land by rooks, and the County Agricultural Committee has decided to ask the Ministry of Agriculture to renew the powers over rookeries given them in war time.

Flower Packages and Flower Packing.—We are pleased to notice that the committee of the British Florists' Federation is adopting an educational, as well as protective, policy, and has arranged for a discussion upon "Flower Packages and Flower Packing," to follow the general business of the Annual General Meeting of members, which will be held at the Connaught Rooms, Great Queen Street, W.C.2, at 3.30 p.m., on Monday, January 29. Mr. Geo. Shawyer, who will open the discussion, probably knows more about this subject than any other grower in the British Isles

Association of Economic Biologists.—The Annual General Meeting of this association will be held at 2.30 p.m. on Friday, January 26, in the Botanical Lecture Theatre of the Imperial College of Science, Prince Consort Road, South Kensington, London, S.W.7. After the business proceedings have been concluded Professor R. T. Leiper, M.D., D.Sc. (London School of Tropical Medicine), will give an address on "The Study of Helminthology."

Prizes for Railway Station Gardens.—In a competition for the best kept station platform gardens on the Midland Railway, for 1922, for which a sum of £400 was offered in prizes, Ockingdon in Essex, and Charfield in Gloucestershire, have been placed first, whilst the stations at Elecar, Yorkshire, and Penns, Warwickshire, have been bracketed equal second.

Legacies to Gardeners.—The late Major Francis Dale Tagart, of Cornwall Gardens, South Kensington, who died on November 24 last, bequeathed the sum of £100 to his gardener, Mr. Binfield, and £50 to Mr. William Newman, gardener of the square in Cornwall Gardens.

Appointments for the Ensuing Week.—Wednesday, January 24: Wimbledon and District Gardeners' Society's meeting: Market Bosworth Horticultural Society's annual meeting. Thursday, January 25: Gardeners' Royal Benevolent Institution's annual meeting and election, at Simpson's Restaurant, Strand, at 2.45 p.m.; Royal Botanic Society's meeting; Wargrave and District Gardeners' Society's meeting. Friday, January 26: Association of Economic Biologists meeting. Saturday, January 27: National Auricula Society's annual meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Reading for Gardeners.* Excellent advice as to the course of study to be pursued by gardeners was given in the Notices to Correspondents for January 8. I may perhaps be permitted to recommend to them, without being considered obtrusive, that most delightful and admirably reasonable, Paley's *Natural Theology*. I do this in the hope that some of those persons who have vegetation in every stage of progress daily and hourly under their eyes may have their minds excited to watch for the creative design of many phenomena which are at present barren of information to us. Gardeners have more opportunities than most scien-

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tific men of tracing the mysteries of final causes in vegetable physiology; that is, the end for which a certain structure, etc., has been given to plants; and though they have as yet aided little in building up a much desired system of natural theology founded on facts connected with botany and horticulture, it may fairly be expected that as gardeners become better informed and better trained in the use of their reasoning powers, they will make discoveries commensurate with what, indeed, is justly expected of them as a profession. No doubt there are many little "wrinkles" that are lost to the world in general, either because the possessor of them is deficient of the literary ability to put them clearly upon paper, or sometimes, perhaps, through the want of sufficient liberality to impart what are believed to be secrets of the craft. But it is only by means of these fragments of knowledge that any system, whether of horticulture, physiology, or philosophy, can be erected; and hence, therefore, arises the great value of the *Gardeners' Chronicle*, as a record of many isolated facts, and even minutiae, which, however trifling they may at the first glance appear, are useful, sometimes necessary, to furnish proofs, indications, corrections or contradictions of general principles in natural history. The *Bridgewater Treatises* of Dr. Buckland and Dr. Roget also show the train of thought which I should like to see pursued by gardeners who are anxious to advance their art in a higher as well as a more extended direction. Though somewhat expensive to buy, they are very easy to borrow from book clubs and public libraries. Many masters, I am sure, would assist a studious servant in this matter. Paley's *Natural Theology* may be bought second-hand for a mere trifle, and will occupy and improve many a dull winter's evening. Let it not be supposed that such knowledge is valueless in a practical point of view; on the contrary, it would be of the highest practical use. *D., Gard. Chron., Jan.* 15, 1848.

A RARE EARLY TRACT ON TULIP GROWING.

It may not be generally known that a few copies of Crispijn vande Pas the Younger's *Hortus Floridus* (1614) contain one of the rarest early tracts on Tulip culture. This was issued as four additional pages of text, printed across the narrower width of the oblong-quarto leaves, and accompanied by an engraved plate of a transplanting instrument, either embodied in the text or as a separate plate. It is found in two different versions, Dutch and French, and, considering its early date, is significant in the history of Floriculture. The Dutch version, *Een cort verhael van de Tulipaenen*, etc., differs in some respects from the French one entitled *Traicté compendieux et abregé des Tulipans et de leurs diverses sortes & especes, avec vne certaine maniere; comme on les peult semer, planter, & lever, qui est vne chose vtile & profitable a cous ceux quy sont amateurs de telles excellentes fleurs.* In the latter, the "Sonnet," the shorter list of Tulips, and the additional "Register vande Liefhebbers" (amateurs) are omitted, probably as then of little interest to French readers. This list of amateurs is, however, an interesting item; and by comparing it with an earlier list found on the verso of the Dutch letterpress-title of the book, which comprises 32 names of amateurs living in Utrecht, Amsterdam, Haarlem, and Leyden, we can gauge in some measure the success of the *Hortus Floridus* as a book of horticultural interest, for this later list adds to the former 77 names, and includes several towns outside the Netherlands; in addition, unknown amateurs at Weenen (Vienna) and Prague. Another point of difference is that the French version names the inventors of the transplanting instrument: "*les Curieux amateurs & diligentz en telles recherches, Albert & Guillemme de Heuclum.*"

The tract is divided into short paragraphs, the first being headed, "*Apertient á de premier livre en fin du saison printeniere,*" which shows that this tract was printed as a supplement to the additional plates of Tulips in the "Spring" section. It discusses the three kinds of Tulips as distinguished by "*ce tresdocte homme Monsieur Charles de lecluse*" (Clusius), in his books on rare plants; and comments upon their various colours. The second paragraph is headed, "*De la Culture & maniere de planter les Tulipans,*" and gives the kind of soil necessary, not only for raising the Tulips, but also as guarding against the damage done by moles. The Tulips should be planted in good and rich earth (*en bonne terre & grasse*), with which has been mixed the ashes of vine-wood, also tan-bark (*Cendres de boys de vigne avec du ran*). Next is a paragraph, *La maniere de semer la semence des Tulipans*, in which we are told that the seeds should be sown in a suitable wooden box filled with the special earth mentioned above, the box being kept *vis-à-vis* with the sun, and protected from northerly winds. The seeds

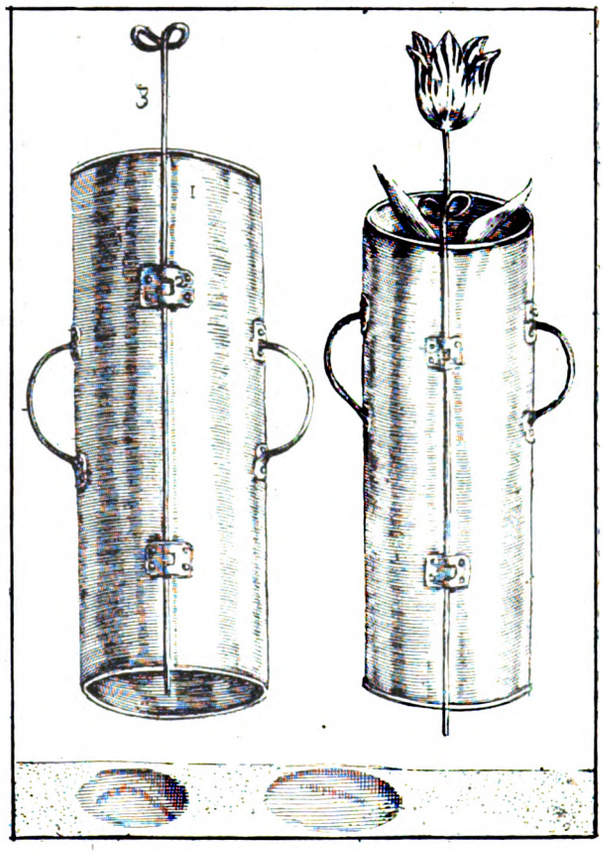

FIG. 13.—AN OLD DUTCH IMPLEMENT USED FOR TRANSPLANTING TULIPS.

used should be the pick of one's stock. The next heading is, "*De la nature & proppriéte des Tulipans & de leurs Corruptions*; and here it is stated that, although Tulips are not very abundant in flowers, which are fortuitous, they are, nevertheless, of a hardy enough nature, being very abundant in their roots, which multiply themselves two or three times every year. Therefore, these roots must be guarded, especially from the mole—*vne beste fort dommageable.* Further, precautions must be taken against too much dampness; and that when the flowers have passed, the bulbs must be lifted, and guarded in a dry place.

This is followed by *Secret pour garder les Racines desfleurs lesquelles la taulpe menge volontiers*, which consists of the statement that the mole does not like the preparation of special earth, as detailed in the first paragraph! The prescription is repeated here, with the additional information that "ran" is called by the Flemings *run, dont les tanneurs se servent pour tanner leurs cuirs.* The sixth paragraph is headed, "*Contre vn autre accident arrivant aulx Tulipans*"; and the recipe for the prevention of the killing of the bulbs by maggots and earthworms is to lift the plants and place them, with fine sand around them, in the sunshine for several days, until their preservation is guaranteed.

This ends the second page, and the next page has the engraving of the transplanting instrument (Fig. 13), with the heading—*Necessaire instrument pour replanter toutes sortes de fleurs avec vne facile & tres excellente maniere de retirer vn Tulipan hors de terre sans faire dommage a la fleur.* The fourth page starts with instructions as to the use of the instrument. It is to be forced down below the head of the flower, and until its lower portion is below the bulb and roots; then lifted from the earth with the plant, and transferred to the new place prepared for it by the other instrument of slightly larger diameter (the left-hand one in the engraving); the pin is then withdrawn, and the instrument released. The numbers on the left-hand figure are (1) the brass (or copper) instrument, (2) the clasp, and (3) the pin. Next follows a paragraph—*La maniere de retenir les Tulipans longuement en fleur.* This is of much interest, as it explains why some of the Tulips in the *Hortus Floridus* are depicted with wire supports. To protect the flowers from rain, you are to take some parchment and make *des petits capuchons de grandeur proppres pour couvrir vos Tulipans, puis les ayant attachez a des petitz bastons*, etc. The wires are, therefore, not to support the Tulips, but to act as bases for the parchment hoods to protect the flowers from rain or cold. By this means, it is added, the Tulips will be kept in flower for 12 or 14 days.

The tract ends with a "*Registre des plus estimes Tulipans,*" etc.; some named being among those engraved in the book. Beneath this list the author states that, if there are any Tulips which amateurs will make known to him, he hopes in time to illustrate them. (So far as is known, this promise remained unfulfilled, our author becoming Professor of Art at the Maneige Académie, Paris, about 1617, and accomplishing most excellent work in other subjects.)—He ends: *Avec cecy ie vous offres mon œure* [sic] *vostre Treshumble Crispian vande Pas le Jeune.* The Dutch version ends more briefly—*C. v. de Pas altijts vroet* (always true). *S. Savage.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Cypripedium.—Cypripediums which produce green and white flowers at this season are in great demand, as they adapt themselves to all decorative purposes. At one time the slow-growing C. Lawrenceanum Hyeanum, and C. callosum Sanderae were only available, with the much slower C. venustum Measuresianum which no one so far appears to have made a success, and is seldom seen. At a more recent date came C. Curtisii Sanderae, with the result we now have hybrids raised between the three species named, and they have also been crossed again with some of the progeny of the earlier hybrids. The result is we possess a most beautiful and interesting family of plants. In C. Maudiae is one of the most useful for all purposes, being a plant of easy growth, and, if well grown, almost continually in flower. The later hybrids will perhaps when better known rival this well-known plant. They are all of vigorous growth and produce their flowers at different seasons; in fact, the beautiful flowers of these albino Cypripediums may be enjoyed nearly the whole year round. Amongst the most free-flowering may be classed C. Alma Gevaert, a secondary hybrid with C. Maudiae as one parent, and C. Lawrenceanum Hyeanum the other. C. Holdenii is another hybrid from C. Maudiae, also the new C. Emerald, and C. Warden, whilst C. Enchantress has C. Alma Gevaert as one parent, C. Curtisii Sanderae being the other.

Tesselated Leaved Cypripediums. — These plants not only have beautiful flowers, their foliage is also beautiful, and when not in bloom claim attention on that account. The cultivation of these tesselated leaved Cypripediums differs somewhat from that for those which have green leaves, as they resent the addition of loam in the compost used as a rooting medium. Some growers use Sphagnum moss only with good results, but I prefer a clean compost made up of peat, A.I. fibre and live Sphagnum moss in equal parts. The plants should be potted firmly, and placed in small receptacles, according to the size of the plants, as an over-potted specimen never makes much progress. Those Orchids may be repotted immediately they have passed out of bloom, and if the cultivator desires to increase his stock the plants may, at this season, be divided. I am fully assured that many who fail with these delightful Cypripediums subject them to too much heat, and do not give them sufficient fresh air. Thrip is the chief enemy of all tesselated leaved Cypripediums, and every precaution must be taken to prevent an attack, as the pest not only disfigures the delicate foliage, but seriously injures the plant.

THE HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Loganberries and Raspberries.—The supports on which these fruits are trained should be examined and repairs made where needed. In the case of Loganberries they should be 8 feet to 10 feet high and sufficiently strong to withstand high winds. In making new plantations of either of these fruits select a moist soil as they need a cool rooting medium in summer, but plenty of sunshine to ripen the berries.

Spraying.—With the completion of pruning, opportunities may be found in quiet weather to spray orchard and other trees. Winter spraying will effectively reduce fungi, mosses, and lichens and many forms of dormant insect life. There are several good proprietary washes on the market. It is very important that every part of the tree is sprayed, and to be effective the nozzle of the spraying apparatus should be capable of giving a fine cloudy spray. Varying sizes of aperture caps are provided on modern machines to suit different fluids. Applied by an intelligent workman, there should not be undue waste of fluid. It should be the aim of the sprayer to wet every part of the trees without allowing it to drip. Care must be taken in handling caustic washes; a suit of overalls or oilskin and rubber gloves should be worn. Grease bands should still be renewed with grease when necessary. Where Woolly Aphis is prevalent, those that are hibernating should be looked for at the base of the trees. It may be necessary to move the surface soil and burn it. Methylated spirit is an effective means of destroying this pest on the trees; the spirit should be well worked in with a brush. Gishurst Compound is also effective as a winter dressing for fruit trees.

Fruits in Store.—Apples and Pears in store should be carefully examined. These fruits are keeping much better than was expected. Ventilation, even temperature, control of light, and the removal of defective specimens are the main needs in securing a continual supply of these fruits over a long period. Cemented floors may need an occasional damping to ensure sufficient atmospheric moisture.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Cannas.—These plants, when grown in 6-inch or 7-inch pots, are very useful for the decoration of the conservatory during the summer and autumn. The present is a suitable time to start an early batch. Strong rhizomes should be selected, trimming off the old roots, and, if necessary, a portion of the old rhizome, so that the selected crown can easily be placed in a 48-sized pot. As Cannas are gross feeders some dried cow manure should be added to the potting compost. Stand the pots in a house having a temperature of 60° to 65°, and give the plants very little water until they make fresh roots and have started into top growth. When they have filled their pots with roots they should be shifted into receptacles 6 inches or 7 inches in diameter. Use a very rich compost for the final potting, and when they have filled their pots with roots, water the plants twice a week with dilute liquid manure and soot water. All growths, except the strongest one, should be cut out. For this method of cultivation it is necessary to select suitable varieties, such as J. B. Van der Schoot, Elizabeth Hoss, President Meyer, A. Bouvier, Oiseau de Feu, Frau E. Kracht, R. Wallace and Queen Charlotte.

Forsythia intermedia var. spectabilis.—This, the finest of all the Forsythias, is an excellent subject for forcing, and can easily be had in flower at Christmas. It produces its deep, golden-yellow flowers in wonderful profusion, and the blooms remain in good condition for several weeks in a cool conservatory. A stock is easily raised from cuttings lined out in the nursery during October. Forced plants also afford a ready means of increase, as the young shoots of these, about 4 inches in length, will root readily in a close case. When this fine plant becomes better known it will doubtless be used largely for forcing purposes.

Rhodochiton volubile.—There are numbers of useful and beautiful climbers that may be raised from seed, and the plants will flower the same season. Of these, Rhodochiton volubile should be sown now. The seeds of this plant are very thin and flat, therefore they should not be covered very deeply, as they are apt to rot. They should be germinated in a warm propagating house. The seedlings should be potted on as they require increased root room; as they get larger they will do well in a warm greenhouse, training the plant to strings under the roof glass. Good specimens may be grown in eight-inch pots. After their final potting the plants should be removed to the conservatory and trained to wires or rafters. Plants put in a well drained border make fine specimens the second year. This Rhodochiton may also be propagated by means of cuttings.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Asparagus.—Where this vegetable is in demand, preparations should be made for forcing the crowns in frames, on a hotbed or under the stage of a warm greenhouse, or, more suitable still, in a pit furnished with one row of water-pipes around it. If the last is chosen, place some leaves and straw litter on the bottom, and cover the bed with 6 inches of fresh, light soil. Forcing crowns may either be purchased or lifted from the garden beds in the garden. Place them thickly together and cover them with 3 inches of the soil. Water them freely with tepid water. Admit a little air during the morning, but close the frame again in the afternoon after damping the beds over with a syringe. Do not allow the temperature to rise too high, or the growth will be weakly. To maintain a regular supply, plant fresh crowns for a succession about every fortnight, making use of cold frames on hotbeds for these. Forced Asparagus is not quite so good in flavour as that grown out-of-doors; nevertheless, it is very acceptable at this season. The roots are of no value after forcing, and should be discarded.

Potatos.—Some of the early varieties of Potatos are well suited to produce crops under glass. Medium-sized tubers may now be selected, stood on end in shallow boxes in a little sifted leaf-mould, and placed in a frame or greenhouse to sprout. Large pots or boxes may be utilised for the earliest crop, as these may be moved about at will. Crock the pots carefully, and place some turfy loam over the crocks to ensure efficient drainage. A compost consisting of two parts loam broken up small, one part leaf-mould, and one part old Mushroom or hotbed manure, with a sprinkling of wood ash and soot, will suit admirably. Half fill the pots with this compost, place three tubers in each receptacle, and cover them with the soil, caving room for adding a little fresh soil later. Make the soil fairly firm, and stand the pots in a vinery or Peach house that has just been started. Do not water the tubers too much until they are in active growth, and then only when moisture is necessary. The same remarks apply to Potatos planted in frames, except that the tubers should not be planted so closely; in this case they need to be set one foot apart. The frames should be aired as required in order to allow moisture arising from the bed to escape. Protect the frames at night in the event of frosts occurring. The damp arising from the bed will provide sufficient moisture for a time, but, as the plants gain in strength, they will require watering and top-dressing with suitable soil. Midlothian Early, Sharpe's Express, and May Queen are all suitable varieties for forcing.

Carrots.—Make a sowing of a small variety of Carrot, such as Inimitable or Early Gem, in a frame over a hotbed. Nearly fill the frame with finely sifted soil, make the latter fairly firm, and then sow the seed in drills made 6 inches apart. Cover the seeds with half an inch of soil and water them with a rose can. Cover the frame with a mat until the seed has germinated, then allow the seedlings to enjoy all the light available. Admit a little air, but close the frame early in the afternoon. Do not thin the plants too severely; rather draw them out as required, leaving the remainder to develop. Make another sowing of stump-rooted varieties in a pit, if one is available, to provide a succession of roots.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Successional Vines.—To provide a succession of fruit a vinery which has been thoroughly cleansed and prepared should now be closed. If the vines have for some years past been started early in the New Year, there need be no difficulty about the rods breaking satisfactorily into growth. Use sufficient artificial warmth to maintain a night temperature of 45° to 50°, allowing a slight rise during the day.

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On bright days syringe the vines early in the afternoon, closing the ventilators prior to doing this; the amount of atmospheric moisture should be governed by the weather. Should any of the vines have young rods, bend these down to assist the buds to break throughout the whole length of the rod.

Pot Figs.—The most favourable means for starting pot Figs is a mild hot-bed of leaves with a slight admixture of short dung. The materials should be well blended and sweetened before introducing the Figs. The pots should be stood on bricks or inverted pots, and then packed about with the fermenting material. Figs may be started in a slightly higher temperature than that afforded Peaches or Vines; a night temperature of about 50° with a corresponding rise by day will be suitable. In the early stage of forcing, atmospheric moisture should not be excessive, and the use of the syringe should be governed by the weather. Once they have started into growth, never allow the plants to suffer for want of water. Admit air on all favourable occasions, to keep the shoots firm and growing steady.

Cucumbers.—Young Cucumber plants raised from seed sown now will make rapid progress with the advent of longer days, provided they are grown in a light house or pit with plenty of heat at command. Sow the seeds singly in small pots filled with fresh loam, leaf-mould and sand. Place the pots in a propagating box furnished with bottom-heat that will maintain a temperature of 70° to 75°. Fermenting material should be prepared for making up the hot-bed when required. Plants which are fruiting will require considerable care and attention during the next few weeks. The atmosphere should be kept moderately moist by damping the pathway and other bare spaces more or less frequently according to the weather; a stagnant atmosphere is harmful to the plants. Water the roots occasionally with weak liquid manure, and lightly top-dress them with a rich compost. Stop and tie the shoots when necessary, allowing ample space for the full development of the foliage. The temperature should be about 65° at night with corresponding rise during the day.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Filling Gaps.—Occasionally a plant or so dies among those bedded out for spring flowering, or may be eaten off by a stray rabbit, as has been the case here with plants of Cheiranthus Allionii, to which rabbits seem partial. Given future protection, the rabbit-bitten plants often grow up afresh, but vacancies caused by dead plants need to be made good. The recent heavy rains have tended to "set" the surface soil among these flowers, which condition can be remedied by slightly pricking up or hoeing the ground.

The Shrubbery.—Where, for unavoidable reasons, any necessary pruning or thinning of shrubs has not been done, the grower should make every endeavour to complete the work this month, before plant life gets more active and pressure of other matters precludes the necessary labour. When the work is finished the ground between the shrubs should be dug over just deep enough to bury the coating of fallen leaves lying about the plants. Where leaves from other sources have drifted among the shrubs too deeply to enable them to be buried, a portion should be taken away, but leave a reasonable layer, as when dug in the leaves will help to replenish that constant draining of the soil made by established shrubs. Old shrubberies are sometimes so permeated with surface roots that the digging in of such material is out of the question, in which case pointing the surface with a fork is best, then spreading a covering of soil over the whole surface to keep the leaves from blowing about and to hasten their decay. These details of culture and tidiness refer, naturally, to those shrubs grouped in conspicuous places and requiring more or less regular care and assistance. In only a few gardens is it possible to treat the big shrubbery portions of pleasure grounds in this way, but so long as the leaves are not likely to be a nuisance in blowing about they should be left to gradually rot where they lie—thus producing an upper tilth of soil in which those delightful spring flowers, Primroses, Violets and Wood Anemones can be planted and naturalised in profusion.

Humulus Lupulus.—The quiet beauty of this hardy climber towards the end of summer is a pleasing change after the gay riot of colouring of the borders. It is equally at home on the arbour or pergola, or scrambling up among boughs of trees, from either of which positions the pale green clusters can depend to better advantage than when secured to an upright support. In these gardens two strong Hops come up annually at the back of herbaceous borders, entwining their growths over and among the boughs of a Yew tree. Its hardihood allows the Hop plant to grow almost anywhere, and all open weather between autumn and early spring is favourable for planting.

FIG. 14.—LILIUM AURATUM VAR. PLATYPHYLLUM.

Shrubby Spiraeas.—Being about to prune some of these plants prompts me to commend their value for planting on lawns or borders that are on the moist side. Weather permitting, planting may be done at the present time and, to give the best effect, the practice of grouping several plants reasonably near together should be adopted, rather than isolating a plant here and there. For small gardens a single specimen may be sufficient in a given place, it being totally unwise to crowd several together for the sake of having a group. A good half-dozen Meadow Sweets are Spiraea ariaefolia, S. Lindleyana, S. salicifolia, S. Douglasii, S. canescens and S. japonica Anthony Waterer—this last variety being dwarf and suitable for growing in the herbaceous border, where its roots will not get dry in summer.

Helleborus foetidus.—Owing to the mild weather the flower scapes of this plant are fast unfolding in the woodlands, in the semi-shade of which it does well. The flowers of this species are small, dull green and unpleasant to smell, but the foliage is very handsome, and for this alone it is worthy a place in the wilder parts of the garden. The fact that it commences to grow early, when there is little of other vegetation moving, adds to its interest for garden effect.

THE BULB GARDEN.

LILIES FOR PLANTING IN JANUARY AND FEBRUARY.

Of all plants, bulbous and otherwise, there are few, if any, so pure in colour, so graceful or attractive generally as the true Liliums. Those who are at all familiar with Lilies, also those unfamiliar, cannot do better than plant them in borders or beds, or interplant them in herbaceous and shrubbery borders. Indeed, Lilies may be advantageously used in many places for producing colour and effect, including Rhododendron or Azalea beds, or amongst other low-growing shrubs.

All Liliums delight in plenty of root room; they need a good depth of soil, into which their roots can ramify, and a layer of well-rotted manure should be spread over the surface. After making the hole, place the bulb on coarse silver sand, and surround it with sand before finally filling in the soil.

The majority of Lilies will thrive in a good, porous, loamy soil, mixed with a fair proportion of coarse sand.

Plant the bulbs from 4 to 6 inches deep, according to their size; deeper planting may be resorted to on well-drained, light soils. The purpose of deep planting of the bulb is to sustain the plant until root and leaf development is sufficient to maintain it in growth.

The following is a list of species and varieties suitable for planting during the present month and next month:—L. auratum and its varieties, rubro-vittatum and platyphyllum (see Fig. 14); L. Batemanniae, with flowers of a rich Apricot colour; L. Krameri, a pretty sade of rose-pink, a most beautiful plant when grown in pots for conservatory decoration; also L. longiflorum (the Easter Lily), with snow-white flowers that are greatly in demand at Easter; it is a free-flowering plant and well adapted for forcing.

The members of the L. speciosum group are all easy of culture, and worthy of prominent positions in the border, or shrubbery. Of these the variety Melpomené is most vigorous and exceedingly handsome. The large, deep crimson flowers are heavily spotted and the plant is equally effective in pots as in the border. L. speciosum album Kraetzeri has snow-white flowers with a greenish mid-rib; it is a very handsome Lily, as is also the variety album novum, which has snow-white flowers.

L. Henryi is effective when planted among fairly tall-growing shrubs. This Lily attains to a height of 6 to 8 feet and bears numerous, orange-coloured flowers. L. pseudo-tigrinum is a very free-flowering Chinese species, with handsome, orange-scarlet flowers, prettily spotted with crimson. It flowers in August. L. sulphur-gale, a hybrid, is for effect and freedom of flowering one of the most valued for garden decoration. The plant grows from 3 feet to 5 feet tall, and bears numerous large flowers. The predominant colour is white, with a conspicuous sulphur base, and the blooms are delightfully scented. L. Wallacei has flowers of a pretty Apricot colour, and is a graceful plant.

All the forms of L. davuricum are effective in the border, growing from 2 feet to 3 feet high, and with flowers in shades from orange to crimson. It is most valuable for cutting. The varieties of L. elegans or Thunbergianum are invaluable on account of their showy flowers and dwarf stature, for the plants do not exceed a foot or 15 inches in height. They are exceedingly hardy, and bear large flowers. Of this Lily the best varieties are Prince of Orange, clear orange flowers; alutaceum, a pretty Apricot shade, with black spots; marmoratum aureum, with well-expanded Apricot-coloured flowers, freely spotted with black; sanguineum, reddish crimson, very early, bearing flowers in abundance; biligulatum, a variety of vigorous habit, producing deep orange-coloured flowers flushed with red. It is a fine Lily for pot culture.

L. tigrinum is one of the most extensively cultivated of all Lilies, and perhaps the most showy. It will grow to a great height, producing a large number of flowers. The varieties splendens and Fortunei are single; the double form is also worthy of a prominent position in gardens. *W Logan.*

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CULTURAL MEMORANDA.

FREESIAS.

APPARENTLY the usual method employed in the culture of these modest and fragrant flowers is to order so many bulbs from a reliable source, place nine or ten in a 48-sized pot, bury the latter in ashes or leaf-mould for about six weeks, take them from this, and if not weak enough already allow the plants to partially dry off before watering the roots.

A better method is, having obtained good bulbs and potted them in a moderately rich compost in August, never to allow them to suffer from drought. Shade the pots heavily in a cold frame for three or four weeks, then watch closely for the appearance of the tender points of the leaves. Immediately they show expose them to full light, and as soon as they attain the height of one inch, commence to feed the roots once a week with very weak liquid manure and slightly increase the strength as the plants make headway. As soon as the shoots have grown about four or five inches high place five neat stakes in the pot to prevent the shoots and leaves breaking down.

When in flower, if a few specimens are required for the house, it is a good plan to take three short pieces of Bamboo, and having inserted four or five thin wires, place them between the foliage, spreading the wires slightly, make small hooks at the top of the wire to hold the slender stems. Such supports will be almost indiscernible. Having brought the plants through the flowering period, they are generally placed out-of-doors, if retained at all, to take care of themselves.

The better method is to build up stout bulbs by continuing to feed the plants on a cool, airy shelf until the foliage shows signs of fading, say, well into April. Then gradually dry and eventually bake the bulbs in the sun until August, when they will be found far superior to those that are purchased, and will if generously treated, produce flower-spikes with three to five branches. *D. G. W. P. B.*

HOME-GROWN LILY-OF-THE-VALLEY.

MANY people are under the impression that Lily-of-the-Valley crowns suitable for forcing cannot be grown profitably at home, either grown under glass or otherwise; but this is not so. I am aware it is not everyone that has suitable soil. When having the charge of a large garden in the West, I cultivated this plant extensively, both in pots and in the open. The soil was loam, with a clay subsoil, and the garden situated in a valley Each year we lifted a fourth part of the stock, planting the same amount about the end of October—that is, four-year-old plants were dug up in big clumps and placed where they could be sorted readily on a wet day. The strongest crowns were planted in pots, others put into boxes to flower in a frame just before those in the open beds were ready, and the small ones labelled, tied in bunches, and plunged in soil ready to plant in spring. These last were planted in deeply dug and lightly manured soil between bush Apple trees which were 20 feet apart. When the soil was dry, they received a soaking of water. The following season they needed no attention, but, when three years old, the plants received a dressing of old hot-bed manure. The fourth season they were given two or three soakings with manure water. Where the plants were too close together, the weaker ones were pulled out to give the strong ones more light and air. The chief point is to obtain strong crowns with an abundance of roots. If strong crowns are planted, they should be strong enough to force the third year, but I prefer them at the fourth season. When they are selected, care should be taken to obtain the largest amount of roots, as on this much of their success depends. This past season, some crowns sent from a private garden in the West had such a large amount of roots that I could only get nine crowns in a 5-inch pot. The young ones I am planting are equally well rooted. Needing crowns for very early forcing, I put a limited number on a warm, sunny border. These started into growth three or four weeks earlier than those amongst the Apple trees. In dry weather they needed a quantity of water and feeding; these crowns ripened correspondingly early and forced early in proportion. In the open, many growers fail in the culture of Lily-of-the-Valley through allowing the plants to remain too long in the same bed. When the foliage is crowded, the plants get insufficient air and light, and, added to this, they become starved at the roots. *J. C. F.*

THE ALPINE GARDEN.

PAPAVER ALPINUM.

THIS is a fascinating little Poppy, and a group of plants of mixed colours is a sight which calls forth the enthusiastic admiration of the lover of rock plants, although the plants do not possess the variety of tints shown in the new varieties of P. nudicaule. The plants are generally raised from seeds bought in mixed packets, so that the purchaser will secure flowers varying from white through yellow to orange.

The foliage is exquisitely divided and of a pretty glaucous tone, and the whole plant is only a few inches high, appearing like a highly refined Iceland Poppy of miniature stature. It is raised easily from seeds, and I prefer to sow these where they are to flower, sowing very thinly, and thinning the seedlings to about three or four inches apart. When the plants are small they will transplant well.

It is rather unfortunate that P. alpinum does not sow itself like P. nudicaule, which comes freely from self-sown seeds in many gardens. I was discussing the point with a grower of P. alpinum the other day, and found that my own experience was the same—that P. alpinum does not seed well in some places, the seeds either failing to form or not ripening in good time. Possibly the comparatively moist nature of the climate of the particular district had something to do with this. Seeds of fringed varieties were offered under the name of P. alpinum fimbriatum, and I grew these for two seasons, but did not appreciate them more than the others.

P. pyrenaicum is understood to be a still more miniature form of this Poppy, and is a charming little plant. P. alpinum seems a perennial, but may be lost after flowering for a few years, probably through the asperities of the winter months. A dry, sunny, rock garden should be chosen for the Alpine Poppy.

MESEMBRYANTHEMUM UNCINATUM.

FEW indeed of the Mesembryanthemums, or Noon Flowers, are absolutely hardy, but I consider that M. uncinatum may be regarded as trustworthy in the open in almost any part of Great Britain and Ireland, except, perhaps, in the case of an almost arctic winter.

I remember losing a good plant which had been established for a few years, one winter, but that was one of even more than unusual severity and one which tried beyond endurance the resisting powers of many plants, always reputed to be much hardier than any of the Noon Flowers. So I feel satisfied that M. uncinatum may be planted with impunity on sheltered warm rock work in gardens in the greater part of the British Isles. It must not, however, be confused with M. uncatum, which I have not found hardy.

M. uncinatum is in every way very distinct from the ordinary rock plant. It is of shrubby growth, almost erect in habit, and from one to two feet high after being established for some time. It has many three-cornered, succulent leaves, rather hooked in form, whence the name uncinatum, which means hooked-leaved, and bears in August, when it blooms, red flowers of moderate size. It seems a shy bloomer and should have the sunniest place at command.

It has been well said that the Mesembryanthemums are children of the sun, and M. uncinatum is not an exception, delighting in the hottest, sunniest places available, and only there displaying its real value. As a quaint-looking plant, it may be added to the rock garden with every prospect of giving interest *S. Arnott.*

HARDY FLOWER BORDER.

GERANIUM ATLANTICUM.

THIS still appears to be a somewhat uncommon species in our gardens, but it is distinct and not difficult to grow in suitable conditions. It is an entirely herbaceous plant in the sense that its foliage of finely-cut leaves, closely resembling those of our common Wood Anemone, die away in summer after flowering is over, to reappear with the rains of autumn. These leaves grow to about the same height as those of the Anemone and, like the latter, will form a close-set carpet of delightful green. From amid these the upright flowering stems rise to about one ft. in early summer, and produce violet-blue, red-veined flowers of rather more than ½-in. in diameter. G. atlanticum seems to resent moving, but it would probably not do so were the planting done immediately the foliage has withered With us it prefers a rich, deep woodland loam, with a westerly aspect, and enjoys a plentiful supply of moisture up to the flowering stage, and a good baking afterwards. A freely drained soil is, therefore, desirable, but some plants put in a very gritty, unretentive soil years ago have never flowered, nor have they increased. *A. T. J.*

TREES AND SHRUBS.

RAPHIOLEPIS DELACOURI.

THIS is an interesting and attractive shrub of Continental origin, said to be a hybrid between R. japonica (ovata) and R. indica (salicifolia). If this is correct, and the foliage certainly suggests it, the rosy-pink colour of the flowers is phenomenal from parents, one with pure white flowers and the other with white flowers tinged with pink towards the centre.

R. Delacouri is an evergreen shrub with broadly oval, dark green, leathery leaves. The rosy-pink flowers are freely borne at the ends of the shoots in an upright panicle, 3 inches or more in length. A most valuable trait of this shrub is the length of the flowering season, extending from spring until late autumn; in fact, established bushes growing in the south and west in a few years' time will probably be seldom without flowers. In common with the better-known parent R. japonica, the hybrid is a very useful shrub for a sheltered border. In the colder districts the shelter of a south or west wall is necessary.

In addition to the very lengthy flowering season, cut sprays of R. Delacouri last splendidly in water for a month or more. Though less hardy than the other two, the Indian Hawthorn, R. indica, is an interesting shrub for the cold greenhouse. *A. O.*

STRANVAESIA UNDULATA.

THE leaves of the specimens of this shrub, exhibited at the meeting of the Royal Horticultural Society on December 12, 1922, by Lionel de Rothschild, Esq., are much narrower than those of specimens I have seen from the garden of Lt.-Col. Sir George Holford, K.C.V.O., Westonbirt, Tetbury. The lower leaves of a bush then fruiting splendidly are wider by a third than those shown; while those near the corymbs of bright red fruits are shorter, and some of the leaves preparing to fall have red and bronzy metallic-looking tints, heightened by their glossy upper surface. The persistent sepals of the Himalayan species are said to be erect, but in the fruit of this they are closely folded over the top, enclosing the filaments which project through the sinus between every two, as well as between their tips around the persistent base of the style. When these sepals are folded back, the fruit recalls a Medlar with its open top; but the structure is very different. The opening reveals a pale red capsule within, for such it must be called, since it is only half adnate to the receptacle, and dehisces by five valves. This is another of the many disguises which the Rosaceae assume, when the receptacle surrounds the true fruits, and is more or less adnate to them. The endocarp here is merely crustaceous and leaves the seeds quite free in each of the five cells. *J. F.*

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ORCHID NOTES AND GLEANINGS.

BIG CYPRIPEDIUMS.

MANY readers who saw the fine exhibit of new Cypripediums which G. F. Moore, Esq., of Chardwar, Bourton-on-the-Water, exhibited at the meeting of the Royal Horticultural Society on December 12, must have been astonished at the immense size of the new hybrids in his wonderful group. One of these, Cypripedium Chrysostom var. Amy Moore, is illustrated herewith, Fig. 15, and the reproduction shows the flower life size. Mr. Moore informs us that he has flowered several other varieties from the same pod of seed that produced the variety figured, and as regards beauty he prefers several of these to the monsters which caused so much astonishment at Westminster.

Cypripedium Leeanum giganteum crossed with C. insigne magnificum gave C. Florence H. Cann, which was certificated in 1905. By crossing C. Florence H. Cann with C. Leeanum var. Corona the handsome C. Christopher was raised, and by crossing C. Christopher with C. Hera-Mostyn the wonderful race was evolved which has the name of C. Chrysostom. On December 12 Mr. Moore exhibited the results of four different crosses of C. Chrysostom, and in each case the shape of the flowers was excellent, and it is his belief that the progeny of C. Christopher will revolutionise ideas concerning Cypripediums with regard to shape and size, so that in the course of about ten years a Cypripedium with a reflexing dorsal sepal will not be found in the best collections. The bright green and pure white colouring of this new race, together with the deep purple spotting and the large development of the ventral sepal, make this new race very attractive, while in the matter of size and substance they exceed anything hitherto raised.

FIG. 15.—CYPRIPEDIUM CHRYSOSTOM VAR. AMY MOORE; LIFE SIZE.

ANGRAECUM MIRABILE.

THE note and illustration of Angraecum mirabile (?) in your issue of January 13, interested me very much. In 1916 I collected in Uganda an Angraecum exactly resembling in appearance and description the subject of the note. I sent a dried specimen, and I believe a photograph, of the plant to Sir Frederick Moore. Sir Frederick sent my specimen to Kew (E. Brown, 486), and it was named Angraecum rhodostictum. The description in my field note book reads:—"Flw. white, column red, a very pretty plant, on very small twigs." Unfortunately, I have lost my negative of the Orchid, and I have no print. Probably the print I sent to Sir Frederick was sent by him to Kew with the specimen, and I think if these are compared with A. mirabile (?) it will be found that the Uganda and West African plants are identical. It is really remarkable how many Orchids seem to crop up in this country from these two places at almost identical times. I remember other instances.

It will be seen that at the time of collecting I noted the occurrence of the plants on very small twigs. This is very unusual among Orchids, and means that they cannot be older than the twig on which they are found. As my Angraecum was found in flower on twigs little more than a year old, it is evidently a quick flowering plant. All the plants I saw consisted of only one growth, and I even formed the opinion, which I believe I expressed to Sir Frederick Moore, that the plant might prove to be an annual. Anyhow, the plant died out that year in the spot where I found it, and I also lost all the plants which I tried to establish in my garden with the object of bringing them home with me. I may add that the occurrence of the colony of plants in 1916 was sporadic. It was within a few feet of a saw-mill I was in charge of, and used to visit twice weekly, growing on a bush overhanging the water. Should the plant illustrated in the *Gard. Chron.* (Fig. 7) prove to be A. rhodostictum, it will be interesting to me to learn if it survives after flowering. *E. Brown, Doddington.*

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MYSTERY PLANTS OF UGANDA.

A LITTLE experience in botanising in Africa soon teaches one that the native garden is a fruitful field for investigation. The native is not addicted to ornamental gardening, but he has a curious habit of leaving, when weeding his plots, any unusual plant which may have sprung up. As a rule, of course, the plants found therein are found wild near by, or not very far away. As might be expected, however, the semi-cultivated specimen is very often found in flower when its wild prototype is not in perfection. A complete specimen is often to be obtained in this way.

The five plants mentioned below as being obtained in this way are of litttle importance horticulturally; only the Ipomoea would prove an acquisition to our gardens, but a study of them, and their affinity botanically and geographically, may provide a basis for a theory which may account for the puzzling distribution of many African plants.

IPOMOEA GRANTII PALMATA PINNATA.—A strong climber with large, handsome leaves. These are dark green, with yellow veins which show through and give great beauty to the leaf. Flowers pink in colour. This plant was seen in a Banana garden in 1905. I never met with it again. It is such a striking plant that I would not have failed to notice it elsewhere.

EUPHORBIA IMPLEXA.—A plant of this was found in 1905 in a native garden. It was not in flower, so I transplanted a portion of it in the Botanic Gardens, Entebbe, where it flowered a few years later. It proved to be a new species and was named by Dr. Stapf. It is near E. Tirucalli, but more pendant in habit, and dwarf in growth. I never found this plant again.

CEROPEGIA BROWNII.—This plant was found in 1908, but not in a native garden; it was obtained at the foot of a famous stone (Fig. 16). This stone is pear-shaped, and stands on its thin end. It stands high on the top of a rocky kopje, and everyone coming in sight of it feels impelled to go up to it and try to push it over. It weighs several hundred tons. The stone is associated with many native legends, and doubtless rites in which the Ceropegia figured have been practised there. The plant grows nowhere else that I know of, certainly not on that kopje, although there are hundreds of places equally suitable. I believe it is the only Ceropegia found in the Lake region. It is allied to a Mozambique species. Mr. W. Ledger, of Wimbledon, to whom I sent roots, flowered and described it in 1909 as a new species.

STAPELIA DUMMERI.—In 1904 a Stapelia was found in a native garden. It was planted in the Botanic Gardens, Entebbe. When I left there in 1908, it had not flowered, so I took a piece with me. I continued to keep a plant of this in my garden wherever I moved to, and eventually, in 1918, flowers were obtained. I gave some to Mr. Dummer, who sent them home, and it proved a new species. It is the only Stapelia found outside of South Africa. The fact of it flowering so infrequently proves it to be out of its habitat. I never saw it again wild.

PANCRATIUM SP.—A small-growing species of Pancratium, unlike the previously-mentioned plants, is very common in native gardens. I do not know the species, but as I sent bulbs to Kew in 1919, doubtless it has been determined. The plant has leaves 6 in. long and grasslike. Bulb less than 1 in. across. Flower solitary, 9 in. high, white in colour and large proportionately to the leaves.

It will be noted that of the five plants, four were found in native gardens, where they enjoyed, at least, semi-cultivation. The other occurred under such circumstances as to leave little doubt that it had received attention to establish it.

Four of the plants were found once only. I heard of no uses for them, and apparently they are not of service to the natives to-day. The other, the Pancratium, on the other hand, is largely cultivated, and I found the reason to be that it has a present-day use. A decoction made from it is used by persons involved in litigation, to help forward their suit. I could not discover in what way it was taken. None of the five plants was found wild, and I am fairly certain they are not natives of Uganda, if, indeed, they are of Central Africa at all. How, then, came they in this country?

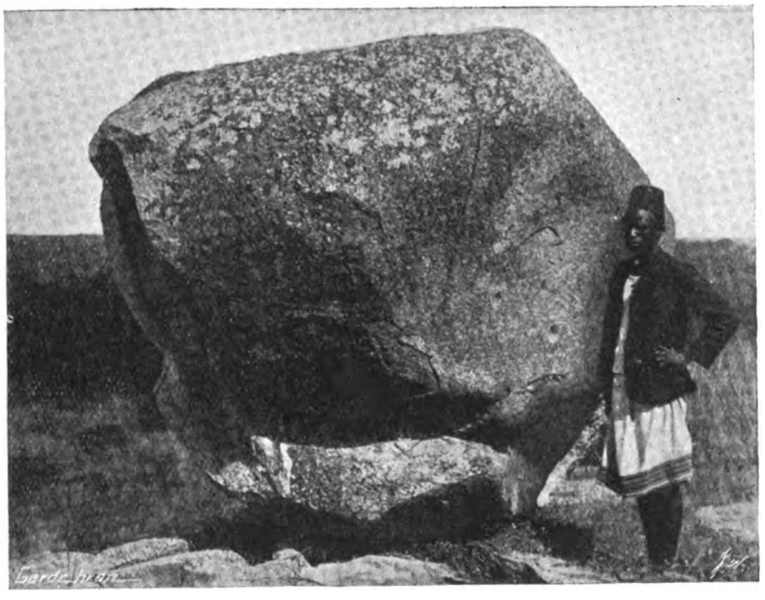

FIG 16.—THE HOME OF CEROPEGIA BROWNII; THE BASE OF THE STONE IS THE ONLY KNOWN HABITAT OF THIS INTERESTING SPECIES.

It is very significant that of these five plants, three, if not four, are new. To-day the vegetable world is largely drawn upon by the African for decoctions for medicinal, and often sinister, purposes. In the past their use was probably more common. The number of plants used in this way is very great. The wandering native, seeking pastures new in days gone by, is very likely to have carried with him some of his specially prized herbs, and planted them in his new home. That the Banana, Sweet Potato and many other useful plants were thus spread there is little doubt, and it is no more unlikely that reputed medicinal plants were likewise so carried. Changing customs would account for lack of faith in these remedies and for the cultivation of the plants being consequently discontinued. Were natural conditions entirely suitable, the plants would have naturalised themselves before this. In the cases of unsuitability they would quickly die out, as in all probability the Ipomoea, Stapelia, Euphorbia and Ceropegia have all but done. They just owe their existence to-day to the native cultivator's habit of tolerating unusual plants amongst his crops. When faith in the integrity of the law becomes greater, doubtless the Pancratium will quickly disappear, for I have seen no signs of it naturalising itself.

I leave to others the task of worrying out where the plants were brought from originally. The fact that so large a proportion of them is new makes the problem more interesting. That they are not at home in Uganda there is little doubt. They can only have been brought by the hand of man. If this is conceded, then we may assume that they are the failures of a greater number of introductions, and that the flora of parts of Africa have been modified to a great extent in this way. *E. Brown, F.L.S., Hillside, Doddington, Sittingbourne, Kent.*

GARDEN NOTES FROM S.W. SCOTLAND.

WE amateurs are prone to chortle over our success with this plant or the other, and to leave a discreet veil over our failures. But to fail with any plant which has been given proper treatment is as instructive as it might be to succeed with it. I propose, therefore, to make an admission about certain plants which no amount of attention has sufficed to keep in vigour—or even in life—in our open borders and rockwork, on the chance that such confession may prove of some slight service to those similarly situated in the matter of soil and climate.

Some of the plants with which we have had difficulty no doubt resent our wet west-country winters; others, because they are dissatisfied with our somewhat ineffective summer sunshine. But neither of these conditions can be held accountable for half a century's failure to induce the common Hepatica to behave generously. Winters in Ireland are of much the same humid character as ours; yet I used to know a garden in county Cavan where even the double dark blue variety grew into great clumps full of flower. Again, in Scottish Teviotdale I have seen a steep bank between a flower-garden and the river thickly populated with blue Hepaticas, self-sown by escapes from the borders above.

Then, in the matter of sunshine, the Californian Romneya Coulteri is reputed to enjoy as much as it can get, and we have given it the snuggest positions in our power, with most meagre result; whereas at Castle Kennedy, distant some five-and-twenty miles, under precisely the same meteorological conditions, it flings its great fragrant blooms in profusion at a height of six feet. Of Cypripedium Calceolus we have abundance, nor can one have too much of that lime lover; but C. spectabile and C. macranthon flower well for a season or two, and then disappear, though one should suppose that a soil well suited for Rhododendron species would be to their taste. Mertensia echioides, M. elongata and M. lanceolata just showed us enough of their azure bloom to make us look forward to seeing more; after which they

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vanished. Oxalis enneaphylla I have never seen anywhere luxuriant, though one reads about its charms. Here it does little more than exist, and Parochetus communis refuses to be coaxed even to do that.

Echinacea purpurea is an autumnal beauty which I do greatly desire to have in the same liberal measure that some of my friends enjoy, but we have not found the way to its liking. Does anyone succeed in keeping Polemonium confertum mellitum, or the lovely Dutchman's Breeches (Dicentra spectabilis) for more than a season or two? Draba (Petrocallis) pyrenaica is another fugitive, though it may seem quite content with its quarters on a retaining wall for four or five years. Coronilla iberica has behaved in like manner, and as for Cyananthus lobatus one can but hope for better results from Farrer's Chinese species No. 1220. Fifty years of sedulous wooing of Gentiana verna, though illumined by transient gleams of success, have ended in discomfiture, the like of which I have avoided by never attempting Eritrichium nanum.

In dealing with bulbous and tuberous subjects one is up against a different proposition, for one never knows what subterranean animal enemies may have cut short their existence. Probably I am not alone in having failed to get Fritillaria pudica and F. aurea to flower more than once. Sternbergia lutea is altogether out of the question in our sloppy autumns, and the Californian Soap Root (Leucocrinum montanum) declined to repeat the experience of a single summer.

Loveliest of all Lilies, in my opinion, is L Browni, and goodness only knows how many bulbs thereof I have planted in hope that we might some day have such a group as filled a woodland glade with fragrance in the late Mr. Yorke's paradise at Ivor Heath. It was not to be, and I suppose we are not to be pitied so long as L. regale, with its glory of golden anthers, continues to flourish with us. Among other Lilies, L. philadelphicum and L. Humboldti dwindle persistently from the first year after planting. Can any fellow-amateur give a better account of these fine species? Brodiaea volubilis vanished after delighting us with its quaint twining habit and umbels of clear rosy flowers.

And so, though it is far from complete, I may bring this list of "casualties" to a close. *Herbert Maxwell, Monreith.*

BIBLIOGRAPHICAL RARITIES.

IN the *Observer* of January 7 appears an interesting article on the Shakespeare first folio, the tercentenary of the publication of which is to be celebrated by an exhibition of Shakespearean treasures at the British Museum. One not specially versed in this class of literature might have thought that a first folio Shakespeare was an extremely rare book, but it appears that no fewer than 172 copies of it are known to be in existence. A warning note to collectors of rare old gardening books seems to be implied in the last paragraph of that article, which states that in 1902 there were 116 copies of this book in the United Kingdom, and 51 in America. Four years later the British total had diminished to 105, and the American total had risen to 62. Since then the distribution has changed still more in favour of America.

There is certainly quite a number of old books more or less devoted to gardening which were published long before the first folio Shakespeare. There would probably be some difficulty in making a census of them, and it would not be an easy task to discover which is the rarest of all the old gardening books, and how many copies of it there are extant. The oldest are not the rarest, for there are some comparatively modern gardening books that cannot be obtained at any price or by any means. I have been on the look-out for some for over twenty years, have advertised for them, and yet never had a report. Of course, the value of old gardening books has never yet reached that of some of those on other subjects. A little more than three years ago, Messrs. Sotheby sold a number of unique literary treasures from the library of Mr. Christie-Miller. Enormous prices were obtained for some of the little volumes printed and published in the 16th century. And they mostly went to America. Some of these were the only copies known.

It would not be difficult to compile a list of very rare gardening books, of which quite a small number are known to be in existence, and it is incumbent in my opinion on the part of private collectors and such Societies as have libraries to secure these rarities and thus help to enhance their value by taking them off the market whenever the opportunity occurs. It will be a good investment for those who do so, for the eagerness of transatlantic buyers will not fail to force the prices upwards, as it has already done. *C. H. P.*

FIG. 17.—FRUITING BRANCHES OF SCHINUS MOLLE.

SCHINUS MOLLE.

DURING the few weeks immediately preceding and following Christmas a number of interesting subjects are imported from southern France for sale in Covent Garden and other flower markets. Although these are all included under the general title of "flowers" several are foliage subjects and others are in fruit. Thus, large quantities of the fruits of Solanum aculeatissimum are imported, and these find much favour with florists who wire them upon sprays of evergreens for the purpose of Christmas and other decorations. Yellow and scarlet Capsicums are also imported extensively, while brightly berried branches of Ruscus aculeatus and of Myrtle are frequently sent to the markets.

Less often, but nevertheless quite frequently, fruiting branches of Schinus Molle are imported, and usually these bear the journey well. The pendulous clusters of reddish-pink berries, associated with long, graceful, dark green, pinnate leaves appeal to florists and usually find a ready sale. The fruiting branches illustrated in Fig. 17 were so imported early in the present year.

S. Molle is a striking and attractive tree on the French Riviera, where it frequently passes under the popular name of Pepper Tree. There, the fruits, which are about the size of Red Currants, attain a much brighter hue than those imported, as the latter are cut before they are fully ripe. S. Molle is a native of South America and was introduced from Brazil and Peru so far back as 1597. Although not hardy in this country it is frequently cultivated in moderately heated conservatories and even for its foliage alone it is worth cultivation. Nicholson considers that the specific title of Molle is derived from the Peruvian name of "Mulli." In some parts of Australia, California, South Africa and the Riviera, S. Molle will attain a height of from fifteen to twenty feet, but usually under cultivation in this country its habit is more shrubby than tree-like. An interesting point in connection with S. Molle, and one recorded in the *Botanic Register*, is that the leaves of this genus are so filled with resinous fluid that the least degree of unusual repletion of the tissues causes it to be discharged. Thus some of them fill the air with a fragrance after rain and S. Molle and some others expel resin with such violence when immersed in water as to have the appearance of spontaneous motion in consequence of the recoil.

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PEAR TREES AND PEARS.

IN my quest after old and more or less forgotten varieties of vintage Pears, some extraneous points of interest have come to light, and seem worthy of being placed on record. They are as follow:—

PYRUS SALICIFOLIA STOCKS.

In one orchard, attention was attracted from a distance by a somewhat Mistleto-like growth on the graft side; on closer examination it was disclosed that stocks of P. salicifolia had been used. Specimens were submitted to Kew for identification, especially as the leaf edges were entire, since Weathers erroneously states that they are serrate. In the accompanying illustration (Fig. 18) the dwarfing effect as compared with free stock (Fig. 19) can be seen; the tree on the free stock has a girth of 40 inches, whilst that on P. salicifolia is only 27 inches. Altogether, there are three trees on this stock, and several of the same variety on free stock. But meagre history could be obtained, viz., to the effect that the present owner's father grafted them some fifty years ago. If one may hazard a guess, it may have been that he got stocks from a nursery, and some of them were of the nature mentioned.

I understand that in some places there is a "legend" that Pears sometimes grow on Willow trees, in which case it seems likely that there may be similar trees in other parts of the country. Possibly the species might be a good dwarfing stock for replacing the Quince, especially in the case of varieties which do not like direct contact with that stock. Perhaps some reader may be able to say, also, whether P. salicifolia can be multiplied readily from stools and whether it has any waywardness in regard to soil, etc.

WITCHES' BROOM.

The only example of this condition in a Pear that I have yet seen is on a very old, un-namable perry Pear tree hard by a couple of equally senile trees of the Swan Egg variety. It is remarkable how resistant these old vintage trees must be to disease, for in general their death seems chiefly due to mass infection occurring through wounds made by the breakage of massive boughs, due to gales or weight of fruit, or the two combined. True it is that scab is not unknown on some varieties, but it generally seems to be merely superficial on the fruit, and causes little, if any, damage. I rather fancy that scab infection at an early stage may be the cause of russeting in certain normally non-russeted kinds. Some specimens of mature fruit were examined at the Ministry of Agriculture's laboratory, but with negative result so far as concerned Venturia. It would be advisable to submit young specimens to the search before casting the idea aside; if due to some disease, it evidently is accompanied by considerable resisting power.

A ROOTED SCION.

An old Barland Pear tree, which years ago had lost a large branch low down, has a hollow filled more or less with rotted debris, and down this a root growth, some 6 inches in diameter, has grown. One may take it that this has gone down into the ground within the hollow trunk. As the visible part was some 6 feet from the ground it was not possible to secure a photograph.

DEFICIENT POLLINATION.

Each year I generally slice a good many fruits, both Apples and Pears, in order to get or substantiate records of internal structure. In 1921, specimens without fully formed pips were not very uncommon, but the season of 1922 showed this condition to a much greater extent. Thus, amongst vintage varieties I noted that I cut more than half a dozen specimens of White Horse, Newbridge, etc., before finding a single plump pip. Similarly, I looked often in vain for a pip in Beurré Clairgeau, Thompson's, etc. The pips found showed three conditions—(1) the full plump pip; (2) a shrivelled shell, which, if filled, would have about the volume and dimensions of the normal plump pip; and (3) poor little shrivelled shells, perhaps only one-third or a quarter the size of the normal pip.

In a given fruit one might find plenty of number (1), perhaps pairs in each cell; or one or two only, the others being (2) or (3); alternatively one might find nothing but No. (2) or nothing but No. (3), or there might be one or two of No. (2) and the rest No. (3). It should be noted that the size of fruits has not diminished where only (2) or (3) were found; indeed, they might be exceptionally large.

It is also, perhaps, noteworthy that several varieties grown on a particular farm, all from very old trees, agreed in having poor, or being without apparent, fertilisation, yet the crop withal was magnificent. *H. E. Durham.*

FRUIT REGISTER.

APPLE HERRING'S SEEDLING.

THIS Apple, which was illustrated in *Gard. Chron.* Fig. 148, December 23, 1922, is one which, I think, will be found useful as a

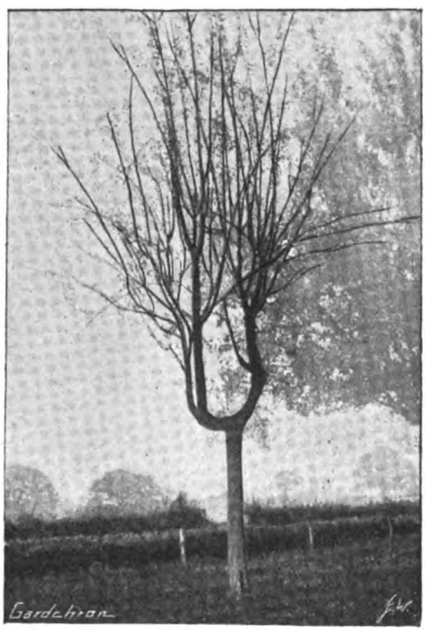

FIG. 18.—PEAR TREE GRAFTED ON PYRUS SALICIFOLIA.

market variety; I agree with *Pomona* that the flavour is not in the same category as Cox's Orange Pippin, being on the whole rather flat, but the fruit is very attractive in appearance. It might be described as being more red than otherwise, and on the large side; it is a very good Apple when cooked, requiring little sugar. I obtained fruits this season from Messrs. Pearson and Sons, of Lowdham, in order that I might thoroughly test the variety. I find that it keeps until Christmas, and at that date is just inclined to go mealy and to decay in the centre. But it is still usable at that season, so we may safely regard it as keeping until Christmas. This is my only experience of the variety, and it is quite possible that in a better Apple season its flavour would be superior.

The flesh is soft and pleasant, but when the fruit is bruised it does not decay generally as a result, and the bruise is purely local in its ill-effects and does not spoil the Apple for keeping or for sale.

I grafted some trees with this variety about three years ago, and I find the growth is stout and upright. The tree should be very suitable where room is restricted for expansion. I find it free from pests so far, a very healthy, pleasing tree. The leaf is large and undulating.

APPLE KING OF TOMPKINS COUNTY.

SOME years ago a friend of mine who lives near Liskeard, Cornwall, was most pronounced in his views as to the excellent quality of Bramley's Seedling as a dessert variety. I know that there are people whose constitution is such as to render even cooking Apples palatable to them for dessert, but I was certainly puzzled to understand his strong bias for Bramley's Seedling as a dessert fruit; I asked him to send me some of the fruits, and found that it was not his palate that was at fault, but his nurseryman, who had supplied him with King of Tompkins County as Bramley's Seedling.

The mistake was fortunate, as my friend said that the tree was the most fruitful in his orchard, and eagerly demanded by retailers.

We get contradictory reports of the behaviour of this Apple in this country. I have excellent reports from Devonshire, and the King's Acre Nursery people think highly of it, while some years ago, in a commercial fruit paper, one of the writers exclaimed, "Away with it as an English Apple."

My experience so far is that it is a free growing tree, but needs shelter from cold winds when in leaf. My trees of this variety are too young to bear fruit, but I expect some this season.

So far as I can ascertain, it is a fine variety for the West of England, and I have had a good report of it from as far east as Suffolk.

The fruit is of most attractive appearance, the flesh pleasant in texture, sweet and good flavoured. It cooks first rate. I have used large quantities of this Apple, and, as it keeps late, it should be planted largely wherever it is likely to do well. No one will ever have any trouble in selling this variety; it is good all round. The less this tree is pruned the better it will do in every respect. *W. J. Farmer, Ye Hive, Redruth, Cornwall.*

DEGENERATION OF THE POTATO.*

(*Continued from p.* 26.)

CHRYSANTHEMUMS furnish one of the best examples, the varieties succeeding each other more rapidly than in any other genus, and a few years often sufficing for the duration of a variety in good form, or in abundant flowering. Carnations are now in the same condition. A specialist remarked not long ago that at the end of about fifteen years a variety could be looked upon as exhausted; and some do not last even so long as this. It is the same with Gladioli, of which new varieties are produced with great rapidity, the corms losing, frequently after a few years, all power of propagation. Furthermore, the increasingly perfect varieties which are sought after are, in general, less hardy, more delicate, and more susceptible to disease than the old ones. I have seen plants of Primula obconica pass the winter in the open air when the species was still in the original form. Do not these remarks also apply to Potatos, which have now become less hardy than their predecessors?

Some years ago, Mr. G. M. Taylor attributed degeneracy to the direction in which the improvement of the Potato was being pursued—i.e., towards regularity of form and smoothness of skin in the tubers. In his opinion, this has resulted in defects in the fibro-vascular system, and an enfeebling of the diastase, which impedes the development of the germ. If one looks, on the one hand, at the rapid disappearance of innumerable varieties widely distributed during the past few years, and, on the other hand, at the persistence of certain old varieties of round shape with deeply sunken eyes such as Jaune Ronde Hâtive, which dates from 1851, l'Industrie, which is at present one of the most popular; Merveille d'Amérique, which dates back to 1874; and Chave (Shaw), which is

* A paper read by M. S. Mottet and translated from the *Journal* of the French National Horticultural Society.

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more than a century old; it may be asked whether, in the round shape and deep eyes, there may not be some element favouring robustness of growth and longevity.

Attention may be called, for instance, to the longevity of the Potato Fin de Siècle, which is said to have been cultivated in Scotland, in the same district, for more than fifteen years, without showing any signs of enfeeblement. Merveille d'Amérique has probably been grown in the Charolais for even longer, though its vigour and productivity certainly vary from one plantation to another. It must be admitted, however, that one cause of this persistence is probably the suitability of the conditions of the district to the particular varieties grown there, the rarity of insect pests in northerly or elevated districts (the Charolais rises, in parts, above 1,200 feet in height) and, finally, selection in the plants grown, which is, however, completely neglected in the last-named region.

Let us now consider another aspect of the matter. In nearly all planting operations, differences of vigour more or less apparent may be observed between the individuals of any sowing. Feeble plants are often eliminated in the first thinning, as experience shows that feeble plants rarely produce strong growth later on. It is conceded that some of these weak plants may give rise to good varieties, but they remain constitutionally weak all the same. Now, the very finest variety if it lacks strength is, culturally speaking, useless. Plantations of Potatos furnish a very good example of variability of development. In the majority of cases, shortly after germination, plants of all kinds may be seen, from the feeblest and most timid, which scarcely show a leaf above the ground, to others already growing luxuriantly. This will show how important it is to exercise selection right from the first thinning, and to continue it whenever individual plants show by their poor growth that they are unlikely to produce good results. Even those which are permitted to remain will naturally vary among themselves in vigour, robustness, and longevity, characters which they will transmit to their descendants if propagated by means of eyes, together with their physical characteristics and cultural merits. In these constitutional differences, may not one of the causes of the disappearance of new varieties be found?

Does propagation by means of eyes contribute to the exhaustion of a variety? It is difficult to ascertain by experiment, as it takes so long a time, and further, the question is complicated by the intervention of disease. Nevertheless, taking into consideration the evolution of the Potato during its history, the progressive and undeniable disappearance of varieties, the similar process observable in other highly cultivated plants, and other physiological facts, one is compelled to admit that degeneration is taking place from causes other than "natural degeneration."

The question now arises, whether certain diseases are transmissible by sexual means? Is the feeble condition of plants raised from seed solely due to congenital debility, or to diseases transmitted by the infected seed-parent to the germ when passing through the ovule? This problem is one of the most puzzling in plant physiology.

Whatever may be the final decision on these very delicate questions, those who have devoted their whole lives to the subject of cultivated plants and who have attentively observed their evolution, cannot but admit that improved varieties, propagated solely by asexual methods, deteriorate more or less rapidly, and cease at last to be remuneratively cultivable. It is simply a question of time, and of individual robustness; that is all.

All individuals are not similarly endowed from birth. The struggle for existence begins with the beginning of life itself, and the duration of life is a matter of individual circumstances. The duration is partly inherent in the species and in the individual, and is partly affected by the influence of artificial propagation and cultivation, and of diseases, which gain a hold more rapidly in highly bred plants than in natural types.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Home-grown *versus* Imported Apples (p. 27).—The extremely marked difference in appearance between home-grown and imported Apples has been observed times without number, precisely as it has been seen recently by *F. B.* Why this should be is by no means easy to state convincingly, but it has been my view for many years that it is not due to the packing or to the texture of the skins, but to the flesh of the fruits. I have not the slightest doubt that Mr. Seabrook, Mr. Paget Norbury and many other equally expert Apple packers could pack just as well as any colonial packer, and that the fruits would travel as far and as well, provided that each packer was handling colonial produce, but if the Englishmen were restricted to English fruits and the Colonials to colonial fruits, the latter would come out at the end of the journey far the better of the two. That Apples differ considerably in flesh is well known,

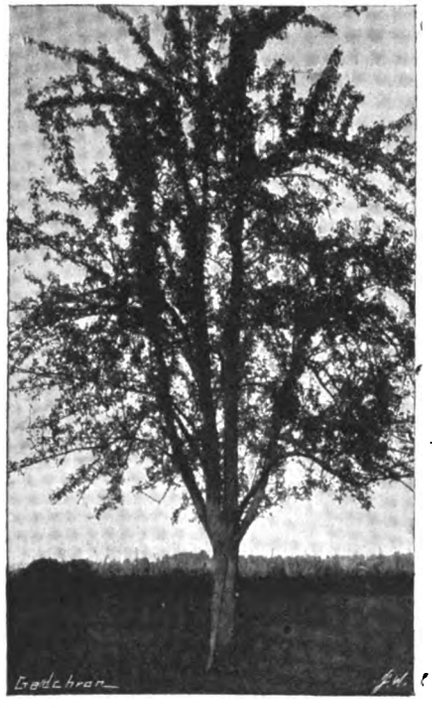

FIG. 19.—PEAR TREE GRAFTED ON THE FREE STOCK (SEE P. 38).

and the best English packers know that the pressure which will suit one variety will not suit another, and they, therefore, vary it accordingly. Steady pressure inevitably flattens the fruits in places, and in those varieties which have, apparently, exceedingly tender flesh this pressure leads to immediate bruising and decomposition, whereas in others with, apparently, a less tender flesh, no bruising, not even discoloration, follows. This wide difference in the tenderness of the flesh, or at least in its susceptibility to bruising, does not seem to be characteristic of the Apples sent to us from our colonies, though they may have varieties showing a similar disability and which they very wisely keep at home. The point is one, I think, that scientists may be able to decide, but it is not one which comes within the province of the practical grower. Grading is a totally different proposition. There are still numerous commercial growers who will not think of it, not to speak of practising it, but they do not make as much money as those who do, and they never will. *W. Tiplow.*

Caustic Fruit Wash (p. 26).—There is not the slightest doubt that *Market Grower* will find 1 lb. caustic soda, 98 per cent. purity, quite sufficient if dissolved in 10 gallons of hot water and applied hot, to completely cleanse trees of all encrustations of Mosses and Lichens, but where, as doubtless in the case of *Market Grower* himself, a large quantity has to be used, it is always difficult, and frequently impossible, to use a solution hot. I have tried caustic soda wash at varying strengths, and have come to the conclusion that the formula is not quite so much the indispensable factor as the thoroughness of dressing and the heat, if these be within the bounds of practicability. *E. F. C.* (page 27) is not alone in experiencing trouble in the eradication of Mussel scale on Apples, and he will find Oyster scale on Pears just as bad, if he is cursed by its attacks. The scaly covering is an efficient protection, and no sprayed wash will destroy it in the winter condition. When, however, caustic soda wash is scrubbed on, as is desirable on old bark, many of the insects will be killed, because the hard outer covering is broken through by the pressure. The most effectual wash against both these scale insects that I have used is the following Woburn formula: 1 gallon paraffin (petroleum), ¾ lb. soft soap, 3 lb. caustic soda, 98 per cent. purity, and 14 gallons of water. Dissolve the soft soap in about half a gallon of boiling water, and while still as nearly boiling as possible add the paraffin, churning with the utmost thoroughness. Dissolve the caustic soda in the remainder of the water and pour it into the paraffin and soft soap solution; perfect mixing is again indispensable, and it is of great importance that the completed wash shall be applied at once. If everything is in proper order, eggs as well as scales will be destroyed, but in particularly bad cases some will certainly escape, and a spray dressing of a paraffin emulsion about the middle of June will be desirable for killing recently hatched young scales. I agree fully with *E. F. C.* that spraying is a costly process; nevertheless it must be done if the finest crops are to be harvested year after year.—*H. J.*

White Gladioli.—I read, with interest, Mr. G. Errey's note on p. 20, as it goes to prove my main contention that many varieties described as white are not really white in the sense that White Giant is white. Season and location have much to do with the variation of the so-called white varieties. Mrs. Robert Wordsworth, as exhibited by Messrs. Kelway in 1915 (I think), impressed me at the time as being one of the purest whites, and I planted some corms in 1916, and I remember saying to Messrs. Kelway's man that the corms sent to me had produced flowers with a decided tinge of pink. He informed me that it was due to the season, and their own flowers were the same. Europa has never proved worth growing in my garden; and Zeppelin, which I grew for three years (1916-18), I also discarded for the same reason. This also showed at times flecks of rose pink. As to awards made by the R.H.S., I presume the Committee can only judge the flowers as presented to them, and when they are undecided as to a flower being worthy of an award, they express a wish to see the flower again. This is, I understand, what actually took place in the case of Snow Glory before the award was made. I for one shall continue to grow Snow Glory so long as it continues to give spikes of the same quality it has done in the past. Of the other varieties mentioned, I saw the spikes of Butterboy after the award was made, but although I planted over a dozen corms of this variety, I had no spike to compare with those shown by Messrs. Lowe and Gibson. However, I propose planting more of this variety during the present year. Of the varieties mentioned in the last paragraph of Mr. Errey's note, I have only tried Eugene Sandow, which proved a failure. The Gladiolus is like many other plants; certain varieties will do well where others will not, and I now hesitate to condemn a variety because it has failed with me. I am trying some Australian varieties which have come to me with high recommendations, but it would be rash for me to suppose they will turn out to be all good. Climatic conditions are so different. *Smilax.*

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SOCIETIES.

ROYAL HORTIOULTURAL.

JANUARY 16. For a first meeting of the year the exhibition at Vincent Square, on the above date was a good one, and exceeded general expectations. It is usual to find the hall about half filled on such an occasion, but this time there were few vacant spaces. The chief attractions were Orchids, fruits, Carnations, early spring flowers, Cyclamens, Camellias and Alpines. The Floral Committee was sparing in its awards, and granted only seven medals for groups. The Fruit and Vegetable Committee had one very promising new Apple before it, and the Orchid Committee considered numerous novelties, including a presumably new species of Dendrobium, of the D. macrophyllum type.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson, R. Brooman White, Arthur Dye, Fred. K. Sander, Chas. H. Curtis, J. E. Shill, A. McBean, W. J. Kaye, E. R. Ashton, Pantia Ralli, H. G. Alexander, C. J. Lucas, Stuart H. Low, and H. T. Pitt.

AWARDS OF MERIT.

Brasso-Cattleya British Queen (*B.-C. Digbyano-Mendelii* × *C. Lord Rothschild*), from PANTIA RALLI, Esq., Ashtead Park (Orchid grower, Mr. Farnes). A very handsome flower of large size and perfect form. The sepals and petals are rosy-mauve, the lip being darker in front with a pale yellow centre.

Cymbidium Curlew var. Feather (*Butterfly* × *Alexanderi*), from Lt.-Col. Sir GEO. L. HOLFORD, K.C.V.O, Westonbirt, Tetbury (gr. Mr. H. G. Alexander), the best of this distinct cross yet shown, the fine spike bearing large, pure white flowers with slight mauve lines and rich ruby-red spotting on the well-formed lip.

Sophronitis Lowii, from PANTIA RALLI, Esq., Ashtead Park. A gem among species of Orchids not yet well known. The first yellow variety was S. Rossiteriana, Rodriguez, later adjudged to be a yellow variety of the scarlet S. grandiflora. S. Lowii differs greatly in the rather smaller size, greater profusion, and darker chrome yellow of the flowers, and is amply distinct from any other form. The little plant shown bore a profusion of pretty blooms of pure yellow colour. Crosses with it should give a new and desirable class.

Cymbidium Doreen (*Pauwelsii* × *Doris*), from Messrs. J. and A. McBEAN, Cooksbridge. This may be said to be the best dark Cymbidium up to the present. The plant bore a fine spike of seven large flowers with unusually broad segments. The colour was deep bronzy-purple displayed in dotted lines, the margins and small spaces between the dark markings being rich gold colour.

GROUPS.

Messrs. CHARLESWORTH AND CO., LTD., Haywards Heath, were awarded a Silver Flora Medal for an excellent group of good hybrids, especially noteworthy in their selection of Calanthes being the New Calanthe Stella (Ruby × Kewensis) with good dark ruby-red flowers and a carmine glow in the centre; several forms of their dark Odontioda Brewii and other Odontiodas; a fine selection of hybrid Odontoglossums with their xanthotes forms, which are of the purest white with straw-yellow spotting; a selection of good Cattleyas, the best white being C. Blackii alba, seldom seen so good; the new C. Octho (Octave Doin × Clotho), a pretty flower; and various Laelio-Cattleyas. Among the pretty and interesting species were the neat yellow Oncidium cheirophorum, and the stately O. splendidum.

Messrs. COWAN AND CO., LTD., Southgate, were awarded a Silver Flora Medal for a pretty group in which the varieties of their beautiful Laelio-Cattleya Dodona varying in tint, but always good, were arranged round a fine specimen of the new Brasso-Cattleya British Queen, a grand blush white flower with mauve markings inside the fringed labellum. Among the Laelio-Cattleyas, their type of L.-C. Schroderae, with its peculiar white sepals and petals and entirely maroon lip, was attractive.

Messrs. STUART LOW AND CO., Jarvisbrook, had a very good group, for which a Silver Flora Medal was awarded. The group contained several new hybrids of excellent merit, Brasso-Cattleya Lawrie (B.-C. Marguerite Fournier × C. Octave Doin), flowering for the first time, being very distinct. A selection of good Cypripediums had for the best C. Lawrie (Dicksonianum × Aisne). The Sophronitis crosses contained Sophro-Cattleya Blackii, the best deep red, and among the species were a selection of Oncidiums, including O. ornithorhynchum and its white variety.

Messrs. SANDERS, St. Albans, were awarded a Silver Flora Medal for a good group, in the centre of which was a grand example of the blush white Brasso-Cattleya Crofutiana, with other Brasso-Cattleyas and Laelio-Cattleyas, and a selection of Cypripediums. Among the species noted were the pretty little Epidendrum polybulbon, Masdevallia tovarensis, M. polystichta, M. Gargantua, and several rare Oncidiums.

Messrs. J. and A. McBEAN, Cooksbridge, were voted a Silver Banksian Medal for a small, but very select group, in the centre of which was a fine specimen of Cymbidium Schlegelii, with six spikes, and with it the fine new C. Doreen. Among the Odontoglossums a grand form of O. Miguelito, with a fine spike of violet-red flowers, and other richly coloured forms were noted, O. Aquila (ardentissimum × C. l'Empereur) being superb.

OTHER EXHIBITS.

SIR JEREMIAH COLMAN, BART., Gatton Park (gr., Mr. J. Collier), showed Odontioda Brackenhurst Gatton Park variety, one of the largest and best vinous purple Odontiodas; the singular Dendrobium tetragonum, with spider-like flowers; and an unknown Dendrobium of the D. macrophyllum (Veitchianum) section.

G. W. BIRD, Esq., Manor House, West Wickham (gr., Mr. Redden), sent Odontioda Rufus (Odm. crispum × Oda. beechensis), with fine Tyrian purple flowers.

R. GERRISH, Esq., Milford Manor, Salisbury (gr., Mr. W. Sorrell), showed Odontoglossum crispum Gerrish's variety (Luciani × Empress of India), a showy form, with good flowers effectively blotched with dark mauve.

PANTIA RALLI, Esq., Ashtead Park (Orchid grower, Mr. Farnes), sent Cattleya Trianae Col. H. Carlisle, a pretty white flower with mauve markings on the front of the lip, and of excellent shape.

A. M. GENTLE, Esq., The Capstone, St. Albans, showed two hybrid Cypripediums, the darker being a very fine flower.

Floral Committee.

Present: Messrs. H. B. May (in the Chair), W. J. Bean, G. Reuthe, W. P. Thomson, John Heal, C. R. Fielder, George Harrow, Donald Allan, W. Howe, J. Jennings, J. F. McLeod, Thos. Stevenson, Hugh Dickson, W. B. Gingell, A. G. Jackman, M. C. Allwood, H. J. Jones, D. B. Crane, Chas. E. Pearson, Arthur Turner, W. G. Baker, Reginald Cory, W. B. Cranfield, G. W. Loder, R. C. Notcutt, and E. A. Bowles.

Only nine novelties were placed before this Committee, and one award was granted, as above. Mr. G. CARPENTER, West Hall Gardens, Byfleet, showed fine blooms of Chrysanthemum Louisa Pockett, from terminal buds of non-stopped plants; these were of large size, of pearly pink colour, and very decorative. Mr. K. LUXFORD'S cerise pink Carnation named Cheerful, has attractive colour and some fragrance.

AWARD OF MERIT.

Cyclamen Firefly. A very effective variety, showing a nearer approach to scarlet in the flowers than any other variety we know. The blooms are of medium size, and the foliage may be either green or handsomely marbled, both these types appearing. The colour of the flowers is rich reddish scarlet—almost vermilion in bright light. This new variety has been obtained by the intercrossing of deep salmon coloured varieties, and is a fine result of long continued care. Shown by Messrs. SUTTON AND SONS, Reading.

GROUPS.

The mildness of the winter and the coming of spring were evidenced by the especially attractive group of Hyacinths, Daffodils and other spring bulbs, arranged by Messrs. SUTTON AND SONS. The Hyacinths were all from "prepared" bulbs which have undergone a special treatment in order to induce early flowering, and these were shown in various colours in large ornamental baskets and bowls. The Daffodils were of the variety Cervantes and the Tulips were Montresor—a particularly good yellow. Along the front there were occasional pans of the valuable Iris reticulata (Silver-Gilt Banksian Medal).

Hyacinths in variety with Freesia refracta alba of considerable merit were attractively arranged by Messrs. R. and G. CUTHBERT, who also had large clumps of an especially clean variety of the white Christmas Rose. A great variety of the Polyanthuses he grows so well, together with Snowdrops, double Daisies, and the beautiful blue Anchusa myosotidiflora, were staged by Mr. G. W. MILLER. In the customary exhibit by Mr. G. REUTHE we noted, with various specimens of trees and shrubs, patches of hardy Cyclamen, Christmas Roses and Snowdrops.

Iris reticulata, Adonis amurensis and Christmas Roses, with hardy Conifers, were shown by Messrs. J. CHEAL AND SONS. A number of shapely Conifers in variety were contributed by Messrs. WALLACE AND CO., who also had floriferous branches of Hamamelis Zuchariniana, H. japonica aureta, and many pans of spring Crocuses. A very neat arrangement was made by Messrs. WATERER, SONS AND CRISP, where they displayed goodly patches of Cyclamen ibericum and varieties, Crocus susianus, Anemone fulgens and Iris tingitana (Silver Banksian Medal). A good collection of Conifers, suitable for rock garden planting, was shown by Messrs G. G. WHITELEGG, who also had well-berried little bushes of Skimmia japonica and a pan of Iris reticulata. A rockery well planted with Conifers and other evergreens, amongst which was a well-flowered bush of Garrya elliptica, was built by Messrs. WM. CUTBUSH AND SONS. Such alpines as Saxifraga burseriana and Iris histrioides major were also well displayed.

A collection of Camellias was arranged by Messrs. CHAPLIN BROS. Snowflake, a free-flowering white variety, Alba plena, Jupiter, a clear red single, and Marguerite Carboni, double-red, were all good sorts.

Azaleas were shown by Messrs. MOYSES STEVENS, who also had good plants of Erica melanthera and E gracilis, by Messrs. L. R. RUSSELL, LTD., and Messrs. STUART LOW AND CO., who also had several good plants of Acacia and winter-flowering Begonias. Adjoining these Messrs. STUART LOW AND CO. showed a large collection of greenhouse Carnations of merit (Silver Banksian Medal). Carnations were also staged by Messrs. ALLWOOD BROS., who had varied vases of Edward Allwood with Wivelsfield Fancy, Wivelsfield Claret, and Triumph (Silver Flora Medal). Mr. C. ENGELMANN seemed to specialise with the yellow shades, for he had Jessie Allwood, Saffron, Maine Sunshine and Marian Willson (Silver Banksian Medal).

The President of the Society, Lord LAMBOURNE (gr. Mr. H. Cunningham) sent from his gardens at Bishops Hall, Romford, a collection of greenhouse Carnations, which included Mrs. C. F. Raphael, Volcano, Mrs. Charlotte Knollys, Tarzan and Mrs. Walter Herries (Silver Flora Medal). Messrs. BLACKMORE AND LANGDON staged excellent plants of greenhouse Cyclamen of the grandiflora type. Their Giant White, Salmon King and Giant Crimson were particularly good (Silver Flora Medal).

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Fruit and Vegetable Committee.

Present.—Messrs. C. G. A. Nix (Chairman), J. Cheal, E. A. Bunyard, H. S. Rivers, S. B. Dicks, Owen Thomas, Geo. F. Tinley, W. F. Giles, A. C. Smith, P. D. Tuckett, T. Pateman, J. G. Weston, H. Markham, Ed. Beckett, W. Bates, J. C. Allgrove, W. Poupart, A. Bullock, A. W. Metcalfe, W. H. Divers, W. Wilks, P. C. M. Veitch, G. Reynolds and A. Rawes.

AWARD OF MERIT.

Apple Ball's Pippin.—A late dessert variety raised from Cox's Orange Pippin crossed with Sturmer Pippin. The fruit is of flattish-round shape, of medium size, and is in season until March. The skin is greenish-yellow, flushed with red; one or two of the fruits were very brightly coloured, so that in a sunny season it would probably be very showy. The flesh is white, juicy, sweet and of good flavour. The tree is said to be fairly robust and a free cropper. The award is provisional on the tree fulfilling the requirements as to cropping, habit, etc., to be determined by an inspection next season. Shown by Mr. J. C. ALLGROVE, nurseryman, Middle Green, Langley.

A Gold Medal was awarded to Messrs. G. BUNYARD AND Co. for a magnificent exhibit of Apples and Pears, comprising 76 distinct varieties. The fruits were attractively staged in baskets and on stands, with a few Palms as foils. The finest of the Apples were Golden Spire, Bismarck, Sir John Thornycroft, Allen's Everlasting, Ellison's Orange, Heusgen's Golden Reinette, Allington Pippin, Encore, Cornish Aromatic, Wagener, and Twenty Ounce. The Pears included such sorts as Bergamotte d'Esperen, Double de Guerre, Duchess de Bordeaux and Beurré Perran.

Mr. J. C. ALLGROVE was also awarded a Gold Medal for a grand lot of Apples and Pears, the quality being exceptionally fine. This exhibit contained 74 varieties of Apples and 6 of Pears. Fruits of the new S. T. Wright variety of Apple occupied a conspicuous place in the centre of the exhibit. Others of special merit were Gabalva, Rival, Golden Noble, Wadhurst Pippin, Lady Henniker, Encore, Edward VII., Blue Pearmain, Ontario, Arthur Turner and Belle Pontoise.

Messrs. SUTTON AND SONS set up a collection of vegetables of very high quality, and arranged with good taste. The Carrots were remarkably good, especially those of new Red Intermediate, Matchless Scarlet, and Scarlet Intermediate varieties. Very large roots of Student Parsnips, excellent Sutton's Black Beets, Royal Favourite Leeks, Long Keeping, Ailsa Craig, and Red Italian Onions, Potatos in variety, Scorzonera, Seakale, Chicory and Dandelion were also included, whilst coloured Kales gave a pleasing touch of bright colour to the exhibit (Silver-gilt Knightian Medal).

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

THE Annual General Meeting of this Society was held in Dowell's Rooms, George Street, Edinburgh, on January 10, Mr. David King, president, in the chair.

The report by the Council stated that the Society had had a very successful year. The average attendance at the monthly meetings was 90, and eight First-Class Certificates, four Awards of Merit, and nineteen Cultural Certificates were awarded for new and meritorious plants exhibited at these meetings and the autumn flower show. The accounts showed an excess of income over expenditure of £33 16s. 4d. It was intimated that an autumn show would be held this year, and that preparations were being made for an international show to be held in 1925.

The following office-bearers for 1923 were elected:—Honorary president, The Rt. Hon. Lord Elphinstone; president, Mr. John W. M'Hattie; vice-president, Mr. T. J. Gray; councillors, Messrs. D. King, A. D. Richardson, J. A. Sword, and L. B. Stewart; auditors, Messrs. A. and C. Davidson Smith, C.A.

NATIONAL ROSE.

THE National Rose Society's 64th annual general meeting was held at Caxton Hall, Westminster, on Tuesday last. The President, Mr. E. J. Holland, occupied the chair, and there were about eighty of the members present, including several ladies. The minutes of the previous meeting were taken as read, and the Chairman immediately submitted the annual report, of which the chief items are those following :—

EXTRACTS FROM THE REPORT OF THE COUNCIL.

The Council are gratified to be able to report further highly satisfactory progress, the record number of 2,029 members having joined the Society during the year just ended.

During the year new additions have been made to the Society's Library at 25, Victoria Street, and many volumes most in demand have been trebled.

Four shows were held during the year. The Spring Show was held in the London Scottish Drill Hall on Friday, April 21. In spite of special difficulties the show was a big success, a number of very fine exhibits being staged. The Summer Show was held in the Botanic Gardens, Regent's Park, on Thursday, June 29. This proved a very fine show, the blooms being remarkable for their cleanness and brightness. The attendance, which numbered 14,000, was a record. The Provincial Show was held at Wolverhampton on Tuesday and Wednesday, July 11 and 12. The exhibits staged were of a very high order. The Autumn Show was held at the Royal Horticultural Hall on Thursday, September 21. The large number of exhibits staged were of a marvellously high standard, and won the general admiration, not only of a crowd of visitors, but of the general Press throughout the country.

The Council have great pleasure in reporting that the whole of last year's deficit has been wiped out, and the financial position of the Society is now stronger than ever. The total receipts for the year amount to £5,348 3s. 4d., and the total payments for the same period to £5,291 12s. 7d., leaving a balance at the Society's bankers on December 31, 1922, of £56 10s. 9d.

It is with the deepest regret the Council have to record the death in February last of its Deputy-President, Mr. Walter E. Martin. For many years he had taken a great interest in the Society's affairs, and by his ability and devotion had earned the high appreciation of his many friends.

In conclusion, the Council desire once more to record their appreciation of the good work done by Local Secretaries and others in securing new members and generally in promoting the interests of the Society. They also wish to acknowledge with gratitude the services rendered by Miss Willmott, V.M.H., one of the Society's Vice-Patronesses.

The Chairman said he was sure that everyone would consider the report a most satisfactory one, and all present would be especially gratified with the fact that no fewer than 2,029 members had joined the Society during the past year. It was the Hon. Secretary's ambition to enrol 2,000 new members during 1922, and he had done so, with 29 in excess. Referring to the publications, he stated that the *Rose Annual* of 1923 will be published next month, and he had the Secretary's opinion behind him when he stated it would be one of the best *Annuals* ever published, if not the best. The shows had been very successful, but one that was more noticeable than any of the others was the autumn exhibition, by reason of its large size and the fine quality of the Roses. He was glad to know that the Society was in a splendid condition financially. In 1921 they were not able to meet within the year all the liabilities of the Society, but in 1922 they had not only been enabled to pay their way, but to wipe out all standing accounts of the previous year. He referred to the sad loss the Society had sustained in the death of the Deputy-President, Mr. W. E. Martin, who, if he had been spared, would have been elected President this year. In conclusion, he expressed the deep thanks of the Council for the good work done by the local secretaries, and also by Miss Willmott, one of the Society's Vice-Patronesses.

The adoption of the report was seconded by Mr. F. Cant, who stated that the Society was fortunate in having an excellent President, an excellent Secretary, and an excellent Treasurer, and he hoped that it would continue to flourish in the future as in the past. At this stage the Hon. Treasurer, Mr. Preston-Hillary, submitted the financial statement. He stated that the Society was never in a stronger position financially than it was to-day, and he was glad to announce that while the receipts showed a tendency to go up the management were enabled to keep the expenses down. The sum of £4,556 0s. 9d. received for subscriptions was the most satisfactory item of the balance sheet. It was an increase of nearly £800 on 1921 and £1,300 on 1920. Over £1,000 had been discharged on account of outstanding liabilities, and he was glad to be able to say that at the present time there were no outstanding accounts whatever, whilst there was a balance of £56 10s. 9d. to be carried forward. Whilst this was extremely gratifying, he regretted that they had not been able to make any addition to the reserve fund in the past year; but as a set-off to this they would be pleased to know that the value of their investments had increased very considerably during the year. He had pleasure in supporting the resolution moved by the Chairman and seconded by Mr. Cant. The resolution for the adoption of the report and balance sheet was then put by Mr. Holland and carried by the unanimous vote of those present. The Chairman announced the report of the scrutineers of the ballot papers for the election of members of the Council, and stated that 601 papers were returned, of which 595 were in order. He declared the following elected :—

Mrs. Courtney Page, Mrs. H. R. Darlington, Mrs. Oakley-Fisher; Messrs. H. S. Bartleet, A. R. Bide, H. R. Botwright, G. Burch, C. Chambers, W. R. Chaplin, Reginald Cory, Charles H. Curtis, R. de Escofet, Alex. Dickson, E. Doncaster, W. Easlea, C. W. Edwards, John N. Hart, E. J. Hicks, A. Johnson, G. Marriott, J. R. Mattock, W. E. Moore, H. Oppenheimer, Dr. Panckridge, B. W. Price, A E. Prince, W. D. Prior, L. P. Roberts, A. Norman Rogers, Major A. D. G. Shelley, F. Spencer, F. Spooner, Hy. Street, Will Tayler, Lt.-Col. B. J. Walker, H. Whitlock.

The officers were also elected. Mr. S. Jackson was elected President and Mr. C. C. Williamson, Vice-President. At this stage Mr. Holland asked the new President to take the chair. Mr. H. R. Darlington, in proposing a vote of thanks to Mr. Holland, as he left the chair, stated that he had been a great supporter of the Society so long as he, Mr. Darlington, could remember, He had helped greatly in times of difficulty, and he left the President's chair in the Society's most flourishing period, and much of the success was due to Mr. Holland. The new President thanked the meeting for his election, and Mr. Holland also returned thanks for the vote passed on his retirement, expressing the pleasure the work of promoting the interests of the Society gave him. A few minor alterations were made in the Rules, the objects of which were (*a*) to enable the Past-Presidents of the Society to become members of the Council; (*b*) to enable the shows to be held over more than one day; and (*c*) to preclude anyone who is not a member exhibiting at the Society's shows.

Considerable discussion took place on the motion by Mr. Preston-Hillary, "That the Council be instructed to take the necessary steps with the view of obtaining, if possible, a royal charter of incorporation." Mr. Preston-Hillary stated that the time had come when some form of incorporation was necessary for the Society. The Council was responsible for a considerable amount of public monies, in the form of subscriptions, and they had also a reserve fund of roughly £5,000. It was only logical that the Society should be put on a businesslike status. He pointed out some of the limitations of the Society as at present constituted. For instance, it is impossible for them to hold land or to bring an action against an individual. He stated the probable cost of the charter would be £125, of which sum £110 would be fees payable to the Home Office. There should be no difficulty in obtaining the charter, as the history of the Society would be a sufficient claim to present to the Privy Council. There was only one other way of making themselves into a corporate body, and that was by turning themselves into a limited liability company. The Rev. Pemberton seconded the motion.

Mr. H. R. Darlington moved an amendment altering the motion by substituting the word empowered for instructed, so that it should read "be empowered, if upon inquiry they should think it desirable." He agreed with

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much Mr. Preston-Hillary put forward, but they might find a trust more pliable for working under than a royal charter, which would tie the Society down and make it very difficult to introduce alterations in the rules, etc.

Mr. Holland considered the matter was one which should be discussed by the Council and not be brought to the general meeting by one of the officers of the Society. He would like the meeting to substitute the word empower for instruct. If they considered it advisable the Council then could proceed with it. A member gave his experiences of the difficulties a Society of which he was Secretary had in obtaining a charter of incorporation; but Mr. Preston-Hillary pointed out that he was referring to a chartered company, which had nothing to do with a royal charter. Another member inquired if a change of the name of the Society would be involved; he would not like to see the word royal added. Mr. Preston-Hillary asked for permission to reply to Mr. Holland, and stated that he had given notice of the motion to the Hon. Secretary before the last Council meeting, and it was even known at the Council meeting previous to that one. He was prepared to accept the following alteration: "That the Council be empowered to take the necessary steps with a view to obtaining if possible a royal charter of incorporation if it is found desirable." The Rev. Pemberton said he would be pleased to second this motion, and, being put to the meeting, it was adopted unanimously. Votes of thanks to the officers and members of the Council, including the retiring President and new President concluded the proceedings.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE monthly meeting of this Society was held in the R.H.S. Hall on Monday, January 8, Mr. C. H. Curtis presiding. Nine new members were elected. Three members withdrew interest amounting to £8 8s. 2d., and one member over the age of 70 years withdrew £65 5s. 4d. from his deposit account. The sum of £59 17s. 1d. was passed for payment to the nominee of a deceased member. Grants of £7 each were made to two members from the Distress Fund, and £5 was granted to one member for dental treatment.

The sick pay for the month on the private side came to £114 19s. 3d., and on the State side £94 19s.; maternity claims £6. The Trustees were empowered to invest a sum of £1,000.

CARDIFF GARDENERS'.

MR. H. WHEELER, gardener at Wenvoe Castle, gave a lecture on "Onions for Exhibition" at the meeting of the above association held on the 2nd inst. Mr. Wheeler dealt fully with the cultivation of this vegetable as practised by himself. He said the seed was best sown in boxes in preference to pots, using three parts loam and one part old potting soil, with sand to lighten the texture. The preparation of the bed by bastard trenching and the addition of a liberal amount of cow manure was advised.

Mr. Wheeler gave full details on the growing of Onions from seed sowing to the harvesting and ripening of the bulbs. Prizes offered for a dish of five Onions were awarded to Messrs. Coach, Cossam, and Fry respectively.

Obituary.

Joseph Hughes.—The death took place at Horbling, Lincolnshire, on January 4, of Mr. Joseph Hughes, in his 71st year. The deceased was head gardener to the late Colonel Cartwright at Eydon Hall, Northamptonshire, from 1876 to 1891. From 1891 to 1908 he was in charge of the gardens at Wentworth Woodhouse, Rotherham, Earl Fitzwilliam's Yorkshire seat, and subsequently was in charge of the gardens at Bishopthorpe Palace, York; Womersley Park, Pontefract; and Melton Park, Doncaster, which last place he left in April, 1922, owing to failing health. Whilst learning his profession, Mr. Hughes served in the gardens at Mentmore, Buckinghamshire; Eaton Hall, Chester; and Wynnstay Park, Ruabon. In the 'eighties he was a very successful exhibitor at the principal horticultural shows in the country, and carried off several valuable trophies for Potatos, etc. Later, his services were much in request as judge at horticultural exhibitions. The deceased is survived by a widow and grown-up family. His first wife died fifteen years ago; and he had also lost a son, who was for some time gardener at Hoar Cross Hall, Burton-on-Trent. Mr. Hughes was a life member of the Gardeners' Royal Benevolent Institution. The funeral took place at Horbling on January 8.

LAW NOTE.

FAILURE OF A MANURE FIRM.

THE Official Receiver in the Companies Winding Up Division of the High Court of Justice has issued his report and observations in the matter of The Britannia Fertiliser Co., Ltd., Parliament Mansions, Victoria Street, S.W., against whom a Winding Up Order was made on July 25, 1922. The statement of affairs shows liabilities expected to rank against the estate for dividend £1,247 10s. 7d., and assets estimated to produce £20 12s. 3d., which sum was absorbed on account of debenture bonds. As regards contributories, the paid up capital was £2,600, and the total deficiency amounted to £3,847 10s. 7d.

The Company was registered as a private company on June 29, 1920, with a nominal capital of £3,000, subsequently increased on February 7, 1922, to £3,500. The principal object of the company was to manufacture and deal in all kinds of fertilisers and manures.

On March 16, 1922, the Company issued six debentures of £50 each, to one Sidney George Hays, in exchange for debentures for the same amount held by him in another company, which according to the Company's minute book, were sold by the company on March 31, 1922 for £300. The proceeds of the sale were paid direct to the other company referred to, to whom the company was indebted in the sum of £194 1s. 11d., for cash advanced. On July 12, 1922, the other company mentioned went into voluntary liquidation, and the balance of the £300 (£102 15s. 1d.) was still held by them, and was returned in the statement of affairs as a bad debt.

The landlords of the company's premises at Slough levied a distress for rent on July 1, 1922, and sold all the company's assets with the exception of a small quantity of loose plant which had since been disposed of by the Official Receiver for £20.

The Official Receiver was of the opinion that the failure of the company was due to its inability to dispose of its manufactures.

ANSWERS TO CORRESPONDENTS.

A GARDENER'S WAGES DURING ILLNESS: *W. H. L.* Seeing that your employer has paid you full wages for several weeks during your illness, it is not, in our opinion, unreasonable that he should deduct the amount you are entitled to under the State Insurance Scheme. You must remember that your employer, as well as yourself, is a contributor to the State Insurance Scheme.

CYANIDING: *E. B. Y.* Cyaniding for the destruction of White Fly in glasshouses is by means of a deadly gas formed by combining cyanide of potassium (or sodium cyanide) with sulphuric acid and water, and not by spraying the affected plants.

DRACAENA UNHEALTHY: *R. R. G.* There are signs of fungus injury in the spots, and a definite parasite may be present. Frequent dusting of the young leaves, as they develop, with green sulphur may keep the fungus in check.—*Brad.* The plant is not diseased, but some wrong physiological condition has resulted in the scorched appearance of the plants.

FREESIAS DISEASED: *G. H. D.* The fungus Botrytis was present in the specimens you sent, but it is impossible to say whether this is the primary cause of the trouble you complain of, or whether the fungus has appeared as the result of the plants becoming unhealthy from some other reason.

GARDENERS' HOURS: *Head Gardener.* The amount of hours worked in gardens varies according to the custom in the particular district. As an average, the summer hours are from 7 a.m. until 6 p.m., with three-quarters of an hour for breakfast and an hour for dinner; in winter the staff usually commences work after breakfast, at 8 a.m., and continues until 5 p.m., with an hour for dinner.

GARDENER'S NOTICE AND POSSESSION OF COTTAGE: *E. C.* If you do not give up possession of the cottage when the month's notice expires, your employer can take out a summons for possession; but it will be in the discretion of the Court as to what order shall be made, having regard to all the circumstances. If you cannot find accommodation elsewhere, you should attend on the hearing of the summons and explain what efforts you have made in that respect.

LATE FLOWERING CHRYSANTHEMUMS: *W. M.* If you insert cuttings of Tuxedo and Heston White Chrysanthemums towards the end of the present month you should be able to obtain flowers about Christmas time. The growing points should be pinched out when the young plants are about six inches high, and stopping should be done again during the first week in June.

MELON STANLEY: *A. S.* We have written to our correspondent, Mr. James Page, who informs us that seed of Melon Stanley may be obtained from Messrs. Svensons, Fröhandel, Stockholm 2, and Messrs. Daenfldt, Fröhondel, Helsingborg, both Swedish firms.

NAMES OF FRUIT: *F. K.* Probably a small fruit of Olivier de Serres.

NAMES OF PLANTS: *D.* Pittosporum undulatum. *B. and W.* Pistacia Lentiscus; "Mastic" is obtained from this plant, a resin used in dentistry and in the manufacture of varnishes, and also used as a masticatory for preserving the teeth and gums.—*Inquirer.* 1, Cypripedium insigne; 2, Cypripedium insigne punctatum violaceum (one of the best forms).—*G. B.* Moschosma riparium.

NATIONAL DIPLOMA IN HORTICULTURE: *W. R.* Full particulars regarding the examination for the N. D. Hort. may be obtained on application to the Secretary, Royal Horticultural Society, Vincent Square, Westminster.

PRIMULA OBCONICA WITH A FUNGOUS GROWTH: *R. A.* The plants are attacked by the Botrytis fungus. If you thoroughly cleanse the house and use potting compost from another source next season, it is not likely that you will be troubled with the disease again, provided you have robust specimens. The Botrytis fungus usually attacks plants that have become unhealthy through faulty cultivation.

RECENT PLANT-COLLECTING EXPEDITIONS IN CHINA: *R. K.* Mr. E. H. Wilson's first expedition to China was undertaken on behalf of Messrs. James Veitch and Sons in 1899. It was largely prompted by the many excellent plants sent over in a dried condition by Prof. Henry, and we believe the chief objective was to secure plants of Meconopsis integrifolia. Wilson made a second journey to China for the same firm in 1903, and he has visited that country on many other occasions. Other noted British plant-collecting expeditions in China have been conducted by Mr. W. Purdom, Mr. G. Forrest, Mr. R. Farrer, and by Mr. F. Kingdon-Ward, whose interesting narrative is being published in these pages.

Communications Received.—Shropshire—T. H.—J. S.—G. E.—C. M. C.—A. J. H.—R. P. B.—W. L.—R. J.—G. H. H.—F. W. J.—H. T.—A. H.—Vicar—A. P.

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THE
Gardeners' Chronicle
No. 1883.—SATURDAY, JANUARY 27, 1923.

CONTENTS.

Alpine garden, the—
Saxifraga Kellereri .. 47
America, notes from .. 51
Bees, foul brood in .. 43
Bulb garden, the—
Ornithogalum nutans 47
The Gladiolus .. 47
Campanula Telham Beauty 5
Currants, Black, big bud in 54
Daphne Cneorum .. 48
Epping Forest, new lake at 44
French exhibitions, forthcoming 45
Fruit wash, caustic .. 54
"Gardeners' Chronicle" seventy-five years ago 45
Gladiolus primulinus, earliest hybrids of .. 54
Glasnevin, notes from .. 45
Hardy flower border—
Stevia paniculata .. 52
Veratrum Miss Willmott 52
Hardy plants for sub-tropical effect 52
Horticulture afloat .. 48
Indoor plants—
Buddleia asiatica .. 49
Lapagerias 49
Pelargoniums for winter flowering 49
Red flowered Plumbagos 49
"Journal of Pomology and Horticultural Science" 43
Obituary—
Hall, John 55
O'Neil, B. 55
Perry, Mr. Amos .. 44
Plants new or noteworthy—
Astilbe chinensis pumila 51
Rubus robustus .. 51
Potato, degeneration of the 54
Richmond flower show .. 43
Souken Glen Park, Glasgow 44
Royal Botanic Society's gardens 43
Royal Gardeners' Orphan Fund 44
Seed analysts, training and examination of .. 43
Societies—
Cardiff Gardeners' .. 55
Manchester and N. of England 55
Newcastle and Dist. Hort. 55
Reading Young Farmers' Club 55
Sophronitis Lowii .. 44
Stock on scion, influence of 53
Thladiantha dubia .. 53
Tithymals 51
U.S.A., import regulations, concessions in .. 43
Vegetable garden—
Cucumbers 54
Onions 54
The Yam 54
Ward's, Mr. Kingdon, seventh expedition in Asia 50
Week's work, the 46
Wisley, forthcoming trials at 44

ILLUSTRATIONS.

Astilbe chinensis var. pumila 51
Buddleia asiatica 48, 49
Heracleum giganteum 52
Perry, Mr. Amos, portrait of 44
Rubus robustus 50
Saxifraga Kellereri 47
Sophronitis Lowii 45
Thladiantha, tubers of 53

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 24, 10 a.m. Bar. 30.6; temp., 42°. Weather—Dull.

The Journal of Pomology and Horticultural Science.

With the publication of the first number of Vol. III, the *Journal of Pomology*, which was inaugurated by Mr. Edward A. Bunyard, F.L.S., assumes a larger title and a wider scope. It is to include not only matters of pomology, but also those of other branches of horticultural science. All horticulturists will be glad to know that the *Journal* is to continue its special attention to the science and practice of fruit-growing, and will welcome the advent of a quarterly journal devoted to the interests of horticulture in all its branches. They will also be glad to learn that Mr. Bunyard will continue to edit the *Journal*. None has a sounder or wider knowledge of pomology and none is more devoted to the advance of that important art and science. Mr. Bunyard will be assisted by a Publication Committee consisting of Professor Barker, Professor Biffen and Messrs. Hatton, Taylor and Dale. The list of Associate Editors who will lend assistance to Mr. Bunyard includes the names of many distinguished men of science interested in horticulture, genetics and botanical science—Sir Daniel Hall—who writes an inspiring foreword for the present issue; Professors Bateson, Blackman, Farmer, Sir Frederick Keeble, Salmon, Theobald, and U. P. Hedrick, whose services to fruit-growing in the United States are appreciated no less in this country than in his own, and Messrs. Chittenden, Brooks, Bewley, Butler, Fryer and Franklin Kidd. These names will suffice to show that the *Journal* will do all in its power to include in its pages everything of importance in horticultural discovery. The Editor, in announcing the new development of the *Journal*, appeals for wide support, and particularly to practical growers whose observations and experience are of no less value to the progress of horticultural science than the discoveries made by professional investigators. Among the many advantages which will follow from the establishment of the *Journal* on its new basis is that the results obtained by the various horticultural research stations established by the Ministry of Agriculture—Long Ashton, East Malling, the stations at Cheshunt, and at Cambridge, will appear in its pages. This will prove of the greatest assistance to those who desire to keep abreast of horticultural investigations. Instead of being compelled, as heretofore, to consult numerous periodicals in which the work done at these Stations is recorded, they will find it conveniently assembled in the pages of the *Journal*. In conclusion it should be mentioned as a further reason why all horticulturists should support actively this *Journal* that all engaged in its production give their services without fee, so that the contributions received in the way of subscriptions may be regarded properly as a direct endowment of research. The larger the subscription list the smaller will be the drain on the resources of the several Research Stations responsible for the production of the *Journal*. The *Journal* is published quarterly by Headley Bros., 18, Devonshire Street, Bishopsgate, London, and the annual subscription is 15s. post free.

Training and Examination of Seed Analysts.—A second course of training will be given in the summer of 1923, beginning about the middle of July, at the Official Seed Testing Station, Cambridge, available for a limited number of seed analysts on the following conditions:—(1) The course will be limited to persons who satisfy the Chief Officer of the Station that they are fitted to take advantage of the course, and have been (*a*) nominated by seed firms who intend to offer employment to such nominees in their own seed testing stations, or (*b*) recommended by Universities, Agricultural Colleges and Institutions, or (*c*) approved by the Council of the National Institute of Agricultural Botany. (2) An examination will be held at the conclusion of the course and certificates will be issued to students who satisfy the examiners. The examination will also be open to practical seed analysts who have not attended the course of training, provided that they are nominated, recommended or approved as described in (1). (3) The fee for the training course, which will last for from four to five weeks, including the examination fee, will be £6 6s. The entrance fee for the examination alone will be £1 1s. (4) Persons wishing to attend the course and sit for the examination, or to sit for the examination alone, should apply for entrance forms not later than May 1, 1923, to the Secretary, National Institute of Agricultural Botany, Huntingdon Road, Cambridge, from whom particulars of the course of training can be obtained. In all cases students must provide their own accommodation at Cambridge, but they will be able to take their meals at the Institute Club, and the Secretary will, so far as possible, aid them in securing accommodation.

Importation of Plants, Bulbs, etc., into the U.S.A.—Modifications have been made in the U.S.A. Plant Import Regulations (Quarantine No. 37) since the visit to America by Mr. W. G. Lobjoit, Controller of Horticulture of the Ministry of Agriculture, in May last. These modifications extend the period during which Rhododendrons may be imported under permit, restrict the sizes of Rose stocks admitted, and modify the requirement as to removal of soil from the roots of plants so as to allow the use of other means beside washing. On October 30, 1922, a conference was held by the Federal Horticultural Board with representatives of the bulb interest. A list of bulbs which it was proposed should be added to the list of bulbs permitted to be imported was presented to the Conference, and after considerable discussion the list was reduced to the following:—Allium, Anemone, Begonia, Chionodoxa, Dielytra, Fritillaria Meleagris, Galanthus, Gladiolus nanus, G. cardinalis, Gloxinia, Iris, Montbretia, Muscari, Ranunculus, and Scilla.

Royal Botanic Society's Gardens.—We learn from the *Quarterly Summary* of the Royal Botanic Society that certain of the greenhouses in the gardens are being rebuilt. These include greenhouses Nos. 8, 9, and 10, and the work on No. 8 house is nearly completed. Movable staging is being erected in place of the old fixed stages. The Museum has been redecorated, and a small committee has been appointed to rearrange the collections. A portion of the Museum is set apart as a library. We learn that, owing to the drought of 1921 the fine colony of Lathraea clandestina in the shrubberies near the fence by the lake, which was illustrated in *Gard. Chron.*, May, 1907 (Fig. 126), has almost disappeared.

Richmond Flower Show.—We are glad to know that the show of the Richmond Horticultural Society held in 1922 was a great success, which is all the more encouraging, seeing that the exhibition of 1921, owing to the unprecedented drought, was almost a failure and resulted in considerable financial loss to the society. Special efforts were made last year to augment the funds, and an entertainment committee raised £106. Last year's exhibition was visited by over 3,000 visitors, and the entries numbered over 400, which was a record. At the annual meeting, which was held on Thursday, the 11th inst., the hon. secretary, Mr. W. W. Oakes, stated that they had paid all they owed and had a balance in hand. Mr. L. R. Russell, who has been a member of the committee for thirty years, was re-elected chairman for the ensuing year. The show for 1923 was fixed for Wednesday, July 11.

Worcester Auxiliary of the Gardeners' Royal Benevolent Institution.—During 1922 the Worcester and District Auxiliary of the Gardeners' Royal Benevolent Institution raised a sum of £115 for the parent institution, bringing the total contributions from the auxiliary since it was instituted to £2,500. During 1922 a sum of £62 was raised from visitors at Madresfield, Davenham and Ynys-y-Maengwyn gardens, which were kindly thrown open by the respective owners on behalf of the institution. The president of the auxiliary is the Right Hon. Earl Beauchamp, K.G.; the hon. treasurer, Mr. John White, Rupert Villa, Lower Wick, Worcester; and the hon. secretary, Mr. P. G. White, 51, Broad Street, Worcester.

Foul Brood in Bees.—The Ministry of Agriculture has issued a leaflet, No. 32, on foul brood, a disease affecting bees which spreads so rapidly by contagion that, in a single season, unless precautions are taken, the colonies in a whole neighbourhood may become affected. According to this leaflet two forms of foul brood have long been known to exist in Europe, a virulent or strong smelling, and an odourless form. A third type has recently been added; this is called sour brood, and it has usually been found associated with the strong smelling type. In the first two forms of foul brood, microscopic rod-shaped bacilli are present; these bacilli increase by cross-division, and have, under certain conditions, the power of forming spores. When stocks are found to be weak and are working languidly, with little desire to fly, foul brood may be suspected. In endeavouring to get rid of foul brood, efforts must be made to raise to a high standard the lowered vitality of the bees, which first enables the germs of the

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disease to develop. When the bee-keeper has been in contact with diseased stocks, the appliances used, and also the hands, should be washed with carbolic soap, or with a solution of one ounce Calvert's No. 5 carbolic acid in 12 oz. of water. Before washing the appliances and the hands with the disinfectant, all propolis, which is insoluble in water, must be removed by rubbing with a small piece of cloth saturated with methylated, or other, spirit. When the disease is discovered in a weak colony, the destruction of bees, combs, frames, and quilts, together with a thorough disinfection of the hive, is by far the best course to pursue. The spores are then destroyed, and the source of infection removed. The bees may be killed by pouring ½ oz. of saturated solution of cyanide of potassium into the brood chamber of the hive, turning back a corner of the quilts for this purpose, having first taken the precaution of seeing that the quilts fit properly, and also that the entrance is securely stopped up with earth to prevent the escape of the fumes. Another method is to sprinkle powdered sulphur on the fuel in the smoker, see to the quilts and block up the entrance with earth, as described above, then make a hole through the earth just large enough to admit the nozzle of the smoker so that the sulphur fumes may be blown into the brood chamber until all the bees are suffocated. When the bees are all dead destroy the combs, quilts, and dead bees by burning. This is best accomplished by digging a hole in the ground eighteen inches deep and one yard in diameter, in which the material is burnt. When this is reduced to ashes fill in the hole with earth so that the possibility of infection is entirely removed. Both these operations must be carried out at night, when the bees have ceased to fly. The hive should then be disinfected by scorching the interior with a painter's blow lamp, or, failing this, the interior should be painted with petrol or paraffin oil, which, when lighted, will disinfect by scorching the surface of the wood. After the outside has been well painted with oil paint, the hive will again be ready for use. In the case of mild attacks disinfection or fumigation may be resorted to with success, formaldehyde being the chief agent used. To accomplish this, tack a sponge or piece of flannel on the back of the division board and soak this every six days with 1½ oz., 40 per cent. formaldehyde, at the same time keeping a continuous supply of two balls of naphthaline in the brood chamber of the hive.

Help for the Gardening Charities.—Mr. W. Auton, of Pyrford Court Gardens, Woking, has raised £42 on behalf of the Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund. Mr. Auton held a whist drive to obtain money for expenses in connection with an entertainment held on January 11. The profit on the whist drive amounted to £7 17s., so that the whole of the money from the entertainment, as well as a small balance from the whist drive, was available for the funds. The entertainment was advertised in the local parish magazine, and both Lord and Lady Elvedon took a keen interest in the scheme, providing material from the garden for sale on a stall, besides contributing oddments for a rummage stall. The entertainment was a great success, and included a Punch and Judy show for the junior visitors, a musical entertainment, dancing and various competitions. The profits were divided equally between the two charities.

Rouken Glen Park, Glasgow.—Glasgow Corporation has decided to form a pond in the Rouken Glen Park. The pond, which is intended for rowing and motor boats, will cover five acres, and will cost approximately £11,500, exclusive of the erection of a suitable boat-house, etc. The Government Unemployment Grants Committee have announced a grant towards the scheme equal to 60 per cent. of the wages bill up to a limit of £2,850. It is calculated that the work will yield employment for between 100 and 150 men.

Various Trials at Wisley in 1923.—The Royal Horticultural Society will carry out at Wisley during 1923 trials of Dwarf Tropaeolums, Sweet Peas of carmine, deep pink, cerise, salmon and orange shades; Brussels Sprouts, Kales, Carrots (in the open), Climbing Beans, Onions, Vegetable Marrows and Cucumbers. Seeds should reach the Director on or before January 31, 1923.

Mr. Amos Perry.—Throughout the whole of his business life, Mr. Amos Perry, of the Hardy Plant Farm, Enfield, has been associated with herbaceous plants, alpines and hardy Ferns. After leaving Tottenham Grammar School, he entered Messrs. T. S. Ware's famous nursery at Hale, where he served a full apprenticeship and passed through the various departments, including those dealing with bulbs, seeds and sundries. Like his father before him, who was also for a long period associated with Messrs. T. S. Ware's business, Mr. Perry has an especially wide knowledge of hardy plants, including species, as well as the florists' varieties of the more popular groups of border flowers. It will be remembered that the late Mr. A. Perry, Sen., commenced business on his own account at Winchmore Hill. This increased so rapidly that it soon became necessary to take

MR. AMOS PERRY.

a larger acreage of ground to meet the increasing demands; consequently, about twenty years ago a considerable area of land was taken at Enfield, where about twenty-five acres are under cultivation, and contain one of the finest collections of hardy plants to be found in the country, and whence, before the American Quarantine Order came into force, many thousands of Delphiniums, alpines and other hardy plants were sent annually to the United States. For many years, and before Irises became so popular with growers, Mr. Amos Perry made a special hobby of these beautiful flowers, and he has raised many thousands of seedlings, several of which have obtained awards from the Royal Horticultural Society. On the occasion of his visits to the Iris Conferences in London and Paris last year, Mr. Wister, President of the American Iris Society, visited Mr. Perry's nurseries and subsequently expressed himself as "perhaps more astounded by Perry's seedlings than anything else I saw on my trip, for he has as wonderful a patch of seedlings as anything I have ever seen, all of extraordinary height and good form." From this it will be gathered that, in the opinion of experts on both sides of the water, Mr. Perry is among the most prominent of raisers of these popular flowers. In 1914 he commenced to hybridise Liliums, and has succeeded in raising many distinct forms, including L. hybrida Amos Perry, L. gloriosum and L. pardal-Parryi, all of which have received recognition from the Royal Horticultural Society, and there are many other promising seedlings yet to be placed before the public. Another successful part of Mr. Perry's work has been among Oriental Poppies, and of these no fewer than eleven have obtained the Royal Horticultural Society's Award of Merit, including such popular sorts as Mrs. Perry, Queen Alexandra, Perry's White, Mrs. Marsh, and Lord Lambourne. Any mention of Mr. Perry's activities would be incomplete without reference to the extraordinarily fine collection of hardy Ferns he has brought together, including a number of his own raising. Few plants are more beautiful than Perry's No. 1 and No. 2 varieties of the plumosum forms of Polystichum angulare. For many years Mr. Perry has been a regular exhibitor at the principal London and provincial exhibitions, and in 1916, at the Holland House Show, he was awarded the Coronation Cup for the most meritorious group, in addition to a Gold Medal for perennials and a similar award for hardy Ferns. In addition to those already mentioned, Mr. Perry has distributed such fine plants as Achillea Ptarmica Perry's White, Aster Amellus Mrs. Perry, Coreopsis grandiflora Perry's White, Geum coccineum Mrs. Bradshaw, Helenium autumnale pumilum magnificum, Phlox canadensis Perry's variety, Dianthus Miss Gladys Cranfield, Spiraea venusta magnifica and Stokesia cyanea praecox purpurea.

Royal Gardeners' Orphan Fund.—The annual general meeting of the Royal Gardeners' Orphan Fund will be held at "Simpson's," 100, Strand, London, W.C., on Thursday, February 8, 1923, for the purpose of receiving the report of the committee and statement of accounts for the past year; to elect officers for the ensuing year; to elect fourteen children to the benefits of the Fund; and to transact such other business as may arise. The chair will be taken at 4 p.m.

New Lake at Epping Forest.—Near Whipps Cross, on the edge of Epping Forest, the Corporation of the City of London is converting a considerable area of swampy land into an ornamental lake, which will serve for boating in summer, and possibly for skating in winter. This work is part of a scheme for reclaiming waste forest land, and has been put in hand to provide employment for several hundred men. The new lake will be within the boundary of the Borough of Walthamstow and in the part of the forest nearest the City of London.

Sophronitis Lowii. — The illustration in Fig. 20 represents the pretty and very distinct Sophronitis Lowii for which Pantia Ralli, Esq., Ashtead Park, Surrey (Orchid grower Mr. Farnes) received an Award of Merit at the Royal Horticultural Society on January 16. The flowers are clear chrome yellow and freely produced. Sophronitis Lowii was introduced by Messrs. Stuart Low and Co., who showed it on several occasions in 1908 and succeeding years, generally in February and March, when it was always an object of interest. The question of its standing as a species or a variety of S. grandiflora has frequently been discussed, and the weight of the opinion in favour of it being classed as a species has confirmation in the recognition of the R.H.S. Orchid Committee. The genus Sophronitis is a small one, and while S. cernua and S. violacea have well-defined, unmistakable characters, both in plant and flowers, the section now commonly known as S. grandiflora, and which shows great variations, has presented difficulties which even the best authorities have failed to elucidate. Reichenbach regarded the type as S. coccinea and separated the long-bulbed form now known as S. grandiflora, calling it S. militaris. The purple form known in gardens as S. grandiflora purpurea, he also gave specific rank as S. purpurea. Rodriguez distinguished the yellow form known in gardens as S. grandiflora Rossiteriana as S. Rossiteriana, and on these lines of general recognisable difference such classification renders identification of the type simple. It would be interesting to test by home-raised seedlings how the sectional characters originated. The various Sophronitis in cultivation are chiefly from the Organ Mountains of South America and are cool-house plants.

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Forthcoming French Exhibitions.—The Société Centrale d'Aviculture de France is holding its annual exhibition in Paris from February 15 to 20, and there are to be classes for agricultural and horticultural produce, fruits and vegetables. The horticultural classes will comprise ornamental foliage plants, flowering plants, cut flowers, fresh and dried fruits and vegetables, etc. Two prizes, each of 500 francs, will be awarded, one in the plant, and one in the fruit and vegetable section. During the first four days of March, an exhibition of agricultural and horticultural produce will be held on the Allées de la Liberté at Cannes. There will also be classes for brandy. Olive oil, Orange flower water, honey, and other specialities of the Alpes-Maritimes. The exhibition will be followed by a fair, which will last ten days.

Appointments for the Ensuing Week.—Monday, January 29, British Florists' Federation annual meeting and dinner at the Connaught Rooms. Tuesday, January 30, Royal Horticultural Society's Committees meet; Yeovil and District Allotment Association's lecture. Wednesday, January 31, Mitcham, Tooting and District Horticultural Society's meeting. Thursday, February 1, Manchester and North of England Orchid Society's meeting. Saturday, February 3, Blackburn and District Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Proposed Winter Garden.* We have just seen a circular issued by the Caledonian Horticultural Society the object of which, if carried out to its full extent, would undoubtedly confer on the lovers of flowers one of the greatest enjoyments which it is possible to conceive. It is the formation of a winter garden in their grounds of Inverleith, somewhat on the plan of similar establishments in Paris and London, forming a fine brumal promenade under glass. Here, during the chilly and dreary months of the year, would be brought together all the exotic plants which might come into flower in the various hothouses, and here they would remain while in beauty, giving place to others in succession. A plan, designed by the superintendents, has been approved of generally by the garden committee. It forms an elegant and commodious quadrangular structure, and is so contrived that one side only of the quadrangle may be erected at first, 140 feet in length by 35 in breadth. The heating is to be accomplished by means of hot water conveyed in pipes, and these are to be so disposed as to maintain the interior air at the temperature of the most genial climate. Mr. J. M'Nab proposes to arrange the various flowers so as to give effect to the different colours—a point hitherto little attended to. In short, if this "winter garden" be completed according to the wishes of its promoters, and be properly conducted, it will bid fair to prove as inviting a resort as the picture galleries, so attractive in this city.—*Edinburgh Evening Courant of January* 15. *Gard. Chron., January* 22, 1848.

NOTES FROM GLASNEVIN.

THE absence of prolonged severe frost during the last few weeks has induced many of the earliest flowering plants to open their blossoms. Four Rhododendrons are now flowering, viz., R. davuricum, R. moupinense, R. nobleanum, and R. parvifolium. True, a few degrees of white frost will destroy the open blossoms, but fortunately, all the flowers do not open at once, and the next day's sun brings forth a fresh display. As companions to the Rhododendrons, the early Heaths are admirable and Erica darleyensis is surely one of the most charming of early flowering plants. Erica carnea, too, is very beautiful, and the named forms, such as King George, Queen Mary, Pink Pearl and others are, without question, decided acquisitions to the outdoor garden.

Berberis japonica, one of the finest of the Mahonias and a really handsome shrub, is now bearing its long racemes of yellow flowers. The form of which I write is that commonly known as Berberis Bealei, and is of vigorous habit, preferring, however, a position not exposed to east winds. Berberis nepalensis is another handsome Mahonia, which flowers somewhat later. It has much longer leaves than B. japonica, and is not so hardy. Here it grows vigorously, against a wall, almost too vigorously, as it frequently has to be reduced, yet it is not happy in the open.

Clematis calycina is now very lovely, bearing hundreds of its creamy white flowers adorned with numerous reddish brown spots within. Although it will flourish for years without much attention, where space is limited it pays to thin out the growths severely after flowering. The young, vigorous growths subsequently produced during the summer flower the following winter and spring with remarkable freedom. Clematis cirrhosa is a species of the same nature, but at Glasnevin has never grown with the same vigour. It, too, is flowering now, but the flowers are smaller than those of C. calycina, and are not spotted as in the latter species.

Coriaria nepalensis is a vigorous shrub forming long, arching, Willow-like shoots during summer which in early spring produce long racemes of flowers from every node. From now onwards the racemes are very attractive, as the numerous stamens have a reddish tinge which immediately attracts attention. Some seven or eight species or varieties are grown here, the strongest growers being C. japonica, C. nepalensis, C. sinica and C. himalayensis, the last named having been obtained from a Continental source. Between the three last named I cannot detect any difference, and I think it is probable they are but forms of C. nepalensis.

Galanthus Elwesii is a remarkable fine Snowdrop when well established. A few hundred bulbs, purchased some years ago and planted in good soil in a bed of shrubby Spiraeas, have established themselves and are now flowering well and pushing up leaves like Emperor Daffodils. Crocuses have not been prominent during the last few weeks, but C. Fleischeri has been flowering, and C. laevigatus var. Fontenayi has been a mass of flowers, making a beautiful picture on a bright day—colour light lilac, the outer segments feathered dark purple.

Three attractive blue-flowered indoor plants are Coleus thyrsoides, Eranthemum nervosum, and Pycnostachys Dawei, the last somewhat "leggy," but suitable for standing on the floor of a warm house. The first two flower continually for many weeks, and are useful to give colour in the stove during winter. The Coleus is timed to succeed a batch of Poinsettias (Euphorbia pulcherrima), and is always admired by the public. Euphorbia fulgens planted out in a warm corridor is a revelation compared with pot-grown specimens. There, it forms numerous shoots six to eight feet long and flowers freely, the brilliant orange red flowers making a rare display.

Begonia Luzerne, with large, spotted leaves, and producing handsome pendulous clusters of pink flowers, also flourishes planted out in a warm house, and is rarely out of flower.

Orchids in flower are fairly numerous now and never fail to attract attention. Laelia anceps is one of the most useful kinds flowering in January. The old variety Barkeriana is still interesting and attractive, but excelled now by newer sorts such as Hardyana; Hilliana, white with rose tinting; Dawsoni, and Lady Chesham; many other improved varieties are grown where botanical considerations are not important.

FIG. 20.—SOPHRONITIS LOWII: R.H.S. AWARD OF MERIT, JANUARY 16 (SEE PP. 40, 44).

A fine form of Laelio-Cattleya Luminosa × aurea, presented by Baron Schroeder, has been a source of admiration, as also have L.-C. Isabella, L.-C. Empress Frederick, and L.-C. bletchleyensis × Iris. Calanthes, naturally, are now in flower, notably C. Veitchii and C. William Murray. Coelogyne venusta grown in a basket and suspended from the roof makes a pretty picture with its numerous long, lax scapes of pale yellow, buff-tinted flowers.

Cypripediums (Paphiopedilum) are a host in themselves, and among many others the following are prominent:—C. Leeanum New Hall Hey var., C. Troilus Lord Nelson, C. Boadicea Rosita, C. Minos Youngii, C. Alcibiades magnificum, and C. Arthurianum pulchellum. Bulbophyllum comosum, producing an erect scape terminating in a nodding raceme of white flowers with long, narrow, ciliated segments, is curious and interesting. Sophronitis grandiflora is still one of the most charming of all Orchids, but less well known is S. violacea, with rather magenta-coloured flowers. *J. W. Besant, Glasnevin.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Spathoglottis.—Such species of Spathoglottis as S. aurea, S. Lobbii, S. Fortunei, S. Vieillardii, S. Kimballiana, S. plicata, with the hybrids derived from them, delight in the temperature of the warmest house when in full growth. These plants are often rested too severely, thereby causing a check, which, especially with S. Fortunei and S. Lobbii, may do irreparable harm. The plants should not remain dry for any considerable length of time, but be given sufficient water to keep them plump and healthy. Hybrids now pushing up their flower spikes need watering carefully, for with an excess of moisture there is a danger of the flower spikes damping off and the plants starting into premature growth. When the plants commence to grow they may be repotted in a similar compost to that used for the green-leaved Cypripediums. They should not be potted too firmly. They are not capable of withstanding strong sunshine; hence the necessity of shading them rather heavily during their season of growth.

Mexican Laelias.—Few Orchids compare with these beautiful Laelias and their hybrids for the production of flowers at this season, when those of Cattleyas are somewhat scarce. Their long spikes of flowers adapt themselves to most kinds of decorative work, and once their requirements are understood the plants are of easy growth. They often prove disappointing in the neighbourhood of large towns owing to fogs; but in country districts there are few plants to compare with them at this season. The coloured varieties are the first to open, followed by the white ones. Although not grown to the same extent as formerly, I still think there is room for them, especially the large, highly-coloured forms, such as L. anceps Chamberlainianum, and the white L. a. Schröderiana. As these Orchids delight in an abundance of light and air whilst making their growths the past season has not been exactly to their liking, therefore in some cases the plants may not be producing flowers so freely as usual. When a sufficient quantity is grown, the plants are best accommodated in a house to themselves, so that the proper conditions of growth may be given them. When their flowers are over they should enjoy a short season of rest by keeping the roots dry, and then, when it is observed that they are about to develop fresh roots, any necessary repotting may be undertaken.

Repotting Laelias.—Some time previous to the roots being developed, a number of small outgrowths will be observed on the rhizomes; these are caused by the roots pushing forth, and that stage is the best time to repot them. Good, coarse Osmunda fibre in rough lumps provides the best possible compost, which should be placed in the pans (the best receptacles) quite firmly. Water should be applied with caution until the new roots have grown freely in the new material, afterwards every encouragement should be given the plants to enable them to build up strong and robust growth.

THE HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Apricots.—In the colder districts these fruits are the better for protection. Where planted in unheated cases, the surface of the border will need attention; a sprinkling of spent lime rubble, or, failing this material, slaked powdered lime should be lightly forked in, after which a good watering may be needed. Plenty of ventilation should be afforded at all times. The Apricot is much subject to "die back" disease. Great care should be taken that no shoot is tied too tightly, and that sufficient space is allowed for the bark to swell. Injury to the bark is very detrimental to these fruits, and gumming soon sets in after an injury. Of varieties Moorpark is probably the best. Hemskerk much resembles that variety, and is a good grower and cropper, the fruits being of good flavour. Peach and Kaisha are also good cropping varieties. The tying in of the young wood and a moderate restriction of the spurs should be practised.

Pergolas and Espaliers.—In training fruit trees of this description, prevent the young wood being damaged by the wind rubbing the bark against iron trellises. In spur reduction air space should be allowed for fruits to develop without an undue crop of foliage, the branches being cut back to one or two eyes according to their position. Never permit the bark of fruit trees to come in contact with iron. If wire is used thin sticks may be fixed in position in the case of newly-planted pergola trees to train the shoots over the wires. As the season advances the roots of late-planted trees should be dipped in muddy water thick enough to adhere to the roots. Often trees are taken a considerable distance to their planting station, in a drying atmosphere, from where they have been laid in. We have been very successful in treating lifted annual plants in this way. Preparations should be made, where re-grafting is practised, for undertaking this work. Procure or select the desired grafts, and heel them in the soil in a cool part of the garden.

Raspberries.—In making new plantations of Raspberries the ground should be trenched deeply and manured heavily, as these fruits appreciate deep cultivation and rich surface mulchings. Plant the clumps in rows 6 feet apart, afterwards cutting the stems down to within 1 foot or 2 feet of the ground. Of varieties Superlative still holds favour. Lloyd George is a new large and free cropping variety; it fruits on the young growths, and is both a summer and autumn fruiter.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Solanum capsicastrum.—This Solanum, with its bright fruits, is always popular for winter decoration, and good plants for next autumn and winter may be raised from seed sown at this date in a warm house, or they may be raised from cuttings. The young plants should be stopped several times to promote a bushy habit, and they may be grown in pots or planted outdoors for the summer. If it is desired to retain the old plants, they should be cut back and started into growth in a house having an intermediate temperature.

Ardisia crenata.—This is one of the most useful of berried plants for conservatory decoration, as it keeps in good condition for at least six or eight months and is always attractive with its bright red fruits and dark green, glossy foliage. One disadvantage to its cultivation is the fact that it requires three years from seed-sowing before the plants are a suitable size for decorative purposes; for this reason a successional batch should be sown each year. The present is a suitable time to sow the seeds, and as they are rather hard, their germination will be hastened if they are soaked for twelve hours in warm water, afterwards plunging the seed pots in a warm propagating case. Plants raised from seed sown last year should be shifted into three-inch pots; in their third year they will require five-inch pots, in which sized receptacles they will flower and fruit.

Rivina humilis.—This is another pretty fruiting plant which is useful for the decoration of the conservatory; if seed is sown now, the resulting plants grown on in six-inch pots will make useful specimens for flowering in late summer and autumn. This plant grows well in a house having an intermediate temperature, and its successful cultivation presents no difficulty. It is also easily propagated by means of cuttings, and the plants raised in this way are, if anything, more compact in habit than seedlings.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Tomatos.—Autumn-raised Tomato plants should be ready for shifting into five-inch or six-inch pots, using a light, friable compost with the addition of a little wood ash and half-inch lumps of charcoal. Stand the plants on a shelf in a moderately warm house, and do not over-water them. Place a neat stake to each plant, and tie the stem loosely. Admit air during favourable weather to keep the plants sturdy. Sow a few seeds of an early variety to raise plants for a succession. Slightly cover the seeds with fine soil, water the latter and place the pots in the propagating frame, covered with a sheet of glass until the seeds have germinated, when the pots should be transferred to a shelf in a greenhouse.

Cucumbers.—Where plenty of heat is at command, seed may now be sown to raise plants for producing an early crop. Use small pots and a compost consisting of sifted loam and leaf mould. Place each seed edgeways in the soil, and press it down gently. It is important to emphasise the placing of the seeds edgeways, and the thin end downwards, otherwise they are liable to rot. They will not require water if the soil is moist. Plunge the pots in a mild hotbed made in the propagating frame and cover them with brown paper. As soon as the seedlings are through the soil remove them to a light position and water them with extra care. Place a small stick to each plant as required.

Salad Plants.—Sow a few seeds of Cabbage Lettuce, such as Commodore Nutt or Golden Ball, to raise plants for growing in frames on hotbeds. Germinate the seeds in a warm frame or house. Continue to lift plants of Endive and Chicory, and place them in a dark corner of the Mushroom house, or under the stages in the greenhouse, to blanch. By introducing batches at intervals of ten days or so, sufficient of these salads may be had for use until the Lettuces are ready. Radishes may also be sown in the frames prepared for early crops, on hotbeds. I prefer to sow these in shallow drills by themselves, in small quantities at intervals, as they will stand quicker forcing than some other vegetables. Water the soil with tepid water, and keep the frame closed until the Radishes appear, then admit air sparingly. Mustard and Cress should be sown once a week in boxes of sifted loam and placed in a warm house. Press the seeds into the soil, but do not cover them.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Peaches and Nectarines.—These trees should be pruned and all growths detached from the wires, preparatory to thoroughly cleansing every portion of the house. If the trees are infested with insect pests they should be sprayed with an insecticide before tying out the trees. In training the trees allow the young growths ample space, as overcrowding not only causes the shoots to become weakened, but favours an early attack of red spider. Trees showing signs of ill-health may, in many cases, be brought back to a vigorous condition by carefully lifting the tree, notching at intervals any thick roots devoid of fibres, and inserting a small stone or similar material to keep the incision open. Carefully replace the tree in position on good loam, adding some old plaster rubble and wood ash to the staple. Cover the roots—which should be kept as near the surface as possible—with some new soil, adding a little bone-flour to favour the development of rootlets. A thorough soaking of water will settle the soil, but allow time for further settlement before training the tree in position. Exhausted trees should be promptly cleared out of the house and fresh ones substituted. The borders should be cleared of any loose material and dressed with a concentrated fertiliser and good loam. Young trees that have made extra vigorous growth will not require manure, as it would only tend to promote further grossness.

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If the borders are filled with roots, they are better left undisturbed, otherwise the surface may be lightly forked over previous to adding the loam. Before starting the trees give the border a thorough soaking with water to ensure the soil being thoroughly moistened right through to the sub-soil. At no time should the soil be allowed to approach a state of dryness. Keep the house as cool as possible until the trees are started.

Late Vines.—All bunches of Grapes should now be cut from the vines and placed in bottles of water in the Grape room. In cutting the bunches allow a sufficient length of shoot to ensure the berries hanging quite clear of the bottles. The latter should be filled with soft water, adding a few lumps of charcoal to keep it sweet. Cut out any bad berries, and periodically examine the bunches for the removal of decaying berries. After the Grapes are cut the vines should be pruned and cleaned; if they are free of insect pests, merely remove the loose bark, but if infested with mealy bug and red spider more drastic measures are required. In that case all loose bark on the spurs and main stem should be carefully removed and the vine thoroughly dressed with a suitable insecticide, taking care not to damage the buds during the operation. The house should be thoroughly cleansed and the walls limewashed. Apply paraffin to all nooks and crannies by means of a paint brush; this will destroy any insects which may be hibernating therein. Clean the border and top-dress it with vine manure, pricking this in with a fork as deeply as possible without damaging the roots. The vines should then be rested completely until the house is started again.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Tree Supports.—It is a good plan to examine all tree supports during the winter and make good defects, whether of stake or tying material. Any breakages in pergolas and arbours should also receive attention now while work in general is not so urgent as it will be later. Boughs of special trees that are in danger of splitting away from the main trunk or sagging too low should be propped up from the ground, or secured with chains or wires to higher branches, first giving adequate protection to the bark.

Certain Seeds to Sow Now.—In some gardens Antirrhinums for the summer display are raised from seeds sown the previous August. Where this course is not followed a sowing made now should result in the best of plants if proper treatment be given the seedlings. Sow the seed in boxes or pans, allowing it to germinate on the shelf of a recently started fruit house, or in a gently heated greenhouse. Directly growth is strong enough to allow of handling the seedlings prick them out into other receptacles and grow them steadily, for overheating the house only results in miserable, spindly specimens. As growth develops increase the amount of air, place the plants in full sunlight and early in April they will be strong enough to bed out. Begonias may also be sown now—more especially those of the tuberous-rooted section, as the plants require considerable time to become established. Not having sufficient cuttings rooted of Salvia Zurich we are sowing to supplement the stock, ready for planting at the end of May. A little bottom-heat will hasten germination, though it is not essential. When the seedlings have made four to six leaves they should be transferred to 60-sized pots, then gradually hardened. This scarlet Sage comes so true from seed that cuttings need not be rooted in the autumn, unless it be to perpetuate an extra good form or gain a few days in earliness of blooming. An early sowing of Sweet Peas is advisable now; place three or four seeds in a 3-inch pot. Raise the seedlings in gentle warmth and transfer them, when they are through the surface, to a cool quarter to continue growing slowly until they are planted out-of-doors. An alternative method is to sow several seeds in a 5-inch pot, duly harden the seedlings and plant them separately.

THE ALPINE GARDEN.

SAXIFRAGA KELLERERI.

THE Engleria Saxifrages, as a race, are more notable perhaps for beauty of form, quiet charm, and an air of good breeding, than for any flamboyant brilliance and general decorative value in the garden. They will always be grown rather by folk who love and understand plants, than by those who use plants for their decorative effect. In nearly all the Englerias the petals are conspicuously small. The plants depend for any show they make at flowering time upon coloured bract and sepal and flower stem rather than upon petal.

When Saxifraga Griesbachii, the most showy of all the race, pushes up to flower, it develops a thick arched crozier of crimson-scarlet velvet, in splendid contrast with the brilliant, silver, starfish-like rosette of leaves, and you think "What a glorious flower!" But the petals are so tiny that they are only to be seen on close examination. Hybridists, however, have, during recent years, raised some interesting crosses between Engleria and Kabschia Saxifrages, one or two of which combine the beauty

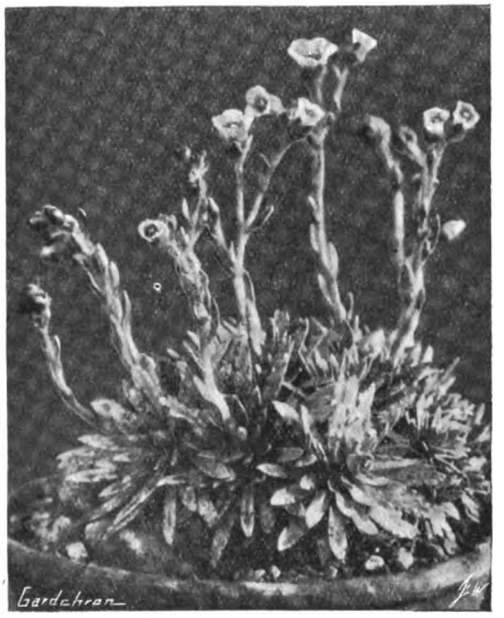

FIG. 21.—SAXIFRAGA KELLERERI.

of leaf-rosette and velvet flower stem of the Englerias, with some of the size of petal of the Kabschia parents. Saxifraga kewensis rosea is a charming example of such a break. It was raised at Kew by Mr. W. Irving, and is own brother to Saxifraga Irvingii. S. Frederici-Augusti was the male parent, and S. burseriana macrantha the mother, and from this union came S. Irvingii, which in effect is a S. burseriana with some of the pink petal colouring of S. Frederici-Augusti, and S. kewensis rosea, which is an Engleria with some of the size of petal of S. burseriana added. But whereas S. Irvingii has multiplied exceedingly and become the popular plant its exceptional charm deserves, S. kewensis rosea is slow of increase, and will always remain a rare treasure.

Saxifraga Kellereri is an Engleria-Kabschia hybrid, rather in the style of S. kewensis rosea. It was raised at the Royal Gardens at Sofia, by Herr Kellerer, gardener to King Boris of Bulgaria, and its parentage is S. burseriana × S. Stribnryi. The leaf rosettes are curiously and handsomely spiky, well silvered, and for an Engleria, they multiply with encouraging freedom. The flower stems, bracts, and calyces are thickly clothed with a velvet fur of soft, glandular, reddish hairs. The bracts are red, green tipped and slightly silvery. The 2-3 inch flower stems are branched, and carry from three to six exquisite flowers, three-eighths of an inch across, with petals of a soft clear Peach-blossom pink. The red velvet calyces are green-tipped like the bracts on the flower stems, and gracefully recurved like the lip of an urn.

Saxifraga Kellereri is perhaps the earliest flowering of all Saxifrages. The specimen illustrated (Fig. 21) was photographed in an unheated Alpine house on New Year's Day, and on January 10, there were still more than two dozen buds to open, and the first flowers were as beautiful as when they were photographed. The Engleria Saxifrages are ideal plants for the cold Alpine house, where they flower to perfection in the first months of the year, and where their quiet charm may best be appreciated. This is not to say they may not be grown, and well grown, in the open air. Sheltered pockets of gritty, limy soil suit the Englerias excellently, or a quiet corner of the moraine. If a position shaded from the south and east can be provided, so much the better, for it is important that the flowering should be retarded so long as possible, and that morning sunshine should not shine upon frosted spikes. The hybrid Engleria Saxifrages cannot be relied upon to come true from seed, and true stock can only be obtained by cuttings or divisions of the true plant. *Clarence Elliott, Stevenage.*

THE BULB GARDEN.

THE GLADIOLUS.

MOST members of the Gladiolus family are natives of Cape Colony. About 1700 Ray mentioned some half-dozen varieties, and Miller, fifty years later, was able to swell the number considerably, and he described thirty or more varieties.

In 1795 Cape Colony was ceded to Britain, and a great impetus was given to the cultivation of Cape plants. Still, the Gladiolus was not prolific in new varieties, and beyond the memorable introduction of G. brenchlyensis, which was raised in Brenchley about 1848 and is still in cultivation, nothing exceptional calls for notice. However, as previously stated, the Gladiolus seems to have jumped into prosperity and popularity all at once. Almost every colour is now available, and with the recent advent of G. primulinus, as a parent, there is a greater range of colour and diversity of flower.

The culture of Gladioli is simple, and practically the same for both the early and late varieties. The former may be planted about February, and the latter during March and April. Although a light soil is preferable, they will do well in somewhat heavy land. Last year I saw some magnificent blooms on plants growing in clay soil, and within five or six miles of London Bridge—blooms which, I am sure, could not be beaten. Let the corms be planted in a sunny position some three inches deep and a foot apart, and keep the weeds down. A little superphosphate added at planting time, is beneficial later. It will be necessary to give some support to the plants if the locality is a windy one.

The corms may be lifted about October, but there is no hurry for this operation because the new corms, which develop on the top of the old one, will continue to increase in size until the parent corm is exhausted and greatly shrunk. The new corms, which will have multiplied considerably, may be dried off and planted in due course. *T. D. T.*

ORNITHOGALUM NUTANS.

IT is now many years since I first met with Ornithogalum nutans in an old garden, where it was cultivated without name, and I was so greatly pleased with it that I lost no time in searching for its name and securing a few bulbs for my own garden. It is particularly pleasing because of the silvery or satin-like sheen on the flowers, caused by the band of palest green which runs down the outside of each segment of the flower. I have not found Ornithogalum nutans increase with the rapidity of O. umbellatum, yet it has certainly increased wherever I have grown it, but not to anything like the same extent as O. umbellatum and some other species. It seems to be absolutely hardy. *S. Arnott.*

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HORTICULTURE AFLOAT.

I HAVE worn the uniform of a sailor and the blue serge apron of the gardener—now I wear them both together; in short, I am a horticultural sailor—or sailor-gardener. My work does not consist in looking after the marine flora of the Atlantic Ocean, neither do I train Ivy up the for'ard mast, as some humorist has suggested. I am merely a sailor-gardener and I tend the garden of the ship—the Cunarder, R.M.S. "Berengaria." I am the standing joke of the ship's company, and when they tell their wives and families that there is a gardener aboard there is a general laugh, for they are not believed. That is why I have been prompted to write this note; to show that, although unique, my position is tangible.

The funny person who pasted on my cabin door a liner surrounded by a water-can, supported by crossed rake and telescope—motto on scroll, *Aqua, Hortus unitas*—apart from his hazy knowledge of languages, has, I think, put the whole matter in a nutshell. Nevertheless, it may interest readers if I outline the routine of work, the class of plants used, and the effects of the elements as well as the treatment of the passengers upon them.

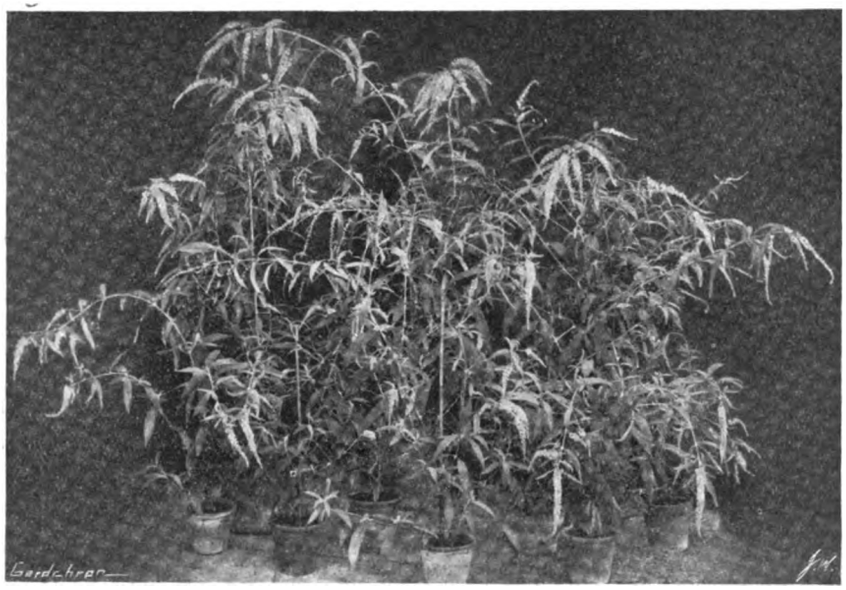

FIG. 22.—BUDDLEIA ASIATICA; FLOWERING IN A GREENHOUSE AT CHRISTMAS TIME (SEE P. 49).

Firstly, I would like to comment on the quiet grandeur of the appointments of the "Berengaria," and the ornate and colourful furnishings. The ship breathes an air of elegance, and her size alone would make her remarkable, as she is 919 feet long, with a tonnage of 52,000. The towers of the Woolworth building, N.Y. City, could be laid cozily to bed in her hold, and that same great size lends palatial dignity to her foyers, corridors and public rooms, and forms a regal background for countless Palms, trees, shrubs and a huge display of flowers.

The main public rooms are the Palm Court ball-room, lounge, library and smoke rooms. All these apartments are liberally supplied with flowers and plants, each having its own definite colour scheme that blends with the character of its appointments.

In the ballroom are four baskets of gilded wickerwork, each containing a Palm, and bright with pink Azaleas peeping out of Fern and Asparagus Sprengeri. Flanking the marble entrance steps stand Phoenix rupicola in tubs, whilst at the further end the eye catches a glimpse of a gorgeous bank of flowers and greenery backed by a latticed mirror. Here will be found pink and white Azaleas, backed by white Chrysanthemums and scarlet Poinsettias, and edged with Erica hyemalis and Asparagus Sprengeri. Around the foot of the marble pillars that support the dome of stained glass are fragrant pink Hyacinths arranged in Moss, and suspended above are baskets of Pteris Wimsettii and Asparagus Sprengeri.

The Palm court contains a goodly collection of interesting and graceful subjects, the larger specimens in brass-bound mahogany tubs, the remainder in fireclay jardinieres. Flanking the central walk are six Kentia Forsteriana, three on either side, all well over 20 ft. high and forming the basis of the decoration. On either side of the two plate-glass entrance doors stand Phoenix rupicola, placed at regular intervals over the floor space, while among the tables and stairs are specimens of Kentia Belmoriana and Phoenix sylvestris, each forming a centre-piece for a group of flowering plants and Ferns. On the pillars are Lapagerias and Solanum Wendlandii, whilst in each corner, supported by a pedestal, is a specimen of Kentia Forsteriana.

The main floral feature of the court is the fountain and marble vase which stands in the centre, surrounded by a marble kerb. Here are to be found Chrysanthemums, Azaleas, Begonias (Gloire de Lorraine), Ericas, Hyacinths, Tulips (Duc van Thol), standard Conifers, Ficus elastica, Araucaria excelsa, and Ferns of many kinds. This centre-piece, together with the four groups against the four walls, create a pleasing effect under the graceful leaves of the overhanging Palms.

In the lounge there are table plants, and around its concert stage are tall Codiaeums, Kentias, and a bank of flowers. The band-stand in the saloon is similarly treated, and the numerous other public rooms in all classes are supplied with table plants and freshly cut flowers.

On the grand staircase there are Bay trees in tubs, standards (tall and short), pyramids, and bushes in all shapes. On each landing there is a group of flowers, and Palms by each elevator gate, whilst dotted about the landing square are numerous examples of Box and Laurels in tubs.

The private suites are all liberally furnished with plants, and each state-room has its vase of fresh flowers; incidentally, each dining-saloon table has its flowers, and there are plants and foliage on the buffets and side-boards. The table flowers and special decorations come under my charge, and during the busy season form a very large item in the day's work.

The wind does not affect the plants a great deal, neither does the sea air, as both of these are practically excluded. The main trouble is rough sea. If the ship has a tendency to pitch or roll, the larger subjects have to be lashed up and the smaller ones blocked and weighted. Of course, should the heavy sea start during the night, the possibilities are that Palms get mixed up with tables and chairs in a corner, and other plants are found gyrating around the deck. But such happenings are very rare with the "Berengaria," as she is remarkably steady in the roughest of seas and seldom rolls at all. The atmosphere is responsible for a great deal of damage. Roses, for instance, die in a few hours in the heat of the saloon. Carnations and Chrysanthemums are the most suitable flowers for such work, and are used as largely as possible, although, unfortunately, Roses are usually present in most of the private bouquets and baskets that are put under my care for the voyage.

The little Ferns in small 60's, which I have in the saloon on the tables, are very difficult to preserve. Asparagus Sprengeri, too, is a trifle troublesome, as it is apt to turn yellow and drop its leaves. The most useful table plant is the good-tempered Aspidistra. It stands any amount of rough usage, and is largely used in the third-class dining saloon, where it receives the attention of both waiters and passengers, who give the plants liberal supplies of coffee dregs, tea leaves, the drainings of beer bottles—in fact, any useless liquid usually finds its way into the pots of the long-suffering table plants, and still the Aspidistras look pleasant, whilst their less fortunate neighbours expire without protest.

The Palms are sponged before each trip, and the Bay trees receive a spray of soft soap, washed off with scented disinfectant, as germ-carrying dust readily accumulates on the leaves.

The roots of Bay trees require a lot of water, and during the trip are attended to twice daily. They stand the heat very well indeed, and give the stairways and corridors a fresh and bright appearance at all times. As a manure I use Clay's Fertiliser at the rate of two teaspoonfuls to the two-gallon can, dissolved in the water, for the flowering plants and Ferns, every third day, and as a top dressing to the Palms and Bays once every trip.

The Bay trees on the main companion-way receive other feeding in the form of matches, cigar and cigarette ends, but whether these have a beneficial effect or otherwise I cannot say.

However, my job is "not too bad," and with great care I usually manage to make my supply of flowering plants last the eighteen days' voyage, and that is all that is required of me as sailor-gardener to the largest liner in commission. *W. H. Lampard.*

DAPHNE CNEORUM.

THIS Daphne is one of the very best low-growing shrubs. Its dark green foliage and terminal heads, smothered with bright rose-coloured flowers with a powerful fragrance, attract the attention of everyone when the plant is in bloom. Nothing is more beautiful in the rock garden; it is equally good when grown in a border. In a garden of which I had charge in North Hants, the soil was a dry, sandy one, inclined to peat. There this Daphne grew amazingly well, many patches, three to four feet across, filling the air with the strong perfume. No plant I know dislikes chalk or lime more than this Daphne.

In the West I could not get it to grow through the garden being on the side of a chalk hill, the water from the chalk soaking into the soil. I had large holes made in some beds, filling these with peat and rotted leaf-mould. In this they made a fair amount of growth for a couple of seasons, then they got into a bad condition, neither dying nor growing, so I gave up their cultivation.

When the plants get aged and worn lay the tops of the young shoots in sandy soil, leaving them for two or three years, when they will make fine young specimens. I always found when the plants had attained age they transplanted unsuccessfully, whereas young ones soon establish themselves after re-planting. *J. C. F.*

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INDOOR PLANTS.

LAPAGERIAS.

ALTHOUGH these beautiful, evergreen plants were introduced many years ago from Chili, they are still amongst the most useful of indoor climbers, their deep rose, crimson, and pure white bell-shaped flowers, borne in dense clusters, producing a fine effect when hanging from rafters of a cool greenhouse or conservatory. The plant succeeds best when planted in a good depth of soil composed of a mixture of large pieces of fibrous peat, a little light turfy loam and silver sand, with pieces of charcoal if procurable; the loose, fine soil should be removed by passing it through a fine sieve. Provide good drainage, using large, clean, broken crocks, bricks, and lumps of charcoal at the bottom, strewing over these materials smaller crocks until the large ones at the bottom are just concealed, then cover the drainage with a layer of the large lumps of turfy soil. The plant may then be inserted; next place another layer of rough soil all around the crown of the plant; spread out the roots, being careful not to bruise or break them. Add another layer of soil and press it well about the plant, then place the final layer of compost, pressing it firmly, and leaving the surface level. Water the soil moderately at first, but when the plants are established they should be given copious supplies of water. It is advisable to give the roots a good watering every spring because they sometimes become dry underneath if the border is well drained.

The plants require to be well shaded from the sun and given plenty of moisture.

The winter or early spring is the best time to plant them, as that allows an opportunity for the soil to settle before growth commences and fresh roots develop.

Good specimens can be grown in pots or tubs, but the difficulty of growing them in pots is that they make an abundance of strong roots, and the points of these are so tender that they soon find their way through the drainage holes, and almost invariably die off as soon as they become matted together in the drainage.

For planting, select strong, healthy specimens with good crowns; these will soon throw up young shoots. When the shoots become 3 inches to 4 inches high tie them to strands of rough, soft twine; they will cling to the twine and soon run up the rafters or roof of the house. The red and white varieties grown together give a fine effect in the conservatory when in flower. L. r. alba has lovely, pure white flowers that are invaluable for the making of wreaths and other floral designs. L. rosea has deep rosy red flowers. L. rosea superba is a bright crimson variety. There are several large, richly-coloured sorts; one of the best is the Nash Court variety, which has extra large, brilliant crimson flowers. Many growers have an idea that the white Lapageria is more difficult to cultivate than the red form, but that is erroneous, as the white kind is as free flowering and vigorous as the red. The red varieties may be increased by seed, but seedlings cannot be relied on to come so fine as the original. L. r. alba does not come true from seed; the seedlings of this form invariably develop flowers of a blush colour, proving that it is a sport from the red. When the two forms were crossed the result was not a success, for the progeny produced blooms of light pink shades.

Lapagerias are difficult plants to increase by cuttings on account of the wood being so hard. The best plan is to propagate them from layers. Select well ripened shoots, bend them down to the soil, twist them round carefully, taking care not to break the shoot, with the object of checking the flow of the sap, and inducing the layers to take root at the eyes; peg the shoots firmly to the soil, cover the eyes and a small portion of each leaf with silver sand, then bury the whole shoot with sandy soil until the leaf when erect is quite two-thirds covered, only leaving a small portion showing above the soil. Press the latter firmly to make the layer secure, then give a good watering to settle the soil.

It is not advisable to resort to tonguing or slitting the shoots, as the branches are too brittle for that operation. In layering do not select strong shoots, the medium-size ones giving the best results; only an eye here and there will throw up growths.

The plants will succeed in a cool, shaded part of the house. Fumigate the house occasionally to keep down thrip and green fly; the latter is fond of the young, tender growths and soon cripples them. A winter temperature of 40° to 45° suits Lapagerias well.

The Lapageria has not proved itself amenable to hybridisation. There is one very remarkable bigeneric hybrid named Philageria Veitchii, which was raised from Lapageria rosea, crossed with pollen of Philesia buxifolia. In habit this hybrid is intermediate between the two parents, though rather more akin to the female than the male. *John Heal, V.M.H.*

BUDDLEIA ASIATICA.

I AM sending a photograph (see Fig. 22) of a group of plants of Buddleia asiatica, grown in these gardens, as I hope it may interest readers of the *Gardeners' Chronicle*. This plant does not seem to be very well known, and considering its grace and the fragrance of its flowers, also that it is a good plant for room decoration, it deserves to be more widely grown.

The plants illustrated were raised from cuttings rooted in April. They were grown on and gradually hardened off in a frame, but during the summer the lights were left off entirely so as to expose the plants to full sunshine and air It is best to plunge the plants, as this prevents the roots from drying too frequently. At the end of the summer the plants were placed in a warm greenhouse, where they commenced to flower in December. We have also one plant trained against the back wall of the greenhouse, and this gives us a quantity of spikes (Fig. 23) for cutting for house decoration. *Geo. Ellis, Wykeham Abbey Gardens, Wykeham, Yorks.*

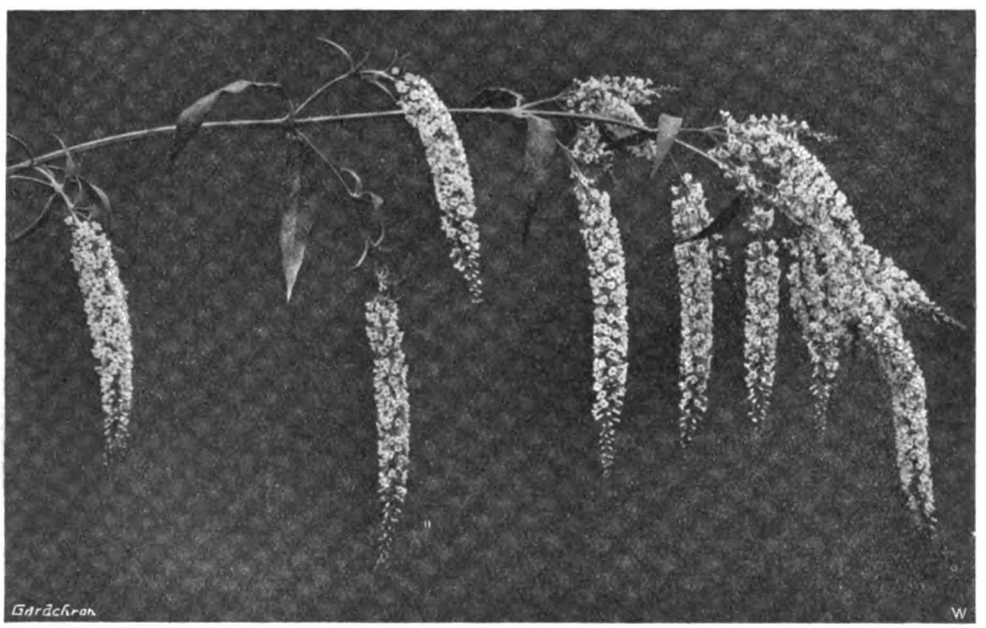

FIG. 23.—BUDDLEIA ASIATICA; FLOWERING BRANCH.

PELARGONIUMS FOR WINTER FLOWERING.

THE present is a suitable time to insert cuttings of Zonal Pelargoniums intended for flowering indoors in winter. The cuttings should be inserted singly in small, 60-sized pots, standing them on a shelf near to the roof glass. When rooted and growing freely, the tips should be pinched out. Their next shift should be into 48-sized pots, when they may be stood in cold frames. During the summer they should be grown in the open on a bed of ashes, in a sunny situation, where the wood will get well ripened. Their final shift should be into 6-inch pots. The compost for this potting should consist principally of rich loam of a medium texture, as this rooting medium favours the development of firm growth, which is important for winter flowering. In the immediate neighbourhood of London, Zonal Pelargoniums are hardly worth growing for winter flowering, as one night's fog is sufficient to ruin them. *J. C.*

RED FLOWERED PLUMBAGOS.

THROUGHOUT the dull period of the year every flower is valuable, and none more so than those that are red coloured. For this reason Plumbagos of the P. rosea group are useful. Instead of flowering in clusters like P. capensis, the so-called "scarlet" kinds produce long, slender spikes. From spring rooted cuttings the number of growths will average about five, and they will be about three feet tall. The usefulness of the plants and also the spikes when cut, for house and table decoration, is considerable, for few flowers remain fresh longer. But when required for any special occasion in either form, they must be given twenty-four hours in which to become acclimatised to their surroundings. The reason for this is that very soon after being taken from the flowering house, the spikes assume a very dejected look, and the individual flowers practically close up, but after the time stated they fully recover.

The stove of pre-war days used to be considered essential for these Plumbagos, but experience has proved that a house ten degrees lower in temperature leads to better results, as it is impossible to keep young plants a reasonable height in a hot and humid atmosphere.

After flowering the growths should be cut well back. When they show signs of breaking into growth, spraying overhead acts as an encouragement. Cuttings root readily in sandy soil, over a bottom heat of about 65 degrees. As nothing is to be gained by over potting, the young plants may be placed direct into the pots they will flower in. For strong, single specimens five inch pots are large enough, but, if weak, two, or even three, may be placed in a six inch pot. A mixture of good loam, leaf mould, and sand makes a good compost, and it should be made fairly firm in the pots, over a moderate drainage. Up to July the plants do best in a light position in the heated house, but after then, to about the end of September, no more protection than a cold pit affords is needed. The growths may be stopped, according to their strength, up to the middle of July, although for late struck cuttings it is not advisable to repeat the operation more than once. During very bright weather a slight shading is desirable. A free circulation of air without draughts, and a fair amount of atmospheric moisture, promote sturdy growth. The flowers of P. rosea are deep rose; P. r. superba is much richer and brighter, and P. coccinea is a slight improvement on the last. *Grower.*

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. VII.—To the Sho-lo River.

OUR next journey was over the western range to the Sho-lo river. Indeed, I had hoped to reach the snow peaks of Kang-ka-li, which are so conspicuous from the summit of Mu-li cliff; but, owing to the hostile attitude of the Mantzu tribes who inhabit that country, we were unable to cross the Sho-lo river.

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Before beginning the real ascent of the range, we had to get beyond the spiked cliff, which breaks through it like the scaffolding of the world itself. To do this, we crossed first of all a lofty spur, and then plunged down into a profound ravine, filled with forest trees. On the limestone cliffs grew the Suffruticosa Primula discovered last year (K.W. 4275), but it was already over. Its flowering season is from mid-April to mid-May. I hear that Mr. Rock, an American botanist who is spending the season at Lichiang, has found this plant on the west flank of the Lichiang range.

Most of the Suffruticosa Primulas are found at comparatively low altitudes, not above 10,000 feet, as a rule. The only one I recall from a more lofty height is P. pulvinata, which I found at over 12,000 feet on the Mekong-Salween divide.

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These downs were aglow with dwarf Rhododendrons, though the species represented are few.

Descending the west flank of the range, towards the Sho-lo river, we at once entered the forest, where small tree Rhododendrons were conspicuous. R. croceum ("Lemon Bell") was just coming into flower. A shrub with pink flowers, almost over, appeared to be "Silver Rose" (K.W. 4177; maybe R. Roxianae), but was, perhaps, a different, though closely allied, species. Rhododendron "Giant Rose" (K.W. 4211) was over.

Under the trees were patches of the new Nivalis Primula (K.W. 4181), which I understand has been named P. Corianum, in honour of Mr. Reginald Cory; but it was not yet in flower, though in 1921 I found it in flower abundantly on June 5. In a marsh, a single plant of P. conica was already in flower.

In this region, to the east of the Yang-tze, with its dry winters, Muscaroid Primulas abound. Last year I found at least seven species, as against a single species I can recall on the wet ranges above the Mekong and Salween rivers. Professor Balfour remarks that the hairy leaves are a warning that damp in winter will be resented, and the distribution seems to bear this out. For the same reason they are never likely to be very popular at home, because never quite hardy; though their quaint beauty, rich colouring, and exquisite fragrance must appeal to all.

We camped in the forest on June 4, and here I found masses of Paeony, growing in deep shade, with flowers of a fine rose-pink colour. The species is new to me. A few Liliaceae—spp. of Oligobotrya, etc.—also grow in the thin undergrowth. In the dry Oak forest, also, I found another Intricatum Rhododendron with deep violet flowers, differing in foliage from another very similar species. There is no doubt that the Intricatums of this region are very difficult, and far more numerous than a superficial survey would lead one to suspect. Indeed, so far as my experience goes, they are the only really big group of Rhododendrons in this forestless country, the Campylocarpum group being a very poor second. The difficulty is greatly increased by the impossibility of deciding what characters are of specific value, where so many are variable. With half a dozen fluctuating characters, we find permutations and combinations of all six, proving, I think beyond a doubt, that crossing is going on all the time, as, indeed, it could hardly fail to do. But that does not help us in the least.

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Of one thing I became convinced in the field—and I examined scores of specimens—the length of style, by itself, is not a specific distinction. There are long-styled and short-styled plants of undoubtedly the same species; in other words, some of the Intricatum Rhododendrons are heterostyled, as in Primula, though the stamens are always of the same length, and in the same position. I have specimens to prove it.

On the other hand, length of style, taken in conjunction with other characteristics, may be a valuable diagnostic mark. There are species with short styles, with medium styles, and with long styles; with and without silver scales on the under surface of the corolla, etc. The subject is too technical for a traveller's description of the country and its flora. It requires an expert to unravel it, and I will leave the field to such an one, with the above indications and suggestions for his guidance—or confusion!

I may add that the Intricatums found on the limestone cliffs at lower altitudes, such as "Limestone Beauty" (K.W. 4341 or 4486), are not included in the above remarks. Of these I found about three species, bringing the total up to fifteen Intricatum Rhododendrons—that is, if all my Intricatums *are* Intricatums and not Lapponicums or something else.

On June 5 we came down through the lower forest belt, where the hairy-leafed Campylocarpum Rhododendron was abundant, though not a flower remained, and so to the arid, treeless gorge of the Sho-lo river. Being unable to cross, we retraced our steps to the summit of the range next day, but, instead of descending direct to Mu-li, went round behind the great cliff, which is cut in half, from north to south. Amongst the dwarf Rhododendrons were two species of Caragana, one very spiny, with cream-coloured flowers, the other with bright gamboge flowers. Meconopsis lancifolia (K.W. 4008) was also in flower on the sheltered, grassy slopes. Here the specimens all have six or seven petals. Just a month later, in another locality, I found what was presumably M. lancifolia, but in this case the petals were invariably four only. Both are limestone plants, though the Mu-li variety grows on other rocks as well.

FIG. 24.—RUBUS ROBUSTUS (R. ODORATUS × R. NUTKANUS).

In the woods on the side of the cliff I at last found in flower a Rhododendron I had long been seeking—the hairy-leafed Campylocarpum. I had found foliage of it in 1921, but failed to secure any seed, though I collected a little of last year's seed this year. Here it was in flower at last, though nearly over; rather small purple flowers, with a darker patch inside. Nothing very wonderful, and, anyway, it is quite common.

We got back to Mu-li on June 11, to find the woods full of flowering shrubs—pale pink Lilac, snowy masses of Deutzia, Philadelphus, Roses, Honeysuckle, etc. On the rocks, Daphne calciola in orange cloads, Primula pulchella, and splashes of pink Androsace spinulifera were noticed. *F. Kingdon Ward.*

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 22, May 6, May 20, June 3, June 17, July 1, July 15, July 29, August 5, August 26, September 9, September 23, October 7, October 21, November 4, November 18, December 2, December 16, December 30, 1922, and January 13, 1923.

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TITHYMALS.

THE Euphorbiaceae is of interest to a larger section of the community than to gardeners merely. There is the Box, Teak, Cassava, Cascarilla, Castor-oil plant, Croton, and, besides others, the Manchineel (Hippomane Mancinella), the subject of many legends.

The plants of this order that are of most interest to gardeners are mostly inhabitants of the stove—Codiaeum, Acalypha, Poinsettia and Euphorbia. E. splendens, which is remembered as a source of dread, used to be pushed into a corner of the stove, as far out of the way as possible, for fear of its poisonous spines. E. fulgens never fails to excite admiration, and is one of the least difficult to grow. It is easy to propagate from seeds, cuttings of the ripened shoots, or, as I liked best, the young green shoots, which rooted satisfactorily in a sand propagating bed. At one time I grew it as large plants for room decoration. These were cut back, and when in flower had attained a height of six feet, carrying several long, curving sprays. These were also useful for vase-furnishing and for table decoration. There are, too, a few hardy species, of which E. polychroma is probably the best for the rockery, and E. Cyparissias is by no means to be despised, for not only is it pretty when in flower, but right up till autumn the changing colours of its foliage attract attention. The gentlewomen gardeners of the seventeenth century knew it by the name of "Welcome to Our House," while in the South of Scotland it is still designated "Garden Little Gude," to distinguish it from E. helioscopia, which, along with other names, has that of Little Gude. The sap of this weed has been esteemed for so long as a specific for removing warts that it seems strange it should bear a name of such opprobrious meaning, for that, too, is an appellative bestowed on the Enemy of Mankind; but the other name of Deil's Milk leaves us no means of escaping from the conclusion that it must be so.

Another species that seldom fails to appear annually here is E. Lathyrus, which, along with E. Pithyusa and the above-named, were for centuries held in great esteem by the physicians of long ago, and later by the empirics, their successors. It is true that we do not find them under the names they are known by in our times, yet the old and superseded Solsequium is not different from helioscopia, which Lyte Englished in "Sunturner." E. Pithyura, again, is always noted by the name of Esula, assumed to be an extended form of the termination of Pithyusa. It was an extract from the root—or, rather, the bark of the root—of this plant that was used, and not the sap. Still, *The Garden of Health* informs its consultants that it could be used similarly to other Tithymals—a very old general name for the genus. It was the seeds of E. Lathyrus that were valued, and it was called Cataputia, a name which Chaucer Englished in Catapuce, when he tells us how Dame Pertelot advised her husband to partake of its seeds to overcome his melancholy. Later it was known as Spurge, from the old French *espurge*, a curious illustration of how a foreign name has been substituted for the English Purge.

In this connection Gerard, in his usual distinctive manner, relates an experience he had with E. Paralias which illustrates this point, and remains a warning to others against partaking thoughtlessly of even a small quantity of the sap. He states: "I took but one drop of it into my mouth, which nevertheless did so inflame and swell in my throte that I hardly escaped with my life." He finally got relief on riding in haste to a farm-house, where he drank milk. It may be noted as an interesting fact that Lyte makes mention of E. Characias being "founde in the gardens of diligent Herboristes," along with E. Cyparissias and E. Peplus.

In old books on bees objection is made to plants of Box being allowed to grow near hives, on account of the fatal effects that follow where these busy insects visit the flowers, and, indeed, it would appear that few of the genera are free from deleterious effects. *R. P. Brotherston.*

NOTES FROM AMERICA.

ANOTHER OLD GARDEN CALENDAR.

A SHORT time after the Rev. Joseph Jacob's articles on "Garden Calendars" appeared in *Gard. Chron.*, a confrère of mine observed an old, brown, leather-bound book, some seven inches by four inches, marked at twenty-five cents, in a store. Examination showed it to be of considerable age, and because of its embracing title, he bought it. Its title is *The Instructor, or Young Man's Best Companion*, by George Fisher, Accountant. The imprint shows it to be the twenty-fifth edition. It was printed in London for J. Rivington and Sons, J. Buckland, T. Longman, B. Law and several others, the date being given as MDCCLXXXIX, price 2s. 6d. The year 1778 is mostly used in the examples of letter writing, however. On the title page is a lengthy list of the subjects dealt with by the author, irrespective of the complete index. The total number of pages is 384, and on the back fly-leaf is written partly in ink and partly in pencil, "Sally Dorr's Book, 1793. Presented by H. D."

FIG. 25.—ASTILBE CHINENSIS VAR. PUMILA.

"The Compleat Gardener," or "The Practice of Gardening in all its Branches for the Twelve Months in the Year," commences on page 344 and ends on page 359. Under each month, the Pleasure Garden, Kitchen Garden, Orchard and Fruit Garden come under survey. In February we are told to sow the kernels of Apples and Pears and the stones of Plums for stocks, and to protect trees from birds that eat the buds. I was specially interested to observe that the third week in March is the time advised to sow Sweet Peas, Poppies, Catchflies and all the hardy annuals. Our author, too, knew all about foreright shoots on espalier fruits. Under June, among other things, we are told to "cut the cups or pods of the Canations (Carnations?) that are near blowing, in three or four places that they may blow regularly; also to inoculate some of the fine kinds of Roses." The term inoculation, as applied to Roses and fruit, apparently relates to budding or grafting. In August we are told to sow Anemones, Ranunculuses, also Fritillary, Tulip and Narcissus seed.

In October he advises that Cauliflowers as they show their heads should have their leaves broken upon them to keep off sun and rain to harden and whiten them." If Mr. Jacob can possibly secure a copy of *The Instructor*, he assuredly will enjoy perusing it. *T. A. W., New Jersey.*

PLANTS NEW OR NOTEWORTHY.

RUBUS ROBUSTUS.

IN the summer of 1918 I crossed R. nutkanus with pollen of R. odoratus. The pollen of R. odoratus came by mail, loose in an envelope, something like two thousand five hundred miles, and owing to the proterandrous nature of the Rubus flowers could not be effectively applied until three weeks after the time it had been collected. But it proved potent, and I send you a photograph (Fig. 24) of an 8 foot high seedling from the cross, in which the influence of the pollen parent may be seen in the acuminately lobed leaves. The hybrid takes its height from the seed parent, but is more compact and robust, and I think this is because it does not waste its energy in sending up the quantity of suckers so characteristic of R. nutkanus. The flowers are a very pleasant rose colour at opening, and fade to pale purple: they are fragrant, but not more so than those of R. nutkanus. All four seedlings which have been grown on, seed to a certain extent, one of them as freely as its parents could do. Professor C. S. Sargent, of the Arnold Arboretum, tells me that the name of this hybrid is Rubus robustus, and that he obtained a plant of it from Petersburg which grew with them for several years, but finally died. *George Fraser, Ucluelet, B.C., Canada.*

ASTILBE CHINENSIS PUMILA.

AMONGST other new plants exhibited in the course of the year 1922 at the French National Horticultural Society, in Paris, most noticeable has been the new Astilbe chinensis pumila (Fig. 25). The plant was stated by the introducers (Vilmorin-Andrieux and Co.) to be a native of Thibet, where a missionary, Father Monbeig, noticed it in 1911 and sent seeds to France. In its appearance and stature it is very distinct from any Astilbe that has been introduced hitherto.

The stems are stout and erect, 1½ feet high, and carry numberless small, rosy lilac flowers, these succeeding each other for an extraordinarily long period in the months of August and September. Doubtless this rich, autumnal flowering habit, joined to the attractive appearance of the plant, will make it ere long a great favourite. In cultivation it requires similar treatment to most Astilbes and Spiraeas. A. chinensis pumila has received an Award of Merit from the French Horticultural Society. *A. M., Paris.*

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To cope in some measure with a difficult task, I collected Intricatum Rhododendrons wherever I found them, and when a quiet time came later compared them. In this way I was able to select a number of characteristics, more or less variable, and reduce some twenty-five gatherings to twelve distinct species. But I am quite prepared for the experts to demolish my twelve species, leaving but two or three out of the wreckage; or, on the other hand, to take my twenty-five numbers and expand the dozen species to a score. It all depends, ultimately, of course, on what each person considers a species. The diagnostic marks are clear enough in themselves; it is a question of their permanence and variability.

Of one thing I became convinced in the field—and I examined scores of specimens—the length of style, by itself, is not a specific distinction. There are long-styled and short-styled plants of undoubtedly the same species; in other words, some of the Intricatum Rhododendrons are heterostyled, as in Primula, though the stamens are always of the same length, and in the same position. I have specimens to prove it.

On the other hand, length of style, taken in conjunction with other characteristics, may be a valuable diagnostic mark. There are species with short styles, with medium styles, and with long styles; with and without silver scales on the under surface of the corolla, etc. The subject is too technical for a traveller's description of the country and its flora. It requires an expert to unravel it, and I will leave the field to such an one, with the above indications and suggestions for his guidance—or confusion!

I may add that the Intricatums found on the limestone cliffs at lower altitudes, such as "Limestone Beauty" (K.W. 4341 or 4486), are not included in the above remarks. Of these I found about three species, bringing the total up to fifteen Intricatum Rhododendrons—that is, if all my Intricatums *are* Intricatums and not Lapponicums or something else.

On June 5 we came down through the lower forest belt, where the hairy-leafed Campylocarpum Rhododendron was abundant, though not a flower remained, and so to the arid, treeless gorge of the Sho-lo river. Being unable to cross, we retraced our steps to the summit of the range next day, but, instead of descending direct to Mu-li, went round behind the great cliff, which is cut in half, from north to south. Amongst the dwarf Rhododendrons were two species of Caragana, one very spiny, with cream-coloured flowers, the other with bright gamboge flowers. Meconopsis lancifolia (K.W. 4008) was also in flower on the sheltered, grassy slopes. Here the specimens all have six or seven petals. Just a month later, in another locality, I found what was presumably M. lancifolia, but in this case the petals were invariably four only. Both are limestone plants, though the Mu-li variety grows on other rocks as well.

FIG. 24.—RUBUS ROBUSTUS (R. ODORATUS × R. NUTKANUS).

In the woods on the side of the cliff I at last found in flower a Rhododendron I had long been seeking—the hairy-leafed Campylocarpum. I had found foliage of it in 1921, but failed to secure any seed, though I collected a little of last year's seed this year. Here it was in flower at last, though nearly over; rather small purple flowers, with a darker patch inside. Nothing very wonderful, and, anyway, it is quite common.

We got back to Mu-li on June 11, to find the woods full of flowering shrubs—pale pink Lilac, snowy masses of Deutzia, Philadelphus, Roses, Honeysuckle, etc. On the rocks, Daphne calciola in orange cloads, Primula pulchella, and splashes of pink Androsace spinulifera were noticed. *F. Kingdon Ward.*

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 22, May 6, May 20, June 3, June 17, July 1, July 15, July 22, August 5, August 26, September 9, September 23, October 7, October 21, November 4, November 18, December 2, December 16, December 30, 1922, and January 13, 1923.

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TITHYMALS.

THE Euphorbiaceae is of interest to a larger section of the community than to gardeners merely. There is the Box, Teak, Cassava, Cascarilla, Castor-oil plant, Croton, and, besides others, the Manchineel (Hippomane Mancinella), the subject of many legends.

The plants of this order that are of most interest to gardeners are mostly inhabitants of the stove—Codiaeum, Acalypha, Poinsettia and Euphorbia. E. splendens, which is remembered as a source of dread, used to be pushed into a corner of the stove, as far out of the way as possible, for fear of its poisonous spines. E. fulgens never fails to excite admiration, and is one of the least difficult to grow. It is easy to propagate from seeds, cuttings of the ripened shoots, or, as I liked best, the young green shoots, which rooted satisfactorily in a sand propagating bed. At one time I grew it as large plants for room decoration. These were cut back, and when in flower had attained a height of six feet, carrying several long, curving sprays. These were also useful for vase-furnishing and for table decoration. There are, too, a few hardy species, of which E. polychroma is probably the best for the rockery, and E. Cyparissias is by no means to be despised, for not only is it pretty when in flower, but right up till autumn the changing colours of its foliage attract attention. The gentlewomen gardeners of the seventeenth century knew it by the name of "Welcome to Our House," while in the South of Scotland it is still designated "Garden Little Gude," to distinguish it from E. helioscopia, which, along with other names, has that of Little Gude. The sap of this weed has been esteemed for so long as a specific for removing warts that it seems strange it should bear a name of such opprobrious meaning, for that, too, is an appellative bestowed on the Enemy of Mankind; but the other name of Deil's Milk leaves us no means of escaping from the conclusion that it must be so.

Another species that seldom fails to appear annually here is E. Lathyrus, which, along with E. Pithyusa and the above-named, were for centuries held in great esteem by the physicians of long ago, and later by the empirics, their successors. It is true that we do not find them under the names they are known by in our times, yet the old and superseded Solsequium is not different from helioscopia, which Lyte Englished in "Sunturner." E. Pithyura, again, is always noted by the name of Esula, assumed to be an extended form of the termination of Pithyusa. It was an extract from the root—or, rather, the bark of the root—of this plant that was used, and not the sap. Still, *The Garden of Health* informs its consultants that it could be used similarly to other Tithymals—a very old general name for the genus. It was the seeds of E. Lathyrus that were valued, and it was called Cataputia, a name which Chaucer Englished in Catapuce, when he tells us how Dame Pertelot advised her husband to partake of its seeds to overcome his melancholy. Later it was known as Spurge, from the old French *espourge*, a curious illustration of how a foreign name has been substituted for the English Purge.

In this connection Gerard, in his usual distinctive manner, relates an experience he had with E. Paralias which illustrates this point, and remains a warning to others against partaking thoughtlessly of even a small quantity of the sap. He states: "I took but one drop of it into my mouth, which nevertheless did so inflame and swell in my throte that I hardly escaped with my life." He finally got relief on riding in haste to a farm-house, where he drank milk. It may be noted as an interesting fact that Lyte makes mention of E. Characias being "founde in the gardens of diligent Herboristes," along with E. Cyparissias and E. Peplus.

In old books on bees objection is made to plants of Box being allowed to grow near hives, on account of the fatal effects that follow where these busy insects visit the flowers, and, indeed, it would appear that few of the genera are free from deleterious effects. *R. P. Brotherston.*

NOTES FROM AMERICA.

ANOTHER OLD GARDEN CALENDAR.

A SHORT time after the Rev. Joseph Jacob's articles on "Garden Calendars" appeared in *Gard. Chron.*, a confrère of mine observed an old, brown, leather-bound book, some seven inches by four inches, marked at twenty-five cents, in a store. Examination showed it to be of considerable age, and because of its embracing title, he bought it. Its title is *The Instructor, or Young Man's Best Companion*, by George Fisher, Accountant. The imprint shows it to be the twenty-fifth edition. It was printed in London for J. Rivington and Sons, J. Buckland, T. Longman, B. Law and several others, the date being given as MDCCLXXXIX, price 2s. 6d. The year 1778 is mostly used in the examples of letter writing, however. On the title page is a lengthy list of the subjects dealt with by the author, irrespective of the complete index. The total number of pages is 384, and on the back fly-leaf is written partly in ink and partly in pencil, "Sally Dorr's Book, 1793. Presented by H. D."

FIG. 25.—ASTILBE CHINENSIS VAR. PUMILA.

"The Compleat Gardener," or "The Practice of Gardening in all its Branches for the Twelve Months in the Year," commences on page 344 and ends on page 359. Under each month, the Pleasure Garden, Kitchen Garden, Orchard and Fruit Garden come under survey. In February we are told to sow the kernels of Apples and Pears and the stones of Plums for stocks, and to protect trees from birds that eat the buds. I was specially interested to observe that the third week in March is the time advised to sow Sweet Peas, Poppies, Catchflies and all the hardy annuals. Our author, too, knew all about foreright shoots on espalier fruits. Under June, among other things, we are told to "cut the cups or pods of the Canations (Carnations?) that are near blowing, in three or four places that they may blow regularly; also to inoculate some of the fine kinds of Roses." The term inoculation, as applied to Roses and fruit, apparently relates to budding or grafting. In August we are told to sow Anemones, Ranunculuses, also Fritillary, Tulip and Narcissus seed.

In October he advises that Cauliflowers as they show their heads should have their leaves broken upon them to keep off sun and rain to harden and whiten them." If Mr. Jacob can possibly secure a copy of *The Instructor*, he assuredly will enjoy perusing it. *T. A. W., New Jersey.*

PLANTS NEW OR NOTEWORTHY.

RUBUS ROBUSTUS.

IN the summer of 1918 I crossed R. nutkanus with pollen of R. odoratus. The pollen of R. odoratus came by mail, loose in an envelope, something like two thousand five hundred miles, and owing to the proterandrous nature of the Rubus flowers could not be effectively applied until three weeks after the time it had been collected. But it proved potent, and I send you a photograph (Fig. 24) of an 8 foot high seedling from the cross, in which the influence of the pollen parent may be seen in the acuminately lobed leaves. The hybrid takes its height from the seed parent, but is more compact and robust, and I think this is because it does not waste its energy in sending up the quantity of suckers so characteristic of R. nutkanus. The flowers are a very pleasant rose colour at opening, and fade to pale purple: they are fragrant, but not more so than those of R. nutkanus. All four seedlings which have been grown on, seed to a certain extent, one of them as freely as its parents could do. Professor C. S. Sargent, of the Arnold Arboretum, tells me that the name of this hybrid is Rubus robustus, and that he obtained a plant of it from Petersburg which grew with them for several years, but finally died. *George Fraser, Ucluelet, B.C., Canada.*

ASTILBE CHINENSIS PUMILA.

AMONGST other new plants exhibited in the course of the year 1922 at the French National Horticultural Society, in Paris, most noticeable has been the new Astilbe chinensis pumila (Fig. 25). The plant was stated by the introducers (Vilmorin-Andrieux and Co.) to be a native of Thibet, where a missionary, Father Monbeig, noticed it in 1911 and sent seeds to France. In its appearance and stature it is very distinct from any Astilbe that has been introduced hitherto.

The stems are stout and erect, 1½ feet high, and carry numberless small, rosy lilac flowers, these succeeding each other for an extraordinarily long period in the months of August and September. Doubtless this rich, autumnal flowering habit, joined to the attractive appearance of the plant, will make it ere long a great favourite. In cultivation it requires similar treatment to most Astilbes and Spiraeas. A. chinensis pumila has received an Award of Merit from the French Horticultural Society. *A. M., Paris.*

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HARDY PLANTS FOR SUB-TROPICAL EFFECT.

A FEW decades ago many kinds of plants were used for sub-tropical effect that had to be housed for protection in winter and reserved, to be employed for the following season, this entailing not a little trouble and anxiety to the cultivator. They included Palms of various kinds, Dracaenas, Caladium esculentum, and Musa ensete, all charming and exquisite subjects when grouped and associated with others of a like character, but which, no matter how arranged

FIG. 26.—HERACLEUM GIGANTEUM.

produce a most monotonous effect, whilst being natives of tropical climates they are only effective in the most favoured and sheltered localities, where their leaves escape being disfigured and torn by high winds.

The general appearance of the landscape strikes the casual observer more pleasantly when isolated specimens or masses of graceful foliage and flowering plants are arranged to form an outline to the lawn or shrubbery border, in clumps singly, or from 3 to 6 in a group. This method of planting depends, of course, largely on the taste of the designer and size of the garden. In any case, it is perfectly obvious that the best effect is made when the outside lines are in single clumps, or in threes, and the taller subjects planted at the back, allowing sufficient space between the clumps to enable visitors to walk around them, thus avoiding geometrical lines so far as possible.

A large number of hardy plants are suitable for producing a sub-tropical effect, and some of the best are Acanthus latifolius, a tall, stately-growing plant, producing massive, deeply-cut leaves, and tall spikes of flowers in abundance. The plant is easy of cultivation and most effective on the edge of the lawn. The flowers are purple and white.

Acanthus spinosus, A. mollis, and A. candelabrum are all admirably adapted for planting on the lawn, forming effective specimens.

Yucca filamentosa is a well-known plant. It has broad, evergreen foliage, margined with long, white filaments, and branched spikes 4 feet to 5 feet tall, of large fragrant drooping, creamy-white flowers from July to August. Y. gloriosa, Y. Ella combeii, Y. recurva, and Y. angustifolia are also all worthy of consideration for the special purpose under consideration. Eryngium pandanifolium is a stately evergreen plant with glaucous foliage armed with spines. The flower stems attain a height of 5 feet to 8 feet, and bear branched heads of flower. It is a noble plant for isolated positions on the lawns, but requires a sheltered situation. E. yuccaefolium, E. agavifolium, and E. bromeliaefolium are all equally ornamental, and deserve prominent positions. Rheum palmatum atrosanguineum is another noble and ornamental hardy perennial foliage plant. It is one of the finest of the genus, and bears flower spikes 6 feet to 8 feet tall. The large, handsome foliage, of a reddish-purple, renders it a most striking and effective plant for isolated positons or where luxurious growth is desired; R. tanguticum, R. Emodii, and R. officinale are all good for their stately appearance. Bocconia cordata, the Plume Poppy, is an extremely handsome plant, with metallic-grey foliage, and is admirably adapted for isolated positions. It is perfectly hardy, and grows from 5 feet to 6 feet tall, bearing terminal plume-like panicles of creamy-buff flowers. This plant is sometimes known as B. japonica; B. microcarpa is also an effective species.

One of the most beautiful combinations in planting is to intersperse Tritoma Uvaria grandiflora with Gynerium argenteum—the former flowers with the Pampas Grass, and when standing at a distance appears as flaming fire rising from amidst their plumes. Phormium tenax, the New Zealand Flax, is undoubtedly one of the most noble of plants. It has handsome, glaucous, sword-like, leathery foliage, and grows 5 feet to 7 feet high, the leaves arching gracefully. The tall spikes of orange or buff-coloured flowers resemble those of the Canna; in cold districts it is advisable to afford this plant slight protection during severe winters.

Other desirable plants suitable for this purpose are: Heracleum giganteum (see Fig. 52), Ferula communis, F. Linkii, Polygonum Cookii, Crambe cordifolia, and Cynara Scolymus, the Globe Artichoke. These, however, grow most vigorously, and are best planted in glades, dells, and semi-wild places.

Gunnera manicata has leaves of gigantic proportions and is unequalled for creating a sub-tropical effect in moist positions on the lawn, the bend of carriage drives, woodland walks, by the waterside, or, indeed, anywhere so long as plenty of moisture is available for the roots during the growing season. It needs protection during severe winters. G. chilensis (syn. scabra) is equally effective. Sub-tropical gardens would be lacking in grace if Bamboos and Grasses were not introduced. The following are a few Bamboos that may be incorporated: Bambusa Metake, Arundinaria Simonii, Phyllostachys viridi-glaucescens, and P. nigra; whilst of Grasses Elymus glauca, Arundo Donax, Miscanthus (syn. Eulalia) japonica fol. var., and M. j. zebrina have all a stately appearance. *W. Logan.*

HARDY FLOWER BORDER.

VERBASCUM MISS WILLMOTT.

I HAD the pleasure of seeing this Mullein for the first time at one of the Chelsea Shows, where it attracted much attention from those who are fond of hardy flowers. Those desirous of obtaining a good Verbascum with white flowers to associate with other plants in their borders or wild gardens would do well to obtain it, and it may be confidently recommended for the border or wild garden. It grows 5 feet or 6 feet high, producing large white flowers on good spikes. It has been such a satisfactory perennial that it has received high encomiums from those best qualified to judge the qualities of hardy perennials. It is splendid in the border, and a mass in a wild garden presents a most inspiring sight. *S. Arnott.*

STEVIA PANICULATA.

THIS delightful Gypsophila-like plant, sometimes known as Stevia serrata, has been cultivated in France for a great number of years, whilst in the U.S.A. it has been an important florists' flower for more years than I can remember. Yet until recent years not a single commercial grower in this country had attempted to cultivate it; a Swiss friend has, however, grown it for many years for his cut flower trade. At the present time there are a few growers handling it, but so far as I am aware none of their flowers ever reach Covent Garden Market

Some day, perhaps, growers and gardeners generally will wake up to the value of Stevia paniculata to follow Gypsophila paniculata. Seed is easily obtainable, and by sowing early the plants may be flowered in the open before frost occurs, or they may be lifted and planted to flower in early winter like Chrysanthemums

The roots are perennial, and if stored like Dahlias may be restarted the following season to flower very early. *T. A.*

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THLADIANTHA DUBIA.

MR. R. IRWIN LYNCH raises an interesting question in your issue of the 23rd December, 1922, p. 371, as to the tubers, and the mode of reproduction, of Thladiantha dubia. The fact that the underground stolons are incapable of reproducing the plant seems at first surprising to anyone who has not previously studied the question; and when one considers the luxuriance of the plant, and its tendency rapidly to cover the ground where it grows, it seems all the more inexplicable.

It would be interesting to carry out experiments in other places, and, if possible, in other climates, so as to see whether the plant would display the same characteristics under different conditions. It would be still further of value to include in such experiments any other species of Chinese origin, less well known, and differing from T. dubia in its underground root system.

Whereas in T. dubia the tubers are round, small and numerous, and remain near the surface of the soil; in T. Oliveri, on the contrary, they are elongated, large, deeply buried in the ground and inclined to be sparse. This does not prevent the plant being at least equally invasive with its congeners, and it throws out numerous stolons which extend far beyond the plant. When these stolons have been collected from the previous year and used for purposes of propagation, they have been found entirely barren of result, which seems in accordance with Mr. Irwin Lynch's experience. I fear, however, that this effort to propagate the plant was not surrounded by all the guarantees which could be desired, and new experiments are essential. One fact especially stands out— that in spite of the scarcity of tubers which is one of the characteristics of the species, in the spring a quantity of new shoots appear, spread over a wide surface, sometimes at quite a distance from the tubers.

It is a remarkable fact, and has doubtless been previously observed, that whereas the herbarium specimens collected in China appear all to have been taken from female plants, the plants introduced, grown from seeds sent by the Abbé Farges, in 1894, to M. Maurice de Vilmorin, were all of the male sex. They are, by the way, more decorative than the female plants.

In the course of a genetic experiment at Verrières, in 1906, it was sought to produce a female T. Oliveri, by pollinating a female flower of T. dubia with pollen taken from T. Oliveri (male). The result, in the hybrids of the first generation, as regards the tubers, was most curious, as may be seen from the illustration (Fig. 27). The tubers of the hybrids were almost exactly of the same shape and size as those of T. Oliveri, but the general external characteristics were those of T. dubia.

One of the female plants obtained from this cross was impregnated with pollen from T. Oliveri, and the same process was repeated for five consecutive generations, with the result that now, in the sixth generation, the characteristics of the seed parent, T. dubia, have been completely eliminated, and the present hybrids, male and female, are identical, at all events outwardly, with T. Oliveri, male, the only one to be introduced.

Although T. dubia is a very decorative plant and capable, for that reason, of being widely used, T. Oliveri is undoubtedly superior and should be preferred. The foliage is much more abundant and finer, and the flowers, of a beautiful golden yellow, are much larger and more numerous, thirty to thirty-five being massed together to form large auxiliary bouquets. The flowering period extends from July to September, and is followed, if artificial pollination has been resorted to, by fruits of the size and shape of a hen's egg.

A descriptive note on Thladiantha Oliveri appeared in the *Revue Horticole*, 1903, p. 472. M. Gagnepain published, in the *Bulletin du Muséum d'Histoire Naturelle* a revision of the Asiatic Thladianthas in the Paris herbarium, and described ten species, most of which do not appear to have as yet been introduced into cultivation. *A. M., Paris.*

INFLUENCE OF STOCK ON SCION.

IT may be of interest to fruit-growers to record some observations of mine on the behaviour of certain fruit trees that have been re-grafted. It is well known that inarching and double grafting fruit trees have a great tendency to alter considerably both the colour and flavour of any particular variety of fruit; indeed, in some cases the effect is so great as to make the variety unrecognisable. In a garden near Derby I saw a vine of Madresfield Court, which always produced dull-coloured berries, but after it was inarched on a Black Hamburg vine the berries were as black as Sloes, with no tendency to crack or split, as is common in the Madresfield Court variety. In an old orchard I saw a tree that had been cut down and re-grafted with Blenheim Pippin. I was informed that the stock was Kingston Black, which probably resulted in the fruit of the Blenheim Pippin being as highly coloured as Gascoyne's Seedling at its best. Fruits from this particular tree, of a dessert size, were shown in a single dish class for Apples at the Hereford show some years ago, and were disqualified as not being true to variety. Evidently the intense colour had deceived the judges, as it would most other people.

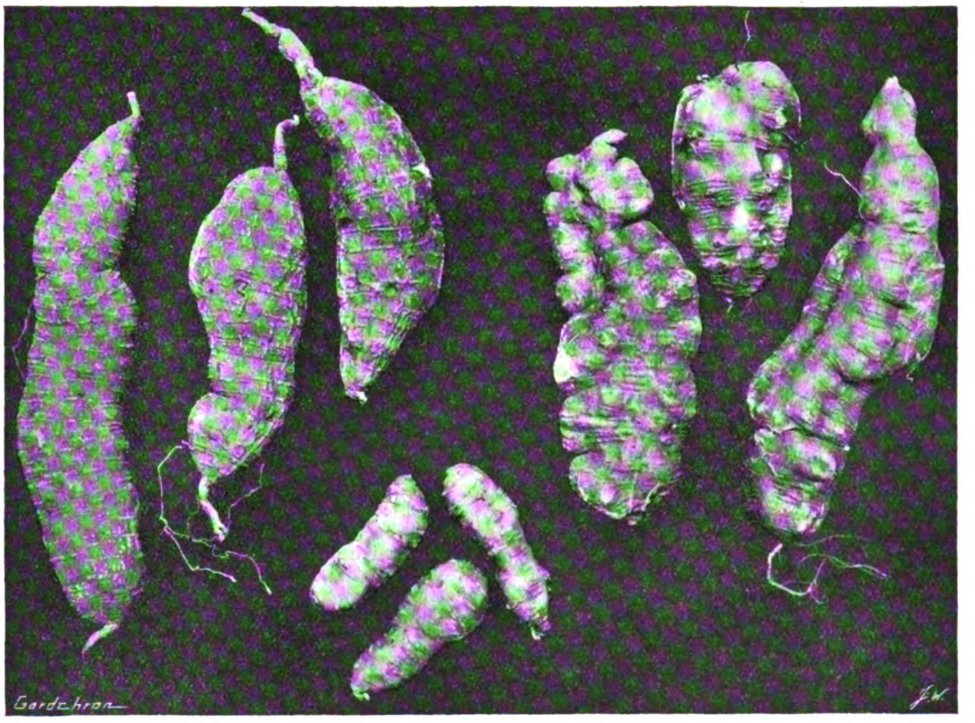

FIG. 27.—TUBERS OF THLADIANTHA. LEFT—T. OLIVERI; CENTRE (SMALL)—T. DUBIA; RIGHT—T. DUBIA × T. OLIVERI (F_1).

A series of double grafting experiments, extending over a number of years, has interested me and may prove of interest to other fruit-growers. The trees were bush specimens of Blenheim Pippin, growing in a garden at Newton. They were worked on the Paradise stock, but owing to the exceptional fertility of the soil they made such gross growth that they failed to fruit. The owner of the trees was advised to head them down and re-graft them with Newton Wonder, but he grafted instead Cox's Orange Pippin, and in the course of four years the trees commenced to bear. To everyone's surprise who saw them, the fruits, which were of first-rate flavour, were of the size of medium specimens of Blenheim Pippin, whilst they kept longer than ordinary Cox's Orange Pippin. Mr. T. Spencer, the esteemed steward and gardener at Goodrich Court, grafted some years ago a very good coloured dessert Apple found by myself in an old orchard near Ross. Grafts were placed on a bush of Potts's Seedling, and he also grafted some on the Paradise stock. The trees worked on Potts's Seedling produced fruits as green and flavourless as could be, whilst those on the Paradise stock were of good colour, shape and flavour.

Three trees of the old variety of Plum named Dymock Red were headed down and re-grafted with Jefferson's Gage, with the consequence that the trees fruited bountifully every year until they were attacked by silver leaf disease.

In an orchard near Oakham two large Plum trees were headed down and cleft grafted with scions of the variety Victoria. The scions grew vigorously, and in five years commenced to bear fair crops, but instead of the fruits being of the usual pinkish red colour of Victoria, they were a deep purplish colour, covered with deep bloom and inclined a little to the shape of Early Prolific, whilst the flesh was quite firm. Near Little Malvern, two trees of Worcester Pearmain Apple on the Paradise stock were headed down for experimental purposes and re-grafted with Allington Pippin. The fruits of Allington Pippin developed a beautiful rosy cheek, much to the surprise of everyone who saw them. Another example that may be instanced was some trees in an orchard of Sturmer Pippin Apples that were headed down and re-grafted with Worcester Pearmain. The fruits of Worcester Pearmain from these grafts kept much longer than usual for that variety; indeed, they remained sound until Christmas. In addition, the variety lost some of its high colour, whilst the flesh was somewhat firmer and more agreeable to the palate, the rather insipid flavour of the Worcester Pearmain being suppressed.

The late Mr. Lewis, of Leominster, raised seedlings from pips of Calville Blanche Apple and grafted the strongest seedlings with several sorts of dessert and culinary Apples. The results were very interesting, but at his death the trees were dispersed. A grower of pot fruit trees always obtained extra large fruits from one tree, and from this tree only, although he had under his charge six other trees of the same variety. No matter what skill he exercised, these trees never bore specimens comparable in size with those from their companion. The problem was solved by discovering that that particular tree was grafted on the free stock, whilst the others were on the Paradise stock.

Some sixty years ago an old Crab tree in a hedgerow was grafted with a Crab variety and

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re-grafted with the old White Harvest Apple. To everyone's surprise the fruits from this tree kept sound until November. Four years ago I budded the Red Victoria Apple on a small branch of Lord Suffield. This branch fruited last season, carrying three fine fruits, but they were somewhat deficient in colour. Near Tenbury a few standard Pears of Pitmaston Duchess variety were headed down and grafted with Doyenné du Comice and Beurré Hardy. The trees grew strongly and produced good crops. Those of Beurré Hardy grew to a large size, but the skin was less russety than in the ordinary type. The Doyenné du Comice fruits were also of large size, but deficient in flavour, and also did not keep so long as usual. It has often occurred to me that the double grafting of Apples, and especially of cordon trees, would be useful in assisting the keeping qualities of several of our first-rate Apples. For instance, Sturmer Pippin or any other very late variety might be worked on the Paradise stock, and this in turn budded with Cox's Orange Pippin. I believe the result would be to greatly prolong the season of the Cox's Orange Pippin variety.—*Pomona.*

DEGENERATION OF THE POTATO.

IN the interesting paper upon the "Degeneration of the Potato" by Mons. Mottet (see pp. 25 and 38) reference is made to the opinion I expressed some years ago that one of the causes of degeneration was undoubtedly the direction in which the improvement of the Potato was being pursued. That was the selection of varieties which possessed shallow eyes and smooth skins, and, in addition to these characteristics, a tuber that was of a certain shape—otherwise than round—which it was presumed rendered the variety more acceptable from a commercial standpoint. Those who deal in Potatos in the markets have an accepted and general standard of the ideal tuber from a culinary aspect. This is a tuber of what I call a full kidney shape; the skin almost perfectly smooth; the eyes to be practically unobservable. The idea is that tubers possessed of deep eyes are wasteful when they are pared prior to cooking, and the tendency of selection has been towards the ideal tuber of those who sell for consumption.

There are more vital questions to consider, however, than the ideal tuber of the consumer. The Potato has to be increased asexually. The main point of the selection of new varieties—when dealing with a batch of seedlings—is not, therefore, primarily the utility of the tuber from a supposedly utilitarian culinary essential, but rather from a reproductive question. If tubers are selected without any consideration of the reproductive aspect, then disaster, sooner or later, must be the result. The eye is the leaf-bud of the Potato.

Mons. Mottet is almost inclined to agree with me that a round tuber of somewhat rugged personality, and with deep eyes, is likely to have the longest life. The Potato is reproduced from tubers, and if any variety is to have a long lease of life I am convinced that selection must follow very definite lines. The shallow eye and finer skin are sure to result in early degeneration. Constant raising from seed—sexual reproduction—will, no doubt, keep a strain of a certain amount of vigour in being, but the recent remarks of Dr. Salamon upon this point are not an encouragement to breeders. There are more vital questions than those of synonymy.

I repeat one paragraph from the paper by Mons. Mottet:—"Whatever may be the final decision on these very delicate questions, those who have devoted their whole lives to the subject of cultivated plants, and who have attentively observed their evolution, cannot but admit that improved varieties, propagated solely by asexual metods, deteriorate more or less rapidly, and cease at last to be remuneratively cultivable. It is simply a question of time, and of individual robustness, that is all."

I entirely agree with that. If the public demand is for a tuber of a certain character and one which is undoubtedly opposed to vigorous reproduction, there can be nothing but degeneration. Asexual selection upon such lines is an impossibility. And I also agree that we do not now possess such vigorous varieties of Potatos as those of our forefathers. *George M. Taylor, Edinburgh.*

VEGETABLE GARDEN.

THE YAM.

THE Yam, although a tropical subject, is fairly hardy, and what makes it more valuable, it is a perennial. Yams are cooked and used as are Potatos; but they are much more milky, and when cooked of a distinct Chestnut flavour.

It is usual to bake them first, and afterwards boil them like Potatos, in their jackets; when minced and mixed with milk or gravy they are delicious.

The Yam will grow well in any class of soil, but requires an open sunny position. The best time to plant is in March, using small tubers and planting them 3 inches deep and 1 foot apart; as soon as the shoots appear, fix stakes or branches for the growth to climb on. According to soil and season the growths will extend from 6 feet to 12 feet in height. The tubers should be lifted and stored in a frost-proof place in October. The Yam may also be propagated by stem cuttings 1 inch long with a leaf attached, inserted a quarter of an inch deep in sandy soil under a bell-glass in a temperature of 55° in summer. Plants from these cuttings should be wintered in a greenhouse and planted out when all danger of frost is over; this is by far the most reliable way of obtaining plants *W. Miller, Mill House, Horse and Groom Lane, Warley.*

CUCUMBERS.

PLANTS that were raised in September for furnishing supplies during the winter should now be showing plenty of young fruits. It is not advisable at this season of the year to allow the plants to crop very freely, therefore the fruits should be thinned in their early stages. Frequent top-dressings of loam and leaf-mould will help to keep the roots in a condition suitable for active growth of the plants. The walls and floor of the house should be damped frequently to promote a moist atmosphere, whenever the weather is suitable for sprinkling moisture in the house.

Plants intended to follow this batch should be raised from seeds sown now. Place the seeds singly in small pots and germinate them over a mild hotbed in a warm forcing house. Cover the pots with a sheet of glass until germination takes place. The soil may consist of fine loam and leaf-mould in equal parts, with a little sand added. A temperature of 70° at night, rising with sun heat to 80° by day, will suffice. To obviate heating the hot-water pipes to excess protect the roof-glass at night with some suitable covering when frost is expected. *P.*

ONIONS.

As soon as the ground is dry enough, the Onion bed should be made, as the sooner the seeds are sown now the better. I have had the best results when able to sow in January, but on no account should the seed be set before the ground is sufficiently dry, and this can be assisted by a liberal dressing of lime thrown on with a shovel, also soot, and as much wood ash as can be procured.

The surface should then be forked over lightly or worked well with a Planet Junr. scuffle. Afterwards lever the bed with a wooden rake, as the use of this implement enables the work to be done quickly. All the rough stones and rubbish should be removed, and uneven spots levelled by means of the spade. The bed should then be trodden over to make it firm, and again raked perfectly level. When the surface soil has been worked to a fine tilth a light roller should be run over it, as this facilitates drawing the drills, which should be made 1 foot apart and very shallowly. Sow the seeds evenly and sufficiently thick to ensure a good crop. Cover them by drawing the earth up with the feet each side of the drill. *H.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Campanula Telham Beauty (see p. 21).—I wish to thank your correspondent *T.* for his remarks about Campanula Telham Beauty. I read Mr. W. Logan's interesting article and noted Telham Beauty was missing from his list, but anticipated some reader would call attention to the omission. Telham Beauty is superb as a pot plant; I have had the same plants in bloom from early in June until late in August. They last well as decorative specimens in light, airy dwelling-rooms by picking off the seed pods as they appear. The plant needs to be grown under perfectly hardy conditions and requires only glass protection when the blooms commence to expand. Propagation by offshoots or division is the best means of keeping stock true. From one dozen plants, stock may be propagated in one season sufficient for the needs of most private establishments, for it is marvellous that the vast numbers now in cultivation originated from one plant I raised at Telham Court in 1913. I raise a few seedlings each year for experimental purposes; the number that comes true is about 75 per cent. *F. L. Thurston, Horsley Hall Gardens, Cresford.*

Caustic Fruit Wash (*see p.* 27).—If your correspondent *E. F. C.* will try Gishurst compound in order to cleanse trees from Mussel Scale, I think he will find it to be very effective. Some time ago I experimented on a badly infested tree with satisfactory results. *J. S., North Cumberland.*

In regard to *E. F. C.'s* letter on p. 27 about the inefficiency of caustic soda wash against Mussel Scale, it might be of interest to the writer that Apple trees severely attacked with this pest have been completely cleared by using a lime-sulphur wash, 1-20, applied as a delayed dormant spray. Caustic soda by itself is of no use against this pest, but added to paraffin emulsion has proved to be another efficient remedy. *G. F. W., Wisley.*

Earliest Hybrids of Gladiolus primulinus.—We were not aware that the hybrids of Messrs. Lemoine and Son, which are well known to us, were produced so early as 1908 (see p. 10), and we offer Messrs. Lemoine our apologies. However, our statement dealt with hybrids between Gladiolus primulinus and large-flowering Gladioli in view of an article in *The Times* saying that England lagged behind Holland and America in regard to these, whereas the reverse is the case. France was not mentioned in *The Times* article. *Vive l'entente cordiale!* Whilst taking off our hat, therefore, to Messrs. Lemoine and congratulating them upon having been the first to use Gladiolus primulinus in crossing, we are still proud of having been the first to produce the new large-flowering race which has been so much admired during the last few years. *Kelway and Son, Langport.*

Big Bud in Black Currants (p. 29).—It has been said that "there is nothing new under the sun," and there may be a substantial modicum of truth in it. Most certainly the use of ordinary cart-grease in attacks of the Big Bud Mite of Black Currants cannot lay just claim to newness, since it was tried and abandoned before the present century saw its dawn. It may now be tried again, and I most strongly recommend growers who do so to "hasten slowly" in their experiments. It is suggested on page 29 that application shall be done in the spring, "just when a little of the edges of the green leaves can be seen at the points of the buds," and it notes further that the "remedy is apparently only effective in the case of young trees. . . ." To my mind these very points are their own condemnation. When excellent greases are used there is always an element of danger, even on old bark, that injury will result, and in my experience harm is always done when the dressing is on young, tender bark. And yet we are advised in this so-called "new cure" to proceed when the bark must necessarily be in a peculiarly tender state, and the advice is emphasised by the statement that the cure is

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serviceable only on young plants. The matter may be carried a step or two forward. Many of the grease compounds contain tar and other highly deleterious substances, and when either or all of these are present the probability of injury following application becomes a certainty, as has been proved even in the case of the rough bark of Apple trees when dressing has been done to arrest or suppress the upward march of the female Winter Moths from September onwards. There is no known cure for Big Bud, unfortunately, though reduction in the virulence of attack has frequently resulted from spraying with a lime-sulphur solution, from spraying with a paraffin-soft soap wash, and also from heavy dredgings, while the whole plant is damp, of lime and flowers of sulphur, in each instance at the period named in connection with the "new cure." *W. Tiplow.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THURSDAY, JANUARY 4.—*Committee present*: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, A. T. Cussons, J. Cypher, A. G. Ellwood, J. Evans, W. Giles, J. Howes, A. Keeling, D. McLeod, E. W. Thompson, J. Whitham, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Calanthe Angela Beckton's var. (*Chapmanii* × *burfordense*), a flower of excellent shape and very highly coloured; *Cypripedium Emerald Becton's var.* (*Maudiae* × *Curtisii Sanderae*), from B. J. BECKTON, Esq.

Cypripedium Mrs. Rickard var. Mercia (*Earl of Tankerville* × *fulshawense*). The flower has a large richly spotted dorsal sepal. From S. GRATRIX, Esq.

Odontioda Colinge var. Admiral (*Odta. Coronation* × *Odm. The Baroness*). A well-formed flower, richly blotched and spotted. From A. HANMER, Esq.

Odontonia Merope Bolholt var. (*M. Bleuana* × *Odm. illustrissimum*). A pure white flower with purple blotches on the petals and base of the lip. From Capt. W. HORRIDGE.

Laelio-Cattleya Dodona var. Ashiae (*L.-C. Hardiana* × *C. Nellthorpe Beauclerk*). A rich orange and bronze coloured flower with a very dark lip. From P. SMITH, Esq.

AWARDS OF MERIT.

Cypripedium Christopher bisepalum; *C. Nydia rubella*; *C. Julettie*; *C. Golden Sunset* (*Leeanum Gratrixiae* × *Golden Glory*). From S. GRATRIX, Esq.

Cypripedium Nellie Pitt (*Pyramus Black Prince* × *Idina*); *C. Pixie var. rubra* (*Alcibiades* × *Alabaster*. From Mrs. GRATRIX.

Calanthe Bryan alba Beckton's var.; *Cypripedium Trentino* (*swintonense* × *Leeanum Clinkaberryanum*). From B. J. BECKTON, Esq.

Odontonia Eurydice Bolholt var. (*M. Bleuana* × *Odm. Ashworthii*). From Capt. W. HORRIDGE.

Cypripedium Cynosure (*Leeanum Clinkaberryanum* × *Minos Youngii*); *Saccolabium williamum Haddon House var.* From P. SMITH, Esq.

Cypripedium Olympus var. Diadem (*Leeanum* × *Alcibiades*). From Dr. CRAVEN MOORE.

Cypripedium Mrs. Giles (*Lady Dillon* × *aureum Ilyeanum*). From A. HANMER, Esq.

GROUPS.

S. GRATRIX, Esq., West Point (gr. Mr. J. Howes), was awarded a Gold Medal for a group of great variety.

B. J. BECKTON, Esq., Irlams-o'-the-Height (gr. Mr. W. A. Stewart), staged a group for which a Gold Medal was awarded, Calanthes being an especial feature.

A. HANMER, Esq., Buxton (gr. Mr. G. Giles), was awarded a Silver Medal for a group of Orchids.

Messrs. J. CYPHER AND SONS, Cheltenham, staged a group for which a Silver Medal was awarded.

Erratum.—The parentage of Cypripedium Swallow, which received an Award of Merit on December 21, 1922, when exhibited by Capt. HORRIDGE, is Swallowtail × Satyr, and not Arthurianum × Satyr, as recorded in the official report on p. 27.

CARDIFF GARDENERS'.

A MEETING of the members of this Association was held on the 16th inst. A representative of the Bristol Association, Mr. D. Inglis, gave a paper on "Different Soils—Different Plants." His remarks dealt with a geological study and personal observations of plants growing on different rock and soil formations.

Prizes for table plant were awarded to Messrs. MEYERS and COSSAM respectively, and for Onions (not transplanted) to Messrs. CROUCH and ADAMS.

NEWCASTLE AND DISTRICT HORTICULTURAL.

THE annual dinner of this Northern Society was held on the 13th inst. The President, Alderman W. Bramble, Lord Mayor of Newcastle, presided. The company included many local horticultural traders, and Mr. J. N. Kidd representing the Northern Apple Culture Society, E. Brough, Esq., Chairman of the Newcastle Flower Show, and W. E. Anderson, Secretary of the Four Northern Counties Fruit Congress. It was stated that during 1922, members of the society had won 154 first, 104 second and 38 third prizes at shows, as well as innumerable special prizes, including cups, medals, etc. In 1919 the membership was 38; it now totals 178.

The Lord Mayor said that the progress made by the Society did the greatest credit to the officials concerned. He wished the Society all prosperity.

During an interval in the toast list, the Lord Mayor presented the prizes to the winners of the Society's awards. The prize-winners were: Society's yearly prizes.—Mr. W. Bright (426 points), 1; Mr. M. Larke (Low Fell), 2; Mr. T. Rutherford, 3. Prize offered for special exhibits.—Mr. G. W. Howard (Whickham). Medal presented by *Gardening Illustrated*, for a collection of vegetables.—Mr. T. Rutherford. Medal presented by Mr. T. Rutherford for Tomatos grown by an amateur.—Mr. R. Rankin; the Royal Horticultural Society's certificates.—Mr. J. Haley (Chrysanthemums); Mr. G. W. Howard (Cypripediums) and Mr. A. Standing (Narcissi).

Mr. W. Anderson (Gardener to Sir James Knott) was presented with a smoking outfit in recognition of his kindness in arranging an outing for the members at Wylam last August.

READING HORTICULTURAL BRANCH OF THE YOUNG FARMERS' CLUBS.

AT the fortnightly meeting of the Reading Branch of the above Society, held on the 19th inst., Mr. W. F. Giles reported that at the forthcoming "Ideal Home Exhibition," in March, Messrs. Sutton and Sons had promised to help the Young Farmers' movement by planting a model garden plot with vegetables, somewhat similar to the plots which the members cultivate at Reading. The *Daily Mail* had again, as at the Royal Show and the Imperial Fruit Show, offered to bear the entire cost of two members going to the exhibition for a week to explain to visitors the Horticultural Section of the Young Farmers' Clubs. Mr. Giles also stated that by the generosity of the President of the Canadian Pacific Railway, four boy members of the Young Farmers' Clubs were to have a trip to Canada this summer, without any expense to their parents, visiting the principal farming centres and ending with a free course at the Alberta Agricultural College. The *Daily Mail* hoped that one of the four chosen would be a horticultural member, and invited applications from any members of the Reading branch who were over 14 years of age.

Obituary.

Bartholomew O'Neil.—Born at Villierstown, Co. Waterford, Ireland, in 1846, Mr. B. O'Neil went to the United States when quite a young man, in a sailing ship. For a considerable period he lived at Memphis, Tenn., and subsequently took up residence at Chicago, where his first important work was the planting of a large number of trees at Riverside. In 1872 he joined Mr. Charles Jackson, the pioneer florist, at Elgin, and in the course of a year or so commenced business in the same city on his own account, where he remained until his death. One of Mr. O'Neil's sons, now deceased, was for a considerable time a traveller on behalf of Messrs. Vaughan's Seed Store, Chicago. Of the two surviving sons, one is a doctor in the Panama Canal zone.

John Hall.—We gather from the American trade papers that Mr. John Hall, nurseryman and seedsman, of Detroit, Mich., died on December 22, 1922. Mr. Hall was born in England so far back as 1845, and went to the United States while quite a young man, taking up his residence at Rochester, New York. In 1872, he entered the service of Mr. James Vick, seedsman, and greatly assisted him in the development of his business. For several terms of office Mr. Hall acted as park commissioner for Rochester, and mainly through his instrumentality Rochester now possesses one of the finest systems of parks and playgrounds in the country. From 1912 to 1916 he was secretary of the American Association of Nurserymen, and for over forty years acted in a similar capacity for the Western New York Horticultural Society.

TRADE NOTES.

MESSRS. WATKINS AND SIMPSON, LTD., 27 and 29, Drury Lane, W.C., are issuing a handsome coloured plate representing their special strains of Asters, for advertisement purposes. The plate is thirty inches by twenty-one and a half inches. It is a reproduction from a painting by Miss Winifred Walker, and depicts sixteen flowers, representing as many distinct varieties. It is a very effective plate, and the colouring is good. The varieties represented are: Victoria, salmon pink and dark blue; Late Branching, rose and white; Giant Comet, mauve and salmon-rose; Hercules, dark blue and brilliant rose; Ostrich Plume, crimson and lilac; Eclipse, salmon bronze and violet; Paeony-flowered, rose and dark blue; sinensis, snow white and cinnabar-red.

MR. F. R. Ridley, President of the National Federation of Fruit and Potato Traders' Associations, was one of the chief guests at a dinner held under the auspices of the Newcastle and District Wholesale Fruit and Potato Merchants' Association, on the 17th inst. Mr. Arthur Bradnum, president of the local Association, presided over a large gathering which included the Lord Mayor of Newcastle.

Replying to a toast by Mr. George Leatherland, "The Corporation and the Commercial Interests of Newcastle," the Lord Mayor said that the City Council was doing its best for the trade. They were committed to an expenditure of about a quarter of a million for quay extensions, work which would in due course put the quay on a thoroughly good and satisfactory basis. He thought that any congestion in the vicinity of Newgate Street and St. Andrew's Street would in time be obviated, now that the Council had agreed to purchase property adjoining the market to give facilities to free the streets for ordinary traffic.

After Mr. G. E. Eyvell had proposed the toast of "The National Federation," Mr. Ridley responded. Business had of late been rather depressed, he said, and it was up to them to consider how they could get their produce to the markets at the lowest cost. They had been successful in getting a classification which he thought would prove acceptable to the trade; also, in getting certain con-

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cessions as to rates, though they had applied in November for an extra 25 per cent., which was turned down. The 25 per cent. subsequently announced was on passenger traffic, and his opinion was that it was a somewhat subtle move on the part of the railway companies to throw dust in the eyes of the public, for it should be made clear that the 25 per cent. reduction did not apply to goods traffic.

NEW HORTICULTURAL INVENTIONS.

LATEST PATENT APPLICATIONS.

520.—Derwent Foundry Ltd.—Lawn-mowers January 6.

258.—Warden, P. G.—Gardening appliances. January 4.

35356.—Ahai Glass Co.—Forcing agent of manure. December 29.

1226.—Hind, B.—Garden shears. January 13.

703.—Wilson, A. A.—Apparatus for sweeping lawns. January 9.

34511.—Stabback, A. G. M.—Preservation of flowers, fruit, etc. December 18.

34439.—Torkington, M. E.—Horticultural labels. December 18.

SPECIFICATIONS PUBLISHED THIS MONTH.

190834.—Thomson, G. G.—Implement or appliance for use in gathering fruit.

188324.—Chisholm, F. K.—Tennis courts and other line markers.

190609.—Printz, W.—Fertiliser distributors.

189826.—Arkinstall, H.—Watering-can roses.

ABSTRACT PUBLISHED THIS MONTH.

Insecticides.—Patent No. 189037.—A preparation for protecting trees from mealy bug and other insects, has been devised by Mr. J. W. Walkley of 17, Lime Street, Great Grimsby. It comprises an extract made by boiling the young shoots and leaves of Elder trees in water. Sulphate of copper, sulphate of iron, nicotine, soft soap, and methylated spirits are added to the extract, and in some cases slaked lime is also added.

This list is specially compiled for *The Gardeners' Chronicle*, by Messrs. Ravner and Co., Regd. Patent Agents, of 5, Chancery Lane, London, from whom all information relating to patents, trade marks, and designs can be obtained gratuitously.

Messrs. Rayner and Co. will obtain printed copies of the published specifications, and forward post free for the official price of 1s. each.

ANSWERS TO CORRESPONDENTS.

COTTAGER, UNDER GARDENER AND AMATEUR GARDENER: *E. B.* A helpful definition of cottager is as follows: "*A bona fide* cottage gardener is a person not employing any assistance in the cultivation of his garden or working for any other person as a gardener, assistant gardener, day gardener, or a market gardener." The Royal Horticultural Society regards every one as an amateur who does not grow horticultural produce for sale; but in local societies this broad definition is not usually regarded as sufficient, and there are often definitions as "those not employing a gardener regularly." A professional gardener is one employed in a private, public, or market garden, and an under gardener would come under a similar definition, but would be a person responsible to the chief gardener or departmental foreman, instead of to the employer.

MARKET CROPS FOR UNHEATED GREENHOUSE: *Grower, Liverpool.* Seeing that you utilised the house for a crop of Tomatos followed by one of Chrysanthemums, the best flowers to grow for succession would be Sweet Peas and Gypsophila elegans grandiflora alba. The Sweet Peas should be sown in September, five seeds in a 60-sized pot. The seedlings should be ready for planting in well manured trenches when the Chrysanthemums are over. The Gypsophila may be sown in drills, provided there is room, and they would constitute a useful crop in conjunction with the Sweet Peas.

MARKETS.

COVENT GARDEN, Tuesday, January 23, 1923

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples,—		
British Columbian		
—Jonathan ..	9 0	12 0
—Other varieties	7 6	9 0
Californian		
—Newtown Pip.	10 0	11 0
—Oregon ..	11 0	14 0
English, per bus.		
—Allington Pippin	2 0	5 0
—Blenheim Pippin bushel ..	7 0	8 0
—Bramley's Seedling ..	4 6	8 0
—Cox's Orange Pippin best ½ bushel ..	6 0	10 0
—Newton Wonder	5 0	8 0
—Wellington ..	4 6	6 0
Cherries		
—Belgian lb. ..	0 4	0 6
Nova Scotian,		
—Fallawater ..	16 0	20 0
—Baldwin ..	16 0	20 0
—Nor'n Greening	15 0	18 0
—Russet ..	26 0	30 0
Bananas, singles	15 0	27 6
—doubles ..	15 0	27 6
Grapes		
—Alicante ..	2 0	3 0
—Almeria, barrel	25 0	30 0
—Gros Colmar..	2 0	4 0
Grape Fruit—		
—Florida	20 0	24 0
—Jamaican ..	22 6	25 0
Lemons		
—Messina boxes	12 0	14 0
—Murcia ..	12 0	16 0
Nectarines ..	10 0	12 0
Nuts—Brazils ..	45 0	52 6
—Cob	2	2½
Oranges,		
—Denia ..	12 0	20 0
—Murcia ..	14 0	20 0
—Blood.. ..	14 0	18 0
—Seville ..	–	17 6
—Bitter.. ..	7 0	10 0
—Jaffa	11 0	12 6
Pears, — Winter Nelis, case ..	23 0	26 0
—Stewing, ½ bus.	3 0	3 6
Pineapples, case	19 0	25 0
Tunis Dates, doz. cartons ..	4 0	6 0
South African Fruit		
—Apricots ..	4 6	6 0
—Peaches, box	6 0	14 0
—Pears ..	5 0	8 0
—Plums, Methley box	3 0	4 0
—Santa Rosa, box	5 0	7 0

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus, bundle		
—Special Devon	11 0	12 0
—French ..	10 0	14 0
Beans,		
—Guernsey lb...	3 6	7 0
—Madeira basket	3 0	6 0
Cabbage, tally ..	1 9	3 0
Carrots, cwt. ..	2 6	3 6
Cauliflowers, doz.	3 0	4 6
Celery, roll ..	1 3	2 6
—Celeriac, doz.	3 0	4 0
Cucumbers, doz.	15 0	30 0
Endive, doz.		
—English ...	1 6	2 0
—French ..	2 0	2 6
Lettuce, French	1 3	1 6
Mint, doz. ..	6 0	9 0
Mushrooms, lb...	2 0	3 0
Onions—		
—Dutch, bag ..	3 9	4 0
—English, cwt.	5 0	5 6
—Valencia, case	8 0	10 0
Parsnips, cwt. ..	2 6	3 6
Potatos,		
—Guernsey, new, lb.	1 0	1 4
—Dunbar ..	£5 10	£6 10
—King Edward	£3 15	£4 10
—Others ..	£2 10	£3 5
Rhubarb, Forced, doz.	1 9	2 6
Savoys, tally ..	3 0	4 6
Seakale, punnet	1 6	1 9
Sprouts, bushel	3 6	4 0
Tomatos		
—Canary Islands	16 0	24 0
Turnips, cwt. ..	2 6	3 6

REMARKS.—Improvement in buying has encouraged a rather better tone, and although prices have not materially advanced, produce has cleared more satisfactorily. Peaches, Apricots, Nectarines, Plums and Pears from South Africa arrived in first-rate condition and moved out freely. A firm demand rules for available supplies of hothouse Grapes at slightly improved prices. Supplies of Apples from all sources are abundant for the present demand. Home-grown Apples are a slow trade; although values for the finest packs are maintained, medium and second grade Apples are not wanted. Bananas are not so keenly inquired for, and are quoted easier. Oranges are cheaper. Choice vegetables such as French Beans, Asparagus, new Potatos and Seakale, have been in good demand, values being well maintained. Green vegetables, although not so plentiful, show no increase in prices. The Potato trade is quiet, with ample stocks on offer.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz. ..	10 0	18 0
—elegans ..	10 0	12 0
Aralia Sieboldii..	10 0	12 0
Araucarias ..	30 0	48 0
Asparagus plumosus ..	12 0	15 0
—Sprengeri ..	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Azaleas, 48's per doz.	30 0	48 0
—60's	18 0	24 0
Cacti, per tray, 12's, 15's ..	5 0	6 0
Crotons, per doz.	30 0	42 0
Cyclamens, per doz.	24 0	30 0
Cyrtomium ..	10 0	15 0
Erica melanthra		
„ 48's per doz.	24 0	36 0
„ nivalis 48 „	24 0	30 0
„ 60 „	10 0	15 0
„ Thumbs „	6 0	8 0
Genistas 48's per doz. ..	15 0	18 0
Marguerites, per doz.	18 0	24 0
Nephrolepis, in variety ..	12 0	18 0
—32's	24 0	36 0
Palms, Kentia ..	24 0	30 0
—60's	15 0	18 0
—Cocos	24 0	36 0
Pteris, in variety	12 0	21 0
—large 60's ..	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's ..	3 6	4 0
Solanums, per doz	10 0	12 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum, decorum, doz. bun.	12 0	15 0
—cuneatum, per doz. bun. ..	8 0	10 0
Asparagus, plumosus, per bun.		
long trails, 6's	4 0	5 0
med. sprays ..	2 6	3 6
short „ ..	1 0	1 6
—Sprengeri, per bun.		
long sprays ..	2 6	3 0
med. „ ..	1 3	1 6
short „ ..	0 9	1 0
Azalea white per —doz. bun. ..	4 6	5 0
Camellias, white per box ..	4 0	– –
Carnations, per doz. blooms ..	3 0	5 0
Croton leaves, var., per bun.	2 6	4 0
Chrysanthemum pink, per doz. bun.	36 0	42 0
—white	36 0	48 0
—per doz. blooms		
—white	5 0	9 0
—yellow ..	6 6	8 0
—pink	5 0	8 0
Daffodils, single, per doz. bun...	12 0	18 0
Fern, French per doz. bun. ..	1 0	1 3
Forget-me-not per doz. bun. ..	12 0	15 0
Freesia, white, per doz. bun...	3 0	6 0
French Flowers		
—Acacia (Mimosa) per bunch ..	1 6	2 0
—Anemone, mxd. per doz. bun...	18 0	21 0
—Lilac, white, per doz. sprays	4 0	6 0
—Marguerite, yellow, per doz. bun.	5 0	6 0
—Marigolds, per doz. bun. ..	4 0	4 6
—Narcissus, Paper White, per doz. bun...	5 0	6 0
Soleil d'Or, per doz. bun. ..	5 0	6 0
—Roses Safrano per pkt 24's ..	2 6	3 0
—Ranunculus, Scarlet, per dz. bun.	9 0	12 0
Carmine per doz. bun. ..	10 0	12 0
Orange, per doz. bun. ..	18 0	21 0
Scarlet, Romano large, per doz. bun.	18 0	21 0
—Violets, Parma per bun. ..	5 0	6 0
Single per doz.	3 0	4 0
Heather, white per doz. bun.	4 0	10 0
Hyacinth, white, per doz. bun...	10 0	15 0
Iris tingitana, per doz. bloom	4 0	6 0
Lilium longiflorum —speciosum long per doz. ..	10 0	12
short „ „ ..	9 0	10 0
Lily of the Valley, per doz. bun.	24 0	42 0
Narcissus, Guernsey	8 0	10 0
Orchids, per doz.		
—Cattleyas ..	18 0	30 0
—Cypripediums	4 0	6 0
Pelargonium, per doz. bunch, double scarlet	10 0	12 0
Richardias (Arums) per doz. ..	8 0	10 0
Roses, per doz. blooms—		
—Frau Karl Druschki ..	3 0	4 0
—Madame A Chatenay	– –	–
—Melody ..	10 0	15 0
—Niphetos ..	– –	–
—Ophelia ..	– –	–
—Liberty ..	– –	–
—Richmond ..	– –	–
Smilax, per doz. trails	3 0	5 0
Snowdrops per doz. bun. ..	4 0	6 0
Violets, single ..	3 0	6 0
Tulips, Single—		
—white, per doz. bun.	15 0	18 0
—yellow, per doz. bun.	12 0	15 0
—pink, per doz. bun.	24 0	30 0
—scarlet, per doz. bun.	18 0	24 0
—terra cotta, per doz. bun. ..	18 0	24 0
—mauve, per doz bun.	30 0	36 0
—double pink per doz. bun.	24 0	30 0
—double yellow per doz. bun...	30 0	36 0
—double red per doz. bun. ..	36 0	42 0

REMARKS.—In this department the requirements during the past week have been somewhat limited, there being no great demand for any particular subject. Lilium longiflorum is at the present time one of the scarcest flowers on the market, therefore prices are considerably higher. Of Chrysanthemum the main supplies are disbudded blooms of Cheshunt White, a few Baldock's Crimson, and Negova (yellow), but coloured varieties are practically finished for this season. Daffodils are daily increasing, and now consist of Emperor, Henry Irving, Golden Spur, and princeps, with a few double Van Sion. Tulips are now a very prominent line, and a better selection is offered including some fine blooms of Couronne d'Or, Murillo, Salvator Rosa, and Vuurbaak, and the quality is much finer. The newest arrivals are the blue Iris tingitana, Snowdrops, Primroses and Anemone fulgens. Larger supplies are now being received from the Channel Islands, consisting of yellow and white Narcissus, Freesias, Daffodils, Smilax and Violets. Narcissi are arriving in fine condition. In the French department similar conditions prevail as last week. Paper White Narcissus and double white Stock remain firm in price owing to a more limited supply. Acacia (Mimosa), Anemones, Violets and Marguerites find a ready sale. Large supplies of Tulips and white and mauve Lilac are being received from Holland in excellent condition.

GARDENING APPOINTMENT.

Mr. J. Parr, for three years Foreman at Houghton Hall, King's Lynn, as Gardener to VISCOUNT GALWAY, Serlby Hall, Bawtry, Yorkshire.

CATALOGUES RECEIVED.

Seeds.

D. G. PURDIE, 6, Waterloo Street, Glasgow.

EDMONDSON BROS., 10, Dame Street, Dublin

J. C. WHEELER AND SON, LTD., Gloucester.

TOOGOOD AND SONS, LTD., Southampton.

S. FINNEY AND CO., LTD., Grainger Street, Newcastle-on-Tyne.

UPSTONES, 35, Church Street, Rotherham.

Plants and Sundries.

J. CHEAL AND SONS, LTD., Crawley.—Hardy flowers

BLACKMORE AND LANGDON, Bath.—Begonias, Delphiniums, Gloxinias, etc.

GODFREY AND SON, Exmouth, Devon.—Chrysanthemums.

JOSEPH BENTLEY, LTD., Chemical Works, Barrow-on-Humber, Hull.—Weed Destroyers, Insecticides, etc., and Sundries.

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THE
Gardeners' Chronicle
No. 1884.—*SATURDAY, FEB.* 3, 1923.

CONTENTS.

Arable land, the spring awakening of	57	Plants new or noteworthy—	
Books, notices of—		Pieris taiwanensis	63
Flowering Plants of South Africa	57	Rhododendron	64
Bulb garden, the—		Secretary, an absconding	58
Crocus Sieberi	63	Sedums, some early-flowering	62
Galanthus peculiformis	63	Sherwood, Mr. E., presentation to	58
Colour in the garden in winter	65	Societies—	
Commercial horticulture in the Isles of Scilly	66	Aberdeen Gardeners'	68
Dicentra spectabilis	67	British Carnation	68
Flora of the Antarctic regions	58	Gardeners' Royal Benevolent Inst.	67
Florists' flowers—		Manchester and N. of England Orchid	68
Chrysanthemum Mrs. Jack Pearson	65	Reading and District Gardeners'	68
"Gardeners' Chronicle," seventy-five years ago	59	Royal Horticultural	69
Horticultural societies, local	58	Trees and shrubs—	
Indoor plants—		Rhododendrons on limestone	59
Clianthus	61	Sciadopitys verticillata	59
Epiphyllums	61	Veitch, Mr. H. Morgan	58
Kew, special exhibits of botanical interest at	57	Weather, special forecasts of London	57
Orchid notes and gleanings—	62	Week's work, the	60

ILLUSTRATIONS.

Apple Ball's Pippin	67
Chrysanthemum Mrs. Jack Pearson	65
Clianthus puniceus albus flowering in the open in a Devon garden	61
Daffodil bulb, life cycle of a "broody"	66
Pieris taiwanensis, seedling plants of	63
Sciadopitys verticillata, cones of	59
Veitch, Mr. H. Morgan, portrait of	58

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.6°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, January 31, 10 a.m. Bar. 30.3; temp., 51°. Weather—Dull.

The Spring Awakening of Arable Land.

The discoveries of recent years of the many and varied parts played by soil bacteria in affecting for better or worse the fertility of the land make the term "the living earth" no mere figure of speech, but the expression of biological truth. Like the plants which grow upon it, the earth has its seasons of quiescence and activity, of rest and awakening. The fact that the resting period coincides with the winter season and the awakening with the coming of spring has naturally led us all to believe that climatic conditions determine the state of quiescence or of activity of arable soils. For example, it is usual to ascribe the slowing down of plant activity which takes place in autumn and the quickening which occurs in spring, the one to falling and the other to rising soil temperature. Nor is there much doubt that this explanation is, at all events in part, correct. But, nevertheless, it is unlikely that it will prove to be a complete explanation. During the winter, lands of temperate regions are generally subject to heavy rains and the more subtle effects of these deluges have scarcely been considered. It is known, of course, that they produce a large and costly leachage of soluble nitrates, so that when nitrification begins again in spring or early summer there is much leeway to be made up. For that reason, good cultivators give top dressings of quick-acting nitrogenous fertilisers, such as nitrate of soda, to the crops which they desire to coax into vigorous growth. It is possible, however, that the winter rains are the agents of other and beneficent operations of soil tillage. That this is so is at all events rendered probable by the results of the interesting observations made by Monsieur Lumière.* Setting out from the hypothesis that the roots and other remains of plants which grew in the soil in the previous summer produce in the course of their decay substances inimical to germination, he experimented with cultivated garden soil, dividing a portion into two parts, of which one was merely watered with distilled water, but the other washed repeatedly with distilled water. The pots of earth stood in a congenial temperature presently presented very different appearances. Seeds which had lain dormant in the soil began to germinate and cover the surface of the earth with seedlings in the case of the repeatedly washed soil, but none appeared in the soil which had not been washed. In order to confirm the conclusion that germination in the case of the unwashed soil was delayed and held up by the presence in it of toxic or inhibitory substances, Monsieur Lumière made water extracts from garden soil in winter. From them he obtained a solution which, when used for watering, prevented all germination at any season of the year. The seeds were scotched, not killed; for when the extract with which they had been watered was washed out from the soil, they germinated normally. The substances of unknown nature which are contained in the soil and prevent germination are highly resistant to heat, withstanding a temperature of 130°C. for half an hour. These observations naturally recall to mind those made by the late Mr. Spencer Pickering on the effect of one plant on another. They may, if confirmed, throw new light on the meaning of the capriciousness of germination of some kinds of seeds. Such seeds may be peculiarly sensitive to soil inhibitors or, for all we know, may contain in their coats some of these substances. It would be an interesting experiment to ascertain whether refractory seeds, e.g., of species of Primula, etc., would or would not germinate better and more quickly if they and the soil in which they were to be planted were washed repeatedly before sowing.

* *Comptes rendus de l'Academie des Sciences.* CLXXI. 18. Paris.

Flowering Plants of South Africa.—Part 9 of Vol. III. of the *Flowering Plants of South Africa* thoroughly sustains the interest created by the earlier issues of this useful publication. It contains ten illustrations, together with descriptive text of each species illustrated. The first figure, plate 81, is of Clematopsis Stanleyi, a fairly common plant in certain parts of the Transvaal. This is a plant of shrubby habit from eighteen to twenty-four inches high, with elegant, bipinnate leaves; the attractive flowers vary in colour from white to pinkish heliotrope. This is followed by Mimetes hottentotica, a Protead bearing heads of eight to twelve flowers, the latter appearing in the axils of the uppermost leaves; the red stigmas tipped with yellow are particularly conspicuous. The next plate is of Senecio Medley-Woodii, which has large, terminal flower heads borne in lax clusters. This species has a melancholy interest, as it was the last one upon which Dr. Medley Wood worked the day previous to his death. Then follows Protea compacta, a plant collected by Dr. I. Pole Evans, at Hawston, and now in cultivation at Kirstenbosch; this has large heads in which the inner involucral bracts are flesh-coloured or carmine, and practically hide the small flowers. Gerbera plantaginea, plate 85, is an acaulescent plant from the Magaliesberg, and bears solitary heads in which there are two rows of ray florets of pale straw colour tinged with pink. Plate 86 represents Aloe variegata, a species known since about 1772, when it was collected by Carl Thunberg. It has stout, keeled and pointed leaves which are variegated with white on a blue-green ground; the tubular reddish-pink flowers are carried on erect spikes. Ceratotheca triloba, plate 87, is an herbaceous plant, growing sometimes to a height of six feet. It has four-angled, purplish stems and tubular flowers, the latter with a wide-lipped mouth, somewhat resembling in general outline the flower of a Pentstemon. Dicoma Zeyheri, plate 88, is a curious Composite in which the flowers are borne in a capitulum, with prominent involucral bracts. The red and yellow stamens are the most prominent part of the flowers. The stems and under sides of the leaves are downy. Hyobanche Fulleri, a parasitic herb with fleshy stems, has showy inflorescences with broad, overlapping bracts of a deep red colour, these almost hiding the small and inconspicuous flowers; the final plate is of Romulea Austinii, a pretty little Irid, about three or four inches high, gathered at Matjesfontein. The outer segments of the flowers are pale yellow, the three inner ones deep yellow, and each has a curious, spade-like, purplish-brown mark.

Special Forecasts of London Weather.—The Air Ministry announces that weather forecasts are at present issued three times daily for the meteorological district of South-East England, which includes London, the South-Eastern Counties, and the coast from Margate to the Isle of Wight. The advances which have been made in forecasting have now made it possible to differentiate between the anticipated weather of London and the weather of the South-Eastern Counties and coasts, and, as the majority of the people of London are interested in the weather of London itself, it has been decided to issue separate forecasts for the Greater London area, roughly defined by a circle of 10 miles' radius from Charing Cross. The issue of these forecasts commenced on February 1, 1923. The earliest daily issue will be made about 10 a.m. (G.M.T.), and will forecast conditions for a period of 24 hours from the afternoon (about 3 p.m.); the second, covering a period from midnight to midnight of the following day, will be made at about 3 p.m. (G.M.T.); and the third, also from midnight to midnight of the following day, but taking account of later information, at about 8 p.m. (G.M.T.). The first and second forecasts will be available for the early and late editions respectively of evening newspapers, and the third for morning journals.

Special Exhibits of Botanical Interest at Kew.—Most of the items on the notice-boards at the principal gates of Kew Gardens indicating the "objects of special interest" from day to day have in the past mainly catered for the general public. Kew, as is well known, is also visited by botanical students, and it is pleasing to note that attention is being drawn to subjects of special scientific interest. One item to which reference is made on the boards this week is the examples of phyllodes and cladodes in the South Octagon of the Temperate House. The group forming the special exhibit shows examples of the reduction or loss of the leaf-blade. In some instances the leaf-stalk is modified and functions as a leaf (phyllode). In other examples the specialised arrested development of an axillary shoot serves the purpose of a leaf (cladode). The eight groups into which these are divided, with living representatives of each, are as follow: (1) Flattened and expanded phyllodes, sometimes with leaves attached, Oxalis bupleurifolia, Acacia melanoxylon, A. cultriformis, A. pycnostachys and A. armata; (2) needle-like phyllodes, Acacia tenuissima; (3) long, cylindrical phyllodes, Acacia extensa; (4) reduced leaflets and green leaf-stalks, Rubus cissoides; (5) needle-like cladodes, Asparagus Sprengeri; (6) expanded, spiny cladodes, Colletia cruciata; (7) broad, expanded cladodes,

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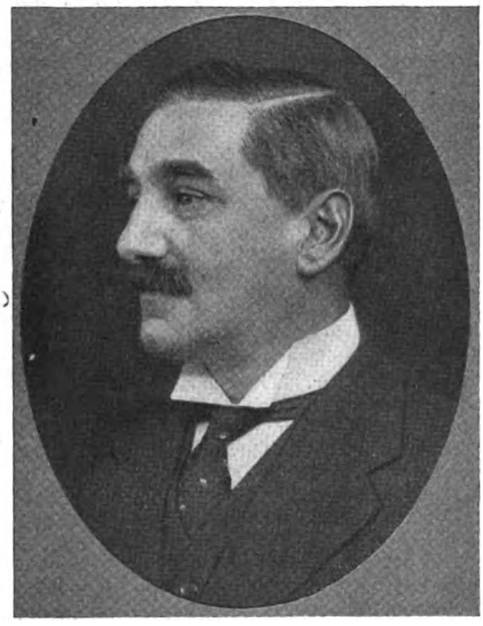
Semele androgyna, Phyllocladus trichomanoides, Phyllanthus angustifolius, Muehlenbeckia platyclada; (8) long, narrow cladodes, Carmichaelia australis. To compare with these, Acacia aurea, with normal leaves, is placed in the group.

"**The Kitchen Garden.**"—The Woolwich and District Memorial Hospital Horticultural Association is holding its annual meeting on Monday, February 5, in the old Town Hall, Woolwich. The general business will commence at 7.30 p.m. and will be followed at 8 p.m. by a lecture on "The Kitchen Garden," by Mr. E. Beckett. The lecture will be illustrated by lantern views. Special efforts are being made to provide a large audience for Mr. Beckett, and the enthusiastic committee of the Woolwich Association is ambitious to make the annual hospital show one of the best in the country.

Flora of the Antarctic Regions.—On the occasion of the recent meeting of the Linnean Society, Dr. Rendle introduced Capt. G. H. Wilkins to an interested audience. Capt. Wilkins gave an account of the Shackleton-Rowett Expedition in the "Quest" to the Antarctic Regions. On St. Paul's Rocks no plants save a few Algae were found, but at South Georgia, an island about 100 miles long, and 20 miles broad, a considerable collection was made, though the flora is fairly well known; and reindeer thrive. Lichens and mosses only were observed on Elephant Island; Tristan da Cunha was visited and 16 species gathered; Gough Island is known from the "Scotia" reports; the most conspicuous member of the flora is Phylica arborea, growing to 20 feet; a variety of Sophora tetraptera is now described. Tussock-grass, Ferns and Empetrum grow luxuriantly, and an Apium, hitherto confused with congeners, is now described. The specimens have been presented to the British Museum by Mr. J. Q. Rowett. The lecture was illustrated by a series of fine lantern-slides. After some discussion and a reply by Capt. Wilkins, Mr. E. G. Baker gave a résumé of the flora of Gough Island, twenty flowering plants and ten Ferns being now known from it. Amongst these may be named the endemic Cotula goughensis, Rud. Br., Hydrocotyle leucocephala, Cham. and Schlecht; Gnaphalium pyramidale, Thouars; Rumex frutescens, Thouars; and Empetrum nigrum, L., var. rubrum, Hemsl. The only small trees on the island are the Phylica and Sophora previously mentioned. There is also a new species of Apium allied to A. australe, Thouars, but having broad cuneiform segments to the leaves. The widely-spread Fern Lomaria Boryana, Willd., reaches a height of from two to three feet.

Presentations to Mr. Edward Sherwood.—In connection with the marriage of Mr. Edward Sherwood to Miss Keeling, an interesting ceremony took place on Thursday afternoon last, when he was presented, on behalf of the members of the staff of Messrs. Hurst and Son, in London and elsewhere, with a handsome silver tray, suitably inscribed. In making the presentation Mr. W. Cox drew attention to Mr. Sherwood's long connection with the firm, the masterly way in which, as a young man, he had grasped the details of a complicated business, and the good relations that had always existed between the principal and his assistants. On their behalf the speaker wished him long life and happiness in the wedded state, and asked him to accept the tray as an indication of the regard in which he is held by all who serve under him. In response, Mr. Sherwood thanked the members for the beautiful present they had handed him. He referred to the twenty years he had been managing partner, and said that the undoubted success that had attended the firm for so long had been brought about largely by the loyal co-operation of the staff with the principals. He thanked them for their good wishes, and hoped soon to have the pleasure of introducing them to his future wife. He concluded by assuring them that he appreciated the gift more than he could express in words, and the gathering terminated with cheers and expressions of mutual esteem. Among many other gifts from friends, Mr. Sherwood received a beautiful and suitably engraved silver cigarette box from the officers and committee of the National Sweet Pea Society, of which society he is hon. treasurer. The wedding took place on Saturday, January 27.

Mr. H. Morgan Veitch.—Mr. H. Morgan Veitch is by profession a solicitor, but apart from being the son of such a well-known horticulturist as the late Mr. Arthur Veitch and nephew of Sir Harry J. Veitch, he is intimately associated with horticulture in a variety of ways, for he is solicitor to the Gardeners' Royal Benevolent Institution, to the Chamber of Horticulture, the Central Chamber of Agriculture, the Federation of British Growers, the Horticultural Trades Association, and the British Florists' Federation. Apart from all this he is a member of very many of the gardening societies and associations, as well as a keen supporter of the gardening charities; he presided at the annual meeting of the Gardeners' Royal Benevolent Institution on the 25th ult., as stated in our report of the meeting on page 67. He was born in 1870, and



MR. HARRY MORGAN VEITCH.

was educated at St. Leonard's School and Malvern College. He passed his solicitor's final examination in 1891, and was Honoursman and Kent Law Society Prizeman. He has written extensively on commercial, horticultural and agricultural law, and has contributed many valuable articles to the *Gardeners' Chronicle* on matters of law as affecting gardeners and horticulturists generally. He has served as a captain to the 2nd (now 5th) Volunteer Battalion of the East Surrey Regiment, and passed in war tactics at Chelsea Barracks with distinction. Mr. Veitch is a fine athlete, and has excelled in swimming, lawn tennis—he is an old member of the All-England Lawn Tennis Club—and in his younger days was a keen footballer, being an old member of the Kent County Football team. Beside all this, he is a very capable musician. Mr. Veitch is of fine physique, and his commanding personality makes him a notable figure at important gatherings. Although one of the busiest of men, he is usually present at the principal horticultural meetings and exhibitions; and he has a wide circle of friends, by whom he is greatly esteemed for his genial manner, his readiness to help, and his gifts as a conversationalist.

A Veteran Gardener.—Mr. J Harwood, gardener to the Queen Victoria Jubilee Convalescent Home, Durdham Down, near Bristol, recently celebrated his 86th birthday. He has held his present position since the home was first opened, nearly a quarter of a century ago, and has still the full confidence and regard of the Board of Governors. An excellent portrait of this veteran gardener appears in the *Western Daily Press*, from which our particulars are taken.

The Potato and Hay Crops.—The Ministry of Agriculture's crop reporters state that the quantity of Potatos on the farms on January 1 was estimated at upwards of 2,300,000 tons or nearly 60 per cent. of the total quantity lifted; corresponding figures for last year are not available, but stocks of Potatos now on hand are heavier than in any other recent year except 1919 when they were of about a similar quantity as a consequence of the record crop of 1918. The quantity of hay on farms was estimated at rather less than four million tons or 68 per cent. of the total crop. This is about 400,000 tons more than last year.

"**Gardeners' Chronicle**" **Directorate.**—At the recent half-yearly meeting of *The Gardeners' Chronicle* Company, Ltd., Mr. Chas. H. Curtis, Managing Editor, accepted an invitation to join the Board of Directors.

Local Horticultural Societies.—At the annual meeting of the West Bridgford Garden Holders' Association no fewer than one hundred and two members out of one hundred and twenty-five attended. Two of the members, Messrs. R. C. S. Ross and Mr. G. R. Myall were successful candidates at the last election of the local council in the special interest of garden holders. Mr. G. R. Myall was elected president of the Society in place of Mr. Ross, who retired.—Watford Horticultural Society has increased its membership from 166 to 186, and entries for last year's annual show increased by fifty per cent. The Society's balance sheet shows surplus funds of £39 15s. 5d.—Mr. F. Calkin, secretary of the Finchley Horticultural Society, stated at the annual meeting on the 12th ult., that the Society had got back to its pre-war status, and that they could look forward to the coming year with every prospect of success. The membership was stationary, for whilst many of the old members had dropped out, newcomers were enrolling and taking their places. The total receipts of the Society during the past year were £292, and there is a balance in hand of £35.—At the annual meeting of the Reading and District Gardeners' Association it was stated that the year 1922 was one of increased success and prosperity. The membership had steadily increased and the financial position was the strongest since the Association was formed in 1888. Mr. Councillor Frank E. Moring was elected president.—Alderman C. H. Cartwright, Mayor of Bournemouth, has been elected president of the Bournemouth Horticultural Society. The Society will hold a summer show in June and also an autumn show; five cups have been presented for competition at these exhibitions.—Alderley Edge and Wilmslow Horticultural Society only realised £20 15s. 6d. in admission money to their show last year, as against £102 4s. 2d. in the previous year, but a special effort resulted in a sum of £89 9s. 6d. being raised in aid of the funds. Through this contribution the Society has ended the year with a balance in hand of £91, after starting with a debit balance of £1 4s. 5d. The secretary, Mr. Burns, has resigned owing to ill health, and Mr. E. E. Loose has been elected to the office in his place.—Ipswich Gardeners' and Amateurs' Association had a most successful year in 1922, but sustained a severe loss in the death of their president, Mr. J. Morgan, who was one of the original members. Eight meetings have been held during the year, at which papers have been read by experts, and three successful outings were enjoyed by the members, to the R.H.S. Gardens, at Wisley, Orwell Lodge Gardens and Shrubland Park Gardens, respectively. The Society's fruit show in October was again very successful.—The Deal, Walmer and District Horticultural Society had a record number of exhibits at its autumn show last year. Members of the Society were successful in winning the challenge cup at the Sandwich show for the third year in succession, and it now becomes their property. The Society has lost by death during the past year a number of generous supporters, but the

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membership had increased during the year by ten. Lord George Hamilton was re-elected president. It was decided to hold a Rose and Sweet Pea show the last Thursday in June, and an autumn show early in November.—Periodical lectures of the Eastbourne Horticultural Society during 1922 were well attended, and the autumn Chrysanthemum show was a great success. The chief event of the year was the holding of the National Sweet Pea Society's show, at Eastbourne, in July last, and the committee record the honour paid to the Society, through the Secretary, who was presented with the N.S.P.S.'s gold medal in appreciation of his valuable services. Sir Charles O'Brien Harding, who was re-elected president, said at the end of this year he would come of age in regard to the office.—A new horticultural society is to be formed in South London, under the title of Southwark Horticultural Society. It is intended to hold a flower show in the forthcoming summer and to encourage the growth of flowers in window boxes, and to offer special prizes to children attending the schools of the Borough for the best display of flowers. A brighter Southwark is to be the motto of the newly-formed society.—Brighton, Hove and Sussex Horticultural Society had a most satisfactory year in 1922. The number of entries and the amount paid for admission at the November show constituted records. A substantial increase in the membership is reported, and the statement of accounts shows a balance in hand of £188 as compared with £95 in 1921. After twelve years of office, Mr. A. J. Gaston, the secretary, who has had a serious illness, resigned, and the meeting decided to make Mr. Gaston a life member of the Society, and in recognition of his valuable services to grant him £20 from the funds. It was decided that this should form the nucleus of a testimonial fund to which members of the public should be asked to subscribe. Mr. H. J. Bingham was elected to fill Mr. Gaston's place.

An Absconding Secretary.—The Secretary of the Southall and District Horticultural Society, Ltd., has been expelled from the society. In October last he was called upon to produce the financial statement, which he did, and after that he was asked to produce the books. The latter were never forthcoming and there is evidence of them having been burnt. It has been discovered that a sum of £600 out of £1,245 has not been paid into the society's account. This includes rent owing to the local council for the past year. It was stated that the superior landlord's requirements had been met in full by the council, and in response to an appeal by the chairman a sum of £100 was forthcoming, much of the money being handed over to the chairman before the meeting dispersed.

Appointments for the Ensuing Week.—Sunday, February 4, Wakefield Tulip Society's meeting; Monday, February 5, National Chrysanthemum Society's annual meeting at R.H.S. Hall; Tuesday, February 6, Royal Caledonian Horticultural Society' meeting; Wednesday, February 7, Wimbledon and District Gardeners' Society's meeting, Lewes and District Horticultural Society's annual meeting; Thursday, February 8, Royal Gardeners' Orphan Fund annual meeting and election of orphans at Simpson's Restaurant, at 4 p.m., Wargrave and District Gardeners' Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Gardeners' Benevolent Institution.* We are happy to announce that at the anniversary of this Institution on Thursday last, under the able presidency of Lord Robert Grosvenor, the subscriptions at the dinner nearly reached the sum of £200, viz., £148 donations, and £50 annual subscriptions. Among the donations were: The Chairman, £20; W. Sturt, Esq., £10 10s.; Duke of Cleveland, £10 10s.; Robert Hanbury, Esq., £10 10s.; Dr. Lindley, £5; The Sheriffs, £10 10s.; Robert S. Holford, Esq., £10 10s.; W. F. J. Farmer, Esq., £5 5s.; Rev. J. H. Fisk, £5; Messrs. Henderson and Co., £5 5s.; and M. J. Webber, Esq., £5 5s At the meeting in the morning, the usual routine business was transacted, and the accounts showed a small increase in the annual subscriptions. *Gard. Chron., Jan.* 29, 1848.

TREES AND SHRUBS.

RHODODENDRONS ON LIMESTONE.

If memory has not played me false, the subject of *J. P.'s* inquiry on page 26 has been dealt with already in *The Gardeners' Chronicle*; but as the behaviour of certain Asiatic species of Rhododendron on calcareous soil has received much attention of late, perhaps the following note may not be deemed superfluous. When Mr. E. H. Wilson first reported Rhododendrons growing upon limestone in Yunnan, we at home were inclined to doubt whether their roots were actually in contact with calcareous rock, or merely growing in pockets and crevices filled with humus. Observations specially directed to this matter by later collectors have amply confirmed the correctness of Mr. Wilson. Mr. Forrest has described many species as growing, not only in pockets and crevices of magnesian limestone in North-Western Yunnan, but flourishing in the limy talus at the bases of the cliffs, and also in soil full of limestone rubble. He has suggested that possibly the limestone of Yunnan is of different character from that usually occurring in Europe, and less soluble. He brought home with him specimens of the rocks and soil in which he found Rhododendrons rooted; but the result of analyses of these has not, so far as I know, been announced.

Mr. Forrest, however, also has been able to show that the under-surfaces of the leaves of Rhododendrons growing on limestone not only harbour a fungus, but that its mycelium penetrates the leaf, just as it has long been known to infiltrate and penetrate the roots of Rhododendrons growing in non-calcareous soil. Fungus has been detected in the indumentum covering the under-surface of the leaves of certain Himalayan Rhododendrons which will not suffer contact with lime or chalk; but I understand that in no case has it been found to penetrate the leaves of these species. The late Sir Isaac Bayley Balfour satisfied himself that the mycelium did penetrate the under-surfaces of the leaves of species collected from limestone in China, and spoke of the suggestion as obvious that the fungus, unable to endure contact with lime in the soil, had migrated to the leaves, where its function was to supply its host with free nitrogen from the atmosphere instead of fixed nitrogen from the soil through the roots. This, however, cannot be taken as more than a suggestion, awaiting examination and experiment. On the whole, it seems extremely probable that the presence of the fungus, whether on the roots or on the leaves, or on both, is essential to the welfare of all Rhododendrons; just as it has long been known that the Heaths (belonging to the same Natural Order as the Rhododendron) cannot thrive without the symbiotic fungus.

It might contribute towards a solution of the problem if the roots and foliage of Rhododendron hirsutum were examined, the only European species which were naturally on a limestone formation. *Herbert Maxwell, Monreith.*

SCIADOPITYS VERTICILLATA.

This very distinct Conifer is a native of Japan, where it attains a height of 100 feet to 120 feet, with a trunk girth up to 12 feet. It is placed in the Taxodinae group, which includes the Sequoias and Taxodium, but the *Botanical Magazine*, tab. 8,050, states it has "no obvious affinities or immediate allies"

Fig. 28.—cones of sciadopitys verticillata.

among living Conifers to-day. A single plant was sent home from Java by Lobb in 1853, but the largest specimens at Kew were raised from seeds collected by John Gould Veitch in 1861.

The popular name of "Umbrella Pine" refers to the arrangement of the cladodes (which function for leaves) and suggest the ribs of an umbrella. In habit this Conifer is of distinctly pyramidal growth, making a noble lawn or park specimen. Although self-sown native seedlings may not do so, transplanted cultivated trees develop numerous side shoots, which, if not stopped, soon grow, giving a bushy habit instead of the formal pyramidal appearance. In conversation with a Japanese botanist, I learned that the native trees attain a considerable size before producing cones. Transplanting evidently induces early coning, for at Kew we frequently have to remove cones from near the top of the trees to obviate a check to the leading shoot. The cones (see Fig. 28) take two years to mature, and are 1½ inch to 3 inches long and 1 inch to 2 inches wide.

The Sciadopitys is comparatively slow in growth. According to Elwes and Henry in *Trees of Great Britain*, the largest tree they found was at Hemsted, Kent, and this in 1905 was 38 feet in height. *A. O.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Cattleya.—Cattleya Trianae, C. Percivaliana, and C. chocoensis, are the best known winter-flowering species; but many of their hybrids produce better flowers more freely, so that from a utility standpoint the species themselves may be ignored. As the plants named above all succeed under the same treatment, the following remarks apply to those of the different genera named, which have produced their flowers during the winter. After the plants have passed out of bloom, specimens that are beginning to develop new roots from the base of the last-made pseudo-bulbs may be repotted. The work is better done now than when the roots get longer, as the latter are easily broken and damaged if allowed to attain any considerable length. A suitable compost for these plants consists of equal parts of Osmunda, A.I., and peat fibres, mixed with live Sphagnum Moss and broken leaves. I still find that when a small proportion of good peat fibre is added to the coarser fibres, the root action of the plants is stronger, and the resultant growths more vigorous. The compost should be used according to the strength of the plants to be repotted. The stronger and larger the specimen, the rougher and coarser should be the material. For small seedlings it should be cut up comparatively finely, and slightly more Sphagnum Moss should be used. Strong plants should be potted firmly, whilst small seedlings should be made only moderately firm. In all cases the compost should be thoroughly cleaned, by removing all the earthy particles from the fibres.

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INDOOR PLANTS.

CLIANTHUS.

CLIANTHUS PUNICEUS is an excellent subject for training on a pillar or rafter in the conservatory. It is easily raised from seed, grows fairly quickly, and its successful cultivation presents no difficulty, except that it is very subject to attacks of red spider, which, however, may easily be prevented by a free use of the syringe. There is a variety called magnificus, also a white-flowered variety named albus. The plant illustrated in Fig. 29 is growing on a warm wall in the South-West of England.

FIG. 29.—CLIANTHUS PUNICEUS ALBUS FLOWERING IN THE OPEN IN A DEVON GARDEN.

Clianthus Dampieri, the Glory Pea of Australia, is another beautiful species, with silvery grey foliage and gorgeous, red, claw-shaped flowers, with a black blotch.

Unlike the former species, this plant has always been a difficult one to cultivate successfully. Although it is raised easily from seed, its after-cultivation is difficult, the plant being impatient of disturbance at the roots.

The best way to grow it successfully is to graft it on seedling stocks of Colutea arborescens; this is the most delicate grafting operation I know, as the work must be done in the seedling stage. The growing point should be removed from the seedling Colutea, leaving the two cotyledons; the soft stem between them should then be split with a very sharp knife, the tiny Clianthus seedling cut to a wedge shape, and inserted in the slit, securing it with a strand of soft cotton. The plants should then be stood in a warm propagating case.

The plants may be successfully grown in baskets in a sunny greenhouse. They always do well planted out in a raised bed in a small span-roofed house, training the growth under the roof-glass. *J. C.*

EPIPHYLLUMS.

EPIPHYLLUMS are naturally epiphytal, with a somewhat delicate root system, and should be grown in comparatively small receptacles; a four-inch pot is large enough for a plant 18 inches across. They may be grown into specimens over a yard in diameter, but with age these large plants are liable to rot away in sections from the centre. A compost of light, fibrous loam, with the addition of a little brick rubble, will usually give the best results.

Growth ceases at the end of autumn, and after that period syringing should be discontinued, and the plants allowed more air and sunshine to thoroughly ripen the growths. *Fred. W. Jeffery, Dalserf, N.B.*

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INDOOR PLANTS.

CLIANTHUS.

CLIANTHUS PUNICEUS is an excellent subject for training on a pillar or rafter in the conservatory. It is easily raised from seed, grows fairly quickly, and its successful cultivation presents no difficulty, except that it is very subject to attacks of red spider, which, however, may easily be prevented by a free use of the syringe. There is a variety called magnificus, also a white-flowered variety named albus. The plant illustrated in Fig. 29 is growing on a warm wall in the South-West of England.

Clianthus Dampieri, the Glory Pea of Australia, is another beautiful species, with silvery grey foliage and gorgeous, red, claw-shaped flowers, with a black blotch.

Unlike the former species, this plant has always been a difficult one to cultivate successfully. Although it is raised easily from seed, its after-cultivation is difficult, the plant being impatient of disturbance at the roots.

The best way to grow it successfully is to graft it on seedling stocks of Colutea arborescens; this is the most delicate grafting operation I know, as the work must be done in the seedling stage. The growing point should be removed from the seedling Colutea, leaving the two cotyledons; the soft stem between them should then be split with a very sharp knife, the tiny Clianthus seedling cut to a wedge shape, and inserted in the slit, securing it with a strand of soft cotton. The plants should then be stood in a warm propagating case.

The plants may be successfully grown in baskets in a sunny greenhouse. They always do well planted out in a raised bed in a small span-roofed house, training the growth under the roof-glass. *J. C.*

FIG. 29.—CLIANTHUS PUNICEUS ALBUS FLOWERING IN THE OPEN IN A DEVON GARDEN.

EPIPHYLLUMS.

EPIPHYLLUMS are naturally epiphytal, with a somewhat delicate root system, and should be grown in comparatively small receptacles; a four-inch pot is large enough for a plant 18 inches across. They may be grown into specimens over a yard in diameter, but with age these large plants are liable to rot away in sections from the centre. A compost of light, fibrous loam, with the addition of a little brick rubble, will usually give the best results.

Growth ceases at the end of autumn, and after that period syringing should be discontinued, and the plants allowed more air and sunshine to thoroughly ripen the growths. *Fred. W. Jeffery, Dalserf, N.B.*

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ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM EURYBIADES, THE DELL VARIETY.

A noble flower of this superb cross between C. Hera Euryades (Leeanum × Boxallii) and C. Alcibiades (Leeanum giganteum × Mons. de Curte) sent by Mr. J. E. Shill, gardener to Baron Schroder, The Dell Park, Englefield Green, confirms the generally accepted estimate of it as one of the largest and most perfect in form, and beautiful in colour, in its section. The flower also shows a probably abnormal feature, which, being regularly displayed, adds to its beauty. It has two perfectly formed dorsal sepals arranged in the usual position, but one on each side instead of in the middle, and both flatly displayed without any disturbance of the parts. The ground is pure white, with blackish claret heavily blotched lines, in which the influence of C. Mons de Curte is plainly seen. The broad petals and lip have a yellow ground tinged with chocolate purple. The plants comprising the Dell batch of this fine Cypripedium are all good, although the varieties The Baroness and Shillianum are considered the best.

ODONTOGLOSSUM ST. EMILION.

Pantia Ralli, Esq., Ashtead Park (Orchid grower, Mr. Farnes) sends the first flower of a beautiful new cross between O. eximillus (eximium x illustrissimum) and O. St. James (amabile x Amethyst) taken from a small, seedling plant, the slender stem having a good flower of rich colour and model shape. O. crispum and O. Pescatorei are the basic species in all the ancestors, with O. Harryanum twice intervening. The result is a perfectly formed flower resembling in shape an enlarged O. Pescatorei, the lip of that species being curiously reproduced. The sepals and petals are bright ruby-red with a violet shade, the margins being white and the tips bearing small, blush-white spots. The labellum, which is white in front, has a ruby red blotch before the clear yellow crest, the side lobes having short, clearly defined purple markings. The upper side of the column is also dark red.

LAELIO-CATTLEYA DODONA.

Flowers of this remarkable cross between L.-C. Haroldiana (C. Hardyana × L. tenebrosa) and L.-C. Nelthorpe Beauclerk (C. Enid × L.-C. Gottiana) sent by the raisers, Messrs. Cowan and Co., Ltd., Southgate, show the great beauty and variety in the small batch they were fortunate enough to raise. The firm first showed the variety at the R.H.S. meeting on October 31 last, when a First Class Certificate was received for the specimen, which bore orange-red flowers tinged with mauve, the lip being dark violet purple with gold disc. Four forms were shown at the first January meeting of the Royal Horticultural Society, this year; all were different and, like the flowers now sent, varied from yellow with claret lip to rosy-mauve with violet lip, but all having the clear gold disc and lines in the centre. The number of fine species in the ancestry, which always give good effect, while ensuring the good quality of each form, rarely give two hybrids alike in colour and shape of the flowers.

ODONTOGLOSSUM AQUILA.

Messrs. J. and A. McBean, Cooksbridge, send a pretty new cross between O. ardentissimum and O. l'Empereur, for recording. It has the best features of the lighter forms of O. ardentissimum, but with very broad sepals and petals, which make it a very perfect flower, and the lip, which partakes much of O. Pescatorei, is broad and well displayed. The sepals are white, the inner halves bearing dark reddish purple blotches, the central ones being the larger. The lip is white with purple markings in front of the yellow crest.

NEW HYBRIDS.

(*Continued from December 30, 1922, page 380*).

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Lawrie	B.-C. Marguerite Fournier × C. Octave Doin	Stuart Low.
Brasso-Laelio-Cattleya Strathmore	L.-C. Nella × B.-C. Mrs. J. Leemann	Stuart Low.
Calanthe Stella	Ruby × Kewensis	Charlesworth.
Cattleya Amy May var. Theodora	Empress Frederick × Dowiana	Stuart Low.
Cattleya Edithiæ	Suzanne Hye × Trianae alba	Pauwels.
Cattleya Helvetia	Suzanne Hye × Lady Veitch	Sanders.
Cattleya Ingenieur Reyband	C. Comet var. Maroc × C. Hardyana alba	Mons. Marcoz.
Cattleya Linda	Cowaniae × Lady Veitch	Cowan & Co.
Cattleya Madame A. Lecler	Alfred Fowler var. Jean Payal × Warscewiczii	Mons. Marcoz.
Cattleya Octho	Octave Doin × Clotho	Stuart Low.
Cattleya Petrone	Andromaque × labiata Gilmouriae	Mons. J. Potin.
Cymbidium Doreen	Pauwelsii × Doris	McBean.
Cypripedium Baron Bultel	Gaston Bultel × The Baron	G. F. Moore, Esq.
Cypripedium Capstone Gem	Arthurianum × aureum Surprise	A. M. Gentle, Esq.
Cypripedium Charltonville	Shogun × Pyramus	S. Gratrix, Esq.
Cypripedium Doris Stanton	Goliath × Pyramus	G. F. Moore, Esq.
Cypripedium Edith Gentle	Boadicea × Mrs. W. Mostyn	A. M. Gentle, Esq.
Cypripedium Fascination II.	Ceres × Beeckmannii	G. F. Moore, Esq.
Cypripedium Gwen Hanmer	Christopher × Florence Spencer	G. F. Moore, Esq.
Cypripedium Helene	Shogun × aureum	S. Gratrix, Esq.
Cypripedium J. M. Black	Eurybiades Mirum × Beryl	Flory & Black.
Cypripedium Kervalli	Actæus langleyense × Mary Gratrix	A. T. Cussons, Esq.
Cypripedium Lady Bultel	Gaston Bultel × Lady Dillon	G. F. Moore, Esq.
Cypripedium Lawrie	Dicksonianum × Aisne	Stuart Low.
Cypripedium Luxor	Leeanum × Minos Youngii	Mrs. Bruce and Miss Wrigley
Cypripedium Memoria H. J. Elwes	Satyr × Christopher	G. F. Moore, Esq.
Cypripedium Miss Lily Kinnaird	Goliath × Troilus Archimedes	G. F. Moore, Esq.
Cypripedium Mrs. Eley	Christopher × Warrior	G. F. Moore, Esq.
Cypripedium Noel II.	nitens-Leeanum Bectoniae × Nirvana	Dr. Craven Moore.
Cypripedium W. H. Page	bourtonense × nitens leeanum Amazon	G. F. Moore, Esq.
Cypripedium Yellow Hammer	Fairrieanum × San-actæus	Sanders.
Cypripedium Zenota	Zeno × Earl Tankerville	Mrs. Bruce and Miss Wrigley
Laelio-Cattleya Britannica	L.-C. Britannia alba × L. purpurata alba	Sanders.
Laelio-Cattleya Cavatina	L.-C. Bryan var. Duchess of York × L. Cowanii	Mrs. Bruce and Miss Wrigley
Laelio-Cattleya Cuderae	L.-C. Cupid × C. Schroderae	Sanders.
Laelio-Cattleya Emile Tilkin	C. Gudrun × L.-C. Bella	C. Sladden, Liege.
Laelio-Cattleya Intermezzo	C. intermedia × L. Cowanii	Mrs. Bruce and Miss Wrigley
Laelio-Cattleya Pasteur	C. Maggie Raphael × L.-C. callistoglossa	Mons. Marcoz.
Laelio-Cattleya rubrochila	Isabel Sander × Carhamiana Rex	Sanders.
Laelio-Cattleya Secretaire Grapin	C. amabilis × L.-C. Wellesleyi	Mons. Belin.
Laelio-Cattleya Yokohama	C. Blackii × L. Cowanii	Mrs. Bruce and Miss Wrigley
Odontioda Antinea	Odm. illustrissimum × Oda. Wilsonii	P. Smith, Esq.
Odontoglossum Andrey	eximilus × percultum	Pantia Ralli, Esq.
Odontoglossum Elizabeth	crispum Rossendale × Lambardeanum var. Gatton Prince	Sir J. Colman.
Odontoglossum Florence	Rolfeae × Rosalind	Mansell & Hatcher.
Odontoglossum J. H. Knight	eximium × eximilus	Cowan & Co.
Odontoglossum St. Emilion	eximillus × St. James	Pantia Ralli, Esq.
Sophro-Laelio-Cattleya Osmondii	S. grandiflora × L.-C. Wrigleyi	Mrs. Bruce and Miss Wrigley
Sophro-Laelio-Cattleya Warnathon	C. Warnerii × S.-L.-C. Marathon	P. Smith Esq.
Wilsonara Deception	Cda. Charlesworthii × Oncidium macranthum	Sanders.

SOME EARLY-FLOWERING SEDUMS.

Among the most notable of the Mexican Sedums which may be considered hardy is S. Palmeri, identified by its fleshy, spathulate leaves of a delicate emerald or glaucous green. These leaves are borne at the ends of the sprawling, or semi-decumbent, stems of 8-9 inches in length in bold, loose rosettes, from the centre of which appears the branched and spreading head of striking orange flowers. We grow this very beautiful plant in the open, and since it has already withstood considerable frost without injury it promises to maintain the reputation for hardiness which it has attained elsewhere. The date of the flowering under such conditions naturally depends greatly on the weather. Some plants in a sheltered corner of the rock-garden promise to bloom this year within the next few weeks, but, as a rule, they do not open their flowers until April or May. Those in the cold frame, however, may often be relied upon to give colour as early as February.

Near to the above comes S. compressum (rose), which in the open does not appear to be so early blooming as S. Palmeri. But in this instance, as in the other, much depends on the situation, weather and other factors. S. compressum may easily be distinguished from the foregoing by having sharply pointed, instead of rounded leaves, and these are not glaucous, but a pale grass green, with a tendency to become suffused with red, especially in autumn. Though also a Mexican plant this species is apparently quite as hardy as S. Palmeri. Rather shorter in the stem than the latter, S. compressum makes a more compact plant with more of a House-leek appearance. The blossoms are a fine, glowing orange, individually slightly larger than those of Palmeri and borne in a 2-3 branched cyme from the leaf rosettes. In the cold house or living room S. compressum will flower quite early in January.

Sedum confusum, another Mexican species, is at once distinguished from S. praealtum of cottage windows, which sometimes passes for it, by its much broader, less pointed, almost egg-shaped leaves. These are fleshy, vivid green, very glossy, and about 1 inch long. S. compressum will grow into the semblance of a small shrub, with woody branches 1 foot or more in height, the yellow inflorescences appearing early in the year on protected plants, and in March or April on those occupying sheltered positions in the open. This species has, so far, proved as hardy here as those already mentioned, and its ability to endure our winters out-doors has been reported from various parts of the country where a moderately mild climate prevails.

Among the spring blossoming Sedums, S. spathulifolium is one of the prettiest and most interesting, but this North American species appears in so many forms or varieties that even specialists cannot always agree as to the name which these should bear. The typical species, as found in the westerly mountains of British Columbia southward, is a close-growing little plant with rosettes about 1 inch across, the leaves being 1 inch long, grey green above and whiter beneath. These turn a soft dove or pale plum colour in autumn, but in some gardens this tint will suffuse the whole plant the year round. The other extreme, admitting an almost indefinite number of intermediate forms, produces rosettes 2 inches across, the leaves being larger and redder and the young foliage more mealy than in the typical plant. The purple of this form of S. spathulifolium, usually listed as "var. purpureum," generally attains its richest tone in autumn, at which season and later some of the outer leaves may become a brilliant crimson-scarlet.

In all varieties the flowers are yellow, and produced in a cluster at the branching head of a stiff upright stem, the individual blooms being unusually large. These flowering stems may be from 2 inches to 6 inches in height, according to the size of the plant.

In my experience the larger and finer forms of S. spathulifolium bloom much more freely than those nearer the type. Soil, situation and atmospheric conditions doubtless have con-

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siderable influence on the development and colouring of most varieties of this Sedum, as one may prove by planting several off-sets of the same specimen in various parts of the garden. There is a variety of this species with almost pure green (not glaucous) foliage, and broad, apiculate leaves which do not assume the red tint. It is known as "var. majus" and is listed under various other names, but of it I have had no experience. *A. T. J., N. Wales.*

THE BULB GARDEN.

GALANTHUS POCULIFORMIS.

THIS variety of the common Snowdrop is sometimes found wild, and readers who are interested in Snowdrops should carefully examine the flowers where Galanthus nivalis is grown in quantity in the hope of finding Galanthus poculiformis, or a closely allied one, among them.

Galanthus poculiformis has two peculiarities. The first is that the inner and outer segments or "petals" are of the same length. The second is that the green markings which adorn the inner segments of the typical Snowdrop are absent and the blooms are entirely white. It is not a large, but an exceedingly beautiful little Snowdrop. It has two failings. One is that the flowers in a clump of this variety do not always retain their complete purity, and that they may give some blooms with more or less green markings on the inner segments. The other is that it seems to be a little more tender than the type. It was originally found in a garden in Sutherland.

CROCUS SIEBERI.

WITH late January and early February we have generally the delight of welcoming the little flowers of Crocus Sieberi, which, many years ago, I acquired, prompted by what I was told regarding it, that it was "a hardy mountaineer, anticipating all others."

Small in size, compared with the big Dutch spring Crocuses or even the lovely C. Imperati, C. Sieberi is charming when growing in a small clump or scattered in grass. A group of even a dozen flowers is very delightful in the border or on a sunny slope of the rock garden.

With the pretty lilac flowers open to the sun, they constitute one of the most cheering sights the garden can bestow at this season. The corms are cheap, as Crocus species go; and they are best planted as soon as they can be obtained in late summer or early autumn. This beautiful Crocus is lovely in the open, and equally charming in the alpine house. *S. Arnott.*

PLANTS NEW OR NOTEWORTHY.

PIERIS TAIWANENSIS.*

PLANTS from the island of Formosa are very rare in cultivation, and gardeners in general know very little about the rich flora of that remarkably beautiful island. A few collectors long ago visited the low-lying western coastal fringe, but it is only in quite recent years that it has been possible for a white man to travel far into the interior. For our knowledge of the wonderful mountain flora of Formosa we are indebted to Japanese botanists, and especially to Dr. Bunzo Hayata, who has devoted some twenty years of his life to its study. During the first three months of 1918, and again in the autumn of the same year, it was my good fortune to visit Formosa, and thanks to facilities freely placed at my disposal by the Japanese Government and to the assistance of the forestry officers, I was able to travel through a good deal of the country. Among other places I ascended to the summit of Mount Morrison, 13,075 feet above sea-level, and the highest mountain in the Japanese Empire; I also traversed the famous sea cliffs of north-eastern Formosa. These cliffs are among the highest of their kind in the world, and it was my privilege to be the first white man to cross over their full length.

* Hayata in *Jour. Coll. Sci. Tokyo*, XXX., Art. 1, 169 (1911); *Icon. Pl. Formos.* II. 119, t. 14 (1912).

The collecting of herbarium specimens and taking photographs of the vegetation were the particular objects of my visits, but I did gather a few seeds, and among them some of Pieris taiwanensis. These seeds were collected in 1918, and were distributed by the Arnold Arboretum to friends in America and Europe. The plants raised from this new Pieris have already flowered in several gardens in America, Britain, Ireland and France, and a figure appeared in these pages in March, 1922 (*Gard. Chron.*, Vol. LXXI. 139, fig. 68). Its habitat, though high up on the mountains, is on the Tropic of Cancer, so the plant cannot be expected to be hardy save in favoured places like Cornwall or where an equally genial climate obtains. From reports I have received it promises to be hardier than I had expected it to be.

FIG. 30.—SEEDLING PLANTS OF PIERIS TAIWANENSIS FLOWERING IN A GREENHOUSE IN THE ARNOLD ARBORETUM AT CHRISTMAS.

It is very ornamental, and under glass in mid-winter flowers freely, even when quite small, and should be useful as a pot plant for the cool conservatory.

This Pieris is an evergreen shrub of compact bushy habit, occasionally 10 ft. tall, but usually from 3 ft. to 5 ft., and flowers freely when less than a foot high. The branches are ascending, rigid, winged when young by the decurrent petiole-bases, and are well clothed with scattered and crowded, shining green, oblanceolate to lanceolate, rarely elliptic-lanceolate, leaves, each from 2 to 4 inches long with a raised midrib and margins crenate-serrate in their upper half and the base narrowed to the short petiole. The flowers are urn-shaped, each about one-third of an inch long, pure white with a bright green calyx, and are crowded on terminal and axillary, erect panicles each from 5 to 8 inches high; on weak plants such as those depicted in the accompanying illustration (Fig. 30), the inflorescence is reduced to one or more spreading racemes each from 3 to 5 inches long. The flowers are pendent, and often the racemes, by the twisting of the flower-stalks, have the appearance of bearing no flowers on their upper side.

This new species is characterised by its rigid branches, by its leaves being non-reticulate and crenate-serrate in the upper half only, and by its normally dense inflorescence, stout rhachis, peduncles and pedicels. The flowers in all species of Pieris are much alike, differing slightly in size and shape only. This Formosan species seems to be most closely related to the well-known P. japonica which has less coriaceous leaves with margins crenate-serrate from near the base and the secondary veins raised on the under-surface, a nodding inflorescence with slender rhachis peduncles, and pedicels and smaller flowers.

Another species in cultivation and common from Central China to the Himalayas is P. formosa, which may be distinguished by its larger oblong to elliptic-lanceolate leaves reticulate on both surfaces and serrated, often sharply so, from the base; its flowers are larger and rather broader in shape, and the inflorescence is upright, but less dense and more widespread than that of Pieris taiwanensis.

One new Pieris grows wild on the central mountain ranges of Formosa in open, grass-clad country between 8,500 and 11,000 ft. elevation. I gathered it on the ranges beyond Arisan in Kagi prefecture, toward Mount Morrison, where it grows associated with Rhododendron rubropilosum and other shrubs and where Pinus Armandii forms thin woods. In a wild state flowers are to be found on the plant at any season of the year. It is very floriferous, lasts in bloom a long time, and should prove a worthy addition to the list of ornamental, free-flowering, evergreen shrubs. *E. H. Wilson, Arnold Arboretum, Harvard University, Mass.*

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RHODODENDRON.

A MELANCHOLY interest attaches to No. LXV. of the Edinburgh *Notes* (April, 1922), just issued,* as it contains, so far as is known, the last collected contribution to the study of Rhododendron by the brilliant intellect which has done so much of recent years to evolve genetic order out of chaos.

Those who had the privilege of Sir Isaac Bayley Balfour's friendship know how much he had a complete revision and enumeration of the genus at heart; how the leisure he had earned so well, though as we now know, at the cost of his life, was to be devoted to the completion of a task the magnitude of which might well have shaken the resolution of a lesser mind; and how, almost up to the last moment, all his energies were thrown into it.

Surely no skilled investigator could have been more worthily equipped for the work, nor more happily served, than was Sir Isaac Balfour. With a subject very near his heart; with new material flowing in on him in a constant stream, principally from a collector with whom he had the advantage of periodic personal collaboration; with a staff devoted to him and trained to his methods, and with one of the most complete herbaria in the world to his hand, only life and health seemed to be needed to enable him to put *finis* to what would indeed have been a *magnum opus*.

Apart from the *Diagnoses* of new species of Rhododendron which have been published in the *Notes* of the Edinburgh Botanic Garden and other directions since he began his study of the genus, Sir Isaac made a practice, in his correspondence with those who were specially interested in Rhododendrons, of elaborating his views on various species and their phyletic relationship. Many of these epistolary elaborations are not only of extraordinary interest to students of the genus, but are in themselves important contributions to the literature of it. Few more fitting tributes to Sir Isaac's memory could be conceived than that a collection of his printed papers and such parts of his private letters as are germane to the subject should be gathered together by competent and sympathetic hands. In years to come the work would assuredly take its place as a classic.

In the last series of *Diagnoses*,† those interested in the genus had perforce to be content with bare botanical descriptions of the 70 species dealt with. There was none of the illuminating analyses, none of the phyletic segregations which made previous enumerations of Rhododendron of such absorbing interest. There were excellent reasons for the brevity so noticeable in connection with the descriptions of new species in No. LXI. of the *Notes*, but the return to the earlier manner will be welcomed by all whose interest in the genus is more than superficial.

No fewer than 75 new species are reviewed in the present enumeration, and, as for many years past, the major part is Forrestian. It includes some of the spoils of Forrest's work in 1918-1919 in S.E. Tibet and N.W. Yunnan—the headquarters of the genus—in about equal proportions, with five species from his initial exploration of the Mu-li mountains in S.W. Szechuan (1918). There is, however, a fair leavening of Farrerian species, mostly dating from 1920, when Farrer was collecting in Upper Burma, and these all gain in interest by reason of the descriptive field notes of which their discoverer was so able an exponent.

Though they may contain all that the keeper of a herbarium needs, gardeners whose interest lies in a particular genus must often bewail the brevity of the field notes attached to specimen plants. The conditions under which plant collecting is carried on, especially in remote districts of Western China, no doubt make for brevity in such matters, but no one can examine the herbarium material of the famous French collectors who explored the country at the close of the last century without often wishing for a little more light in the darkness.

It is all the more refreshing, therefore, to find that Farrer contrived to break with tradition and give posterity field notes, of which those attached to his No. 926 and No. 1547 (R. aiolosalpinx) are typical: "N.E. Upper Burma, Chimili Pass, 11,000-12,000 ft. A small, graceful bush, extremely profuse in lovely flowers from pure or creamy-white through every shade of waxy-fleshy rose to clear rich pink, and even crimson; no scent. Five honey glands at the base in almost crested pinched-in folds. A very lovely plant indeed, common on open ribs of the bamboo brake and even below at 1,000 ft. on the flat rill-sides of the upper torrent courses, in half shade. N.B.—Leaf reverse creamy yellow, purple-edged. See painting. Farrer. No. 926. May 16, 1919."

"N.E. Upper Burma. Chawchi Pass, Nyitadi, etc. Alt. 10,500-11,000 ft. Flowering in the snow at 10,800 ft. This appears as a small, straggly bush here, not attaining such proportions (as far as seen) as it does on the Hpimaw ridge. White and creamy tones, too, vastly preponderate here over pink ones. On the Maguchi pass the plant is very fine, a 5-foot bush in wide jungles over the open alp. But here, too, the flowers, though notably large, are almost invariably cream-white. Farrer. N. 1547. May 15, 1920."

Six species of Kingdon Ward's collecting in 1919 and two Bhutan species from Cooper (1915) make up a list teeming with interest. To what extent any of them will prove amenable to open-air cultivation in Britain only experience can show, but we may expect to have difficulties with the Bhutan species and some of those from Burma.

Sir Isaac Balfour's predilection for the sanguineum series shows no sign of slackening, and interest will be whetted by his description of R. didymum, a Forrestian species from the Tsarong (without elevation) with flowers of the black-crimson hue already represented by R. haematum. R. liratum is another of the same series, but from the Shweli-Salween divide: "A hard, rigid plant of exposed places, with bright rose-carmine flowers, few in number. The happily-named R. sperabile is judged one of the finest species found by Farrer, who described it as a "small bush with erect new shoots—their shaggy investiture of white wool contrasting finely with the pure, clear scarlet of the rather waxy flowers hanging below."

R. damasceuum, a species from the Mekong-Salween divide, at 15,000-16,000 feet, is a tiny alpine carpeting plant of the campylogynum series, with the flowers thick, fleshy, and almost black, with a bluish bloom like that on a Plum; it grows as an under-plant among other Rhododendron, and is only a few inches high; R. codonanthum, from the same country, is described as "a delightful bright yellow-flowered species."

Sir I. Balfour's enumerations of Chinese Rhododendrons should be of particular interest to the earnest cultivator of alpine plants, for the number of dwarf mountain species reviewed is astonishing. Many of these are found near the limits of ligneous vegetation, growing in circumstances which assuredly render the business of life a precarious affair. Some of them, at any rate, should be like potter's clay in the hands of the skilful cultivator; others will no doubt be difficult to a degree. But cultural difficulties never baulk a determined cultivator, and whether easy or difficult, the number and quality of these alpine Rhododendrons are such as to absorb much of the time of a keen grower. Their cultivation requires very much less space than is needed by the bush and tree species which are in such excellent hands in this country, and it is possible that they may be successfully grown in situations and under conditions which would be fatal to their larger relatives. To those who are prepared to take some trouble, the possibilities of this section of the genus, treated as alpines, seem almost unlimited. A commencement has already been made on the rock garden at Inverleith, and the results are encouraging enough to justify an extension of the limited field these species enjoy at present among a few amateurs.

In any consideration of the work done by Sir I. Bayley Balfour in the classification of Rhododendron, the part played by the explorer must not be overlooked. Indeed, as Sir Isaac often said, but for the discoveries of recent times, and principally those of Wilson and Forrest, there would have been little in the genus for him to deal with. No one knew better than he the difficulties and dangers which beset the adventurer who goes plant-hunting in Western China, and none did more to encourage the intrepid men concerned. That the lion's share of the exploration carried on during the last fifteen years should have fallen to George Forrest—himself an old Edinburgh boy—was as great a source of gratification to the late Regius Keeper as the epoch-making nature of the explorer's labours.

It was a happy train of circumstances which led on the one hand to the master being furnished with botanical material by his old pupil, and on the other ensured for the latter that brilliant exposition of his discoveries which, though no more than their importance merited, can have fallen to the lot of few explorers. The shade of Delavay may well be envious.

It is yet too early to appraise the work which has been interrupted in such untimely fashion. But no one—botanist or gardener—having to do with the genus, can have followed the progress of the classification without interest deepening to admiration. The gradual application of the principle of phyletic segregation; the initiation of the most interesting practice whereby the character of the leaf indumentum is employed as a fundamental criterion in the grouping of Rhododendron into recognisable series, if not for specific distinction; the exposition of geographical variations of species and series, not only between the Himalaya and China, but between one district of a Chinese province and another, one side of a mountain range and the other, all showed the master hand. *G.*

* *Notes from the Royal Botanic Garden, Edinburgh*, April, 1922. Vol. XIII. No. lxv. Rhododendron: Diagnoses Specierum Novarum, II. By Prof. Sir I. Bayley Balfour, F.R.S.

† *Notes from the Royal Botanic Garden, Edinburgh*, Vol. XIII., No. lxi.

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WINTER COLOUR IN THE GARDEN.

ALTHOUGH colour schemes in endless variety may be produced in the garden without difficulty for spring, summer and autumn effects, their provision to alleviate the monotony of the winter landscape calls for considerable foresight and ingenuity. Yet it is during the dull, drab days we are now experiencing that colour in the garden is most appreciated. Many flowering plants may be seen in full beauty during the winter, but their efflorescence is too capricious to be relied on as part of a definite colour scheme.

Brilliant winter effects may also be obtained from brightly coloured berries of many trees and shrubs, but here again fruition is very variable and uniformity cannot be ensured, moreover, the danger from the depredations of birds and other causes has to be considered. Hence, for regular colour effects in winter, the landscape gardener must depend mainly on shrubs and trees having a persistent foliage of varied hue, with the assistance of certain deciduous trees having coloured bark.

The most imposing appearance is presented, particularly from the distant view, when such subjects are planted in varied groups and masses, each consisting of the same species. Naturally it is easier to carry this out where space is not restricted, though pleasing results may be obtained in gardens of moderate size.

Probably the most gorgeous colour effect in winter is produced by massing the golden-leafed shrubs in groups. As an illustration of this it will be useful to describe the "Gold Garden" at Pyrford Court. This garden is nearly square, with sides about 80 feet long. It is enclosed by a golden Holly hedge, beyond which on each side is a belt of trees. Two broad turf paths traverse the garden parallel to the sides, the turf being widened where they bisect to form a circle in the centre, from which point one looks on four somewhat flattened, diamond-shaped beds. With the long diagonal of these beds as a base-line, large specimen standard and half-standard golden Hollies are planted at intervals of about 12 ft., which in effect gives an irregular wavy, chain-like ring to the whole garden. Extending about half-way towards the front are bold groups of golden Privet, golden Elaeagnus and Cassinia fulvida, while nearer the front are groups of the dwarfer growing golden Euonymus, golden Box and golden Yew, the intervening bays being planted with gold-flowering herbaceous plants for summer effect.

The band of trees at the back consists chiefly of Cupressus Lawsoniana lutea and Retinospora plumosa aurea for winter effect, and Ulmus Louis van Houtte, U. Dampieri, Acer Negundo aurea and Catalpa bignonioides aurea for summer effect.

The whole garden is a picture of dazzling brightness in summer, and in winter, especially on a sunny day, it is a joyous pleasaunce. In the light, sandy soil of the district the intensity of colour developed in these foliage plants is very marked, and the plants all flourish under dry conditions.

Another most charming colour effect in winter may be produced by planting in series of various subjects with coloured bark. Here again there is a wide choice of material. For brilliance of winter colouring of the wood I know of nothing better than the scarlet Dogwood, Cornus sanguinea. This is at its best at mid-winter, as after the fall of the year it deepens considerably in colour It is particularly suitable for use in conjunction with coloured Willows as a background or boundary to the lake or water garden.

There are several species of Salix, notably S. cardinalis (bright red) and S. alba vitellina (yellow), which are easily obtainable and may be associated with Cornuses for mass-planting with good effect. If bold groups of Pampas Grass are introduced into the scheme the grey foliage and inflorescence tend to show up the colours of the bark plants, particularly in the distant view. It is invariably in the young wood of coloured-bark plants that the most intensive colour is shown, hence hard pruning is desirable, though it need be practised only in alternate years. Indeed, if alternate groups are selected for attention each year a more varied and pleasing effect, particularly from the distance, can be obtained by a system of biennial pruning, owing to the difference in depth of colour between the younger and the older wood

Beautiful effects can also be obtained in the wild garden by contrasting dark foliage plants with those having light or coloured bark Everyone appreciates the striking beauty of a group of Silver Birch in conjunction with the sombre Scotch Pine. Similar pictures may be produced in many directions by the judicious blending of such subjects as Hippophae rhamnoides, Rubus biflora, Cupressus Lawsoniana Allumii, and other grey-coloured plants, with many of the handsome, dark-foliaged evergreens. *W. Auton, Pyrford Court Gardens, Woking.*

FIG. 31.—CHRYSANTHEMUM MRS. JACK PEARSON.

FLORISTS' FLOWERS

CHRYSANTHEMUM MRS. JACK PEARSON.

NEW varieties of Chrysanthemums are introduced in considerable numbers each year, and almost every variety put forward has some point of special merit or some difference of colour, form, or habit to distinguish it from its predecessors, but rarely has a raiser been successful in producing a variety which will flower continuously over a period of four months. Such success, however, has attended the efforts of Mr. Frank Ladds, the head of Messrs. P. Ladds, Swanley Junction and Bexley.

The variety in question has been named Mrs. Jack Pearson, after the wife of the head of the firm's sales department at Covent Garden. It is a golden-bronze variety, free branching, good alike in spray form or disbudded. When fully grown it is about three feet high, but its principal point of attraction and usefulness is that it continues to flower from the middle of July to the end of October. During 1922 the first batch of flowers was placed on the market on July 20, and the last cases of blooms were on sale on October 31. Between these dates regular and considerable consignments were cut and sold, and the prices obtained were excellent.

The plants were put out in the open ground during April and received no protection whatever. Another good point about this variety is that while making allowances for difference in the amount of growth produced, it commenced as early and was as continuous in flowering in the very hot season of 1921 as in the cooler and moister one of 1922. The accompanying illustration, Fig. 31, represents a few blooms taken from a market bunch exposed for sale in Covent Garden Market on October 31 last.

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COMMERCIAL HORTICULTURE IN THE ISLES OF SCILLY.

SITUATED forty-three miles from Penzance and twenty-eight miles S.W. of the storm-swept Land's End lie the Isles of Scilly, so little known except to plant enthusiasts, so little talked about except by lovers of naked Nature. One could fill many columns of this journal eulogising the glorious naturalness of the scene, the vivid colouring and striking contrasts, the intense quietness, and the roaring wildness of the seas in the height of a tropical storm. Many a time have I watched seething cascades of green sea-water strike the rock called "Shipman's Head" with ruthless, reckless force, and the spectacle always leaves me with an immense impression of the utter futility, smallness, and impotence of human affairs.

Five islands of the archipelago are inhabited, and cultivation on horticultural lines is conducted on all. These islands are so grouped that they afford considerable protection to each other, and, owing to the comparative evenness of the levels, all aspects receive a considerable amount of sunshine.

The climate is extraordinary to the last degree; it can be fickle and determined, indifferent and passionate, mediocre and brilliant, all within twenty-four hours! The keen gardener under glass, with mainland training, finds the Scillies both the despair and joy of his life alternately, for he has no sooner ventilated his houses and frames on some brilliant sunny morning, than down comes the fog or the eternal wind becomes extremely active. This may go on all day, and, as I have said, the keen man will be constantly on the move regulating internal temperatures. Very little fire heat is required even in the dead of winter, which is very mild. Frosts seldom occur during autumn and winter, but the bane of our lives is the late spring frosts. Although scarcely ever is more than four degrees experienced, yet this amount may do considerable damage to the early Potato crops—running into thousands of pounds sterling. Extremes of temperature, however, are rarely met with, the average temperature for the past ten years being 47° in winter and 57° in summer. It is so mild that garden crops continue to grow right through the winter, and such plants as Cineraria and the common Pelargonium continue to flower out of doors all the year round.

The soil of the islands is wonderful. It is a light, hot, sandy loam resting on a granite formation in which felspar is prominent. It is very easily worked in all weathers, and is extraordinarily responsive to treatment in the matter of manuring, but very deficient in organic matter and lime. The islands will support so little live stock that the shortage of natural manure is a serious problem. Green manuring may help to solve this, and is being tried. As the soil is naturally rich and easily worked, the average islander has done very little to it for generations past, and the effect is now becoming evident—it is not so inexhaustible as was imagined. Analytical tests have recently been carried out on soils in all parts of the islands, and results indicate plainly an abnormal acid condition of all samples tested, in addition to a serious lack of nitrogen. The latter deficiency is recognised by growers generally, since large quantities of sulphate of ammonia are annually applied. But since the beneficial results from this form of nitrogen are largely dependent on the lime content of the soil, its action is very feeble, and in many cases, in addition to failing to react, does actual harm.

On Tresco this lime shortage has been made good in a rather novel manner. During the war period the Admiralty built an air station here, and all the buildings, floors of hangars, and so on, were constructed with concrete blocks. After the Armistice these were all razed to the ground, in the hope that the quick-growing sea-bents, Heather and Fern, would, in time, conceal the unsightly mass of debris. On chemically testing this unpromising-looking material, it was ascertained that roughly 10 per cent. of calcium carbonate was present. The farm tractor (the first and only one on these islands, by the way) was introduced to the stonecrusher, and many tons of very finely pulverised concrete materialised. This was subsequently applied to the land at the rate of ten tons to the acre, and the succeeding crops responded to an astonishing degree, thus proving the unbalanced state of the land chemically.

To make matters worse, huge quantities of raw seaweed, running into many thousands of tons, are annually applied to the land. This is drawn straight from the beaches, and, still soaked with sea-water, is carted on to the land at once. This method of procedure cannot but have a very deleterious effect on the soil, and many of the growers are aware of this now. Efforts are being made to form kelp or seaweed compost heaps a year ahead of requirements, and by doing this it is hoped to acquire all the potassic contents of the weed, minus the injurious sea salts.

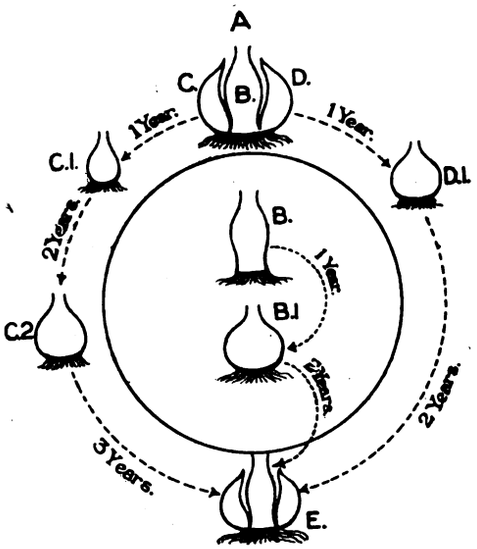

FIG. 32.—LIFE CYCLE OF A "BROODY" DAFFODIL BULB.

A, "broody" bulb; B, parent bulb; C, small offset; D, large offset; B1, C1, D1, first year development; C2, second year development; E, again "broody."

The wind here is a very serious factor in our calculations, and is of equal, if not superior importance to soil conditions.

Only on the favoured island of Tresco has the question of wind-breaks been seriously tackled. There are no trees of any consequence on the main and largest island of St. Mary's, nor on any of the off-islands. Tresco in the past has been very lucky in possessing a resident proprietor in the person of the late Lord-Proprietor, Mr. T. A. Dorrien-Smith. With wonderful foresight and business acumen he made strenuous efforts to plant shelter-belts of Cupressus macrocarpa and Pinus insignis. These trees were planted concentrically all over the inhabited portion of the island. Within these outer rings of trees a systematic scheme of shelter planting and fencing has been carried out.

The long, narrow strips of granite soil, termed "fields" (they are really alluvial deposits or pockets of soil which have been reclaimed from the Gorse and Ling) are divided by live hedges, stone walls or dykes, and a combination of cleft Chestnut and Rush fencing. The live hedges (Escallonia macrantha) are the most effective internal wind-breaks, but, though they lend beauty and dignity to the gardens, they occupy more room than can be spared in so restricted an area as the cultivable portion of Tresco. Hence these are giving way to the more economical, if prosaic, rush-thatched fence, topped with cleft Chestnut fencing. It is remarkable the amount of protection these fences give—outside the shelter-belt I have been buffeted by a wind blowing at from 60 to 70 miles per hour, yet on reaching the sheltered gardens all was calm, and delicate blooms were swaying about as in a gentle breeze.

The islands generally, agriculturally and horticulturally, are undergoing vigorous reconstruction, and preparations are under way for the reclaiming of more land for bulb and flower growing.

During 1922 the islanders experienced considerable good fortune in having a very heavy flower season, followed by an unprecedented demand for bulbs. It may be of interest to note that over seven hundred tons of flowers left these islands last season! The export of bulbs is a great reversal of pre-war conditions and practice. At that time flowers and Potatos were the mainstay of the community, and hundreds of tons of good, sound bulbs were thrown over the cliffs to make room for those which were to remain to flower!

A definite system and rotation with bulb culture has now been inaugurated in order to (1) control the flower crop, securing continuity of supply during the season; (2) to so lay out the fields that growers are prepared one year ahead for the following season's requirements.

A course of rotation has been adopted which covers a period of three years, since this covers the length of time the life cycle of a bulb involves. The drawing (Fig. 32) roughly describes the life history of a bulb, starting from planting size. We have on Tresco alone planted 250,000 large offsets of one variety alone (D), and wall-sided parent bulbs (B), which will be fit for either forcing or planting next season (D1 and B1), and a lesser number of smaller offsets (C) which will be ready in two years' time (C2). At the same time many hundreds of thousands of round bulbs (B1 and D1) have been planted to remain three years, and these will form our stock beds for the future (A and E).

The bulbs definitely put down for stock are planted much more shallowly than those intended for flowering. The larger and coarser the bulb, the deeper it is planted, and, of course, vice versa when working for flowers only, but when it comes to breeding for stock, this rule is not applied, because the less deeply a planting-size bulb is buried the more offsets are produced.

In order to lessen the costs of production, some of the growers on the Island of St. Mary's have adopted the system of grassing down all their bulb fields and grazing thereon immediately the flowers are picked. The more enlightened cultivators, however, understand that this method weakens the flowers, renders them later, and shortens the stems, hence a greatly depreciated market value. The bulbs also fail to split and multiply, and in reality the "bulb grazier" is living on his capital, whilst the bulb cultivator is increasing the value of his stock-in-trade all the while it is producing revenue.

The Island of St. Martin's, roughly two miles east of Tresco, vies with the latter in the keenness and capacity for hard work of its inhabitants. Exposed on its eastern aspects to the full force of the Atlantic gales, bleak and unsheltered, yet here are grown some of the finest bulbs in the world. Unremitting hard toil from daylight to dark has converted the island from a barren, rocky wilderness to an intensively cultivated area analogous to the wonderful small-holdings around Paris or Evesham. With marvellously patient industry, large tracts of blown sand have been enclosed by stone walls, and in some cases by live Euonymus hedges, and after heavy dressings of raw seaweed, often eight inches to one foot thick, young bulb offsets are planted to grow on for forcing or for sale. This super-light, sandy "soil" is used principally for the polyanthus Narcissi, particularly the ever popular and profitable Soleil d'Or, which revels in this medium, producing bulbs of surprising size and firmness, and blooms of extraordinarily intense colour and firm texture. *S. P. Wells, Tresco.*

(To be concluded.)

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HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Hybrid Veronicas.—The illustration and note of Veronica salicifolia in *Gard. Chron.*, January 6, prompts me to mention how very finely two of the garden hybrid forms flowered here last season. The several bushes of each variety were raised from cuttings during October, 1920, and were planted out in April of the following season. The position was at the foot of a wall between other shrubs and climbing plants, which, having grown to the top of the wall, had left the base somewhat bare and unsightly. The aspect was south-west, the soil fairly light in texture and warm, so that the plants grew freely and seemed to revel in the great heat we experienced that summer; during a portion of the day some distant shade was forthcoming from a fine old Yew hedge, which is a feature of these gardens. The names of the Veronicas are Purple Queen and Simon Delaux. The former is well known to many, but I do not think the other one is so common. The colour of the flowers may be described as rose, with a suspicion in some of the spikes of a faint purple intermixing. The foliage has a touch of claret in its green, so that this also is very attractive. *Henry Turner, Albury Park Gardens.*

Dicentra spectabilis.—In his interesting notes on p. 37, Sir H. Maxwell asks for information concerning success in growing Dicentra spectabilis. The finest specimen I have seen grew at Wierton, near Maidstone, for many years. This was planted close to a brick wall, fully exposed to the east, in a well-drained but otherwise quite ordinary soil. It soon grew to a large plant about 4 feet across, and almost the same in height, and being close to a public road it was admired very much when in flower; the only cultural assistance given was to run a string around the plant to prevent it from being blown down, and in November a covering of coal ashes about 6 inches thick was put over the roots. This remained until the young growths were well advanced in the spring, thus protecting them from late frosts, which otherwise cause damage; at the same time this covering checks the ravages of snails and slugs, which are fond of the plant in spite of the strong smell. I do not know the district around Monreith, but imagine the want of success may be owing to lack of sunshine. D. spectabilis absolutely revels in plenty of hot sunshine, provided it has a fair amount of moisture at the roots. It forces easily in a moderate temperature, but is not suitable for house decoration, as it gives off a strong odour when confined in a room. *W. H. Divers, V.M.H., Westdean, Hook, near Surbiton.*

SOCIETIES.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE annual meeting of the Gardeners' Royal Benevolent Institution was held at Simpson's Restaurant, Strand, on the 25th ult. There was only a small attendance, those present including Messrs. P. G. White, H. G. Cox, J. Hudson, O. Thomas, Leonard Sutton, A. Bullock, J. F. McLeod, A. Wood, W. E. Wallace, J. P. Rochford, C. H. Curtis, Alfred Dawkins, John Heal, Geo. F. Tinley, P. R. Barr, David Ingamells, P. Kay, J. Linford, H. Morgan Veitch, and J. R. Pulham. In the absence of the chairman and treasurer, Sir Harry J. Veitch, Mr. H. Morgan Veitch was asked to occupy the chair. Mr. Veitch thanked the company for proposing him to the chair, and stated that his uncle had hoped to be present with them, but his doctor would not consent to his coming.

After the secretary had read the notice convening the meeting, the report of the committee for 1922 together with the statement of accounts were presented to the meeting.

EXTRACTS FROM REPORT OF THE COMMITTEE.

It affords the Committee much satisfaction to submit their 83rd Annual Report, together with a statement of receipts and expenditure (as audited) for the year 1922. They desire to record their thankfulness that they have been enabled by the continued kind aid of the many friends of the Institution to maintain the good work on behalf of aged and distressed gardeners and their widows—which has been carried on with so much benefit for 83 years.

During the year several annuitants have passed away, five of whom left widows, whose cases on investigation having been found necessitous and worthy, they were placed on the funds for the widow's allowance for life without election in accordance with Rule III-13. Unfortunately the applications for permanent aid are exceedingly numerous, there being no less than 45 carefully approved candidates—26 men and 19 widows on the list for the coming election, of whom the Committee recommend that 18 be elected this day by the votes of the subscribers. Thus 27 poor people sadly in need of help will still have to wait for that permanent assistance which they so much need. It is a matter for congratulation, however, that all applicants who were formerly subscribers or contributors to the Institution will, whilst on the waiting list, receive a certain sum from the "Victorian Era Fund," whilst the "Good Samaritan Fund" also extends temporary and much deserved help in urgent cases of distress.

No less than 63 persons were relieved from these two funds during the year.

The Annual Festival Dinner on behalf of the funds was held by kind permission of the Worshipful Company of Grocers in their beautiful hall on June 27, under the presidency of The Rt. Hon. Lord Lambourne.

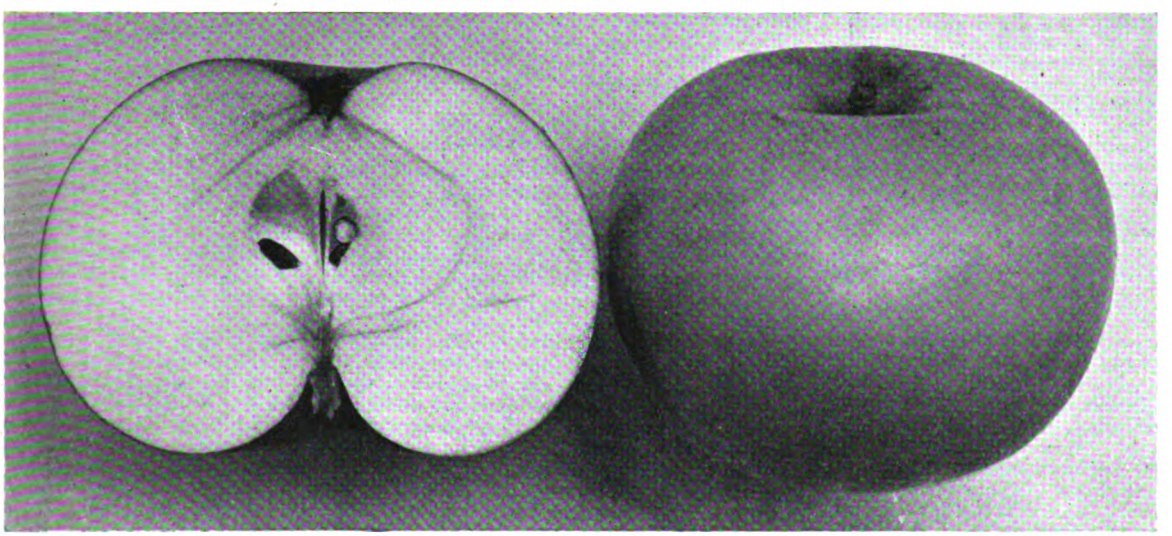

FIG. 33.—APPLE BALL'S PIPPIN: R.H.S. PROVISIONAL AWARD OF MERIT, JANUARY 16 (SEE P. 41).

The chief items in the financial accounts are those following:—

RECEIPTS AND PAYMENTS OF THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.
FOR THE YEAR ENDING DECEMBER 31st 1922.

RECEIPTS.	£ s. d.	£ s. d.
To Balances with Bankers January 1, 1922—		
On General Account	807 0 2	
On Deposit Account	200 0 0	
Do. (Wolfe Legacy and Interest)	916 9 1	
Balance with Secretary January 1, 1922	4 14 3	
		1,928 3 6
Annual Subscriptions	1,015 17 6	
Donations	2,343 1 8	
Schröder Annuity	20 0 0	
Legacy—J. C. Geiselbrecht, Esq.	377 3 6	
Dividends and Interest	887 0 9	
Income Tax refunded	235 14 4	
Deposit Interest (Wolfe Legacy)	7 1 2	
		4,885 18 11
Gardeners' Company Trust Fund—		
Gift of 5% War Loan (per contra)		427 9 2
		£7,241 11 7

PAYMENTS.	£ s. d.	£ s. d.
By Annuities and Gratuities		4,291 1 0
Rent, Fuel, Lighting and Salaries of Secretary and Clerk	660 10 11	
Expenses of Annual Meeting and Election	5 12 0	
Printing and Stationery .. 167 17 10		
Less Advertisements 39 8 0		
	128 9 10	
Cheque Books	11 9 2	
Postages: Reports, Polling Papers, Appeals and Ordinary	49 18 7	
Telephone Charges	11 3 0	
Cost of Wreath	3 3 0	
Carriage, Telegrams, Typing and Incidental Expenses	12 10 9	
Advertisement "Fry's Charities"	2 12 6	
		885 9 9
Gardeners' Company Trust Fund—		
Gift of 5% War Loan (per contra)		427 9 2
Balances with Bankers December 31, 1922—		
*On General Account	1,112 19 7	
On Deposit Account	523 10 3	
Balance with Secretary, December 31, 1922	1 1 10	
		1,637 11 8
		£7,241 11 7

(Signed) G. H. COBLEY, KAY & CO. (Honorary Auditors).
Chartered Accountants.

* £1,225 was required to meet quarterly payments due on December 31, 1922.]

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P.C., C.V.O., V.M.H., who eloquently advocated the claims and objects of the charity, resulting in a very substantial sum being obtained towards the maintenance of the work.

Very sincere thanks are specially given to the following generous donors: Reginald Cory, Esq., Sir Edward Stern, Bart., Major Churcher, Messrs. Rothschild and Sons, Messrs. W. and E. Sherwood, Messrs. Sutton and Sons, Messrs. E. G., Geo. and B. J. Monro, Edward White, Esq., V.M.H., and Sir Harry J. Veitch (treasurer); also to the organisers of concerts, etc., in connection with the Altrincham and District Gardeners' Improvement Society. They also thankfully record the foundation of a "Trust Fund" in connection with the Institution by the Worshipful Company of Gardeners for the benefit of an annuitant.

The Committee are also again much indebted to the Rt. Hon. the Earl Beauchamp, K.G., Rt. Hon. Lord Northbourne, The Lady Battersea, C. W. Dyson Perrins, Esq., J.P., and Robert B. Corbett, Esq., for so kindly allowing their beautiful gardens to be opened to the public for the benefit of the Institution. They have also much pleasure in acknowledging the kind services of Messrs. Morgan Veitch and Bilney (honorary solicitors) and of Messrs. Geo. Cobley, Kay and Co. (chartered accountants), for their honorary services in auditing the accounts. They would also again record the thoughtful kindness of Sir Harry J. Veitch, Leonard Sutton, Esq., J.P., C.B.E., Mrs. Monro, Major E. G. Monro, Geo. Monro, Esq., and B. J. Monro, Esq., in providing a yearly allowance to six unsuccessful candidates at the last election.

With very deep regret the Committee have to refer to the large numbers of losses by death amongst the friends and supporters of the Institution during the year. They would especially mention William Iceton, Esq., a member of the Committee for twenty-five years, and whose practical advice and suggestions were always much valued. J. C. Geiselbrecht, Esq., who very kindly and thoughtfully bequeathed a legacy to the charity; Mrs. Bischoffsheim, a most liberal donor; Miss Alice Rothschild, Walter Cobb, Esq., Robert Cooper, Esq., Thomas Cox, Esq., W. Heberden, Esq., C.B., S. Taprell Holland, Esq., Horace Quare, Esq., and S. T. Wright, Esq.

The Committee acknowledge the practical aid and sympathetic help afforded them in their work, and they very earnestly plead not only for a continuance of support, but for increased aid for this national (unsectarian) horticultural charity.

HARRY J. VEITCH,
Treasurer and Chairman of Committee.
GEO. J. INGRAM,
Secretary.

The Chairman proposed that the report and statement of accounts be received and adopted. He referred to an omission in the report, which he assumed was due to the modesty of the secretary, for there was no reference in it to Mr. Ingram. However, he was sure the secretary realised how much everyone felt the Fund owed to him. There was a sad touch in the report in the fact that of the forty-five candidates whose cases had been duly approved by the committee it was only possible to elect eighteen to the Fund, although a few others might receive help from the Victorian Era Fund or the Good Samaritan Fund. It was a matter of regret that they could not all be elected, for the present were most difficult times and especially to those in necessitous circumstances. However, it was encouraging to know that so much good work was being done and that the torch of those who carried on the work in previous years had been handed on to others, in many cases to members of the same family, of which members of the Sherwood and Monro families were examples. He emphasised the need of all the help and support possible for the Fund, as in the years to come there would be more applications for these pensions, as nowadays the majority of gardeners are unable to make provision for the future. He was pleased to know that the various auxiliaries were still lending valuable aid, and he was pleased to see amongst the company present Mr. Cox, representative of the Reading Auxiliary, and Mr. White, of the Worcester Auxiliary.

The adoption of the report and balance-sheet was seconded by Mr. McLeod, and, there being no further comment, the motion was carried by the unanimous vote of those present. The rest of the business was of a purely formal nature, with practically no discussion. Sir Harry Veitch was re-elected treasurer, and Mr. G. Ingram re-elected secretary for the thirty-third year in succession. The retiring members of the committee were also re-appointed, and Messrs. A. Bedford, J. Clayton, and T. H. Cook elected to fill vacancies. The auditors, arbitrators, and scrutineers of the ballot were also elected. At this stage of the proceedings Mr. J. F. McLeod proposed that a telegram should be sent to Sir Harry J. Veitch, expressing regret at his absence and hoping to see him present at the annual meeting on future occasions. It was also resolved to send a message to the treasurer, Mr. E. Sherwood, congratulating him on his approaching marriage and wishing him and his bride every happiness. It was also a happy thought to send the congratulations of the Institution to the President, His Royal Highness the Duke of York, on the occasion of his engagement. At this stage the proceedings were adjourned for the scrutineers of the ballot.

The successful eighteen candidates, with the number of votes accorded them, were as follow: Emily J. Denson, 4,774 votes; Albert Ballard, 4,733; Daniel Keen, 4,729; Charles Hoskins, 4,427; William Damerell, 3,726; Jane Child, 3,636; May F. West, 3,494; Mary E. Holmes, 3,491; Eliza North, 3,434; Henry Guyett, 3,372; Walter Johnstone, 3,355; Rose E. Bannister, 3,288; Robert J. Saunders, 3,028; John W. Jackson, 3,206; William J. Rowe, 3,120; William Clark, 3,090; Henry Aylward, 3,039; and Ann G. Blick, 2,945. In addition to the above, Elizabeth Salmon and Elizabeth A. Truran were placed on the funds by resolution without further election, and sums of £10 each, being one year's allowances, were given to seven unsuccessful candidates by Sir Harry J. Veitch, Major E. G. Monro, Mrs. Monro, and Messrs. Leonard Sutton, G. Monro, H. Morgan Veitch and A. J. Wood.

BRITISH CARNATION.

THIS Society, which is devoted to the interests of Perpetual-flowering Carnations, held its annual general meeting at the Hotel Belgravia, on Tuesday, January 16, when there was a good attendance of the members. The annual report of the committee shows that forty new members were enrolled during the year, and many of these were introduced by Mr. E. Bray, of Kimberley. Nine new varieties were registered during the year 1922; the awards made by the Floral Committee and a special report thereon will appear in due course. Reference was made to the interesting *Year Book* of 1921, which, however, was reduced in size, as a matter of economy. The exhibition held on March 21 was considered to be the best ever held by the Society, but, unfortunately, it was a failure financially. The Society received very generous assistance from a number of growers and salesmen who are especially interested in Carnations, and also from numerous private members, and these donations have enabled the committee to present a satisfactory financial statement. Receipts for the year show an income of £183 9s. 1d. from subscriptions, and of £136 from special donations and special prizes at the 1921 and 1922 exhibitions. Unfortunately the takings at the November show of 1921 and the March show, 1922, together with receipts for refreshments, came only to £36 8s. Advertisement receipts totalled £21 15s. 6d., the gross receipts being £433 11s. 3d., including a balance of £33 2s. 10d. brought forward from 1921. On the expenditure side the chief items are prizes for the November show, 1921, £88 3s. 6d.; prizes at the March show, 1922, £240; printing and stationery, £50; postages, £15 15s. 4d., which with smaller items, including an honorarium to Miss Bunyard of £17 7s. 3d., leaves a balance in favour of the Society of £14 9s. 7d. The report and statement of accounts were accepted, and it was agreed that Mr. Reginald Cory be asked to accept the position of president. Mr. A. J. Hall and Mr. Solway were elected to the committee in place of Capt. Caulfield and Mr. P. Smount. The other officers: Mr. J. S. Brunton, chairman; Mr. L. Cook, treasurer; and Mr. P. F. Bunyard, hon. secretary, were re-elected.

READING AND DISTRICT GARDENERS'.

THE first fortnightly meeting of the spring session of this society was held on the 22nd ult. Mr. A. H. Fulker, the newly elected chairman, presided. The subject for discussion was "The Storing of Fruit," and this created a great amount of interest, as was shown by the attendance, numbering over one hundred. The lecturer was Mr. E. K. Jones, and he dealt with the subject under several headings, such as well-equipped structures for storing Apples, including sheds (which are often the best for keeping Apples) and cellars; temperatures, moisture, time of picking, and methods of storing. With regard to Pears, it was pointed out they would not keep well stored under similar conditions to Apples, for they required a warmer temperature, whilst Plums will not keep well, with the exception of two or three varieties, such as Coe's Golden Drop. First-class certificates were awarded to some splendid blooms of Heston White, Enfield White and Winter Cheer Chrysanthemums, staged by Mr. W. Gower, The Gardens, Calcot Grange, and to Mr. F. Alexander, The Gardens, Kennett's Lodge, Theale, for five varieties of Apples. Mr. C. J. Howlett Early exhibited twenty-two dishes of Apples and one of Pears to demonstrate the keeping qualities of various varieties stored under ordinary conditions.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THURSDAY, JANUARY 18.—*Committee present*: The Rev. J. Crombleholme (in the chair), Messrs. B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, A. Kussons, J. Cypher, A. G. Ellwood, J. Evans, J. Howes, J. Jackson, A. Keeling, D. Losh Thorpe, D. McLeod, L. Sander, E. W. Thompson, J. Whitham, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Cypripedium Nesta (*mirum* × *Lord Wolmer*). A fine flower of perfect shape, having a very dorsal sepal beautifully spotted and dotted with claret-red. From E. D. BOSTVIK, Esq.

Odontioda Pegasus (*Odm. amabile* × *Odta. Madeline*). From Mrs. GRATRIX.

Cypripedium Imperator Excelsior (*Alcibiades* × *Pyramus*). The broad dorsal sepal is a reddish-brown colour with a white margin; the petals also are broad. From S. GRATRIX, Esq.

Miltonioda Harwoodii Bolholt var. (*M. vexillaria Bellissima* × *C. Noetzliana*). The finest form of this lovely hybrid yet seen, the flowers being of good shape and of reddish-scarlet colour. From Capt. W. HORRIDGE.

Cattleya Clotho var. Perfecta (*Enid* × *Trianae*), an evenly coloured flower with a richly coloured lip; *Brasso-Cattleya British Queen var. Excelsior*. This variety has sepals and petals of deep mauve, the lip being a richer mauve with a yellow throat. From Messrs. COWAN AND CO.

AWARDS OF MERIT.

Cypripedium Florence Spencer (*Memoria Jerninghamiae* × *Actaeus langleyense*); *C. Olympus var. Rex*; *Odontoglossum Fabia var. Royal Beauty*. From S. GRATRIX, Esq.

Lycaste Skinneri Robin; *Cypripedium Marie var. Jean Walker*. From Mrs. BRUCE and Miss WRIGLEY.

GROUPS.

S. GRATRIX, Esq., West Point (gr. Mr. J. Howes), staged a group for which a Gold Medal was awarded.

Mrs. BRUCE and Miss WRIGLEY were awarded a Silver Medal for a group.

Messrs J. CYPHER AND SONS, Cheltenham, staged a miscellaneous group and were awarded a large Silver Medal.

ABERDEEN GARDENERS' AND FLORISTS'.

A LARGE and representative gathering met at the annual dinner and social evening of the Aberdeen Gardeners' and Florists' Association in the Bon-Accord Hotel, Aberdeen, last week. Mr. William Adam, nurseryman, Fernielea Nurseries, Aberdeen, president of the association, was in the chair. After dinner the evening was devoted to a vocal and musical entertainment. Mr. David Ritchie, the retiring president, was presented with a silver cigarette case. Mr. Adam made the presentation, and in a eulogistic speech voiced the members' appreciation of the valuable services Mr. Ritchie had rendered the association.

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ROYAL HORTICULTURAL.

JANUARY 30.—The interior of the Royal Horticultural Hall presented a very spring-like appearance on the above date owing to the presence of Crocuses, Irises, early Daffodils, Hyacinths, Primroses and Polyanthuses. Orchids were not so extensively shown as on recent occasions. Camellias proved interesting and Carnations attracted considerable attention, as is usual. Vegetables were represented by a large display of Potatos from Reading, and Leeks from the R.H.S. gardens at Wisley.

It must be many years since the Floral Committee met without having a single plant or flower placed before it—as happened on this occasion. Mr. H. B. May, the chairman, and a member for many years previous to holding this office, could not remember a meeting at which the Floral Committee had no novelties to adjudicate upon.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Messrs. J. O'Brien (hon. secretary), C. J. Lucas, Fred K. Sander, S. W. Flory, W. H. White, H. T. Pitt, J. E. Shill, A. McBean, W. J. Kaye, E. R. Ashton, Stuart H. Low, Frederick J. Hanbury, R. Brooman White, T. Armstrong, J. Wilson Potter, and F. Peeters.

FIRST CLASS CERTIFICATE.

Cypripedium Dulcis Lambeau's var. (*Curtmannii* × *Alcibiades illustris*), from Mons. FIRMIN LAMBEAU, Avenue de l'Astronomie, Brussels. A charming and very distinct Cypripedium with a fine white dorsal sepal undulated at the margin, the lower two-thirds being clear mauve colour in varying shades, the lighter tone being on the upper part. Darker purple lines are also present on the mauve ground, and the broad petals and lip are tinged and marked with chocolate purple.

AWARDS OF MERIT.

Brasso-Cattleya Helen (*B.-C. Digbyano-Warneri* × *C. Fabia*), from G. W. BIRD, Esq., Manor House, West Wickham (gr., Mr. H. Ridden). One of the brightest and darkest of Brasso-Cattleyas, C. Warneri, introducing, as usual, a fine, dominant feature, The sepals and petals are bright violet-mauve, the broad, fringed lip ruby-purple with a yellow disc.

Odontoglossum Llewellyn (*amabile* × *Georgius Rex*). This hybrid was first shown by H. T. PITT, Esq., who received a Certificate of Appreciation for it in the seedling stage. As shown by Messrs. CHARLESWORTH AND CO., LTD., Haywards Heath, this fine, yellow-ground Odontoglossum proves to be one of the best of its class. The ground colour is Buttercup yellow, and the inner two-thirds of the segments are heavily blotched with dark claret red.

CULTURAL COMMENDATIONS.

To Messrs. ARMSTRONG AND BROWN, for a grand plant of their new Odontoglossum Strathmore (Apollo × Hylandianum) with a noble, branched spike of forty-seven handsome flowers, that are white richly marked with dark mauve. The lip is white with purple blotches in front of the yellow crest.

To Mr. S. LYNE, Orchid grower to J. J. BOLTON, Esq., Claygate Lodge, Claygate, for a superbly flowered plant of Odontoglossum ardentissimum Pintadeau with twenty-two large, reddish-claret flowers of fine form, the margins being white.

OTHER EXHIBITS.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), showed Cypripedium J.M. Black var. Sandow (Beryl × Eurybiades), a fine flower with very dark, spotted dorsal sepal; C. Etta Rosslyn var. (Chardwar × Mrs. R. Hardy), a grand flower; C. Forest King, and other fine Cypripediums.

Messrs. CHARLESWORTH AND CO., LTD., staged a selection of fine hybrids, including their rich, mauve purple Potinara Juliettae; Odontonia Dora (M. Bleuana × O. Doris), one of the finest of their new hybrids, the flowers larger than in M. Bleuana and beautifully marked with claret-red; Odontoglossum Olympia, O. Wilckeanum superbum and other Odontoglossums, together with choice Cypripediums

Messrs. STUART LOW AND CO., Jarvisbrook, showed a selection of Sophronitis crosses, including Sophro-Laelio-Cattleya Irene, with brightly coloured flowers; S.-L.-C. Leda, of fine shape and colour; Sophro-Cattleya Prince Shimadzu, with reddish-Apricot-yellow flowers and rose-purple lip; Laelio-Cattleya Rubella (Nella × St. Gothard), with two fine flowers, of rich violet mauve colour with a ruby-purple lip, and Odontoglossum Faustina Low's variety.

Messrs. SANDERS, St. Albans, staged a selection of good Cypripediums with a fine, typical form of Cattleya Enid and a plant of the white hybrid Coelogyne intermedia.

Messrs. ARMSTRONG AND BROWN showed the new Cymbidium Radiant (I'Ansoni Cravenianum × erythrostylum), a medium-sized hybrid of elegant habit, coloured yellow with claret lines and spotting on the lip.

J. J. BOLTON, Esq., showed a finely formed Sophro-Laelia Felicia of rosy-mauve colour with a fine purple lip.

Messrs. J. and A. McBEAN, Cooksbridge, had a choice selection, including the large, blush-white Brasso-Cattleya Bianca; Cattleya Caroline (Enid × Percivaliana), a fine hybrid with the features of C. Percivaliana and the richly coloured markings on the lip, but a very much larger flower than C. Percivaliana; Odontoglossum Dodeham Prince of Orange, with twelve large flowers of a yellow ground blotched with purple.

Baron SCHRÖDER, The Dell Park, Englefield Green (gr., Mr. J. E. Shill), showed Cypripedium Eurybiades The Baron, one of the finest of the famous group raised at The Dell. The enormous white, dorsal sepal with pale Apple-green base is handsomely blotched with violet-purple.

Floral Committee.

Present: Messrs. H. B. May (in the chair), Chas. E. Pearson, W. J. Bean, E. A. Bowles, G. Harrow, G. Reuthe, Amos Perry, W. B. Cranfield, Reginald Cory, J. F. McLeod, W. Howe, J. Jennings, J. W. Barr, Donald Allan, H. R. Darlington, W. B. Gingell, Chas. E. Shea, D. B. Crane, M. C. Allwood, J. Hudson, and R. C. Notcutt.

GROUPS.

Carnations were again shown in very bright and fresh condition. While there were various vases of the Perpetual Malmaisons, it was the true Perpetual varieties that predominated. Messrs. ALLWOOD BROS. included a large vase of the brilliant Edward Allwood, and also had Jessie Allwood, Oceanic, Wivelsfield Claret and Vivid. The last-named is a very showy bloom, somewhat flatter in form than Mary Allwood and of much deeper colour (Silver Flora Medal).

Many vases of good blooms, chiefly of the sorts most favoured by market growers, were shown by Mr. C. ENGELMANN, who included Topsy and Marion Willson, of great merit (Silver Flora Medal).

Messrs. STUART LOW AND CO. gave special prominence to their new pink Eileen Low, Cherry Ripe and Sheila Greer, a decorative fancy of pale apricot and deep rose colour. Adjoining the Carnations they had a varied collection of such greenhouse plants as Acacia Baileyana, A. platyptera, Cyclamens and winter-flowering Begonias (Silver Banksian Medal).

Spring flowers were freely shown by various exhibitors. Messrs. CARTER AND CO. had a bright and attractive table of numerous bowls of Iris tingitana, Primula malacoides, Princess Mary and miniature Hyacinths in various colours, making a very artistic display (Silver Flora Medal).

A great variety of these early Hyacinths was again set up by Messrs. R. AND G. CUTHBERT in large batches of distinct colours, and they also had fine clumps of Helleborus maxima bearing very clean flowers (Silver Flora Medal).

Alpines, mostly displayed in informal rockeries, were seasonable reminders of these interesting and fascinating plants. Messrs. BAKERS, LTD. had a large quantity of Primula Wanda in full bloom, and also showed Soldanella alpina, Saxifraga burseriana Gloria and others.

Crocus species were again well displayed by Messrs. WALLACE AND CO., who also exhibited early Irises, Adonis and the pink flowered Schizostylis Mrs. Hegarty, in association with shapely Conifers (Silver Banksian Medal). Primula Juliae and P. Winteri were well shown by Messrs. R. TUCKER AND SONS, who also included Iris reticulata and the pale mauve flushed Arabis aubrietioides (Bronze Banksian Medal).

In an interesting little rock garden arranged by Messrs. WM. CUTBUSH AND SONS, there was an unusually good batch of the sweetly scented Iris sind-pers, and they also had various primulas, Crocus species and Bulbocodums (Silver Banksian Medal).

Several boxes of early Alpines were set up by Messrs. BARR AND SONS, with good clumps of Helleborus species and pots of double-flowered Daffodils.

Alpines in seasonable variety, Crocus species and other spring flowers were associated with dwarf shrubs and Conifers by Messrs. J. CHEAL AND SONS. Iris tingitana and I. reticulata of merit, and a bright batch of Anemone fulgens were the dominant features in an exhibit by Messrs. WATERER, SONS AND CRISP (Silver Flora Medal). Mr. G. REUTHE had boxes of Alpine plants, Christmas Roses, and other plants, and the Misses HOPKINS also showed a collection of spring flowers. Amongst the Alpines exhibited by Mr. M. PRICHARD, there was a dainty little plant of an unnamed double Primrose of rosy-purple colouring, faintly edged with white. Primula Juliae, Wilson's Blue Primrose, and Anemone blanda atrocoerulea were especially good in an exhibit by Messrs. CARTER PAGE AND CO.

Camellias, even better than a fortnight ago, were staged by Messrs. CHAPLIN BROS. It was the single and semi-double sorts of bright colour that attracted most attention, and of these Waltham Glory, Apollo, Jupiter and Mars were excellent (Silver Banksian Medal). The earliest out-door Rhododendron, R. nobleanum, and a plant of R. argenteum, were displayed by Messrs. R. GILL AND SONS, who also had a large batch of Primula Winteri. Adjoining these flowers was an exceedingly valuable set of water-colour paintings of British Fungi, by the late Mrs. Gill.

Greenhouse Azaleas and Prunus triloba were staged in quantity, and of good quality, by Messrs. L. R. RUSSELL, LTD. (Silver Banksian Medal), while Messrs. MOYSES STEVENS, LTD., showed greenhouse Azaleas with miniature Hyacinths.

Some conventional "Japanese Gardens" were contributed by MAJOR PAT A'BECKETT. These were in willow pattern bowls of pleasing pattern, but in addition to a sprinkling of Alpines such incongruities as Cocus Wedelliana and Gasterias were included (Bronze Banksian Medal).

In addition to many plants of his good strain of Polyanthus, Mr. G. W. MILLER showed pot plants of the salmon pink bedding Geranium Victory (Bronze Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (in the chair), W. Poupart, H. S. Rivers, E. A. Bunyard, A. H. Pearson, Owen Thomas, S. B. Dicks, J. Cheal, G. F. Tinley, Ed. Beckett, J. G. Weston, E. Neal, A. Metcalfe, F. Jordan, W. Bates, W. H. Divers, W. Wilks, G. Reynolds, A. Bullock, F. Wilson, Fred. G. Treseder, W. F. Giles, P. D. Tuckett, and A. N. Rawls.

The Chairman announced that several varieties of Apples had already been planted at Wisley in connection with the trial of commercial varieties and the special committee dealing with that trial was anxious to plant more, and would welcome grafts or plants of varieties of promise for market purposes not already in general cultivation. Besides Apples, the Committee desired to plant Cherries and Plums that might be considered suitable.

The chief exhibit of importance before this Committee was a collection of Potatos, including seventy-six distinct varieties, shown by Messrs. SUTTON AND SONS, for which a Silver-Gilt Knightian Medal was awarded. The display was representative of all the best sorts in cultivation, including those immune to wart

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disease. The tubers generally were of outstanding quality, and they were shown very attractively in ornamental baskets. Messrs. SUTTON'S new main crop variety, Ben Cruachan, occupied a prominent position; it is stated to be a very prolific cropper. One of the best dishes was of the old Snowdrop variety, which many growers consider unsurpassed as an early sort and of great value for forcing. Witch Hill is a Potato of somewhat similar type and not sufficiently distinct from the older and well-tried variety. There was a notable dish of Arran Comrade and another of K. of K. Most conspicuous were the coloured varieties, which included such sorts as Black Prince, the flesh as well as the skin being very dark purple, Exhibition Red, Ranturley Red, with a pink skin; and Aaron Victor, a purple coloured Potato. Golden Wonder, one of the best quality Potatos, was represented by a good dish, and there was another with a very distinct skin like a dark grey hide, named Village Blacksmith.

The Society showed varieties of Leeks from the trial at Wisley, which was recently inspected by the sub-committee. Two varieties were recommended to the Council as being worthy of First-Class Certificates, and one was recommended for an Award of Merit. It was stated that the very best variety was Royal Favourite, an old Leek raised by Mr. OWEN THOMAS and introduced to commerce by Messrs. SUTTON AND SONS; it received an Award of Merit in 1918. The Leeks had only received general field culture, the plants being merely dropped into holes and grown in the ordinary soil without trenches.

*** Owing to pressure upon our space, the report of the Annual Meeting and Dinner of the British Florists' Federation is held over until our next issue. *Eds.*

Obituary.

John Malcolm Stewart.—It is with regret that we have to record the death, at the Cottage Hospital, Castle-Douglas, on January 20, of Mr. John Malcolm Stewart, Mollance Gardens, Castle-Douglas. Mr. Stewart, who was a native of the Midlands of Scotland, was appointed gardener to J. Neilson, Esq., Mollance, some thirty years ago, and had become recognised as one of the best of Scottish gardeners, and as a specially expert grower of fruit and vegetables. He was for many years a successful exhibitor at the larger local shows, such as that of Dumfries, and latterly became a well-known exhibitor at the larger exhibitions, such as those of the Royal Caledonian Horticultural Society at Edinburgh, where he had many noteworthy successes, including the winning outright of the Thomson Challenge Cup for Grapes, the recognised championship of Scottish Grape-growing. He was the winner of numerous cups and other trophies. While Mr. Stewart was a most successful exhibitor, he by no means neglected the work of his employer's garden, which was kept in a high-class manner and was one of the finest in the South of Scotland in every department. Mr. Stewart, who was in the prime of life, had suffered for a considerable time from a serious malady, for which he underwent an operation some time ago, but he never recovered his wonted health, and the death of his wife about six weeks ago was a sore blow. He was latterly undergoing treatment at the Castle-Douglas Hospital, but all that medical skill could do was unavailing. His death is much mourned by all who knew him, as he was a general favourite and was very highly esteemed by all horticulturists and others who knew him. His funeral took place to Crossmichael Churchyard on January 24.

TRADE NOTES.

The Horticultural Committee of the British Empire Exhibition have formulated proposals which include the provision of a large and suitable site of nearly ten acres, immediately adjoining the new Great Central Railway Station, and between the station and the model stock farm, for exhibits of a horticultural nature. Provisional plans for the arrangement of these outdoor exhibits have been prepared by Mr. Edward White, of Messrs. Milner, Son and White, Consulting Landscape Gardeners to the Exhibition.

The large area adjoining the station will be available for flower gardens, formal gardens (with or without such features as statues, vases, fountains, pergolas, topiary work, garden houses, etc.), rock gardens and other ornamental gardens with special plant or shrub treatment.

In various prominent positions throughout the exhibition grounds opportunity will be given to nurserymen to co-operate with the Management in furnishing and maintaining beds and borders with shrubs and flowers, in accordance with plans to be prepared by Mr. White, and approved by the Management.

Sites for horticultural buildings, greenhouses, kiosks, groups of garden ornaments, etc., will be available on the main curved avenue in the horticultural section. The design of such buildings, kiosks, etc., will be subject to approval by the architects of the Exhibition.

A hall for horticultural and agricultural exhibits (machinery, seeds, fertilisers, and sundries), including small spaces for offices for firms whose exhibits are only or mainly outdoors, will be built on the avenue dividing the group of gardens from the model farm. There will also be a garden exhibitors' clubroom, for outdoor exhibitors who do not desire a separate office, the charge for membership, including use of private locker and writing-desk, being £20 for the period of the exhibition.

Applications for space from trade exhibitors will be considered in the light of the suitability and attractiveness of the proposed exhibits, and in view of the period of the exhibition (end of April until end of October, 1924), preference will be given to exhibits which will be maintained in an attractive form for the longest time possible. The charge per foot frontage varies with the different sections; particulars may be obtained from the Secretary of the Horticultural Section, Mr. W. Watson, 16, Grosvenor Gardens, London, S.W.1.

A CONFERENCE was held at the offices of the Chamber of Horticulture, on the 17th inst., to consider arrangements for a British collective display at the Ghent Quinquennial Exhibition.

The Chairman, who is organising the British Section, stated that he had just returned from Ghent, and he had ascertained that other countries, especially France and Belgium, were making the greatest efforts to produce magnificent displays, and that much enthusiasm was being shown by all. He said that, if it was desired to maintain the prestige of British horticulture, a great deal of hard work and enthusiasm must be put into the scheme to make a display worthy of the horticultural industry, otherwise other countries would beat us easily.

As regards transport arrangements, exhibits may be sent either via Dover and Ostend or direct by boat from London to Ghent. The Belgian authorities had undertaken to convey all goods free of charge from Ostend and to do all the carting at Ghent. The exhibition authorities were also prepared to supply a certain number of vases and to give all possible assistance in arranging the soil in banks and beds as desired by the various exhibitors. All exhibits will need to be staged by 8 a.m. on April 13. Mr. H. J. Jolis, of Messrs. Anthos and Co., has kindly undertaken to superintend the arrangement of the whole of the collective exhibit, and Mr. G. Arluison stated that Messrs. Geo. Monro, Ltd., could be relied on to again assist in the collection, packing and despatch of all goods in a similar manner to that for the Antwerp Exhibition in 1920.

The Chairman stated that the question of funds to cover cost of transport, labour and hire of sundries must be considered. Mr. Ascroft undertook to explain the position to the Council of the R.H.S. and to convey the request of the conference that a certain sum should be guaranteed by them. It was decided to inform the Council of the Chamber that a request had been forwarded, and to ask the Council to take what action it thought fit. It was pointed out that as the traders were willing to provide the material, time and labour, amateurs would probably be willing to assist financially.

Mr. Brunton stated that individual exhibitors should inform him as soon as possible what space they thought they would require, and he would undertake to see that they obtained the same. Also this would apply to any beds, banks or special erections that may be necessary.

ANSWERS TO CORRESPONDENTS.

A GARDENER'S NOTICE: *Anxious.* It is usual for a gardener to give and receive a month's notice on terminating an engagement, but the custom varies in different parts of the country. Your best plan is to consult a local solicitor.

BRITISH GARDENERS' ASSOCIATION: This association has been amalgamated with the National Union of Agricultural Workers. The address of the secretary is 72, Acton Street, W.

CAMELLIAS FAILING TO FLOWER: *Cheshire.* The most common causes of Camellias dropping their flower buds are (1) an excessively dry atmosphere, (2) dryness at the roots, the latter being the most frequent reason. Drought generally results in the plants making a very hard ball of roots, which, once dry, is very difficult to moisten again. The only remedy is to stand the pots in a vessel of water for an hour or so and soak the ball thoroughly. Camellias usually set too many buds, which, if not thinned, usually results in bud dropping. Artificial manures should be applied with caution, for if the plants are at all dry at the root, strong fertilisers are sure to cause injury. Your details regarding the general cultivation of the plants seem to be correct.

COMMERCIAL PROPAGATION OF HERBACEOUS AND ALPINE PLANTS: *W. J. P.* We have no knowledge of a book dealing specifically with the propagation of herbaceous and alpine plants from a commercial point of view, but the matter is referred to in *Commercial Gardening*, which, however, we believe, is now only obtainable through second-hand booksellers.

NAMES OF FRUIT: *H. G. S., Llandudno.* Apparently a very large specimen of Spitzenberg.—*R. H. J.* 1, Lane's Prince Albert; 2, Stirling Castle; 3, French Crab.—*Dr. H. E. D.* Vicar of Winkfield.—*J. I. G.* 1, Alfriston; 2, Swedish Reinette.—*J. E. A.* 1, Fearn's Pippin; 2, Gascoyne's Scarlet.—*J. C.* 1, Lane's Prince Albert; 2, Annie Elizabeth; 3, Golden Noble.—*W. G. B.* Dredge's Fame.—*Hurst.* 1 and 2, Blenheim Pippin; 3, Allington.

NAMES OF PLANTS.—*G. J. W.* 1, Pseudotsuga Douglasii var. glauca; 2 Abies lasiocarpa; 3, Pseudotsuga Douglasii; 4, Picea orientalis; 5, Pinus strobus; 6, Sequoia sempervirens; 7, Pinus parviflora; 8, P. Banksiana; 9, Abies nobilis. *A. G.* The flowers submitted are those of the double Roman Polyanthus Narcissus, or Narcissus Tazetta. An old book-name for it is Double Narcissus of Constantinople. It is inclined sometimes to come single. The plant is not grown much now, as it does not bloom freely.

PRIMULA OBCONICA LEAVES DISEASED: *J. A.* The leaves show that the trouble is due to an attack of the fungus Botrytis. Thorough cleanliness in regard to cultivation and spraying in the early stages with sulphate of potassium will probably reduce or check the trouble.

Communications Received.—J. F. D.—G. J. W.—C. F. G.—W. B.—J. C.—C. S. & Co.—A. S. G.—A. G.—C. of H.—H. A. F. M.—Dr. A. R.—G. C.

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THE

Gardeners' Chronicle

No. 1885.—*SATURDAY, FEB.* 10, 1923.

CONTENTS.

Alpine garden, the—Globularias	75	Loudon, Jane	77
Box Hill, the future of	76	Obituary—John Hay	84
British Empire exhibition, 1924	82	Page, Mr. W. H.	72
Bulb garden, the—	73	Rain Gauges, the earliest	72
Cardinal's flower, the	75	Scotland, N.E., conditions in	72
Chelsea Show in 1924	72	Societies—British Florists' Federation	83
Dartmoor, afforestation of	72	British Mycological	82
Flower show, revival of an old	71	National Chrysanthemum	83
Fruit garden, market	80	National Hardy Plant	83
"Gardeners' Chronicle" seventy-five years ago	73	Reading and District Gardeners'	83
Gardens, prizes for London	72	Royal Horticultural	71
"Geo. Monro, Ltd.," Concert	71	Newcastle Horticultural	84
Giant quinquennial exhibition	72	Thladiantha dubia	82
Grape growing under difficulties	81	Trade Notes	84
January flowers	76	Ward's, Mr. F. Kingdon seventh expedition in Asia	71, 80
Kitchen garden—Asparagus beds	80	Week's work, the	74
Lilies in 1922	78	Wiseman, the late Mr. Wm.	72
Lilies, some easily grown	79		

ILLUSTRATIONS.

Crocus Sieberi .. 73
Globularia incanescens .. 75
Grapes in a mixed vinery, a fine crop of .. 81
Hay, John, portrait of the late .. 84
L. Duchartrei 77; Lilium Davidii, 78; L. Thayerae, 79
Page, Mr. W. H., portrait of .. 72

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.2°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, February 7, 10 a.m. Bar. 29.4, temp., 44°. Weather—Raining.

Royal Horticultural Society.

If increase of membership is any criterion the Royal Horticultural Society is enjoying a greater measure of prosperity than ever before, for according to the report of the Council for 1922, which will be presented at the one hundred and nineteenth Annual General Meeting, to be held on Tuesday, the 13th inst., the increase in the membership during 1922 was 1,648, exceeding that of the previous year by more than four hundred. The total membership on November 14, 1922, reached the remarkable figure of 18,142, that of the previous year on the same date being 16,494. That the Society appeals to a wider public than ever may also be gathered from the fact that this is net increase after deducting losses by resignations and deaths totalling 992; it is to be regretted that of this number deaths have accounted for 144. With such a splendid membership it is not surprising to find that the revenue from subscriptions reaches the large sum of £25,637 16s. 6d, which, together with entrance fees, gave the Society a gross income from this source of £26,239. According to the balance-sheet the Society has invested funds of over £45,000, a general reserve fund account of £15,000, and over £4,000 in cash at the bank, so that the finances are in a very sound condition. The Society is undoubtedly experiencing its greatest era of prosperity, and it might be opportune for the Council to consider whether the time is not ripe to take advantage of the flowing tide and build a new Hall that would better meet the needs of the Society than the present one, for the fortnightly meetings have grown so popular that the amount of space in the Hall is not sufficient to prevent crowding and discomfort to those who attend, whilst the provision of Committee-rooms is totally inadequate, apart from the need for better facilities for the official staff. The acquisition by the Society of the *Botanical Magazine* has necessitated the special staff dealing with this work taking over the Committee-room that was for so long the meeting place of the Floral Committee, and the less convenient lecture-room has to be utilised by this Committee instead. The R.H.S. should be the unit linking together all the varied interests of horticulture, and should make provision for the special floricultural societies and other associations of a gardening nature to have meeting rooms at their disposal, especially on the occasions of the fortnightly meetings, when Vincent Square is the Mecca of the horticultural fraternity. The innovation of the election of three entirely new members of the Council, Mr. E. A. Bunyard, the Hon. H. D. McLaren, and Sir William Lawrence, Bart., will, we believe, meet with the general approval of the Fellows; we think this is a wise step on the part of the Council and believe it will be in the best interests of the Society. The meetings and exhibitions of the Society have been very successful during the past year; but everyone will be surprised to know that there was a loss of more than £1,300 on the Autumn Show in Holland Park Hall. The Chelsea Show was, as usual, a great success, and resulted in a profit of nearly £1,000, although, of course, it is only to be expected that, as the membership increases, the receipts from these special shows are bound to decrease proportionately, as free admittance to these fashionable functions is a great incentive to many to become Fellows. Whilst we may agree that a high standard of excellence was reached at the shows last year, it is open to question whether "the standard reached by exhibitors has never been higher nor the exhibits themselves more effectively staged." A sympathetic reference is made in the report to the death of the superintendent of the Wisley Gardens, Mr. S. T. Wright, and we are sure that all who had knowledge of, or dealings with, Mr. Wright will appreciate the splendid testimonial paid to him by the Council in their statement that "for years the Society's shows owed their smooth working to his ready help." We notice that the Veitch Memorial Trust, founded in 1870 in memory of James Veitch, the founder of the famous Chelsea firm, has been transferred by the Trustees to the Council of the R.H.S., and the award of the medal last year together with a prize of £50, both to Mr. W. J. Bean, for his work on Trees and Shrubs, and to Mr. Lloyd Praeger for his work on Sedums and his proposed work on Sempervivums, will meet with general approval. The new Victoria Medallists of Honour in the places of five holders who have died during the year are Mr. A. C. Bartholomew, Mr. C. G. A. Nix, Mr. R. W. Wallace, Mr. J. Lowe, and Mr. A. K. Bulley.

We congratulate Mr. H. J. Jones on the award of the Lawrence Medal for his magnificent group of Chrysanthemums staged last autumn.

The special portion of the report dealing with Wisley Gardens is interesting, and shows that increased numbers of Fellows have visited the Gardens since the institution of the omnibus service between Kingston and North Street, Guildford. As stated on p. 334, Vol. lxii., an Assistant Director has been appointed at Wisley, but the office of Garden Superintendent is apparently still vacant. Gardeners would be pleased to see the office of Superintendent maintained and they consider that a qualified gardener should have a due share in the carrying out of the more practical work of the gardens. Apparently the negotiations with the National Rose Society for the inclusion of a trial Rose garden at Wisley have fallen through, and the Council has decided to carry out a plan of testing Roses at Wisley by the R.H.S. alone. The new Rose trial ground will adjoin that set apart for the testing of fruits for commercial purposes. These schemes have necessitated determining the tenancy of the Deers Farm, and there will be sufficient area available to provide a playing field for the students and staff, as well as to extend the green manuring experiments. A certain amount of experimental work has been conducted during the past year, and it is hoped to be possible soon to draw some general conclusion from the green manuring experiments which have been conducted for three years. The *Book of Arrangements*, in which the report and balance-sheet are embodied, has grown to a considerable size, and includes a list of the new Fellows elected in 1922. For the first time the attendances of the members of the various Committees are recorded, which we think will prove an incentive to a more regular attendance on the part of those whose record is small.

Mr. F. Kingdon Ward.—The *Times* correspondent in India states that Mr. F. Kingdon Ward was due to leave for England on Tuesday last on a year's holiday, and that he will thereafter return to the East to continue his exploration. Interviewed at Rangoon, Mr. Ward stated that he had traversed much unknown country between the Me-kong and the Irrawaddy, traversing passes—as already stated in his narrative published in this journal—beyond Mu-li, between mountains 20,000 feet to 25,000 feet high. On this particular expedition Mr. Ward has made a complete traverse east to west of that extraordinary district through which the waters of the Tibetan plateau escape. In a strip of mountainous country not more than seventy miles wide, four of the greatest rivers of Asia—the Yangtse, Me-kong, Salween and Irrawaddy flow, running parallel to each other for one hundred miles and separated only by rock partitions, which attain altitudes of 25,000 feet. On p. 80 in the present issue, Mr. Ward gives an account of his explorations in the vicinity of Yung-ning.

Revival of an Old Flower Show.—Rockingham Flower Show, which was instituted so far back as 1851, had a very successful career until, like many other horticultural exhibitions, the great war caused it to be abandoned, the last show being held in 1913. The exhibition was always held in the beautiful grounds of Rockingham Castle, and was an annual event of great importance in the district, attracting many thousands of visitors from the counties of Northampton and Leicester. Many of them visited the show to enjoy the magnificent scenery from the Castle walls of the Welland Valley and the Leicestershire hills. The present owner of Rockingham Castle, Rev. Wentworth Watson, is taking the keenest interest in the revival of the flower show, and the new committee has been fortunate in securing the services of Mr. Leeson as secretary. The date of the exhibition for this year is fixed for July 26.

"Geo. Monro, Ltd.," Concert.—The twenty-fourth annual Bohemian concert, held under the auspices of the "Geo. Monro, Ltd.," Concert Committee, will be held at the Queen's Hall, Langham Place, W., on Thursday, Feb-

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ruary 15. An organ recital is arranged for 7.15 p.m., and the concert proper commences at 7.30 p.m. Tickets may be obtained at the Queen's Hall box office or of Mr. G. Coleman, hon sec., 4, Tavistock Street, Covent Garden, W.C.

Conditions in North-East Scotland.—Remarkable illustrations of the abnormal weather conditions prevailing are apparent everywhere in North-Eastern Scotland. The delightfully sunny days of the past weeks have been in direct contrast to the usual cold and inhospitable climate of the district at this period of the year. Many flowers could be gathered in the open in the early days of February, including Violets (in the shelter of a sunny wall), Snowdrops, Hellebores (Christmas Roses), Yellow Jessamine, double and single Hepaticas, Primroses, Polyanthuses, Wallflowers, Violas, and common Daisies. And beyond that there may be seen fat buds of autumn Roses still hanging fresh and red on the bushes. At this period the local rivers should be carrying to the sea "snawbree," but instead they are sparkling in the sun as if it were midsummer or autumn. The hills, instead of being covered as usual with a mantle of white, stand out like deep-blue-tinted sentinels.

The Chelsea Show in 1924.—In view of Mr. Wallace's interesting letter on p. 82, suggesting the holding of the Royal Horticultural Society's Spring Exhibition at the British Empire Exhibition in 1924, the following letter sent to exhibitors at the Chelsea Shows, by the Secretary of the Royal Horticultural Society, will show the opinion of the Council:—

Dear Sir,—I am desired by the President and Council to ask you to be so good as to attend, or to send a representative to attend a special meeting of Chelsea exhibitors in the Lecture-room on Tuesday, February 13, at 5 p.m. The Council of the Royal Horticultural Society, having been approached by the authorities of the British Empire Exhibition, with a request that the Chelsea Show of 1924 should be transferred to Wembley, is of opinion that this would not be in the interests either of the Fellows of the Society or of the exhibitors. If you are unable to attend the meeting, would you be so good as to let me know your views on the matter not later than Saturday, February 10th. *W. R. Dykes, Secretary, Royal Horticultural Society.*

Ghent Quinquennial Exhibition.—The members of the Société Royale d'Agriculture et de Botanique de Gand, at their general meeting held recently, were informed of the progress being made by the Organising Committee of the Floralies, which will be opened on April 14, at the Palais des Fêtes, at Ghent, and approved the following scale of entrance charges:—Saturday, April 14, 25 fr.; Sunday, April 15, 12.50 fr.; Monday, April 16, 12.50 fr.; Tuesday, April 17, 6.25 fr.; Wednesday, April 18, 6.25 fr.; Thursday, April 19, 6.25 fr.; Friday, April 20, 4 fr; Saturday, April 21, 4 fr.; and Sunday, April 22, 2.50 fr.; these prices include entertainment tax. It was also decided that foreign societies having their headquarters or offices in Ghent and in the suburbs, registered before March 15, and taking not fewer than 30 tickets, should be permitted to purchase tickets at the following rates:—Sunday, April 15, 6.75 fr.; Monday, April 16, 6.75 fr.; Tuesday, April 17, 3.75 fr.; Wednesday, April 18, 3.75 fr.; Thursday, April 19, 3.75 fr.; Friday, April 20, 2.50 fr.; Saturday, April 21, 2.50 fr.; Sunday, April 22, 2.50 fr.; tax included. Foreign excursionists will have, in addition to the privilege of visiting the Floralies, facilities for seeing free of charge, during their stay in Ghent, the communal monuments. The committee of the Floralies will present them with permits to view the Château des Comtes, the Cloth Market (Belfry), the Cathedral of St. Bavon, the Fine Arts Museum, the Archaeological Museum, the Botanic Garden, the ruins of the Abbey of St. Bavon, etc. As during previous Floralies, free tickets will be given on Monday, Tuesday, and Wednesday, April 16, 17, and 18, between the hours of 7 and 9 a.m., to all children attending the State and free schools of the town and its suburbs, accompanied by their teachers. Children from the orphanages and soldiers mutilated in the war will also be admitted free at the same hours and on the same days. Other important decisions and arrangements will form the subject of a future notice.

Mr. W. H. Page.—The elder of several brothers engaged in horticultural pursuits Mr. W. H. Page, of the Tangley Nurseries, Oak Avenue, Hampton, is one of the best known of men engaged in the production of flowers for Covent Garden Market. He has given attention chiefly to the cultivation of Liliums and Carnations, both of which he grows on a large scale. He is also interested in Chrysanthemums and in hardy fruits. Although his hair is white, he is singularly youthful in manner and in spirit, and takes up many duties outside his business which would deter many a younger man. For many years he has been a member of the Royal Horticultural Society's Floral Committee, and ever since its inception he has been a staunch supporter of the British Carnation Society, formerly the Perpetual Flowering Carnation Society. In this Society his knowledge of the habit and character of Carnations has been of

MR. W. H. PAGE.

PRESIDENT OF THE BRITISH FLORISTS' FEDERATION.

immense service and fully justified the position of chairman of the Floral Committee, which he has occupied for so many years to the great advantage of the industry. Mr. Page was also one of the foundation members of the British Florists' Federation and a member of the Committee which dealt with the importation of Lily bulbs from Japan during the war period, and it is because of his services rendered in these ways to the flower trade that he has been elected president of the British Florists' Federation for the current year. Mr. Page combines a charming personality with excellent business capacity and a wide knowledge of flowers and plants, and these qualities have brought him hosts of friends.

Afforestation of Dartmoor.—A brief account is given by Mr. W. J. Hale, M.C., in the *Quarterly Journal of Forestry*, July, 1922, of the progress which has been made with the scheme adopted by the Duchy of Cornwall for the afforestation of a large area of Dartmoor. The forest of Dartmoor, a heather-clad, treeless, wind-swept tract, covers about fifty thousand acres. It has a loamy soil, and receives eighty inches of rain annually. Of this area five thousand acres are to be afforested. The work is to proceed at the rate of two hundred and fifty acres per annum for the next twenty years. Soft woods, Sitka Spruce, common Spruce, Douglas Fir, and Larch, are being planted, with shelter belts of Beech and Sycamore. Spruce will occupy the larger part, with Douglas Fir and Larch on the lower, more sheltered slopes; Picea sitchensis, the Sitka Spruce thrives in the district better than Picea excelsa, the common Spruce.

The Surveyors' Institution.—The next ordinary general meeting of the Surveyors' Institution will be held in the Lecture Hall of the Institution, on Monday, February 12, when a paper will be read by Mr. C. P. Sanger (Barrister-at-law), entitled "The Law of Property Act, 1922." The chair will be taken at 8 p.m.

Prizes for London Gardens.—In the hope of creating a brighter London by means of beautiful and attractive gardens, the *Daily Telegraph* has formulated a prize scheme in which it will offer over £200 in cash prizes. The competition will be open to private residents within the area administered by the London County Council, but no garden exceeding three hundred and fifty square yards in area may be entered for competition. Judges of acknowledged ability will be appointed, and in awarding the prizes they will take into consideration the following points:—(a) order and neatness, 10 points; (b) design, arrangement, and general effect, 10 points; (c) noteworthy plants, 8 points; (d) features of special excellence, 6 points. The competitors must be private residents in London and of British nationality. They must also be the occupiers of the gardens entered, and not professional gardeners, or connected with the business of horticulture. Those who propose to compete for the valuable prizes must enter on a special form provided for the purpose. Such forms may be obtained on application to the Gardening Editor, *Daily Telegraph*, from whom may also be obtained on application an interesting and illustrated booklet dealing with old London gardens, and giving suggestions for planting and maintaining a London garden in summer time. It should be added that the gardens will be grouped in four classes. Class 1 will be confined to gardens on the ground level with an area not exceeding three hundred and fifty square yards, but with no restrictions as regards making or management; Class 2, gardens of similar area to Class 1, but managed or maintained without professional help or paid labour; Class 3, gardens on the ground level in the congested areas of E. and S.E. London, and restricted to houses rated under £30 per annum; and Class 4, roof gardens or gardens arranged on a leaden flat, with no limit to extent or restrictions as to making or arrangement.

The late Mr. Wm. Wiseman.—The body of the late Mr. Wm. Wiseman, of Forres, whose death was recorded in *Gard. Chron.*, November 4, 1922, was exhumed after rumours in the district as to the nature and circumstances of his decease, but the Chief Clerk of the Crown Office states that the inquiry has disclosed no grounds for criminal proceedings. Apart from this, the Chief Clerk gives no further information, but states in a letter to the *Forres Gazette* that the Crown Counsel is at a loss to understand how so much information regarding an inquiry highly confidential in its nature found its way in the columns of the Press. It will be remembered that Mr. Wiseman was compelled, owing to illness, to sleep in one of the buildings of his nursery, and that he was found dead in bed. It is not the custom in Scotland to hold coroners' inquests, but as the *Elgin Courant and Courier* points out in its issue of the 2nd inst., had there been such a court in Scotland the so-called "Forres mystery" would not long have remained mysterious.

The Earliest Rain Gauges.—According to the *Meteorological Magazine* for January, the use of rain gauges may be traced back to 1442, when, according to the ancient records of Korea, bronze instruments for recording rain were constructed. The earliest scientific instrument in this country for indicating the rainfall was devised by Sir Christopher Wren about 1662, and was fitted with a tipping bucket, which served as a record. Previously, no special instrument for the local measurement of rain-

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fall had been produced, and the only available evidence was dependent on direct inference, such, for example, as the flood marks of valleys. The first records of rainfall were made in Paris by Perrault in 1668, and the first in this country by Townley nine years later. Townley's gauge consisted of a funnel of 12 inches diameter, soldered to a leaden pipe through which the water flowed into convenient vessels, and was weighed. Great care was taken to ensure that the funnel was firmly fixed, and that no rain could trickle down the outside of the funnel into the receiver. The next gauge of which details are available was designed by Hooke and used at Gresham College in 1695. It consisted of a glass funnel of 11.4 inches diameter, mounted on a wooden frame, and leading into a large flask capable of holding about two gallons and being provided with a long and narrow neck to minimise evaporation. With this apparatus also the collected water was weighed. Two years later Derham, at Upminster, employed a gauge which was similar in principle to Townley's, and similarly mounted. As early as 1722 a close approach was made to the modern principle by Horsley in Northumberland, who used a large funnel 30 inches in diameter and 10 inches deep, while a similar apparatus was employed by Abbot Didacus de Revillas at Rome in 1742.

Appointments for the Ensuing Week.—Monday, February 12: United Horticultural Benefit and Provident Society's meeting; Bath Gardeners' Society's meeting. Tuesday, February 13, Royal Hort. Soc. Committee meeting; Jersey Gardeners' Society's meeting. Wednesday, February 14: Sheffield Chrysanthemum Society's meeting. Thursday, February 15: Manchester and North of England Orchid Society's meeting. Friday, February 16: Eastbourne Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Advertisement Duty.*—We perceive that a portion of the daily Press has at last declared itself against the Advertisement Duty levied on newspapers, and we do think that if Government can consent to its entire or partial abolition, they will confer a greater boon on the industrious classes than men in a high sphere are likely to be aware of. We speak on this occasion more especially for gardeners who are out of place, and who are in a manner compelled by the necessity of their position to lay out their money on advertisements. Unless they make it known to the public that they are seeking for situations, they have little chance of procuring them—and no possible way is open to them except by way of advertisement. It is a tax they must pay—or starve. To the rich the sum of eighteen-pence, which is the amount levied by Government upon each advertisement, may appear too small a matter to be of importance to the payer. *De minimis non curat lex*; and this duty may seem to rank among the *minima*. But it is not so; it is quite the reverse. Eighteen-pence is three-quarters of a day's labour by a gardener out of place, even if he is so fortunate as to procure temporary employment; and it is no trifling matter to be obliged to work hard for nine hours and a half in order to earn the right of saying: "I, Thomas Barnes, am thirty years old, have an excellent character, can give the best references, and desire to find employment as a gardener." For permission to utter in public these two dozen words, it is necessary to pay eighteen-pence, or three farthings per word. In addition to which, another eighteen-pence is paid for the printing, paper, and publication expenses attending the advertisement; so that in reality one-fourth of a week's wages is absorbed by it. *Gard. Chron., Feb.* 5. 1848.

Publications Received.—*Practical Plant Biochemistry.* By Muriel Wheldale Onslow. 2nd Edition. Cambridge University Press, Fetter Lane, E.C.4. Price 12s. 6d. *The Romance of the Apothecaries' Garden at Chelsea.* By F. D. Drewitt. Chapman and Dodd, Ltd., 66, Gt. Queen Street, W.C. Price 7s. 6d. net. *Report by a Committee of the Land Union, with Suggestions.* The Land Union, 15, Lower Grosvenor Place, S.W.1.

THE BULB GARDEN.

CRINUM.

THIS stately family of plants belongs to the Natural Order Amaryllidaceae and the name is derived from the Greek Krinon, meaning a Lily.

The Crinum is surpassed in beauty by no member of the Lily tribe, save possibly Lilium giganteum. The bulbs are large and the flowers, which are white or pink, push up from the side of the bulb. The leaves are very attractive—in several species they are a yard long and require some protection from the wind, as upon their perfect ripening depends to a great extent the production of flowers.

The blooms in the white variety of C. Powellii are very similar to those of Lilium candidum, but larger and sweetly scented. I have no trouble in cultivating the white and the pink varieties of C. Powellii and C. capense, and to amateurs like myself I strongly recommend a trial of these three Crinums.

A clay soil is not suitable and, as the plants require a good supply of moisture, a porous sub-soil should be provided. The bulbs may be taken up when the foliage is dead and preserved in sand until the time for replanting arrives. *T. D. T.*

CROCUS SIEBERI.

THE charming Crocus Sieberi—referred to by Mr. Arnott on p. 63—is one of the first to open its welcome flowers, a bed of it having been in bloom since the end of January. This, however, is partly due to the very mild weather that we have experienced recently, but it is no uncommon thing to find a few of its globular, pale-purple flowers fully out soon after the middle of January on a sheltered sunny border. This species is, in conjunction with its rich purple flowers, set off by scarlet orange stigmata and unbearded orange throat, readily distinguished by the broad green leaves, which have a broad, light band running down the centre.

FIG. 34.—CROCUS SIEBERI.

The present time is suitable for planting. If possible select ground without a clay subsoil, and plant at the foot of a south wall. The best plan, if the ground is heavy, is to remove it to a depth of 2 feet or 3 feet and put in a few inches of broken brick or stones for drainage, then fill the trench with a mixture of loam and well-rotted manure, as the Crinum is a gross feeder and sends its roots far and wide.

It appreciates good cultivation, and during its growing period will benefit by a generous supply of liquid manure. If the varieties I have mentioned are planted with the top of the bulb about 6 inches below the soil they will prove to be perfectly hardy, at any rate in the South, and with a little care will flourish farther north.

Crinum capense was introduced from the Cape in 1752; it reaches a height of about 2 feet and flowers in June. C. Powellii is a hybrid flowering in August and much larger in all its parts.

TIGRIDIA PAVONIA.

TIGRIDIA PAVONIA was introduced from Mexico in 1796. There are several varieties and the flowers are gorgeous and striking. As the bulbs may be planted in March notice is directed to the plant, for in spite of the fact that the flower lasts but a portion of the day, each bloom is rapidly followed by others in a succession from the spathe and but little break in flowering is noticed.

C. Sieberi is abundant on the mountains of Greece, the Morea, Euboea, Crete, and the Cyclades, generally at elevations of from 1,500 to 7,500 feet. The type (see Fig. 34), which has self-coloured flowers, comes from the mainland of Greece, and has been many years in cultivation. On the islands is found a beautifully variegated form—C. Sieberi var. versicolor, in which the outer segments are variously striped and flushed with rich purple and white, which blend into the bright orange of the throat. This variety, according to Maw, in his *Monograph of the Crocus*, was introduced by Mr. Elwes from the White Mountains of Canea, in Crete. It is still very rare in cultivation.

The type is of easy cultivation in any light soil, but is most at home on a sunny south border or sunny pocket in the rock garden, where it readily increases. It is perhaps seen at its best when grown in pans in the alpine house, where its delicate flowers are not exposed to the vagaries of the weather. *W. I.*

MUSCARI HELDREICHII.

MUSCARI HELDREICHII, a species from Greece, has been described as having larger flowers than those of M. botryoides. Its spike, or raceme, is inferior to that of M. botryoides, as it is not so well formed and is shorter. The flowers are of a charming sky-blue, and are distinctly marked with a white ring round the mouth. *S. Arnott.*

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The Week's Work.

THE HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Orchard Trees.—Trees in old orchards should be given a little attention. The pruning of long-established standard trees need only consist in removing branches that cross and some where they are too close together. Trees that have yielded only small fruits in recent years may be headed back to increase their vigour. Where change of variety is desired the branches headed back may be crown-grafted with other sorts. Attention should be paid to the roots of orchard trees. Should they be buried very deeply by soil additions, a portion of the earth should be moved from about the bole of the tree. The advantage of arable land over grass land for fruit trees is now freely recognised. In the case of young trees grass growing near their roots is very detrimental to them. It is contended by some that the grass roots give off substances inimical to the roots of the fruit trees; be that as it may, it has been proved beyond doubt that young trees will not thrive where strong pasture covers their roots. Air and sunlight have a beneficial influence on roots, and where grass has to remain, a circle of at least six feet in diameter should be kept clear of the grass. In the case of trees of considerable girth it is not so important, but by keeping the soil at the base of the tree free of turf, danger from insect pests will be lessened. Trees which have become stunted in growth through over-cropping should be well mulched with rich manure. Supports of newly planted trees should be examined and ties renewed where necessary.

Labelling.—All fruit trees should, if possible, have a metal raised or embossed label. Probably the most serviceable label is that made from sheet lead; these labels may be cut any length or shape, and an alphabetical set of metal dies is all that is required. The letters may be rubbed with or filled in with white paint and the remainder of the label painted green.

General Remarks.—Material used for preventing injury to the bark of trees should be of a nature least likely to harbour insects; for this reason, medicated shreds are preferable for wall trees. In nailing, sufficient space should be allowed for the shoots to swell; shreds not needing renewing should be inspected for the presence of pests. The heading back of stocks for grafting or regrafting should no longer be delayed, as the sap this season will rise early and rapidly. Should the stocks be growing in an exposed position it may be necessary, where clay is used over the union of stock and scion, to bind Moss over the clay to prevent it drying out. Protection boards which fit over wall trees should be taken from storage; they can be repaired or painted in bad weather. Nets should be overhauled and labelled, according to suitability for special purposes, ready for immediate use when the blossoms show signs of expanding.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Lobelia tenuior.—If not already sown, seed of this fine Lobelia should be inserted. With its upright habit and beautiful blue flowers, this Lobelia is very useful for decorative purposes, remaining in good condition for a long time in the conservatory The seedlings should be pricked off four or five in a pot, and very useful plants may be grown in 48-sized pots; if they are potted on into 6-inch pots, they will develop into fine specimens some 3 feet in height. Being a native of Australia, it only requires greenhouse treatment. It is not by any means an easy plant to cultivate successfully, and great care is required at all times in watering; careful watering is, in fact, the secret of success. By growing successional batches, this Lobelia may be had in flower right through the autumn and early winter.

Statice Suworowii.—This pretty annual is very much neglected for greenhouse purposes; it always attracts attention with its long spikes of rosy-lilac-coloured flowers. It is best grown singly in 48-sized pots, as it forms a flat rosette of leaves. The small seedlings should be pricked off singly into thumb pots, as this plant is rather impatient of disturbance at the roots. Watering needs to be done carefully, as it resents stagnant conditions at the roots.

Freesias.—As these plants pass out of flower they should be placed in a light position in cold frames, where they should receive careful attention as regards watering and feeding, for their success next season depends on the care they are given after flowering. Too often they are put away under stages and similar positions, or in many cases discarded. The new coloured varieties are, however, too expensive to treat in this fashion, and, as indicated, should be given good cultivation to build up strong corms for next season. These remarks apply to most bulbs or corms that have a resting period.

Hibbertia dentata.—This beautiful greenhouse climber should be much more generally cultivated. It has a long flowering period, but blooms most freely during the winter, when it attracts with its neat, evergreen foliage and profusion of yellow flowers. Cuttings root readily in a close case, with slight bottom heat. It usually produces plenty of good seeds. This Hibbertia is seen at its best when planted out in a cool greenhouse.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Jerusalem Artichokes.—These vegetables should be planted during February when the ground is in a suitable condition. Select medium-sized, well-shaped tubers from the store and plant them in deeply-dug, well-manured land, placing the sets about five or six inches deep and two feet apart in rows three feet apart. Fork over the ground as the work proceeds. When the growths are well through the soil earth them up as in the case of Potatos. The plants grow very tall and should be supported in exposed positions. For this reason, also, they are useful for planting in front of unsightly buildings, rubbish heaps etc., to serve as a screen during the summer.

Parsley and Mint.—These two herbs are almost always in demand, and seed of the former should now be sown in a pan and placed in a warm house to germinate. When the seedlings appear give them cooler treatment, and when large enough to handle, prick them out in boxes of sifted soil about two inches apart. Grow them on in a greenhouse or frame until they are ready for planting out. Parsley plants growing in frames or under a south wall should be kept free of decaying leaves and have a little soot dusted around them. If not already done, the Mint bed should be top-dressed with sifted leaf-mould, and a few pieces dug up, placed in a box and stood in a warm house. Mint forces readily.

Spring Cabbages.—Examine the bed of Spring Cabbages periodically from now onward and make good any plants that have failed from the reserve quarter. Keep the plants well earthed up and give the roots a sprinkling of nitrate of soda in showery weather.

Gravel Paths.—The present is a suitable time to renovate paths with fresh gravel so that they may be rolled and made firm before the dry weather sets in. The surface should be loosened with a strong fork or pickaxe, large stones removed, and the gravel raked over with a large iron rake. Arrange for the centre of the path to be higher than the sides in order to allow water to drain away readily. If new gravel is needed apply a good coating, rake the surface again, and roll it. Drains by the sides of paths should be cleaned out

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Border Chrysanthemums.—It is necessary now and again, if not every year, to propagate a fresh batch of these plants and discard the old stock, healthy young plants giving better returns than worn-out roots. Basal growths suitable for cuttings are now available both on the plants wintered in cold frames and those left in the open, the winter having been harmless to the latter so far. Root the suckers in a cool frame, then pot them in 60-sized pots and grow them hardily until planting-out time arrives.

Japanese Roses.—This section of Roses might well be given more attention from growers, the blooms being very fragrant and the plants themselves far choicer than some of the commoner evergreen shrubs which are allotted much space in many gardens. These Rugosa Roses are very hardy and will thrive in practically any soil and position, including partial shade, as distinct from being directly under trees. The single and double kinds are alike beautiful, while the fruits of the former give an added pleasure in the garden after flowering. The best of the hybrids of this class with which I am acquainted is Conrad F. Meyer, a large, double, silvery rose-coloured variety, and fragrant. The great hardihood of Rugosa Roses permits of their pruning being done in advance of other Roses; it may be done now, thinning out weakly shoots entirely and cutting back the strong growths proportionate to the size of the bush required. The hybrid above referred to will do best treated as a pillar subject rather than in bush form, being so exceptionally vigorous of habit. If the soil is in a workable condition, planting may be done now—pruning the shoots hard so soon as possible afterwards.

Dwarf Polyantha Roses.—I would draw special attention to the value of this class of Rose as a bedding plant, it being peculiarly fitted for the purpose on account of its freedom of, and continuance of flowering, its quick growth and neat habit. Where, too, economy has to be studied, making it impossible to use many tender and semi-tender plants in the flower beds, these "Poly-Poms" or Fairy Roses will prove ideal substitutes. Or a group may be introduced in the herbaceous border, as is the case here, and though this practice may not have the approval of the connoisseur of herbaceous border planning, it gives variety and interest. The sooner planting is done now, the better; and after the initial outlay no further expense will be incurred, with the possible exception of supplying a fresh plant for filling an odd gap now and again where plants have failed. Unfinished plantings of any other Roses call for the earliest possible completion, if the weather and ground will permit, so that the roots may make headway before warm weather sets in.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Miltonia.—The Brazilian section of Miltonias should be examined to see if any of the plants are in need of more pot room or fresh material. Such species and hybrids as M. Moreliana, M. spectabilis, M. Lubbersiana, M. Bluntii, M. Clowesii, M. Regnellii, M. candida, and M. Lamarckiana will be developing new roots, and the present is the proper season to repot them. A plant may require repotting, without being placed in a larger receptacle, through the compost becoming decomposed. In some cases a Miltonia will deteriorate from causes not always apparent, and it will then be advisable to place the plant in a smaller receptacle so that it may become well rooted. Miltonias of this section being mostly dwarf habited, do best when grown in shallow pans. All old and useless pseudo-bulbs should be cut away, and the growing pieces made up afresh, giving each leading growth room to develop. Those pieces which have few roots to hold them in position should be pegged firmly to the compost. The whole of these Brazilian Miltonias succeed satisfactorily in a shady position in a house having an intermediate temperature. Ample drainage is neces-

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sary, and the plants being surface rooters, no great depth of material is necessary. Employ as a rooting medium Osmunda, A1 fibre, and Sphagnum-moss in equal parts, chopped into moderately short portions, and place the materials rather firmly around the rhizome of the plants.

Miltonia vexillaria and M. Bleuana.—These Orchids and their many hybrids are growing freely; as the days lengthen, they will rapidly increase in strength. Plants that have filled their pots with roots may have water afforded them from now onwards whenever they require it, taking care that the compost becomes dry between each watering. Watch carefully for thrip, which is very partial to these plants, especially if grown in a very warm, dry temperature; should this pest become established it is most difficult to eradicate. Fumigating at intervals is the safest and surest means to adopt as a preventive, or spraying at intervals with a weak solution of quassia extract may be done. Often these plants throw up leaves folded closely together, especially the weaker growers, and unless the foliage is released it will be permanently injured. The leaves are easily released by means of the handle of a budding knife, or even the thumbnail, but care must be taken not to injure the delicate leaves. Those plants which produced their flowers during the autumn, such as M. vexillaria Leopoldii, may be repotted when their growths have attained a sufficient size, and are about to develop new roots. They need a compost similar to that employed for the summer flowering varieties. These plants delight in an even temperature the whole year round, and may be grown in a cool temperature during the warmest part of the year, and in an intermediate temperature during the winter months.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Bennett, Esq., Woolverstone Park Gardens, Ipswich.

Orchard House.—The advantages of an orchard house are now fully recognised, especially in cold districts; even in more favoured districts they render material assistance in meeting a demand for dessert fruit purposes. Pot grown trees yield heavy crops of fine fruit, while cordon Cherries and Plums may be trained up the rafters without causing too much shade. Fruit trees in pots call for a considerable amount of time and labour, and where it is not possible to give the necessary attention the trees may be planted out either as bushes, pyramids, or cordons, or trained on wires in the form of cordons—single, double or palmette, or in fan shape. A depth of two feet will be sufficient for the borders, and for stone fruits the most suitable material is loam of a retentive character with sufficient old mortar rubble and burnt refuse to render it porous. Ample drainage will be required where the nature of the subsoil does not permit of a free passage of water. Pears and Apples grow splendidly in an unheated house where plenty of air can be admitted; Cherries, Plums, Apricots, Peaches and Nectarines succeed admirably under similar conditions. If the house is heated its value is enhanced, for by gentle forcing the season for ripe dessert fruits may be considerably advanced, further, the house may be utilised during the winter for other purposes. The main batch of trees in the plunging ground should now be placed indoors. As the trees are removed to the house, ascertain that they are quite firm in their pots, and if worms are present in the soil, use lime water to bring them to the surface.

Cordon Apples and Pears from the reserve ground may be brought in to replace unsuitable trees; if they are lifted carefully they will scarcely feel the effects of re-planting.

The Grape Room.—The bunches of Grapes should be carefully examined at frequent intervals, and any faulty or decaying berries carefully removed. It is essential that the air in the Grape room should be cool and dry. Rapid changes in the temperature will seriously affect the berries and cause them to decay.

THE ALPINE GARDEN.

GLOBULARIAS.

Long known to alpinists, the Globularias have never become general favourites in the rock garden, as their beauty is not so prominent, nor is their colouring showy enough to please the many. Possibly they have not been widely enough employed in such quantities as to enable them to be used in what is said to be their proper rôle—that of toning down the brilliancy of more showy flowers so as to give a finer harmonious tone to the scene. Most of those interested in these flowers have cultivated them for their own sakes, instead of growing them in masses as a setting for other flowers. It is hardly likely that many will see their way to adopt them as carpeters to their other plants, but will continue to retain them for their own quiet, but interesting charms.

The cultivation of all these Globularias is of much the same character. They like a warm place in light soil, but should not be subjected to excessive drought. A little lime in the soil is also helpful, while some shelter from wet in places subject to a heavy rainfall in winter is also appreciated at that season. Still, they are

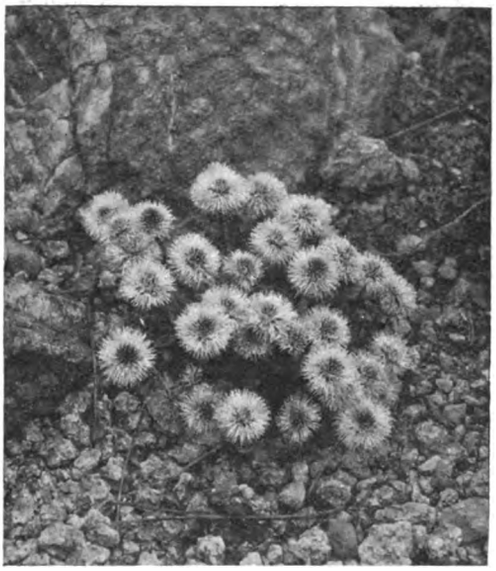

Fig. 35.—Globularia incanescens; flowers pale blue.

not difficult to grow, but one precaution, too frequently neglected with alpine flowers—that of top-dressing—should not be omitted in spring, and autumn, in addition, if need be.

A brief description of the general character of the Globularias is all that is required. They are half-shrubby little plants, with neat leaves and round, ball-like heads of blue or blue-grey. Pretty, yet not showy, they require and deserve a closer inspection than is always given them, and this reveals points of beauty, subtle, yet compelling.

Globularia cordifolia is recognised as one of the prettiest and best of the genus. It grows to barely six inches high, or less, and, if happy, soon makes small carpets of glossy, deep green evergreen leaves, well-nigh covered in the blooming season—June—by the large number of blue-grey little heads of flowers. It is one which is as accommodating as any. There is also a good white variety, favoured by those fond of albinos, but not such a general favourite as the type.

G. incanescens (see Fig. 35) is one of the dwarfest and neatest of the genus, and its little leaves of beautiful blue-green and pretty heads of lavender-blue in May and June constitute a quiet yet pleasing feature in the rock garden at that season.

G. nana, as the specific name would suggest, is the smallest of all. It seldom much exceeds an inch in height and furnishes a dense mat of miniature deep-green leaves, set with button-like heads of violet blue. I believe there is a white variety in existence, but I have not seen it.

G. trichosantha is one of the taller and less attractive plants of the genus. It is about six inches high, and does not possess the neatness and innate charm of the smaller species. It has, however, good heads of blue flowers and may be found a place in large collections. There is a white variety of this, also, but it is seldom offered in trade lists. *S. Arnott.*

THE CARDINAL'S FLOWER.

In the chapter on Campanula, Parkinson describes a plant which he calls "Trachelium Americanum flore ruberrimo, sive Planta Cardinalis, the rich crimson Cardinal's flower," and gives a figure of it. It grew "near the river of Canada," and the plant itself he received from France "with the Latine name; but I have given it in English." It was known for a very long time as the Cardinal's flower, because of its brilliant colouring; but ultimately it has been generally called the Cardinal flower. Rea knew it by Parkinson's names, and mentions "another of this kind (which lately came from Virginia) with blew flowers"; or Lobelia syphilitica. Rea adds a few cultural notes, remarking on the tenderness of the plant, and that it "must be planted . . . in a pot that it may be housed in winter, for it will not endure frost."

A long time elapsed before an addition of any value to these tall, herbaceous Lobelias was made; indeed, so late as the introduction in 1809 of L. fulgens. Now there are many distinct colours in this section, ranging from white, through pinks, violets and purples to scarlet and deepest crimson. They vary in height, too, from about 2 feet to 6 feet, or perhaps more in very strong soils. A good type of crimson is more desirable than other colours, which are somewhat dull in effect. The plants still maintain the character of "tender" bestowed upon them by Rea, and in my experience they require a special treatment to winter them safely; it being not unusual to find whole clumps rotted when inspected in spring, even when carefully preserved in frost-proof frames. Latterly, I have taken the precaution to prepare the plants for lifting a few weeks beforehand. This is accomplished by inserting a broad-pronged fork under each plant and pressing it down just sufficiently to break the main roots. I have never found plants rot after this treatment.

A stock is easily raised from seeds, which should be sown early in the year if seedlings are to flower the same season. The seeds should be merely covered, and must be kept moist, as also the seedlings when they appear. The latter are very small, and after transplantation into other receptacles should be shaded from direct sun. They do well in a strong, moist heat, and by the end of May are advanced enough to plant where they are to flower. These Lobelias can scarcely have too much rotted manure incorporated with the soil, and to save watering a slight mulch of the same material is of value, while the plants succeed better when the ground is rather firm than loose.

Only selected seedlings are worth perpetuating. Spring is the time to propagate, and propagation is effected by division. Every small growth roots perfectly in a compost of equal parts loam and leaf mould, if kept in moderate heat till new roots are produced, and they may be safely planted out when it is seen that fair numbers of roots have been produced. Planting is best done rather deeply so that the leaves are partly covered with fine soil. It is important that plants so propagated should be granted a more than ordinary amount of manure, and in dry weather liquid manure is almost essential. As pot plants they are very handsome, and equally valuable for the supply of cut flowers for indoor decorations.

Yearlings are, perhaps, best left in the ground for the winter, under a 6-inch covering of Beech leaves or other suitable material. *R. P. Brotherston.*

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JANUARY FLOWERS.

IRISES.

PLANTS that flower in the open garden in January may be divided into two classes, the many which will occasionally produce a few stray flowers in open weather in that month, and those which regularly flower then. Little work seems to have been done on the question of the causes that bring plants into flower in one month rather than in another. We expect Iris unguicularis to give us flowers in November, but why should it not wait till April or May, when most of the others flower? It is true, doubtless, that in its native Algeria the autumn and winter rains rouse the plants into activity, after their long sleep in the scorching heat of summer, and that they are then in a hurry to flower and to set and ripen their seeds before the drought sets in again. There is confirmation of this explanation in the fact that after a comparatively cold and sunless summer like that of 1922, this Iris is much later in coming into flower in all but the most sheltered and driest positions. On the contrary, it is difficult to see why two Irises so closely related as I. histrioides and I. reticulata should flower, the one in January and the other in March, under identical conditions of cultivation.

The former species comes from Northern Asia Minor, and the latter apparently from the Caucasus, and we might have thought that the winter conditions in these two districts were so similar that allied species which had developed in them would have been identical in their behaviour when grown under similar conditions in our gardens. The fact, however, remains that there are these differences in the behaviour of closely allied species, and there is no obvious explanation of them, unless it is to be found in slight variations in local conditions, which could only be detected by close observations on the spot.

Some of the early Irises are among the most brilliant of all hardy flowers, and never fail to appear in January, unless, of course, there is a continuous spell of hard frost. Even when there are spells of frost it is astonishing with what rapidity the flowers appear as soon as the wind goes round to the west and the frost gives. The buds seem to be waiting in readiness in their parchment-like sheaths or spathes just below the surface, and it only remains for the tube that separates the actual flower from the ovary to lengthen. This lengthening of the tube may be very rapid—as much as an inch in less than 24 hours.

Of these early Irises, I. histrioides is one of the most reliable. Even after the bad summer of 1922 and in the none too favourable surroundings of a suburb not ten miles from Westminster, the masses of buds that have appeared on clumps of this species are really amazing. The buds appear in their membranous spathes almost before the points of the leaves have pierced the surface, and then the broad-petalled, sturdy flowers unfold rapidly. The colour is a bright rich blue, except in the centre of the heart-shaped blade, where there is an area on which the white ground with its inconspicuous median yellow ridge is closely blotched with the same shade of blue.

Among seedlings of this Iris there is a certain amount of variation in the exact shade of the blue colour, and a pure white form with a central yellow ridge has appeared among some seedlings this year. There are also differences in the exact shape and poise of the standards. The falls and the style branches are, however, always extended in a plane that is much nearer to the horizontal than is the case in any of the allied species excepting I. sophenensis. This might almost be looked upon as a small and less brilliantly coloured form of the same species, for it behaves identically in every way. It thrives under the same conditions, and has the same method of increase by forming at the base of the flowering bulb a number of very small bulblets, which take several years to develop into bulbs of flowering size.

Very similar to I. histrioides is I. Histrio. It differs, however, in having more distinctly funnel-shaped flowers, in which the blue blotching on a white ground is even more conspicuous than in I. histrioides. Another point of difference is that the leaves of Histrio are so far developed before the flowers appear that they overtop them. I. Histrio is a very variable plant, and some forms of it are apparently much more delicate than others. A good form is a most desirable plant, and may be relied upon to furnish flowers in January.

Smaller than either of these Irises but even more brilliantly coloured are some hybrids between the well-known I. reticulata and the rare species I. Bakeriana which has passed on to them the velvety texture of the blades of its falls. If these hybrids prove to have the constitution of I. reticulata they will be a valuable addition to the list of Irises which will flower in January.

In the hungry sand of Godalming it was never easy to keep these plants healthy, but in a piece of old kitchen garden where the rather light soil has been well enriched with humus from constant dressings of manure in the past, they are now doing extremely well.

Another bulbous Iris which never fails to give flowers in January is I. Rosenbachiana, a Turkestan species that delights in a well-enriched, sandy soil, and a thorough baking in summer. The earliest forms are white, with a deep crimson tip to the falls, along the centre of which runs a conspicuous golden crest. The flowers spring from the bare earth almost before the tips of the leaves are showing, and a strong bulb will throw two or even three flowers in succession.

All these Irises may be enjoyed in the open ground, but an even better way is to pick the buds just before they open and then stick them in shallow bowls of wet sand where they will remain in full beauty for more than a week, provided that the room is not overheated. The same method should be tried with the January Crocuses, for it is seldom before February that we get enough sun, at any rate near London, to cause the flowers to open wide.

CROCUSES.

The best January Crocus is probably the Italian C. Imperati. Of this the three outer petals are backed with buff, more or less conspicuously marked with three dark purple, feathery veins. The inner surface and the whole of the three inner petals are of a bright lilac—a most striking contrast. The flowers are very large, and the leaves develop early enough to provide a background for them. There is also a very beautiful white form, of which the buds are a deep cream, though this colour is confined to the backs of the outer petals. The open flowers are pure white, with a yellow throat, and a conspicuous orange-scarlet stigma.

Another January Crocus is the Greek C. Sieberi (Fig. 34), with flowers of a particularly pleasing shade of blue lavender, and yet another, the deep golden yellow form of C. candidus, which used to come from Constantinople before the war. C. chrysanthus is at its best a little later, but the earliest flowers are usually open in January. It is a native of western Asia Minor, and is very variable in colour. It may be pale or deep yellow, usually, but not always, striped with purple on the outside, or even of a pure white.

Few Crocuses are more beautiful than that seedling of chrysanthus, which is named after Mr. E. A. Bowles. It is of a rich butter yellow, of well-rounded form, and usually in flower in the last days of the present month.

COLCHICUM.

Another January plant which grows among my Crocuses is a small Colchicum, which I obtained from the neighbourhood of Zengg, in Croatia. Each bulb produces four or five white or pale pink flowers from pairs of narrow, dark leaves, and at first sight it is only by the fact that there are the six anthers of the Liliaceae instead of the three of the Iridaceae that we see that it is a Colchicum and not a Crocus. Its proper name has not yet been determined, but it is a desirable little plant for rock gardens. It is perfectly hardy, and I have had no difficulty in raising it from seeds to the flowering stage. *W. R. Dykes.*

THE FUTURE OF BOX HILL.

ABOUT a year ago attention was called, in the Press, to the fact that Box Hill was in danger, a very large adjoining portion being for sale and described as "ripe for development." A prepared map shows the present extent of the nation's property there which, after Miss Warburg's gift last year, consists of Box Hill and half a mile of the main ridge to the eastwards, together with the northerly spur. The valley up which the road runs, and the next spur to the east, form one side of the most beautiful part of the whole place—"Happy Valley."

It is the area, 248 acres in all, immediately north of this narrow strip, which is now offered for sale by Lord Francis Hope. It consists of open woods, a Bracken-clothed plateau with gorgeous views over "Little Switzerland" and the line of the downs westwards, and—most important—forms the eastern side of "Happy Valley"; its acquisition would convert the nation's property into a compact rectangle. Lord Francis Hope has intimated that, in the event of the land being sold to the nation, he would put forward to his trustees a price of £5,000 for the land, plus £2,000 for the timber or, alternatively, £5,000 net, provided he is allowed to cut timber not exceeding £2,000 in value before sale. This latter, of course, is most undesirable. The offer is a generous one, for it works out, with the timber, at £28 per acre, as compared with £50 per acre paid by the late Leopold Salomons for the original gift of Box Hill proper.

The articles and correspondence which appeared last year in the Press provoked an offer as generous from a reader of *Country Life* living in Rio de Janeiro, who wrote as follows:—

"I have carefully studied the matter, and think it is a good opportunity for anyone wishing to do something *pro bono publico*, and therefore am very glad to send you the enclosed draft of £1,000 towards the purchase of the land (with the conditions I will mention later).

"In buying land for the public one has to be careful that private interests do not reap as much, or more, benefit than the public, but the present estate, lying alongside a piece already public property, gives the public not only its own actual area, but adds a value to what the public already owns. This is a great point."

"Now I am not a wealthy man; I work very hard for every thousand pounds I earn, but I do not pay English taxation, and I want to help decent things to be done in England.

"So I send you the thousand pounds with the following obligations and conditions:

(a) That the purchase be completed before September 30, 1923.
(b) That in addition to this £1,000 herewith, I will subscribe the last £1,000 required. This should encourage other subscribers.
(c) That if the money be not subscribed by the date mentioned above, you return to me the thousand pounds and I am absolved from further responsibility.

"I think it very good of you to be working up this purchase. I do not want my name to figure, you can use my initials.—Yours very truly, G. H. C."

The Box Hill Committee have voted £1,000, but we must appeal to England for the balance—£4,000, to those who, like our friend in South America, wish to see decent things done in England. *Country Life* will give an initial £250 on condition that three donations of a like sum are forthcoming.

The danger is a very real one. Where land has already been developed, as along the road to Box Hill from Walton, it is horribly disfigured by ruined woods, and bungalows of the meanest sort. The Oaks on the land under consideration have already been marked for felling, and unless the money can be secured, the beauty of the Box Hill woods will be greatly diminished.

I appeal to your readers for subscriptions, which will be very gratefully received if addressed to: The Box Hill Fund, 20, Tavistock Street, Covent Garden, W.C.2. *P. Anderson Graham.*

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JANE LOUDON.

IN his interesting account of Mrs. Loudon (p. 368, December 23, 1922)—it does not appear that she ever used the name "Wells"; on the title pages of her books she stands as "Mrs. Loudon," and her private letters are signed "J. W. Loudon"—Mr. Brotherston does not seem to have consulted either the late G. S. Boulger's notice in the *Dictionary of National Biography* (xxxiv.—148), nor our *Biographical Index*, both of which supply information as to the dates of her birth and death, whereof Mr. Brotherston gives no record. According to the former, she was born at Ritwell House, near Birmingham, in 1801; her death, at Porchester Terrace, Bayswater, occurred on July 13, 1858, in her 58th year.

The fullest account of Mrs. Loudon, which Mr. Brotherston seems to have overlooked, though it is duly indicated in the *Biographical Index*, is that given in the *Cottage Gardener* for July 27, 1858: it is preceded by the following prefatory note which contains no indication of the source whence it is derived; it is, however, doubtless taken from her memoir prefixed to her husband's posthumous *Self Instruction for Young Gardeners* (1845), which she saw through the Press. Mr. Brotherston, like myself, has presumably not seen this, as he refers to it as "brief" and omits numerous details which would have added interest to his article. Of these, I propose to supply a few, first giving the editorial note to which reference has already been made:—

"In our last number we announced the death of this lady, and we will now proceed to give, with some few additions, marked by parentheses, what is really her autobiography; for she was so identified with all her husband's pursuits, owing to his decrepitude, that in sketching his life she at the same time has portrayed a very considerable portion of her own."

It was "about 1829," she writes, "that Mr. Loudon formed his first acquaintance with me"; he had been attracted to her novel, *The Mummy*, mentioned by Mr. Brotherston, from the reference it contained to a steam plough. Loudon "was so much pleased with the book that he published in the *Gardener's Magazine* for 1828 (p. 478) a notice of it under the head of 'Hints for Improvements,' and had from that time a great desire to become acquainted with the author, whom he supposed to be a man." The wish, however, was not realised until February, 1830, when an introduction took place which speedily ripened into an attachment, and they were married on the 14th of the following September. In the *Gardener's Magazine* (published in October of the same year, but evidently written previously), Loudon had referred to a garden hybrid Pelargonium which had been named P. Webbianum "in compliment to the accomplished Miss Webb, the elegant authoress of *The Mummy* . . . who, to her numerous acquirements is adding, with unparalleled ardour, an extensive knowledge of botany." At the time of their marriage *The Gardener's Magazine* produced £750 annually; but this amount gradually decreased in consequence of the appearance of Paxton's *Horticultural Register*, and on Loudon's death, in 1843, the *Magazine* ceased to appear.

The account to which reference has been made contains an interesting description of their wedding tour in the Lakes and in Scotland, the latter part of which was attended with much haste and inconvenience on account of the serious illness of Loudon's mother, to visit whom was one of the objects of the journey: they arrived in Edinburgh (by coach and steamer) in time to see her, but she died shortly after their return to London, where Mrs. Loudon at once settled down to work as her husband's amanuensis. Loudon was then engaged on the edition of his *Encyclopaedia of Gardening*, which appeared in 1834; her help is not mentioned in the preface to this book, but she doubtless co-operated with him. In 1850, seven years after her husband's death, Mrs. Loudon issued what she described in the preface as "an entirely new edition of this work," which, although conducted on the same principles as those which guided Mr. Loudon himself, was carefully revised, and in some part "completely re-written." This was reissued in 1878 by Messrs. Longman's as a "new edition, edited by Mrs. Loudon"; the statements, accurate when the volume was first issued, were misleading as to the date, as Mrs. Loudon died in 1858. For the same reason the date (1872) on the title-page of Loudon's *Encyclopaedia of Plants* is incorrect, though the book is accurately described as a "new impression." Mrs. Loudon's share in this is confined to a "supplementary list" and to a preface (dated April, 1855), in which she gives an account of the previous supplements. Neither Mr. Brotherston nor the *Dictionary of National Biography* make any reference to Mrs. Loudon's share in these important works.

A well-written and well-informed little book not mentioned by Mr. Brotherston is *Tales about Plants*, which Mrs. Loudon contributed to a then popular series of "tales" by various authors, relating to animals, countries, etc., all published under the name of "Peter Parley." Shortly after the death of her husband Mrs. Loudon, whose means were limited, set to work to obtain a pension, and to that end obtained the help of Robert Brown, on the advice of Captain Mangles who had himself unsuccessfully interested himself on her behalf. When writing to Brown she enclosed a list of her "Works on Gardening and Botany published since Christmas, 1838," in which we find Peter Parley's *Tales about Plants*; the book is not dated, but was, I believe, published in 1839. From a grateful letter to Brown, dated March 24, 1846, it appears that the pension of a hundred a year was granted by Sir Robert Peel early in that year: "I am entirely at a loss to know whether I am indebted for this to the kind offices of my friend, or whether it is Sir Robert Peel's own kindness, but at any rate I am very grateful." Her letters relating to the pension are in the Department of Botany.

One or two notes on two others of Mrs. Loudon's books may be added. Of *British Wild Flowers*, which Mr. Boulger (*D.N.B.*) says was first issued in 1844-5, an edition with coloured plates appeared in 1846; these are adapted from Sowerby's *English Botany*, though without acknowledgment—an omission the more remarkable in that the author refers her readers to that work for figures of plants which were not included in her illustrations. Another edition, illustrated by H. Noel Humphreys, was, according to the *Dictionary of National Biography*, begun in 1856.

Mr. Brotherston mentions *The Lady's Flower Garden* and *The Companion to the Lady's Flower Garden*, both published in 1840. Is not *The Lady's Companion to the Flower Garden* intended by him under both these titles? This, Mr. Boulger says, was Mrs. Loudon's most successful work; more than 20,000 copies were sold, the ninth edition appearing in 1879—seems to correspond in effect with what is stated by Mr. Brotherston; this under his two titles. Mrs. Loudon's last edition is dated 1858—the year of her death. Her concluding note indicates that care and conscientiousness which are conspicuous in her work:—"Notwithstanding the large sale of the work (which has exceeded 25,000 copies), it has never been stereotyped; but every new edition has been carefully revised, and descriptions of new plants and new discoveries in floriculture have been added, so as to bring the whole down completely to the present day." An American edition "from the third London edition," edited by A. J. Downing, was published in New York in 1843 (1847 on title-page); it does not seem to have been considered necessary to ask the author's permission for this, as none is acknowledged.

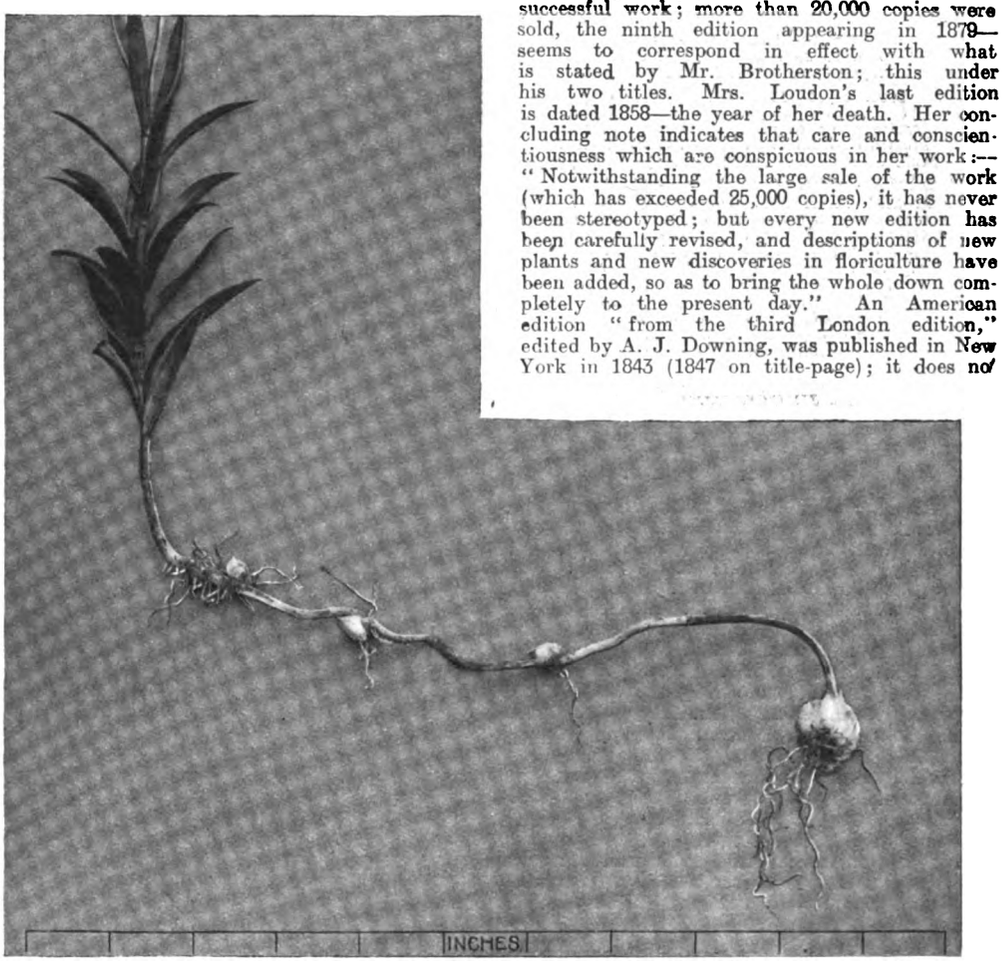

FIG. 36—CREEPING STEM OF LILIUM DUCHARTREI, AT HIGHDOWN, GORING-BY-SEA (SEE P. 79).

In these notes I have confined myself to information additional to that contained in Mr. Brotherston's account of one who, in her time, did much to advance both botany and gardening, and whose memory may well be recalled.

James Britten.

Special Cups for Paeonies.—Mrs. Edward Harding, of Burnley Farm, Plainfield, New Jersey, the well-known authority on garden Paeonies, has presented the Royal Horticultural Society with a sum of money which is to be devoted to the provision of a cup in each of the years 1924, 1925, and 1926, to be awarded for the best display of Paeonies shown by an amateur grower. The exact conditions which will govern the competition for these cups will be arranged and published later, but Mrs. Harding was particularly anxious that time should be given to allow growers to get together a representative collection of these valuable decorative flowers in order to compete for the cups.

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LILIES IN 1922.

IN a country where the climate varies so much as in the British Isles, no review of a season in relation to a particular genus can apply with equal force to all parts. But in a general way 1922 will not go down to history as a good year for Lilies.

A dripping summer does not make for a fine Lily season, and when humid atmosphere, low temperature, and scant sunshine go hand in hand, as was the case throughout all but the beginning of last summer, the Lily grower must make the best he can of it. Such an experience, though not rare, may be momentarily disheartening even to the hardened expert, but hope is perhaps as perennial as any plant in the garden, and will pull him through.

Seldom, surely, could there have been a year richer in promise for the expert cultivator of Lilies than 1922. The dreaded early winter rains had been scant, and there was nothing in the autumn of 1921 to interfere with the ripening of the bulbs. In culinary language, they were "done to a turn." The opening months of the year did not bring that precocity of growth many looked for after the memorable drought; nor did they present any novel features: the usual alternations of mild weather and cold; the usual hopes and fears; nothing that has not figured in these annual notes many times already.

Even April has been as dour before as it was last year, though report had it that the frost of the early morning of the 2nd constituted a record for Kew. Often and often in years gone by has winter fought a rearguard action up to the middle of May, but not so often, perhaps, has the belated victory of the sun been so sudden and so complete as it was last year. No one can yet have forgotten how, without any warning, high summer burst upon the country half-way through May, bringing with it a riot of frost-checked blossom worthy of a Japanese spring. Each succeeding day saw a rise of the mercury and a more brazen look on the sky, till all records were passed during the Derby race week. By that time a marked absence of rain was beginning to tell on a country already abnormally dry, and vegetation was wilting painfully.

But the Pyrenean Lily, apparently proof against any climatic abnormality, opened its flowers five days in advance of the earliest date of which the writer has a record during a quarter of a century, and was soon followed by L. szovitzianum and the rest of the early-flowering species.

In the review of "Lilies in 1921," written on May 6 of last year,* the outlook for Lilies in the summer of 1922 was reported as excellent, and half-way through June the prospect had seldom seemed so fair. It was too good to last, and sure enough, in a week it was less promising; in a fortnight the bad weather had set in, and went from bad to worse. July and August brought no relief, and not till Michaelmas did Nature mend her ways, winding up the season as brilliantly as she had begun it. But who, south of the Border, looks for Lilies in September?

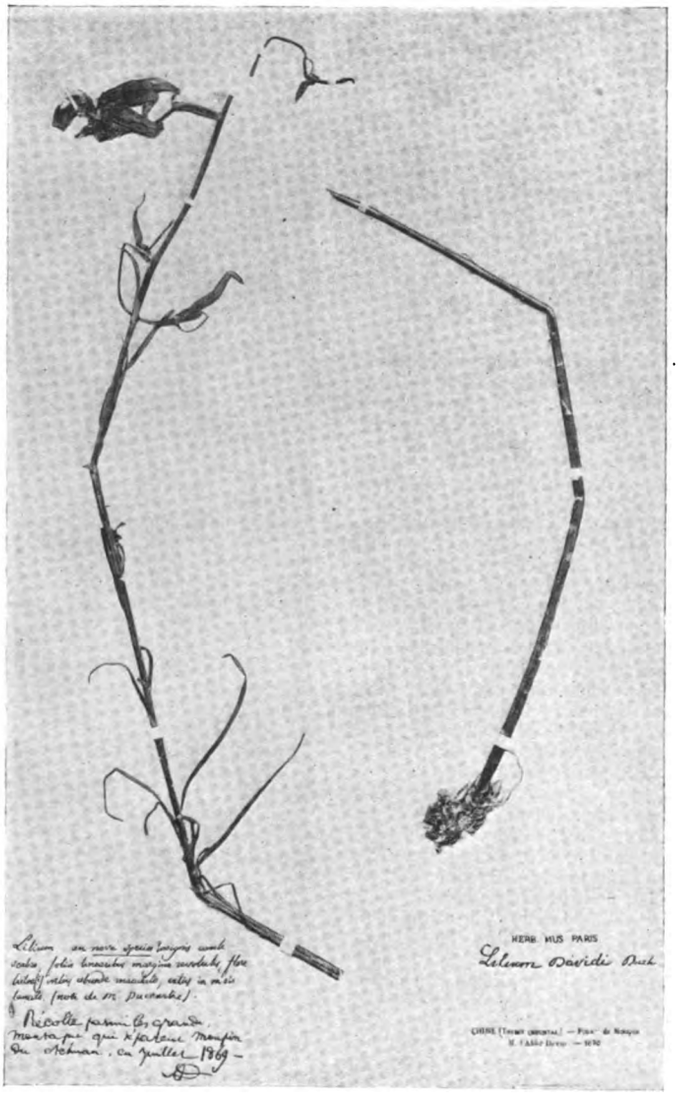

FIG. 37.—LILIUM DAVIDII; TYPE SPECIMEN IN THE HERBARIUM OF THE JARDIN DES PLANTES, PARIS.

Virtually, and except in a few favoured places, the Lily season south of a line drawn diagonally from The Wash to Land's End, was confined to the first seventeen days of June. The crop of seed was poor and poorly ripened, and as was inevitable under the circumstances, Botrytis was rampant. It was a cruel disappointment for the amateur grower of Lilies, and he may feel that Nature was perhaps a little ruthless. But she never does things by halves, and if inclined to grumble at the débâcle she made of last summer, let the southerner ask himself what sort of a wreck the face of the land would have presented had the almost unbearable heat and drought of mid-June held for a few weeks longer. The answer must be that rain and relief came not a moment too soon to save the south.

In assessing the hurt done to gardens by the great drought of 1921-2, we must include Lilies among the sufferers. No estimate of the damage was possible till the spring of 1922 revealed the gaps in the ranks. Then it was apparent that on light, sun-baked soils the casualties were serious; on heavier land they were less numerous, and in places where it had been possible to irrigate the ground the casualty list was naturally lighter than usual.

A long drought affects Lilies in different ways, for while it makes the majority of the genus uncomfortable, it has the reverse effect on some species, especially those of European origin. Not since the dry summer of 1911 have the garden forms of L. candidum been so floriferous as in 1922. They were reported as flourishing in all directions, and notwithstanding the unfavourable summer the beneficial effect of the prolonged sunshine and concomitant baking of the bulbs in 1921 was evident enough in 1922. Drought has no terrors for this Lily, nor for L. pyrenaicum, L. Martagon, L. pomponium, or L. carniolicum; nor, in a modified degree, for L. chalcedonicum and L. szovitzianum—all European Lilies.

On the other hand, L. giganteum was prominent among the species which were hard hit last year. In the ordinary way this Lily seems to be less affected by a dull summer than others of the genus, and its comparative failure in 1922 was probably due as much to the arid condition of the ground in the early summer as to the drought of the previous year. In the intense dry heat which prevailed from the middle of May to the middle of June, many plants of this species were seriously checked; indeed, they stood still for weeks, and never recovered the ground lost.

* *Gard. Chron.* No. 4,245, p. 229.

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The same thing was noticeable in the case of L. mirabile, the Chinese counterpart of the Himalayan L. giganteum. It has been said that there is no difference worth mentioning between these two species, and anyone holding that view may be advised to plant a few bulbs of each species alongside each other and watch them throughout their annual growth; he will soon be undeceived.

L. Duchartrei—to give Farrer's "marble Martagon" its proper title—is another Lily which failed last year in dry places in the south. It was crippled by the May-June drought, and made no further effort above ground. This is a plant of moist meadows, pushing its stoloniferous stem in and out of the roots of grasses, and multiplying itself at a rapid rate, as the

FIG. 38.—LILIUM DAVIDII, AS RECONSTRUCTED BY MONS. FAQUET FROM THE TYPE SPECIMEN. REPRODUCED FROM THE REPRODUCTION IN THE "MONOGRAPH OF THE GENUS LILIUM."

photograph (Fig. 36) of the stem of a plant in the garden at Highdown shows. Under the circumstances its failure is no more remarkable than that of L. giganteum and L. mirabile—species not appreciative of direct sunshine.

No altogether satisfying explanation of the creeping stem typical of some Lilies has been advanced. To the non-technical mind it may well seem to be due to an abormally stony condition of the ground in which the stem, baulked by a stone from rising vertically out of the bulb, wanders about till it can find an outlet to the sun. Something of the kind may have initiated the habit so long ago that it still persists; but who shall say why the stem avoids many opportunities adjacent to the bulb of rising through the earth, preferring to meander through, perhaps, a yard of ground, when a couple of inches would suffice. Another explanation may possibly be found in some physiological relationship between the creeping stem of a Lily and that of Pyrola—considered by some to be parasitic—which sends out its long, string-like roots for yards.

Variations of a seminal character have been noticeable in L. regale since the species was first raised here from seed, and every sowing produces strong plants and weak, as well as those which show variation in some particular, either in foliage or flower. On the whole, these variations have hitherto been of minor character, but they have been more pronounced of late than formerly. In some seedlings of particularly robust growth the flowers are not semi-erect as in the type, but clustering at right angles to the stem, with none too happy effect. In another form of not especially strong growth the trumpet is so widely open as to look almost flat, the base of it being deeply flushed with dark chocolate. Now that this Lily is becoming comparatively common, every effort should be made by growers to select the finer forms for propagation, discarding seed from the more or less puny specimens which are to be found in every sowing. The practice of mixing all seed together promiscuously cannot be defended. Nor can that of growers who fertilise L. regale indiscriminately with pollen of every Lily available, in the hope of originating some striking hybrid. In nine cases out of ten the only result is some slight alteration for the worse in the characters of the mother plant. That would not matter were the plants and their seed consigned to their proper place—the rubbish heap; but the temptation to dispose of them seems irresistible, and so they are bartered as L. regale.

In a few years there will probably be as many forms of L. regale as there are of L. pardalinum since the florist took that species in hand. The majority of these forms will have an infusion of alien blood, and though this will grow weaker as reversion proceeds, the temporary confusion will be incalculable.

It is not possible to conclude this summary without reference to the death of Mr. Elwes, whose name is so indissolubly bound up with Lilies. It is the case that for many years past his energies had been directed more towards arboriculture than Lilies, but he never lost his interest in his first love. Wherever he was, at home or abroad, he found nothing new or of interest in the genus which he did not share at once with the writer.

Mr. Elwes had a sound instinct for good garden plants, and when L. regale first came upon a delighted world (as L. myriophyllum) he was among the first to recognise its potential value as a good garden Lily. So impressed was he by the points of the species that he straightway took the trouble to bear a plant in a pot all the way from the Royal Horticultural Society's Hall, where it was exhibited, to the writer's garden 30 miles away, to discuss the points of it.

So long ago as 1884, in a paper read before the International Botanical and Horticultural Congress at St. Petersburg, Mr. Elwes made the sage prophecy that if any further discovery of Lilies was made it was likely to be in Western China; and he lived to see his forecast realised.

Though long out of date, and as he often said, no more infallible than other works of the kind, the *Monograph of the Genus Lilium* remains a worthy memorial to a remarkable man. Those who are familiar with the book are aware that two or three of the plates were not drawn from life, but "reconstructed" by the artist from herbarium material. A case in point is the drawing of L. Davidii, a Lily round which a web of uncertainty has gathered. Neither Mr. E. H. Wilson nor any other explorer has reported finding anything like it, or indeed any Lily of the Isolirion section, in Western China.

But, doubtless with the wish as father to the thought, there always remained the lingering hope that the elegant species so beautifully figured by Faquet might some day be found, and not have to be reckoned as a mythical plant. That it is so, however, has recently been demonstrated by Mr. E. H. Wilson, who has left no doubt that the Lily he discovered at Tachien-lu in 1908 (No. 1,448), and named for Mrs. Thayer, L. Thayerae (Fig. 39), is the long-lost L. Davidii. There has been some confusion between this species and L. Willmottiae, but no one who has the pair in cultivation could confuse them.

The dangers attendant on pictorial reconstruction of dried plant specimens are well illustrated by a comparison of the original specimen of David's Lily in the herbarium of the Jardin des Plantes and Faquet's fine drawing in the *Monograph of Lilium* (Figs. 37, 38). The upshot of Mr. Wilson's researches is that as a name L. Thayerae disappears, being merged in the older publication, L. Davidii. *A. Grove*, February 2, 1923.

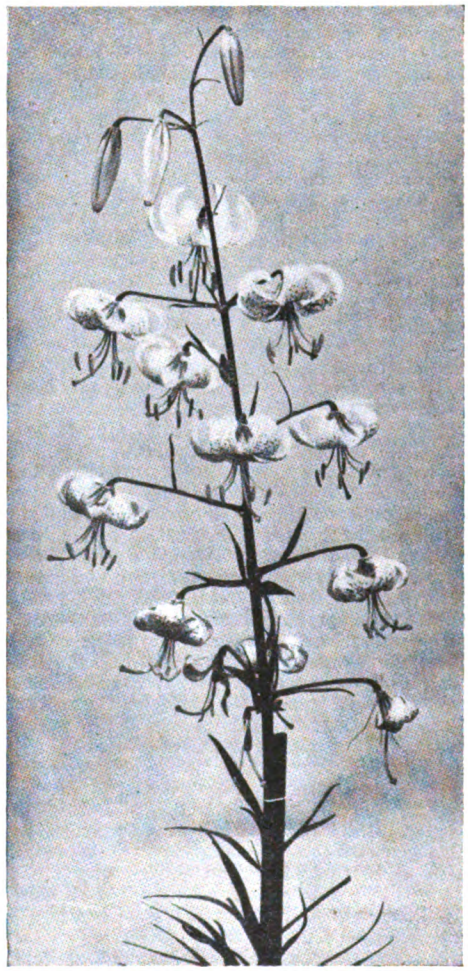

FIG. 39.—LILIUM THAYERAE (WILSON), NOW CONSIDERED TO BE L. DAVIDII.

SOME EASILY GROWN LILIES.

LILIUM MONADELPHUM (syn. szovitzianum) is a fine species for the garden. Planted in good, loamy soil and allowed to remain undisturbed, so that the deep descending, thong-like roots from the base of the bulb securely anchor it in position, it will push up its stately stems to a height of 6 feet or more, and the inflorescences are terminated by a pyramidal-shaped head of gracefully recurved blossoms.

The scarlet Martagon is another Lily which depends upon its basal roots for the support of the flower stem, and consequently should not be disturbed unless absolutely necessary. L. longiflorum and L. speciosum, with their several varieties, are other desirable Lilies for the garden. The Madonna Lily (L. candidum) is a general favourite with growers; if this species is transplanted, the work should be done in August, but it grows and flourishes best where it is undisturbed for several years. *T.*

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. VIII.—THE MONASTERY OF YUNG-NING.

ON June 13 we started back from Yung-ning, and on the following day pitched our camp in a glaciated valley south of the pass, on a portion of the limestone range, which I had not visited in the previous year.

There were several shallow glacier lakes under the grim cliffs, all fringed with Primulas. In the boggy ground P. Wardii, P. vittata, and P. pseudosikkimensis, now in their prime, formed sheets of interwoven colour. On drier, but still damp ground, the deep violet-frilled bells of P. brevifolia were scattered like Daisies over an English lawn. Just behind these colour belts, at the edge of the Rhododendron forest, masses of the stately P. corianum glowered in the dusk.

Turning to the harsh, white cliffs, the little mealy mauve Primula K.W. 4,154 fluttered in the breeze, and was more abundant here than on any of the other cliffs I explored. I am glad to hear that this plant is coming up well at home from seed sent last year. In its daintily-cut foliage, silvered beneath, its stunted scape, and compact truss of two or three large flowers, it is one of the most charming of rock Primulas. Nor is it likely to prove exacting. It demands limestone, and as much sunshine as it can get; but spring drought and the icy winter of these altitudes (albeit dry) leave it unmoved. One word more. In this country it sets very little seed, whether because it is not freely pollinated, or because the capsules are shrivelled in the hot glare of the early winter sunshine, as it beats on these white cliffs, I am not sure; I suspect the latter. Let us hope that it will prove more reliable in England.

A little higher up than the average of this species, the wide open eyes of the dwarf Primula K.W. 4,182 stared saucily at one from beds of moss or from rock niches. The flower of this species is almost identical in colour, form, and size with that of the last-mentioned species; otherwise the two plants are quite different. K.W. 4,182 is without meal, and the flower is solitary, and appears almost sessile on the rock. It is without bracts, too, and the calyx is quite differently shaped. Not a whit behind K.W. 4,154 in grace and daintiness, it should likewise prove a useful, hardy little plant for the rockery. Like its neighbour, it sets very little seed at Mu-li; but I understand that the mere pinch I sent home is germinating satisfactorily.

Next, under the bushes, the dull yellow tubes of the Maximowiczii Primula K.W. 4,179 drooped rather languidly. This species was already past its prime—it opens the first week in May. Fresher looking, on shaded mossy cliffs in the thin woods, was the Muscarioid P. pinnatifida, its helmet of violet flowers deepening to chocolate bracts at the crest. With it was associated the tiny purple Soldanelloid Primula, K.W. 4,402, with little spathulate leaves that have a deeply serrate margin, and are mealless.

This last is one of a confusing group, very common at all altitudes in the Mu-li country from 10,000 feet to 15,000 feet. They vary greatly in size, in flower colour, and in the presence or absence of meal and its colour—dead silver-white, or greenish-yellow. Which are species and which varieties it would be hard to say, and, perhaps, the answer is more or less arbitrary. In order to assist the diagnosis, I collected the species from every locality in which I met with it, under nine separate numbers, and divided them into two classes or species—those without meal, and those with meal. The former, by the way, are fragrant, at least sometimes, the latter not. I was rather astonished at this, because I had come to associate meal and fragrance in the Primulas. Of these nine numbers (I did not collect seed of all) two, at any rate, K.W. 4,154 with meal and K.W. 4,402 without meal, have germinated at home.

To go back once more to the question of meal on Primulas, and its significance—I do not know what use the experts assign to it, though the field botanist ought to have as good a chance as anyone of solving the problem—if it is a problem. Personally, I have not solved it. As indicated above, I at one time thought that fragrance largely resided in it; but that theory will not hold. At another time observation of many species suggested that bog and marsh Primulas were devoid of meal. But even if we ignore the claims of such plants as P. vittata and P. pseudosikkimensis—both mealy—to be considered marsh plants, the conclusion was vitiated by the discovery of the beautiful rose-pink Primula K.W. 4,385, which grows only in streams. Besides the converse, that Primulas which do not grow in bogs are mealy, is obviously not always true; woodland species, for instance, are never mealy, so far as I know. So that the fact that bog Primulas are generally (I think we may venture thus far) without meal does not tell us very much about the uses of meal.

Of course, a white efflorescence of meal renders many species more attractive—perhaps more conspicuous. In the case of rock Primulas, too, meal on the under surface of the leaves may be connected with protection from radiation. The fact is, there is probably no universal reason for meal; each case must be judged on its merits, since it doubtless serves many purposes.

One more Primula was found here, lower down on limestone outcrops in the forest—a stunted form of P. lichiangensis. Like all the species enumerated above, this, too, was a 1921 plant; but it led to the discovery of a plant, also growing on the limestone rocks, but in full sunshine, which I had not found the previous year. This was a very pretty species of Incarvillea, with pale pink flowers. The other two species of this region, I. grandiflora, and a coarse 2-foot plant with muddy-yellow flowers, are not pleasing. I. grandiflora—except in its white-flowered form, which is rare, is a vulgar-looking plant. It struts. The gawky, yellow-flowered species—I know not its name—is an overgrown weed. But I venture to think that this pale pink-flowered species, not exceeding a foot in height, is a good rock-garden plant. Unfortunately, I was only able to secure a little of the previous year's seed. This was the only place I saw it—a few dozen plants in all. The other two grow everywhere.

A full day's exploration on the limestone cliffs yielded plenty of flowers, but scarcely one I had not already come across. Isopyrum grandiflorium—one of the commonest and most widely spread alpines in N.W. Yunnan, but to this day hardly known in England, I believe; the yellow Lilium lophophorum, species of Myosotis (not M. Hookeri—on limestone), of yellow-flowered Cremanthodium—less abundant here than in the A-tun-tzu region; several members of Cruciferae and Leguminosae; species of Corydalis, Pedicularis, etc., the small Pinguicula, and a few more. A sorry collection for a day's cliff climbing

On June 16, in pouring rain, we broke camp, and, crossing the pass, began the long descent to the Yung-ning basin. There were still a few Rhododendrons in flower at the summit of the range; but they were obviously rather an afterthought. The all too brief glory of the Rhododendrons was already a thing of the past; the struggle to prolong it into July was only too painfully evident in battered flowers and floppy trusses. One of the mules had eaten some poisonous plant—Aconite perhaps—and was in a state bordering on collapse. We had considerable difficulty in getting it along, though the muleteers coped with the situation heroically.

By evening we had reached the broader wooded valley, where the mountain torrent becomes a river. Under the trees were colonies of the pinkish-purple Candelabra Primula, collected at Yung-pei last year (K.W. 3,920). I am given to understand that this is only P. Beesiana after all, a diagnosis which surprises me. The colour seems to me to be much less aggressive than normal P. Beesiana, the plant more mealy, and I imagined other differences. However, without comparing the two plants side by side, one is not entitled to give an opinion

It took us two more days to reach the monastery of Yung-ning, the weather being very bad and the going consequently difficult. On the plain were bogs full of P. Poissonii, a belligerent purple; but the hot gold of King-Cups acted as a foil, and clouds of blue Cynoglossum smothered the combat. Primula Littoniana was almost in flower here too.

Riding across the plain between hedges of white Clematis, past the hot spring (where we halted for lunch and a bathe), we reached the monastery in the afternoon on June 18, *F. Kingdon Ward.*

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 22, May 6, May 20, June 3, June 17, July 1, July 15, July 22, August 5, August 26, September 9, September 23, October 7, October 21, November 4, November 18, December 2, December 16, December 30, 1922; January 13 and January 27, 1923.

KITCHEN GARDEN.

ASPARAGUS BEDS.

ALTHOUGH the planting or sowing of Asparagus does not take place until April, advantage may be taken of spare days to get the bed made, for the soil will then be open to the weather. The following method of forming an Asparagus bed may appeal to those who do not mind putting in plenty of labour with a view to a good return from the crop.

The site for the new bed having been chosen, it should be pegged out by driving stout stakes into the four corners. The length of the bed can only be decided locally, but I would advise a width of 5 feet. This would admit of three rows at 18 inches apart and a margin of one foot from the edge of the bed on each side. Having marked out the bed by making a shallow cut with the spade along the line, it should be divided equally longitudinally by stretching the line through the middle, 2½ feet from either side, and cutting this also. The top soil should be thrown out equally on either side a spit deep, and the heap thus made levelled and covered with manure. The lower soil should be treated to an equal depth in a similar manner. If it is of different texture from and evidently poorer than the top soil, it should be thrown sufficiently far out to avoid mixing it with the top soil, but if there is very little difference it may be placed on top of the manure. This heap should also be levelled and covered with manure and leaf-mould. The third spit should be dug deeply and well broken The opportunity offered of mixing with it road grit, decayed refuse, etc., should not be missed.

If this work is done in the winter the soil will have time to become exposed and sweetened over a few weeks. When it is decided to complete the bed, which should be at least a month before planting to allow the soil to settle, the earth thrown out and covered with manure should be turned over from end to end to mix the manure, etc. The two layers of soil need not be mixed if this does not seem advisable. After turning and mixing, as would be done in the preparing of compost for a new border, the soil should be turned back into the trench, the second spit first where the two have not been mixed. If this work is done with a dung fork, where the land admits of the use of this tool, the lumpy soil and manure will largely be thrown in first and the fine soil on top, which will facilitate planting. This method of forming an Asparagus bed ensures perfect drainage, good depth of soil and thorough admixture of the manure, with every prospect of a good crop provided the planting is thoroughly well carried out. *W. F. R.*

MARKET FRUIT GARDEN.

IN this southern district we have had scarcely any winter weather. January was, for the most part, mild and spring-like. It was also dry, the rainfall amounting to only 1.29 inch. It is to be hoped that this will do something towards discrediting the old, but still popular, idea that a plentiful crop of berries on Hawthorn, Holly and other trees presages a hard winter; for I have never seen the hedgerows so red with fruit. This crop is obviously the result of the fine, dry season of 1921, which ripened the wood and made it fruitful. No doubt we shall have cold snaps yet, but they can scarcely be of long duration, coming so late. It would be well if cold weather

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came at once if we are to have it at all, for fruit buds are already moving, and vegetation generally is advanced and tender. Appearances at present indicate a very early spring, which usually means a light crop of hardy fruit.

Winter Work.

People often ask what we find to do on a fruit farm during the winter, evidently being under the impression that it is a time of holiday. It is true that there is not the same rush and pressure of work as during the gathering and packing season, but there is certainly no lack of employment for the permanent staff. Moreover, the winter work is important, for on it depends very largely the crop of the coming season.

Pruning has first claim on all the hands who are sufficiently intelligent to undertake it; and it keeps them busy all the winter. Good progress has been made in this work, as there has been little interruption by the weather. I carry on through frost, so long as conditions are not too severe for the workers, as I have never been able to see that it injures the trees in the slightest. In pruning this winter it is noticeable that the trees are particularly free from disease, especially Apple scab and canker. This is rather surprising considering how damp the past year was.

The first job for the unskilled hands was the spreading of shoddy and other manures, which they have since been digging in wherever it is impossible to plough. In a few days they will have to break off to distribute several tons of ground chalk (carbonate of lime). This is applied at the rate of one ton to the acre every three or four years, the soil being very deficient in lime, two or three plantations being limed each winter. I find that ground chalk costs about 3s. a ton less if delivered loose in trucks instead of in bags; and it will be quite as easy to deal with, provided that it is applied as it arrives, before the heaps have time to get wet.

Winter spraying is another job that will soon need attention. I am still a believer in the use of a plain solution of sulphate of copper, 10 lb. of 98 per cent. purity to 100 gallons of water. It seems to me to help against fungous disease; and I am surprised to find that it has a mild, cleansing effect. It certainly would not clear off a thick, mossy coat, as caustic soda or even lime-sulphur does; but it keeps the bark clean if once it is brought to a cleanly condition by the use of more drastic washes. A slight coat of moss gradually dies after spraying with copper sulphate, though the process is slow. I like this wash particularly for Plums, as a preventive of brown rot.

When the weather prevents work in the open, there is plenty to be done under cover in the way of making boxes for gathering, storing, and packing Apples.

Currant Bud Mite and Reversion.

Research workers have long suspected some connection between bud mite and reversion in Black Currants. It has been claimed for one so-called resistant variety (Seabrook's Black) that big buds are very seldom found on it until reversion has set in. In other words, if much big bud is seen on a bush it is almost certain to be reverted to a greater or less extent. I am inclined to believe that there is a great deal of truth in this. I have a plantation of this Currant, now in its fifth year. Last winter there was enough big bud to necessitate picking over by summer. During the summer I discovered a good deal of reversion, and went carefully over the bushes whilst the crop was on, marking all obviously reverted specimens, which were subsequently grubbed. This winter, in pruning the plantation, I can scarcely find any big buds. Where a bush here and there is affected, it looks suspiciously as though reverted, as indicated by the growth. It seems quite obvious that most of the bud mite was on the reverted bushes that were grubbed. No doubt bud mite can occur without reversion; but it is also certain that bud mite is sure to follow reversion quickly and to a serious extent. Reversion seems to me to be a much more formidable enemy than bud mite; and I believe that, if we can keep our stocks free from reversion, we shall go far towards preventing the spread of big bud.

Boxed Apples.

A correspondent (p. 27) calls attention to the superior appearance of imported Apples offered in boxes in Covent Garden to home-grown fruit shown beside them in baskets. Such comparisons are frequently made, and it must be admitted that they do not reflect credit on home growers; but it is too often forgotten that the overseas grower does not grade and pack the whole of his crop in this style. He sends us only his best. His inferior fruit is kept for his home markets, and he does not pack them in boxes for shipment. The home grower, on the contrary, puts the whole of his crop on to our markets, so that the low grades are seen as well as the best.

To read some of our critics one might imagine that it is only necessary to pack Apples in boxes to make them sell like wildfire at greatly enhanced prices. As a matter of fact, this is not the case at all. Although nearly all salesmen and retailers deal freely in imported boxed Apples throughout the winter, comparatively few of them are prepared to buy home-grown Apples packed in precisely the same way. I have had salesmen almost beseech me to pack in the old way in half-bushels. No doubt it is only a matter of custom, and the prejudice will gradually be broken down, but at present the market for home-grown Apples in boxes, at prices high enough to pay for the extra labour and expense, is limited, and has to be sought.

I made a start with boxing last season. I am keen on the business, and anxious to box the whole of my first-grade fruit as soon as the market makes it worth my while. I found that my Apples made more in boxes than in baskets, if both were sent to Covent Garden, but that it often paid better still to pack in baskets for local markets, which were dead against boxes being used. Take the case of Cox's Orange. I selected the best fruit to box for London. The first few consignments did well enough, but then came a time when the sale for boxed fruit was extremely slow, and the price for the bulk dropped to 22s. per box. It became necessary to find another outlet for these selected Apples, and they were packed in half-sizes for local markets. They sold at the rate of 25s. per bushel of 40 lb., as compared with 22s. in London per box holding a few pounds more. As carriage and market charges were less locally boxing obviously had to stop.

Double-Worked Apples.

The article by *Pomona* on the "Influence of Stock on Scion" (p. 53) is very interesting, but it seems surprising that so many striking examples should have come within the notice of one observer. Surely they are very unusual. I have done a good deal of top-grafting in Apples, and have found that the new head comes into bearing quickly and is often very prolific; but I have never been able to detect the slightest change in the flavour or appearance of the fruit. I have trees of several varieties grafted on Gascoigne's Scarlet, but the brilliant colour has not been imparted in any case. There is also Bramley's doing extremely well on Irish Peach; but the fruit is no smaller, darker-coloured, or earlier than on the Crab or Paradise stock. The specimens of the new variety John Standish, exhibited at the Imperial Fruit Shows of the past two years, came from old trees of Lord Grosvenor that have been top-grafted; yet the fruit was as brilliantly red as it could possibly be. *Market Grower.*

Fig. 40.—A fine crop of grapes in a mixed vinery.

GRAPE GROWING UNDER DIFFICULTIES.

Early in the year 1922, and at a time when some of the growths on my vines were three or four inches long, the boiler supplying the heat to the vinery burst. By coverings and other means, the vinery was kept warm, but this was a difficult matter. Fortunately, I soon had another boiler installed, and, to my great surprise and satisfaction, no apparent harm to the vines resulted. The photograph I send (Fig. 40) shows the vinery just about the time I commenced to cut the Grapes. The house is 60 feet by 15 feet, and contains Muscat of Alexandria, Gros Colmar, Alicante, and Black Hamburgh Grapes, and the crop in 1922 amounted to 630 lb. The borders are mainly outside the house, thus making the task of watering and feeding more difficult than in the case of inside borders which are fully under control. *A. Tidy, Cookham Nurseries, Berkshire.*

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HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Thladiantha dubia.—Following my account of Thladiantha dubia in *The Gardeners' Chronicle* of December 23, 1922, p. 371, *A. M.* has contributed an interesting article on this species and T. Oliveri (see p. 53). By his reference to my account he has, I fear, quite misunderstood the intention of my remarks. He writes: "The fact that the underground stolons are incapable of reproducing the plant seems at first surprising to anyone who has not previously studied the question; and when one considers the luxuriance of the plant and its tendency rapidly to cover the ground where it grows, it seems all the more inexplicable." The case will now be clear if I remark that the "underground stolons" of this sentence do reproduce the plant, and, indeed, they are the only means of its being perennial. But they are not stolons; indeed, if they had been, I should have had no reason for writing about them, and Thladiantha dubia would be amongst the most commonplace of perennials in the manner of its growth. They are veritable roots, and the point is that they usurp the function of stem, stolon, tuber, or whatever it might be of that kind. In my account I failed to give a sufficient description of these root tubers of Thladiantha dubia; they vary from spherical to the shape of a sausage, or they may be oblong in some form—they average about 2 inches in length—and they arise from the increase in size of any portion of a fibrous root. They are at first without trace of a bud, but they form singly or in clusters when wanted. They seem always to form in tiny transverse fissures, which remind one strongly of the lenticels of a shoot, but they are larger than most lenticels. It may be wondered why, in treating of T. dubia, I did not refer to T. Oliveri. The chief reason is that no seeds of the latter have been available, so that I could not say by raising seedlings that the history of the latter is the same as that of the former. It may be, but the plants are very distinct and different. Certainly it is worth while to bring the old tubers into comparison. Thanks, no doubt, to *A. M.*, T. Oliveri is represented by a fine specimen in the Cambridge Botanic Garden. It is a magnificent Cucubit, but too immense in its growth for any other than a large garden. While T. dubia is an elegant plant, T. Oliveri might be described as coarse. I have a grudge against it, however, inasmuch that, without watching, it would very soon smother its choice neighbours. The yellow flowers are handsome in the mass, and the profuse foliage of large leaves very fine of its kind. *R. Irwin Lynch, V.M.H., Torquay.*

British Empire Exhibition, 1924, and Horticulture.—Your notice on page 70 relative to the above exhibition is worthy of the most earnest consideration of all members of the trade and others interested in horticulture. It will be observed from the particulars that the opportunity occurs for a permanent horticultural exhibition of a magnitude never before attempted in this country, or, I believe, in any other. For this reason alone it is a subject of vital importance. The Empire Exhibition of 1924 is a great undertaking, and is being supported throughout the whole Empire in the most wonderful manner. The result will be that there will be congregated at Wembley an exhibition on lines hitherto unapproached in any other country. Inasmuch as it is promoted to stimulate the trade throughout the Empire, it is of vital importance to horticulture that it should be well represented, as owing to the closing of the American markets, and the growing interest in horticulture throughout the Colonies, it is all the more important that we should endeavour to extend our trade in this direction. The question at the present moment is whether the Royal Horticultural Society will take a leading part in this exhibition, by co-operating to the full with the authorities and holding their big Chelsea show and others, such as a summer and autumn show, at Wembley, and so, as it were, throw the whole weight of its influence into the horticultural section. A meeting is to be called of all exhibitors of the R.H.S. within the next few days, and, feeling as I do the importance of the question, and the opportunity given to horticulture, I hope that everybody interested will attend that meeting and carefully consider the proposals then made. If all sections of horticulture co-operate in producing at Wembley a display such as never before has been seen, I am convinced that such a display would have an extraordinary effect on the trade as a whole in the next year or two. We must remember that Wembley will be visited throughout the whole of the summer by enormous multitudes of people, and the effect on them of well laid out gardens, backed up at intervals with big shows, will be of lasting value. It is hoped that horticulture will be supported by the Royal Horticultural Society just as the leading business communities throughout the Empire will be by their respective governing bodies. The exhibition is in the hands of past-masters in the art of organisation, and for the benefit of those who do not know Wembley, it may be added that it is only ten minutes from Baker Street, and that during the exhibition every main line will run trains direct to Wembley Station. *Robt. W. Wallace.*

SOCIETIES.

BRITISH MYCOLOGICAL.

A meeting of the British Mycological Society was held at University College, London, on the 20th ult.; Professor O. V. Darbishire, president, in the chair. The first paper was by Dr. H. Wormald on "Crown Gall on Nursery Stock." A résumé was given of the history of Crown gall investigations, particularly with respect to the work at the U.S. Bureau of Plant Industry, by Dr. Erwin F. Smith and his colleagues, who have proved that galls of this type may be reproduced by inoculation with a bacterium which they named Bacterium tumefaciens. It was shown, by photographs and lantern slides, that tumours of the Crown gall type are to be found on a number of cultivated species of plants in this country, and the question arises, are all these galls produced by a parasitic organism, and if so is it the same parasite in all cases? Crown gall on Apple stocks is under investigation at the South-Eastern Agricultural College, Wye, and at the East Malling Research Station. On Paradise Apple stocks they occur chiefly at the base, that is to say, they develop at the wound left when the stock is removed from the parent stool. Galls may appear, however, above the base and also on the roots. They have also been found on young Apple trees raised from seeds; in the case of these seedlings there was no evidence that wounds were necessary for gall development. The cells of Apple galls contain numerous starch grains, and it would appear therefore that foodstuffs accumulate there that should have been utilised in other directions. Organisms have been isolated from Apple galls and inoculation experiments carried out with them on Apple stocks have produced in some cases what appear to be young galls. Evidence as to the effect of Crown gall on nursery stock in this country is at present lacking. An experiment carried out at Wye on plants of Chrysanthemum coronarium showed, however, that the galls had an adverse effect on the vigour of the plants.

Experiments carried out at the East Malling Research Station have shown that on Paradise Apple stocks the development of galls can be largely prevented if care is taken to avoid unnecessary injury when the stocks are removed from the "stools" and subsequently planted up; coating the cut end of the stocks with a protective substance (such as Stockholm tar or grafting wax) reduces the number of basal galls.

Miss W. Ridler next gave an account of "The fungus present in Lunularia cruciata." Thalli of the Liverwort contain a fungus which occurs in a definite strand of cells along the thickened median portion or midrib, towards the ventral surface of the thallus. The fungus is characterised by the formation of arbuscles which later degenerate into sporangiole; the consequent distribution of the fungus is thus restricted and the fungus is prevented from becoming harmfully parasitic. A fungus was constantly isolated from the thallus and identified as a species of Phoma, but proof that this is the true endophyte is still lacking.

Mrs. N. Alcock exhibited Polystictus versicolor, which was apparently parasitic on Apple (Newton Wonder grafted on Cox's Orange), and Miss E. M. Wakefield demonstrated the differences between Fomes applanatus and Fomes fomentarius.

In the afternoon Dr. A. S. Horne and Dr. W. Brown gave a joint communication on "Fusarium." The former first dealt with the more systematic side of the research. The unsatisfactory nature of the criteria hitherto used in the specific determination of species of Fusarium has rendered necessary a reinvestigation of the genus under more accurately standardised conditions than those employed hitherto. Results of fundamental importance have been obtained not only in relation to the systematics of Fusarium, but also in connection with the chemical inter-relationships existing between these fungi and their respective hosts. A new section of the genus has been established possessing certain distinctive morphological and physiological characteristics, notably in relation to the occurrence of sclerotia, chlamydospores, colouring principles, relation to active hydrogen, gallic acid, and so forth. Certain other features such as spore shape, dimensions and septation have proved exceedingly variable, and hence of less relative value in classifying the species. The naming of the individual strains included in this section is a matter of difficulty owing to the frequent occurrence of "sectoring" in the cultures which has resulted in an increase in the number of strains from six to about fourteen. All the strains of the section are capable of parasitising the Apple Cox's Orange Pippin, and, under certain seasonal conditions Bramley's Seedling, causing spotting and subsequently rotting under storage conditions. Dr. Brown followed with an account of experiments on the growth rate and other cultural features of the same series of Fusarium strains. Certain strains had strongly pronounced "staling" features, others less so, and this character could be used as an aid in distinguishing the various strains from each other. The influence of the composition of the nutrient medium on cultural characteristics—colour development, intensity of sporulation or of mycelial development, etc., was studied, and it was stated that practically any cultural characteristic could be developed in any one strain by suitably choosing the composition of the various constituents in a particular synthetic medium described. Hence the necessity of standardising the cultural medium in work dealing with this very variable fungus. The degree of septation of the spores may also be varied at will within wide limits by a suitable choice of nutrient medium. In the one strain which has been examined in detail in this respect, a close co-relation was shown to exist between the degree of septation of the spores and the degree of staling in the culture of such a type that the stronger the staling of the colony, the lower the degree of septation of the spores.

Mr. J. Ramsbottom gave the first part of a paper dealing with the relation between M. J. Berkeley and C. E. Broome. These two workers were in close correspondence for over forty years, and the authority "B. and Br." is one of the best known combinations in mycology. The present communication treated briefly of the history of British mycology, and of its condition when Berkeley commenced his studies, and traced how he began to specialise in fungi directly as a result of W. J. Hooker appealing for assistance in preparing the two volumes dealing with Cryptogams in continuance of Sir J. E. Smith's *English Botany*. Broome's acquaintance with Berkeley commenced by his sending some algae and microfungi for identification on the advice of his friend Leonard Jenyns.

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BRITISH FLORISTS' FEDERATION.

THE sixth annual general meeting of the members of the British Florists' Federation, held at the Connaught Rooms, Great Queen Street, on Monday, 29th ult., was well attended and proved a very interesting and successful gathering. The report of the committee for the year of 1922 contains reference to the peculiarities of that year from the point of view of the effect of climate upon flower crops. A special note was made of the great loss sustained by growers owing to the brilliant sunshine and almost tropical heat, which forced the May-flowering Tulips into bloom and reduced their season to a few days instead of a few weeks. Reference was also made to the successful work of the Federation in connection with the reduction of rates for the carriage of pot plants by rail; to the successful negotiations carried out on behalf of stand-holders in the Covent Garden Flower Market concerning the new leases; to the Hague Conference; and to the success which attended a meeting of members of the Federation and others with the Dutch pathological authorities, which resulted in special facilities being afforded to bulb-forcers in this country. Kindly reference was made in the report to the admirable service rendered to the members of the Federation by Mr. A. W. White, who has served as president during a period of two years. The financial position of the Federation appears to be quite sound. Subscriptions for the year amounted to £234 16s. 6d., and the balance carried forward to the present year is £12 0s. 4d., as compared with a balance of £6 17s. 1d. brought forward from 1921. The president (Mr. A. White) made reference to the principal matters in which the Federation had rendered special service to its members, and moved the adoption of the report and accounts as presented. This was seconded by Mr. W. Cull and carried

Two new members were elected, on the motion of Mr. R.A. Jones and Mr. R. S. Cobley, The officers and members of the committee were thanked for their services, and on the proposal of Mr. G. Monro and Mr. Robbins, Mr. W. H. Page was unanimously appointed president for the ensuing year. The retiring members of committee were all re-elected, and Mr. A. W. White was appointed to fill the vacancy arising by the elevation of Mr. Page to the presidency, whilst Mr. Hannibal was elected to fill the vacancy caused by the death of Mr. W. G. Innes.

At the conclusion of the general business tea was served, and Mr. G. Shawyer opened a discussion on "Flower Packages and Packing." He dealt at considerable length with the various sizes and weights of the trunks and boxes used to send flowers to market in, and urged that a light, strong and attractive box, together with suitable and attractive paper and with first-rate packing, all helped to improve the sale of flowers. He urged that efforts should be made to standardise packages; that the question of weight should receive more consideration than hitherto; and that it was a foolish policy to economise with regard to the paper used for packing. With regard to the flowers themselves, Mr. Shawyer pointed out that it was essential to cut the flowers before they were fully open and to place the stems in water immediately after they were cut. The grower should aim at having his flowers placed in the hands of the ultimate customer just before they were in their best possible condition. Packing the flowers in a cool shed, the use of paper which would reduce transpiration, and even, during hot weather, the dipping of the boxes in water a little while before the flowers were packed, all tended to give the blooms a chance of reaching the customer in the best possible condition. Regularity of supply was considered a matter of very great importance to the grower, and he considered it much better practice to cut flowers before they were ready, rather than hold them back in anticipation of a better market. Further, Mr. Shawyer urged growers always to consider the advice of their salesmen with regard to supply and demand. A keen discussion followed Mr. Shawyer's observations, in which Mr. G. Monro, Mr. R. H. Page, Mr. Hutchings, Mr. Artindale, Mr. Ladds and Mr. Ingamells joined. Mr. Ladds made a special point of the proper bunching of flowers, and especially Chrysanthemums, and he observed that the flowers bunched by one of his packers invariably obtained higher prices than those bunched and packed by other members of his staff. A vote of thanks to Mr. Shawyer and to the president concluded the proceedings.

The fourth annual dinner was held at 6.15 p.m. in the Connaught Rooms, at which there was a large attendance. Mr. W. H. Page presided, and Mr. A. Bird arranged a delightful musical programme. The principal items on the programme after the royal toasts were: "Success to the British Florists' Federation," proposed by Mr. W. H. Page and responded to by Mr. Alfred W. White; "The Ladies," proposed by Mr. T. H. Windle and humorously responded to by Mr. F. Ladds; "Our Industry," proposed by Mr. G. Monro, to which Mr. J. Lambert responded. Other toasts included "The President" and "The Secretary." The president heartily thanked Mr. Bird for the excellent programme of music he had arranged.

NATIONAL HARDY PLANT.

AT the annual general meeting of this Society, held the 30th ult., Mr. Giffard Woolley was unanimously elected chairman for the coming year, in succession to Mr. Bouskell, now elected president of the Society. Mr. A. J. Macself, of Dactylis, Clifton Park Road, Caversham, Reading, was re-elected hon. secretary, and Mr. Gerald Hillier (20, Tavistock Street, Covent Garden, W.C.2) was appointed assistant secretary.

It was decided that a number of silver and bronze medals should be allotted to Horticultural Societies for award in 1923 to meritorious exhibits of hardy plants. Societies desirous of obtaining these medals should write to the Hon. Secretary as soon as possible. The accounts showed a balance in hand at the end of 1922 of about £45, and the Hon. Secretary reported a gratifying increase of membership. So great, he said, had been the flood of correspondence recently from those interested in the doings of the Society, that he had been unable to keep pace with it Suitable arrangements have now been made, however, to ensure that future inquiries have prompt attention.

An important item of the Society's programme for 1923 is the periodical issue of a *Journal*, detailing the Society's activities and giving information with regard to new or specially noteworthy hardy plants. A large influx of new members is needed and confidently looked forward to. The minimum annual subscription is only 7s. 6d.

NATIONAL CHRYSANTHEMUM.

THE annual general meeting of members of the National Chrysanthemum Society was held in the Lecture Room of the Royal Horticultural Hall, Westminster, on Monday, February 5. There was a very fair attendance, over which Mr. E. F. Hawes presided. The committee's annual report and statement of accounts for the year 1922 were presented, and from the former we gather that the society has had a very successful year. The show held in November last was in every way a success, proving that cultivators have not lost either skill or enthusiasm. Once again the society published its *Transactions*, which proved of interest to all members. It also presented a very handsome cup to the Royal Horticultural Society, to be offered for the best exhibit of Chrysanthemums at the Holland Park Hall show. This fine cup was won by Mr. H. J. JONES. The report also shows that raisers have renewed their activities, and that the Floral Committee had a busier season than for many previous years. Nearly one hundred and fifty novelties were submitted, and thirty-nine of these were awarded the high honour of a First-class Certificate. Thanks are tendered to the Floral Committee for its services, and to the many generous friends who contributed to the prize fund. The one unhappy feature of the year so far as the society was concerned was the death of its president, Sir Albert Rollit, who for a long number of years showed a keen interest in the society's work and in many ways contributed to its success. The accounts show that the society has a reserve fund of £50, and, in addition, carries forward a balance of £23 11s. 11d., which shows a material increase as compared with the balance brought forward from the previous year. On the motion of Mr. John Green, seconded by the Chairman, the report and accounts were adopted

The meeting then proceeded to elect officers and committee for the ensuing year. The nomination of Sir Jeremiah Colman as president was received with applause, and he was unanimously elected to that position. Mr. E. F. Hawes was reappointed chairman of committee, and Mr. D. Ingamells as vice-chairman; Mr. J. Green was also reappointed hon. treasurer, and Mr. C. Harman Payne (for the thirty-fifth time) reappointed hon. foreign corresponding secretary; Mr. C. H. Curtis was reappointed general secretary and editor; while Messrs. R. A. Witty and S. J. E. Bayly were reappointed as auditors and heartily thanked for services rendered. At the close of the business proceedings, Mr. C. Harman Payne referred to the Chrysanthemum show in Paris last year, which, he said, did not compare at all favourably with the very fine exhibition held at Le Mans the previous year. A vote of thanks to the chairman concluded the proceedings.

READING AND DISTRICT GARDENERS'.

THE fortnightly meeting was held on Monday evening last, in the Recreation Club Room, Abbey Hall, when Mr. A. H. Fulkes presided over a large attendance.

The subject for the evening was "Popular Perennials for Exhibition and Garden Decoration," and the lecturer was Mr. J. C. House, Westbury-on-Trym, Bristol, a well-known trade grower and exhibitor of herbaceous perennials. In his opening remarks he clearly defined hardy perennials, herbaceous perennials and bulbous and corm-rooted plants. He dealt fully with the growing of perennials for exhibition purposes and recommended the best varieties that would prove useful for showing from the middle of July to the end of September, such as the Moon Daisies, Delphiniums, Gaillardias, Heucheras, Oriental Poppies, Phloxes, Pyrethrums, Rudbeckias, Scabiosa caucasica, etc. Valuable hints on staging and the packing of flowers were also given.

A most interesting and instructive discussion followed, in which Messrs. Fulkes, Young, Blackwell, M. Goddard, Cook, Hunt, Townsend, Carter, F. Cox, and E. R. James took part, the last speaker proposing a hearty vote of thanks to Mr. House for his interesting and educational lecture.

The Association's Award of Merit for cultural skill was awarded to Mr. W. Sharpe, The Gardens, Sidmouth Grange, for a pretty group of Primulas. Mr. J. Hunt, of Calcot, exhibited some good blooms of double Violets. Seven new members were elected, making twenty-five already added to the list this year.

At the annual meeting of this Association, held recently, the president (Mr. Councillor F. E. Moring) presided. The annual report and balance sheet, as read by the hon. secretary, showed that the Association was in a most flourishing condition. The lectures were varied and exceedingly practical, the discussions helpful and well sustained, while the attendances were far in excess of previous years. The exhibits of vegetables, fruit and flowers were well up to the general standard, and the competitions were keenly contested and created a great amount of friendly rivalry. The membership had steadily increased and the financial position was very strong, indeed, it has reached its highest point since the Association started in 1888.

The officers elected for 1923 were:—President, Mr. Councillor Frank E. Moring; vice-presidents, Mr. Alderman F. B. Parfett, Mr. Leonard Sutton, and Mr. E. P. Foquett Sutton; hon. treasurer, Mr. A. H. Leader; chairman, Mr A. H. Fulkes, The Gardens, Elmshurst, Reading; vice-chairman, Mr. M. Goddard, The Gardens,

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Bear Wood; hon. secretary, Mr. H. G. Cox; hon. assistant secretary, Mr. E. J. Dove; committee, Messrs. E. Blackwell, F. Townsend, D. Turner, T. Martin, H. Reeves, H. C. Loader, C. Moulton (Reading), H. H. Cook, A. J. Cobb, J. R. Lloyd (Shinfield), W. Chislett, T. Butcher, J. Young (Wokingham), H. Goodger, F. Goodger (Calcot), J. Wynn (Checkendon), H. Wynn (Goring Heath), G. Carter (Mapledurham), F. J. Green (Aldermaston), and F. Alexander (Theale).

NEWCASTLE HORTICULTURAL MUTUAL IMPROVEMENT.

At the Newcastle-on-Tyne Horticultural Mutual Improvement Society's monthly meeting, held on the 23rd ult., Mr. W. E. Anderson, gardener to Sir James Knott, at Close House, Wylam-on-Tyne, gave a practical and instructive address on "Fruit Growing in the North." In his address Mr. Anderson dealt with the culture of Apples, Pears, Plums, Peaches, Nectarines and Quinces; in his opinion the latter end of October was the best time for planting the trees, but it should not be done in wet weather; jagged and bruised roots should be cut back, and the trees staked at once, after planting. Summer and winter pruning of the different kinds of fruits should receive strict attention. He referred to the careless way in which wall trees were neglected with regard to watering, and he considered that several times during the season it was necessary to give them an abundant watering followed by mulching. The speaker expressed the hope that the county instructor and the Newcastle Horticultural Society would give pruning demonstrations that would stimulate interest and improve confidence in those who desired to grow fruits but hesitated on account of lack of knowledge.

A hearty vote of thanks to the lecturer was heartily given by the large company present.

Obituary.

John Hay.—It is with profound regret that we have to announce the death of Mr. John Hay, gardener to His Grace the Duke of Northumberland, at Alnwick Castle, at the comparatively early age of thirty-eight. Mr. Hay was ill for only a few days, and not until four days before his death was the serious nature of his malady realised. He began his gardening career under his father, a well known gardener and exhibitor in the South of Scotland, where was laid the foundation of his success as a grower and exhibitor. He afterwards went to Welbeck Abbey Gardens, training under Mr. J. Gibson for several years. Thereafter, he transferred to the Royal Gardens at Windsor, where he served under Mr. A. McKellar for three years. From Windsor, he accepted a post in France, returning after a short time to take up an appointment as gardener at Locko Park, Derbyshire, whence, at the outbreak of war, he joined the Army and was in military service for the greater part of the war. His service was in the R.G.A., in which he rose to commissioned rank, and about the time of the termination of the war he was appointed gardener at Alnwick Castle. His funeral was attended on Saturday last by a large company, amongst whom was a representative body from the local flower show committee, of which he was a member, and also many of the estate officials. He leaves a widow and one child, to whom we offer our deep sympathy.

TRADE NOTES.

A meeting of the Parliamentary and Transport Committee of the Chamber of Horticulture was held at 18, Bedford Square, on the 25th ult., Mr. G. W. Leak (President) in the Chair. The Secrtary submitted a case, drafted by Mr. Seymour Cobley on behalf of the Spalding Bulb Growers' Association, making application for a reduction of railway rates on cut flowers conveyed by passenger train. The case was examined by the Committee, and Mr. Leak, speaking for the Wisbech district, said that similar conditions prevailed there and that the Wisbech Growers had asked to be associated with the Spalding growers in their application. Mr. Cobley promised to verify the many facts and figures, and to let the Secretary have the completed case for preparation, to be brought again before Committee. The Railway Clearing House is then to be approached with a view to receiving a deputation consisting of two growers from the Spalding area, two from the Wisbech area, and the Secretary.

In accordance with instructions from the Council, the Committee examined the Horticultural Legislative Programme with a view to bringing the same up to date for presentation to the new Parliament. In addition to the existing items in the programme the Committee recommended the provision of State Credit Banks for the assistance of horticultural traders in times of depression.

The question of a Horticultural Committee in the House of Commons was debated, and it was decided to recommend the Council to proceed with the formation of the same, it being considered advisable to deal with horticultural legislative measures in this manner rather than by way of a horticultural section of the Agricultural Committee.

THE LATE MR. JOHN HAY.

Mr. Jackman asked the Committee to consider again appealing to the Railway Rates Tribunal as to the re-classification of shrubs and plants. The new classification made by the Tribunal a year ago as to these commodities is not considered sufficient to meet the traders' case. The request of traders in this matter is thought to be very fair and reasonable, and it was agreed to state the case before the Tribunal in due course. The Railway Companies have been approached as to this without avail.

ANSWERS TO CORRESPONDENTS.

Average Yield and Prices of Oats: *L. J. F. R.* You do not state whether the Oats are spring-sown or autumn-sown. The latter yield a much heavier crop in the south; whilst in the north of England and Scotland farmers rely on those spring sown as yielding the heavier crop. Nine quarters per acre of grey winter Oats would be a fair average yield in the south, while a spring-sown crop would yield about seven quarters. It is difficult to give a definite price per acre for unharvested Oats; so much depends on the crop, and, taking the risks of harvesting, from £6 to £8 would be a fair price.

Copper Sulphate and Pond Weeds: *Charles A. Pelham.* The effect of copper sulphate on weeds in lakes is limited and temporary. For instance, it will only kill the smaller weeds and those of the lower orders of vegetation; also water cleans itself in time. Large weeds with stems and leaves would not be killed. Some of the more persistent ones, such as Bullrushes and the floating Polygonum, need to be dug out. Pond weeds (Potamogeton) and others may be kept down by swans and geese. Duckweed and water Algae may be acted upon by sulphate of copper, and as these are growing by June, it would be a great check to use the remedy at that time, even if you were to repeat the application in August. Weeds of this character are liable to get very dense by August on and in still water, so that an early application of the specific would prevent the dense growth later.

National Diploma in Horticulture: *A. H.* You will probably have to sit for the qualifying test, as you infer. If you could attend classes in botany, chemistry, physics or any of the sciences which have a bearing on gardening, this would be valuable help to you, and probably be all you require, as, your experience in gardening being very general, you would no doubt be able to pass a practical test with ease, as well as answer the practical questions satisfactorily. In this connection you might find it of use to practise answering questions, or even to attend a class in dictation and composition, so that you might learn to express yourself tersely and clearly.

Weed on a Pond: *H. C.* We do not understand what you mean by ordinary Cress. If you refer to Water Cress, the plants could be raked out of the pond and easily kept in check by that means. You may, perhaps, refer to Lemna, or Duck Weed. This pond weed rises to the surface, and may be scooped up with a net, or you may introduce wild fowl to keep it under, ducks being especially fond of it. You will find a lengthy reply to a correspondent *re* weeds on a pond in *Gard. Chron.*, October 28, 1922, p. 260.

Weeds on a Hard Tennis Court: *J. W.* Judging from our experience you will find the chief trouble arise from such weeds as Thistle and Docks, which penetrate the hard surface of the court, and make ugly patches. If you take special precautions to dig up the roots of any of these strong perennial weeds and strip off the turf, if you are making the court on grass land, you should have but little trouble with the weeds afterwards. In order to make doubly sure, you might apply a good dressing of one of the proprietary weed-killers, which have as their basis a compound of arsenic.

Communications Received.—J. F. D.—P. A. G.—G. J. L.—H. W. S.—J. R.—R. W. I.—A. G.—R. P. B.—H. L.—C. A. P.—R. C. N.—G. F. H.—J. C.—W. A.—F. G.—A. & B.—H. J.—F. W. J.—E. A. B.

GARDENING APPOINTMENTS.

Mr. Wm. McCombie, for the past eighteen months Gardener at Redworth Hall, Darlington, as Gardener to J. E. Tully, Esq., Newton Hall, Stocksfield-on-Tyne, Northumberland. (Thanks for 1s. for R.G.O.F. Box.—Eds.)

Mr. Charles Bolus, previously Foreman at Paddockhurst, Sussex; Chirk Castle, Denbighshire; and King's Walden Bury, Hitchin, as Gardener at Weston Park, Stevenage, Hertfordshire. (No P.O. enclosed.—Eds.)

Mr. P. J. Gilks, formerly Gardener to the late Samuel H. Keeling, Esq., of Parkfield, Kenilworth, Warwickshire, as Gardener to Robert Whitehead, Esq., Hargate Hall, Millers Dale, Derbyshire. (Thanks for 1s. 6d. for R.G.O.F. Box.—Eds.)

CATALOGUES RECEIVED.

Hurst and Son, 152, Houndsditch, E.1.—Bulbs (Wholesale).

Keith Luxford & Co., Sheering Nurseries, Harlow.—Chrysanthemums.

C. Engelmann, Saffron Walden.—Carnations.

Carter, Page & Co., Ltd., 52, London Wall, E.C.—General.

Morle & Co., Ltd., 150, Finchley Road, N.W.—Roses, Trees and Shrubs.

Maxwell & Beale, The Dorset Nursery, Broadstone, Dorset.—Alpine and Rock Gardens, Moraines, and Herbaceous Borders, etc.

Seeds.

G. H. Plant & Co., Bank Buildings, The Eastgate, Chester.

Wm. Power & Co., Waterford.

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THE
Gardeners' Chronicle
No. 1886.—*SATURDAY, FEB.* 17, 1923.

CONTENTS.

Aberdeen University, forest lands for	86	Indoor plants—	93
Alpine garden, the—		Lettuce, new disease of	86
Erythraea Massonii	91	Lilies in 1922	86
Synthyris reniformis	91	Lilium sulphurgale	90
Apples and Pears at Gunton Park, late	94	London, Jane	95
Apples, stored	95	Obituary—	
Association of Economic Biologists	85	Cannon, George	98
Auton, Mr. W.	86	Winter, Thomas	98
Bagatelle	85	Orchid notes and gleanings—	
Bermondsey, new garden superintendent for	86	Brasso-Cattleya Hannibal var. Helen	90
Big bud, experiments to destroy	85	Potinara Juliettae	90
Botanic painters, early	92	Vanda tricolor insignis	90
Chelsea show in 1924	86	Orphan Fund Gardeners' Royal	95
Florists' flowers—		Societies—	
Late Chrysanthemums	94	Egham Hort.	86
"Gardeners' Chronicle," seventy-five years ago	87	Royal Caledonian Horticultural	96
Grafting	87	Royal Horticultural	96
Greenhouse plants at Reading	91	Trees and shrubs—	
Horticultural societies, local	86	Heaths, some uncommon	89
Horticulture in the Isles of Scilly, commercial	94	Pyrus toringoides	89
		Week's work, the	88
		Wenman, Mr. W., retirement of	85

ILLUSTRATIONS.

Auton, Mr. W., portrait of	86
Bourdichon's figures of the Black Currant	92
Camellia Jupiter	93
Fruit exhibit at the Stafford Fruit Show	95
Primula malacoides, 91; P. sinensis, The Pearl, 91; P. stellata Giant White	87
Pyrus toringoides, fruiting branch of	89

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.3°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, February 14, 10 a.m. Bar. 30.2, temp., 40.° Weather—Raining.

The Effect of Cold on Plants.

Of recent years our winters have been so mild that garden plants have suffered but little from the effects of frost. Nevertheless, gardeners of long experience can recall seasons when cold has wrought great havoc in gardens, and it is only reasonable to expect that like misfortunes will occur again. It is, therefore, of considerable practical interest to inquire into the effects of cold on plants with the object of ascertaining whether means may be taken to minimise them. There is ample evidence to show that when a plant is exposed to low temperatures its cells lose the power of retaining the water contained in the cell sap. The living membrane which forms the outermost layer of every living cell acts as a regulator of the amount of water which each cell contains. When the plant is subjected to low temperatures this membrane loses its power of retaining water within the cell. It becomes more permeable and water passes out from the cell into the intercellular spaces. The change of colour and of texture of frozen leaves is an indication of this excretion of water. If the fall of temperature is not so great as to disorganise the living substance, the water excreted may be re-absorbed as the temperature rises again and the leaf may resume its normal colour and suppleness. There is evidence to show that the limiting layer of the cell protoplasm may undergo changes which enable it to resist to some extent the effects of cold. This happens in the hardening of plants. In this process plants are kept on the dry side and, instead of being coddled in a frame, are exposed freely to the air. In the course of a few days they become capable of resisting low temperatures which would have been fatal to them in their soft state. Recent researches* have shown, however, that the root system of a plant is peculiarly important in determining the powers of resistance of a plant to cold; although this is known in a general way to gardeners, the facts elucidated by these investigations are so interesting that they deserve to be studied carefully. In the first place it has been demonstrated that soil conditions have an important effect on the plant's resistance to cold. If the soil be acid or if it be liberally supplied with phosphates, roots become more resistant, but if it be alkaline or rich in nitrogenous manures they become more susceptible to cold. In the second place it has been shown that the most serious effects of cold are produced not by exposure of the stem, but by exposure of the roots to low temperature. Thus, in a series of experiments in which the stems only were exposed to low temperature, although their leaves wilted, the plants recovered when the temperature again became normal; when both root and stem were exposed to a similar low temperature, recovery was much slower; but—and this is the most curious point—if the roots only were subjected to the low temperature the stems withered and did not recover. The observation is difficult of explanation, but it may be suggested that the exposure of roots only to low temperature interrupted the supply of water from root to stem and that when the normal temperature was restored, this interruption continued. The leaves, however, continued to lose water by transpiration, and that loss, not being made good by supplies from the root, resulted in the withering of the plant. From a practical point of view it would therefore seem that when cold weather is to be anticipated, a loose mulch at the roots of tender plants should prove the most efficient means of protection and that the wrapping-up or covering of the stems and leaves is, except, perhaps, of plants which are so tender as to be killed outright by frost, unnecessary and possibly harmful. Needless to say, it is always dangerous to generalise from the results of a limited number of experiments, but without risking disaster it should be easy for gardeners to test the correctness of these views on subjects the loss of which would not be too grievous. In any case, one may see in these observations justification of the garden practice of giving root protection to subjects of doubtful hardiness, and possibly a more general practice of this method might help to maintain in more exposed situations many garden plants which usually have to be accommodated by the shelter of a wall.

Experiments to Destroy "Big Bud."—In the annual report of the Crichton Royal Institution, Dumfries, where experiments are carried on by the directors in connection with agriculture and horticulture from year to year, the work done in the gardens receives full consideration. Mr. E. Joss has been in charge of the gardens for a number of years. Among other experiments has been one to endeavour to combat big bud in Black Currants. This has been suggested and carried on under the supervision of Sir George Watt, K.S.I., who is convener of the gardens committee, and details of the experiments appear in the report. It is stated that this pest attacked the Black Currants at the Institution about eight years ago, and all known remedies were applied without success, including burning the branches. In this experiment, however, the ground in the plot was quite covered with Wheat straw and dead branches, and these were ignited on March 28, 1922. Soon afterwards the ground was again covered with straw and the branches of the bushes, which were cut off to within six inches of the soil, were laid upon it and the whole burned. Less than 10 per cent. of the bushes were killed by the fire, and upwards of 90 per cent. made growths of from two to three feet of clean, healthy wood, very promising for the year 1923. It is as yet too early to know the final results of the experiments, which will be followed with keen interest by growers.

Chelsea Show in 1924.—Considerable difference of opinion regarding the venue of the Royal Horticultural Society's great spring show in 1924 has arisen among those horticultural traders who are the chief exhibitors at the Chelsea shows. There is a desire on the part of certain traders that the Royal Horticultural Society should support the British Empire Exhibition by holding its spring show at Wembley next year, but, so far as we were able to gather at the meeting of exhibitors held at the Royal Horticultural Hall on Tuesday, the 13th inst., the Wembley authorities have not approached the R.H.S. Council in regard to such a change of site. It appears, however, that at a previous meeting, held at the offices of the Board of Trade, promises were made to the effect that the R.H.S. Council would be indemnified against any loss of profit if the spring show were held at Wembley. Not all the facts are before us, nor were they before the meeting on Tuesday last—probably as a result of the indirect method of approach—therefore Mr. Lobjoit's appeal for an adjournment of the proceedings, so that facts and figures concerning both Wembley and Chelsea, might be brought forward by the respective authorities, was a wise one. Those present, however, were in no mood to postpone the opportunity of expressing an opinion on the subject, and eventually Mr. C. Musgrave, who presided, accepted such an expression by way of recommendation to his Council; the voting in favour of the show being held at Chelsea in 1924 was forty-five against fifteen.

Bagatelle.—This place, of late years, has had an increasing interest for English rosarians, and its history dates back for many years. We notice in a recent issue of M. George Truffaut's excellent publication, *Jardinage*, a most interesting illustrated article on the gardens and residence of Bagatelle. The illustrations depict a water scene, hardy plants, festoons of Roses and a pergola of Roses. The article is from the pen of Baron Hennet de Goutel.

Association of Economic Biologists.—At the general meeting of this association to be held at 2.30 p.m., on Friday, February 23, in the Botanical Theatre of the Imperial College of Science, Prince Consort Road, South Kensington, Sir John Russell (Director of the Rothamsted Experiment Station), and Mr. H. G. Thornton (Head of the Bacteriological Dept. at Rothamsted), will open a discussion on "Partial Sterilisation of Soil: Present Views as to its Effects and their Causes."

Retirement of Mr. W. Wenman.—We regret to learn that as a consequence of ill-health Mr. W. Wenman has retired from the position of gardener to Viscount Halifax at Hickleton Hall, near Doncaster, Yorkshire. The charm and beauty of Hickleton Hall gardens and grounds are well known in the Doncaster district, and they are due in no small degree to the remodelling the grounds have undergone during Mr. Wenman's forty-four years of service. We understand that Viscount Halifax has recompensed him for his long and faithful services, and we are also glad to learn that Mr. Harry Wenman, for the past eleven years in charge of the gardens at Templenewsam, is to succeed his father at Hickleton Hall.

* "The Influence of Nutrition and Root Activity Upon the Collapse and Desiccation Produced by Cold." Pantanelli, in the *Resoconti della Reale Academia dei Lincei*, Vol. XXIX., part 5, Rome. Abstracted in *International Review of Science and Practice of Agriculture*, Vol. XII. Part I.

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Lilies in 1922.—It should have been mentioned that the reproduction of the photograph of the type specimen of L. Davidii in the herbarium of the Jardin des Plantes (Fig. 37), was published by the kind permission of the director. The photograph of the creeping stem of L. Duchartrei, at Highdown (Fig. 36), was taken last year, and that of L. Thayerae (Fig. 39), in Mr. Grove's garden, in 1911. The latter shows a particularly robust specimen of this Lily, and would-be growers cannot expect to have it always so floriferous.

Forest Lands for Aberdeen University.—Arrangements have been concluded by the Forestry Commissioners for the acquisition of some six hundred and fifty acres of land, within five or six miles from Aberdeen, which should prove of great service to the Forestry School of Aberdeen University. One area comprises the estate of Kirkhill, which marches with the estate of Craibstone, already in the possession of the University authorities, and extends to five hundred acres. With the Craibstone woodlands this will make a compact block of some seven hundred and fifty acres. The area has been acquired under a long feu from the Countess of Southesk. The Commissioners have also acquired about one hundred and fifty acres of woodlands on the estate of Parkhill, which is in close proximity to the larger area. Much satisfaction is being expressed in forestry circles over the transaction, for, although a long time will elapse before the woodlands are properly developed, they will make an excellent demonstration area for the Forestry Department of the University. The Commissioners are to lay out the woodlands in such a manner that they will be entirely suited for this purpose. Farther north, too, the Commissioners are acquiring stretches of woodlands. The lands of Teindland, Orton, Morayshire, have been feued from the Duke of Richmond and Gordon, who is also Chancellor of Aberdeen University. The Orton district is considered one of the finest Scots Pine areas in Scotland, and it was from this quarter many trees of over 100 feet in height were cut down by Canadian lumbermen during the war period.

A New Disease in Lettuce.—In an address before the members of the Beckenham Horticultural Society, Dr. Wormold, of the South Eastern Agricultural College, Wye, stated that a new disease has lately appeared in Lettuces, which has only been recognised during the past few weeks. The first appearance of the disease is brown spots, which later turn whitish, and gradually spread to the base. Mr. Wormold invited anyone who has experienced the disease to send information to the Agricultural College, Wye.

New Garden Superintendent for Bermondsey.—Mr. William Henry Johns, Horticultural Superintendent of the Cornwall County Council, has been appointed superintendent of the gardens and open spaces of the Metropolitan Borough of Bermondsey, in succession to Mr. W. H. Aggett. Mr. Johns takes up his duties on March 30. Much tree-planting has been done in the public roads of the borough; at the present time twenty-six additional streets are being planted with trees.

Egham Mutual Improvement Association.—This Association has arranged an exceptionally interesting programme for the present year, including an annual outing to Waddesdon Manor on July 26, an evening visit to Langley Park, Slough, on June 7, and another evening visit to West Hall, Byfleet, on August 9. Three of the lectures are under the auspices of the Surrey Education Committee. These commenced on February 7 with "Natural Habits of Garden Plants," by Mr. W. H. Divers, and will be continued on February 21 and March 7 with lectures on "Horticultural Research," by Mr. A. E. Burgess, and "Chemistry of the Garden," by Mr. G. Johnson. Other lectures to be delivered include "Annuals," on March 21, by Mr. R. Birch, of Messrs. Carter and Co.; "Evolution of Orchid Culture" (April 4), by Mr. W. P. Bound; "Bee-Keeping," by Mr. W. G. Judge (October 3); "Hardy Fruits," by Mr. G. Carpenter (October 17); "The Sweet Pea Trials of 1923," by Mr. A. J. Cobb, University College, Reading (November 7); "Fruit Tree Stocks and their Relation to Fruit Trees," by Mr. Laurence J. Cook, of Messrs. Stuart Low and Co. (November 21); and "The Chemistry of the Garden" (December 5), by Mr. W. Auton, The Gardens, Pyrford Court, Woking. May 2, September 5 and December 19 are down in the programme as Question Nights.

Mr. W. Auton.—Mr. W. Auton belongs to the younger generation of gardeners, but he has already established a reputation as a skilled craftsman by the excellence of the gardening at Pyrford Court, Woking, where he has been gardener for several years to Lord Elveden. He comes from a gardening stock, for his father was gardener at Compton Park, Salisbury, and early in life he showed a keen interest in horticulture, so that his father gave him every encouragement to follow his chosen profession. as soon as he finished school he joined the garden staff at Compton Park and remained there for two years, his wages being from 2s. and 3s. per week respectively, a remuneration that seems ridiculously small for a lad of fourteen when

MR. W. AUTON.

the present wages for youths are considered. He had the good fortune to secure a position under Mr. Wythes at Syon House, Brentford. The late Mr. Wythes, as is well known to the majority of our older readers, was a splendid craftsman and excelled especially in the cultivation of fruits and vegetables, but Syon gardens contain a wealth of interesting plants and especially arborescent species, and the conservatory, filled in those days with Palms and other exotics, is one of the largest glasshouses in private establishments. Mr. Auton took full advantage of his opportunities, and he left to enter the Royal Botanic Gardens, Kew. At Kew he gained a wider knowledge of plants and public gardening, which fitted him to obtain a post in France at Férrieres, near Paris, and subsequently in the ex-Kaiser's Gardens in Berlin. After three years abroad, he returned to England, and was employed respectively at Gunnersbury Park Gardens and Worth Park Gardens. At the comparatively early age of twenty-eight he was sent by the late Mr. S. T. Wright to lay out a large garden in the English style for the late Count Lützon in Lower Austria, which he did to the full approval of his employer. Again he returned to England, and was for five years in charge of Lord Brougham's Gardens at Brougham Hall, Penrith. In 1912 he was appointed gardener at Pyrford Court, and assisted Lord and Lady Elveden in designing and developing their gardens, which are amongst the finest in Surrey. The gardens of Pyrford are still in the making, but already they include some charming features, and both Lord and Lady Elveden are keen amateur gardeners, so that the place contains many rare and choice plants of all kinds, and probably the finest natural Iris garden anywhere. Mr. Auton's abilities are recognised by his noble employer, who since 1921 has relieved him of the mere routine duties of the garden, and whilst he still retains the management, he is enabled to devote much of his time to research work, and is at present engaged in work in connection with organic manures as substitutes for farmyard manure. Mr. Auton is keenly interested in the two gardening charities, and is a member of the Committee of the Royal Gardeners' Orphan Fund. Recently he raised a considerable sum of money for the Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund, as stated on page 44.

Treasurership of the United Horticultural Benefit and Provident Society.—Mr. Thomas Winter, who for the past ten years had been treasurer of the U.H.B.P.S., having tendered his resignation owing to very serious illness, Mr. Arthur Bedford, of Gunnersbury House Gardens, Acton, was elected treasurer pro tem. at a special meeting held on February 7. It will be seen from our obituary column on p. 98 that Mr. Winter died a few days after tendering his resignation.

Local Horticultural Societies.—The membership of the Hythe Gardeners' Association increased during 1922 from sixty-four in 1921 to seventy-four. The Society has had a successful year, and held a Sweet Pea meeting in July and an autumn show in November. The Mayor of Hythe, Councillor E. Osborne, was elected President for the ensuing year.—Saltwood Cottage Gardeners' Society, which was founded about forty years ago, is one of the most flourishing gardening societies in Kent. The sum of £4,000 has been obtained by fêtes organised on behalf of the Folkestone hospital, and of that amount the gardeners of Saltwood have contributed £400. The membership of the Society has increased during the past year, and the lectures and exhibitions were all very successful. The autumn show was stated to be the best ever held by the Society.—The South Oxford Horticultural Society more than doubled its subscriptions during 1922. A debt of £7 8s. has been wiped out and the Society has a balance in hand of £8 7s. 1d. At the annual meeting Lord Valentia was re-elected President of the Society, and the Treasurer, Councillor A. J. George, and the Secretary, Mr. F. Bunker, were also re-elected.—Bromley Chrysanthemum Society improved its financial position last year, for at the commencement of 1921 the balance in hand was £4 6s., but at the end of the year the balance was £14. The November show was very successful, and exhibits were more numerous than at any previous exhibition. The challenge cup presented by Sir Thomas Dewey, Bt., was won by Mr. A. B. Hudd, gardener to Mr. L. E. Chalmers, Bickley, and becomes his property. Mr. Hudd also won the Griffith rose bowl. Sir Coles Child has been re-elected President, and Mr. F. Andrews re-elected Secretary.—Folkestone Gardeners' Society has arranged to hold a Sweet Pea and Rose show in July, a new feature in the Society's programme. The annual dinner of this Society was held recently, and the Chairman, Councillor C. E. Mumford, J.P., stated that the Society had become one of the most important institutions in the town.—Limpsfield and Oxted Gardeners' Mutual Improvement Society has presented the Chairman of the Society, Mr. C. A. Fane, with a gold watch, inscribed "A token of appreciation from the subscribers and members of the Limpsfield Gardeners' Society, 1923." Mr. Fane, in returning thanks, claimed that the Limpsfield and Oxted Gardeners' Society was one of the best in Surrey. The President, Mr. E. Strong, has presented a cup to take the place of the one won by Mr. Fane, to be competed for under the same conditions. The summer show was not a success, owing to exceptionally bad weather.

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but the autumn show was an unqualified success.—Keymer, Clayton and Hassocks Flower Show have finished the year 1922 with a balance in hand of over £13. The entries at the annual exhibition in August showed a large increase on those of recent years, and some excellent exhibits have been forthcoming at the monthly meetings. Mr. H. Peatfield was unanimously elected President, and he also holds the office of Treasurer.—Langford and District Horticultural Society is holding its flower show the first Thursday in September, 1923. The income during 1922 amounted to £241, and there is a balance in hand of £5 13s. 3d., which would doubtless have been larger but for wet weather on the occasion of last year's flower show.—We regret to learn that the Chrysanthemum show of the Ancient Society of York Florists is to be discontinued owing to a loss of over £86 on the exhibition held last year. Twenty-three new members were enrolled by this society in 1922, but losses due to deaths and resignations brings the membership to its previous figure. The Society has a new President, Mr. H. J. Wilkinson, who is a keen gardener and a great lover of flowers. Apart from the Chrysanthemum exhibition, the Society will hold three other shows during 1923.—Ashford Cottage Gardeners' Society has been in existence for nearly fifty years, and Mr. T. Frost, the Treasurer, the oldest member, joined forty-five years ago. The membership shows an increase during 1922, and the balance sheet was stated to be satisfactory. The summer show last year was one of the most successful held by this Society.—Warrington Garden Society has a membership of 736, and the Society is in the happy position of having a record balance of £114 3s. with which to commence the year 1923. There was a loss on the show of practically £120, but a special appeal put the Society's finances on a sound basis again. The weather on the occasion of the exhibition was very wet. Sir Gilbert Greenall has been re-elected President of the Society.

Appointments for the Ensuing Week.—Tuesday, February 20.—Winchester Horticultural Society's meeting. Wednesday, February 21.—Wimbledon and District Gardeners' Society's meeting. Thursday, February 22.—Royal Botanic Society's meeting; Wargrave and District Gardeners' Society's meeting. Friday, February 23.—Association of Economic Biologists meet.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Conservatory Climbers.*—Some years ago Mr. Beaton favoured me with his opinion, through the medium of your columns, respecting the merits of certain conservatory climbers, and, having profited by his advice, I am induced again to ask for fresh floral news from him, or some other correspondents, on the same subject. It is true that I was unable to follow his advice in erecting a hot pit at the back of my conservatory, to allow of the introduction of stove climbers in the summer; but, following his advice, I have bloomed Stephanotis floribunda in a tolerably satisfactory manner, while Beaumontia grandiflora is growing vigorously, though not yet in a blooming state. I trust, therefore, that this inquiry may lead to my obtaining something more this year that may rank with my old favourites, Bignonia Cherere and jasminoides, Mandevilla suaveolens, and Plumbago capensis. It is somewhat remarkable that, notwithstanding the vast number of new introductions, how few conservatory climbers are found to possess the merits of the plants I have enumerated; for many either produce minute blossoms, or have a coarse, seedy appearance, or are shy bloomers; this last fault, I am told, attaches to Tacsonia mollissima, which otherwise would be an acquisition, and the former is the characteristic of one or two curious New Zealand creepers. That fine thing, Echites splendens, I find, after a fair trial, far too tender for my purpose, but the still more lovely Lipladenia crassincda at present seems likely to answer; if it succeeds, it will be an invaluable conservatory climber. *A Devonian, Gard. Chron., Feb.* 12, 1848.

Publication Received.—*The Scientific Selection of Arsenate of Lead and its Combinations.* Free on application to Walter Voss and Co., Ltd., Glengall Road, Millwall, E.14.

GRAFTING.

Everyone who grows Apples, Pears, Plums, Peaches, Apricots or Cherries finds it desirable at times to graft or bud an undesirable variety with a better sort, or to test a seedling by grafting it on an established tree.

The cutting down and top-grafting of inferior varieties is too often neglected, especially in orchards, but it repays for the trouble and the trees soon form good heads again.

There are only two methods of grafting that my experience favours, and these are splice grafting and crown or rind grafting. The first is necessary when the scion and stock are of nearly equal thickness, and the latter when the

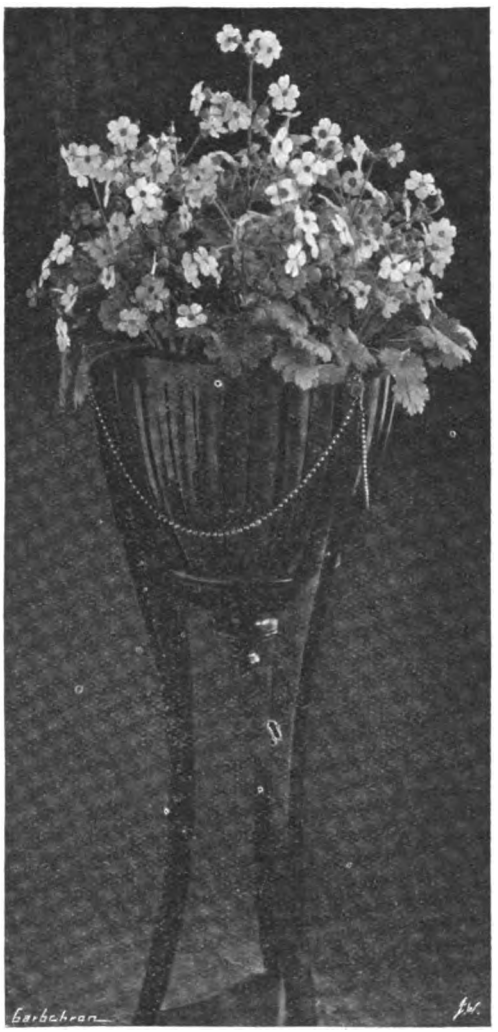

Fig. 41.—Primula stellata var. Giant White in a Jardiniere (see p. 91).

stock is above three-quarters of an inch in diameter. In splice grafting, all that is necessary is to shape the base of the scion in a sloping manner and to cut the stock to exactly fit the scion, so that when the two are spliced together their edges on both sides are, for the greater part, together. In crown or rind grafting the top of the stock is cut off level and the surface made smooth with a sharp knife. A slit is then made in the bark, and after lifting the latter with a budding knife handle or other suitable implement, the prepared scion is pushed down into the slit, tied with raffia, and the place of union covered all over with wax or clay mixed with cow-dung. So far this procedure is no doubt fairly familiar to a great number of the readers of *The Gardeners' Chronicle*, but my practice differs from that usually employed, in that I make the cut surfaces very long, for I find it leads to a surer and firmer union than if they are short. My practice is to cut them not less than about three and a half inches, and I take particular care that a wood bud is left on the back of the scion, near the middle of the seat of the union of the graft and stock, so that if, after growth has commenced, the top part of the scion should be broken off, this bud starts into growth.

In rind grafting, after pushing the scion into place, the raised bark should be cut so that for an inch or so next the shoulder the bark of the stock lies close to the edge of the bark of the scion, as if this is not attended to growth will not unite at that end and the union will be that much weaker. Quite ninety-five per cent. of the grafts put in by either of these two methods should be successful, after allowing for accidents.

A great point to observe is not to allow the sap to dry up nor allow water to enter before the graft is tied securely and waxed all over; some advise keeping the grafts in water until they are put on the stock, but that is not necessary. On one occasion I ordered one hundred grafts from a nursery; they were lost for six weeks and detained in a dry room in the Post Office, but I worked them subsequently, and they did well. On another occasion I had a large number of grafts from the United States sent in a large tin cannister and wrapped in cotton wool; these also were successful, and some which had fruit buds gave fruit the first year. Further, it is not essential that the growth of the stock should be in advance of that of the scion; a scion cut fresh from the tree will unite with the stock quite as well as a retarded one. I have grafted them when in the very early leaf stage with entire success. Grafting should not be done when the weather is rainy. Wet weather afterwards favours growth, but it is not essential to wet the grafts after they are once inserted, in case it should not rain; the scion gets all the moisture it needs from the stock. In Cornwall I find that the bark lifts freely in mid-March, and we can often continue to graft into June if we have retarded scions available. In cutting back an old tree for re-grafting, it is not advisable to shorten the branches too much; those having a thickness of two inches in diameter are suitable, and it is much better they should not exceed one and a half inch to one inch in thickness; in other words, retain plenty of small branches and insert the grafts on these Some advocate grafting half a tree one year and the other half the next, yet it is best to do the whole tree at once, and within three years it will be about as large as it was before it was re-grafted.

The rind method of grafting may be adopted for making a branch to grow on a bare limb, by simply making a T cut, as in budding, and inserting the scion, tying it and coating it with wax. The cleft method of grafting I only mention to condemn; it takes the greatest skill or luck to get the cambium layers of scion and stock in contact by this method, and even if the graft succeeds, an ugly, undesirable cleft remains for some years to harbour pests. The rind system is infinitely better and easier. The late Mr George Berry, of the Board of Agriculture, whose knowledge of all that pertains to fruit was very great indeed, could never say a good word for cleft grafting. I once saw him greatly perturbed when he visited a place where a workman had used this method and greatly mutilated the trees.

Many substances may be used for grafting wax; all that is wanted is something that will exclude the air and moisture, and be quickly and easily applied. The form of wax I use is made by melting together sixteen ounces of common resin such as fiddlers use, eight ounces of methylated spirit, and one ounce to one and a half ounce of Olive oil, or any similar vegetable oil. The materials may be melted in an ordinary glue-pot or a jam-pot stood in boiling water; the resin should be broken up finely or powdered, for quicker melting. There are two qualities of resin, one of a light, clear yellow colour, and the other very dark; the former is much the best to use, as the resulting wax will keep liquid for a day or two without re-melting, but the dark wax goes hard almost at once, although this may be corrected by using more oil and spirit. *W. J. Farmer, Ye Hive, Redruth, Cornwall.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Treatment of Miltonias after Potting.—After repotting Miltonias water should be afforded with extra care, as the young growths, as well as the new roots, are liable to decay if too much moisture is given, but when re-established in the new material the compost should be kept moist, and a little extra water may be afforded to each plant when the flower spikes appear. These plants appreciate light, especially during the dark days of winter; but direct sunshine often causes the foliage to become more yellow than is desirable; it is also important to see that the numerous small roots, which will soon be developing, are in no way injured or devoured by insects.

Angraecum sesquipedale.—Plants of this interesting winter-blooming Orchid will soon be developing a number of fleshy roots from their stems, and should any plant require more root space it should receive attention at once. Plants that have lost their lower leaves, leaving a bare stem, may be cut down and repotted. Ordinary pots provide the best receptacles; for these plants are inclined to be top-heavy, and are more easily managed when grown in pots than in any other way. In repotting, the old material should be carefully picked out, and, if any roots are clinging to the sides of the pot, they should be carefully removed, and placed in the new material. Arrange the plant in the centre of the pot, taking care that the drainage is ample, then replace the roots, and in so doing, work in among them a compost composed of equal parts clean Osmunda fibre and picked Sphagnum moss. Fill the receptacle to within an inch or so of the rim, pressing the compost down moderately firmly, and taking care not to bruise any of the living roots. After repotting no water should be given for some days, when the compost should receive a thorough soaking. The compost on the surface will soon become dry again; this should be moistened with a fine sprayer, and when the moss commences to grow the plants may be watered whenever they become dry. Guard against keeping the plants in a saturated condition, or spot disease will quickly make its appearance; but when the plants are in active growth, especially during the summer, liberal supplies of moisture may be afforded them, after which the quantity may be reduced gradually. This plant, with others of the same genus, grows best in the warm house the whole year round.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BENNETT, Esq., Woolverstone Park Gardens, Ipswich.

Melons.—Preparations for planting out the earliest seedlings should now be made. Where efficient bottom heat is supplied by hot-water pipes, deep hot-beds of fermenting material are not necessary; about nine inches will be sufficient to preserve the moisture in the soil from the drying effects of the water pipes, affording at the same time atmospheric conditions congenial to the young plants. Four or five days prior to planting, a continuous ridge of soil, 1 foot wide on the top and 9 inches deep, should be placed on the manure. When the soil is thoroughly warmed through, make it firm and put out the plants about 2 feet apart, taking care not to injure the stems in doing this. Water should be afforded sparingly until the roots become active. A brisk heat should be maintained, and damping the walls, paths, etc., should be regulated according to the weather. Seed may be sown shortly to provide successional plants, and the seedlings will have the benefit of brighter and longer days.

Pot Vines.—Timely attention should be paid to stopping the growths at one or two joints—according to space—beyond the bunch, and all lateral growths should be pinched back to the first joint, allowing no more growths to extend than space will permit of their full development. Black Hamburgh and Foster's Seedling are two of the most suitable Grapes for early forcing, and they are naturally free in starting into growth, but it is advisable to assist fertilisation by artificial pollination, either using a small bunch of feathers to distribute the pollen, or by drawing the hand lightly down the bunch; smartly tapping the wires two or three times daily will also help to disperse the pollen. When the berries are the size of Sweet Pea seeds, commence to thin them, leaving the shoulders with sufficient berries to form a compact, shapely bunch. A steady bottom heat should be maintained, and if provided by fermenting material, this should be turned and fresh added when necessary. Weak stimulants may be given frequently, and for general use nothing is better than liquid manure, mixed with soot water, and some suitable concentrated fertiliser at more distant intervals. Heavy doses are apt to do more harm than good. When the berries have set, maintain a moist, genial atmosphere, with a day temperature of 65° to 70°, without sun-heat, allowing a rise of 10° on bright days. A little air will be beneficial whenever the outside conditions are favourable for ventilating.

Pot Figs.—Fig trees in pots that were started at an early date will now be making active growth and claim attention in the stopping and disbudding of the shoots. These pot trees should be stopped at the fourth or fifth leaf, and the work should be done gradually, otherwise the second crop will follow too closely the first, checking development of the early fruits. All superfluous growths should be removed, retaining no more than can be fully exposed to sunlight and air. Pot trees when in active growth should not lack moisture at the roots and foliage; frequent applications of weak stimulants at the roots will be beneficial. The supply of bottom heat should be maintained steadily. The day temperature should be 70° to 75°, without sun-heat, and 10° less will suffice at night.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Shallots.—Bulbs of Shallots may now be planted on a sunny border in well-manured ground, pressing them in the soil firmly, just leaving the apex above the surface. Set the bulbs six inches to nine inches apart in the rows, and make the latter a foot asunder to allow room for hoeing. The smallest bulbs should be planted, and, as they are hardy, frost will not damage them. Beyond keeping them clear of weeds, they will not need much further attention until the new bulbs are ripe.

Cauliflowers and Cabbages.—Sow seeds of these vegetables to raise plants for summer and autumn use, in a cold frame in fine soil. Sow broadcast rather than in drills, separating each variety with a ridge of soil, and sift some fine soil over the seeds. Press the latter into the ground and water them with a fine rose can. Cover the frame with a mat until the seeds have germinated, then give them all the air and light possible.

Celery.—Where early Celery is desired, a pinch of seed should now be sown in heat in finely sifted soil, using well-drained pots or pans for the purpose. Nearly fill the receptacle with the soil, press the latter fairly firmly and then well water it before sowing the seed. After sowing, just cover the seed, water the soil again, and cover the pot with a piece of glass and paper. Celery seed should never be allowed to become dry, or failure will result. If moisture is required, place the pot or pan in tepid water up to the rim until the water percolates through, thus ensuring thorough soaking of the soil.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Eranthis hyemalis.—The golden blossoms of this lovely plant are welcome because they come so early in the year, usually February, but the mild weather of January caused some of them to open in the latter part of last month. This Aconite is a capital subject for naturalising under trees, and this is the best method of growing it, thus avoiding the disturbance of the roots which is bound to occur when planted in a flower border. In these gardens there is a colony of the plant under a Lime tree. E. cilicica blooms a little later and has rather larger flowers.

The Cornelian Cherry.—A tree or large shrub of this Cherry in flower is as pretty a sight as the garden can offer in February or March—the time of flowering being determined by the mildness or otherwise of the winter. The finest example I have seen is to be found in adjacent park land here; the tree is about 14 feet to 16 feet high and as much across. The leafless branches are thickly studded with tiny yellow flowers—the latter showing still more effectively when the sun shines on them. Later in the year the Cherry-like fruits are a further feature of this Dogwood. The present time is opportune for planting a tree or two of Cornus Mas.

Summer-sown Plants.—These include several perennials and biennials that have been growing in beds in the kitchen garden during the winter until such time as conditions favoured transplanting in their flowering quarters. In most localities this work may now be undertaken, and the sooner the plants are transplanted the better will they be able to withstand drying winds and hot sunshine which follow sooner or later in the wake of every springtime. Such plants include Gaillardia, Geum, Sweet William, Canterbury Bell, Anchusa capensis, Papaver, Hollyhock and Carnation. The old variety Grenadin, of the last, is grown largely here; it is a very free-blooming plant and useful for supplying cut blooms for arranging in small glasses.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Hydrangea.—Young plants of Hydrangea propagated last season and wintered in cold frames may now be started into growth in a temperature of 50° to 55°. Until they start into growth, the roots should be watered with extra care, but when in full growth they require ample supplies of water supplemented by frequent applications of diluted liquid manure. Blue coloured flowers are great favourites, and several substances are used to cause the blooms of Hydrangeas to assume a blue tint; alum and iron filings are generally used, and there are now several proprietary articles used for the purpose, but the success of them all depends on their constant and regular use, starting with the young plants, and using the substances regularly according to the maker's instructions, until the flowers develop. The rose and pink coloured varieties respond best to the treatment. Large specimens that are being kept on the dry side should be examined occasionally, as they must not be allowed to get too dry.

Bouvardia.—Where it is desired to increase the stock of Bouvardias, the required number of old stock plants should be partially pruned, and introduced into a house having a temperature of 55° to 60°, in which they will soon start into growth. When the young shoots are three to four inches in length they should be secured as cuttings. If treated in this way there would be fewer complaints about the difficulty of propagating Bouvardias. They are also readily increased by means of root cuttings; for this purpose some of the old plants should be shaken out of their pots, the thickest roots cut into pieces, about one inch long, and dibbled into pans of sandy soil, standing them in a warm propagating case. Some of the varieties do not come true from root

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cuttings, the variety Bridesmaid always giving a proportion of the variety Hogarth fl. pl. It is surprising that these beautiful and useful plants are not more generally cultivated.

THE HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Mulberries.—It is very necessary to have well-balanced Mulberry trees, or high winds will do much damage to the full-sapped, loose-jointed branches. The pruning of both young and old trees consists in removing cross shoots and allowing sufficient room between the branches for the large leaves to develop. Mulberries are generally planted in the pleasure grounds on lawns. Trees that are old and of imposing proportions require, in the majority of cases, some support, either from chains, or iron stays and collars to link up the branches. The latter are best, but care must be taken to have the collars at least 3 inches wide. Box swivels should always be used where there is a great weight to support. From year to year these bands should be inspected to see there is no danger of strangulation of bark or tissue. Cross stays of wood may be inserted under the band where the pressure is greatest. If a Mulberry tree has to be pollarded, from whatever cause, a selection of the strong growths that develop afterwards should be made. If the wood is at all unripe, strawy material should be placed among the new branches during times of severe frost.

Cuttings of Bush Fruits.—Cuttings of Gooseberries, Currants and others that have been set aside and heeled in the soil should be inserted without delay. An upright trench not less than 6 inches deep should be made, the bottom of the trench being well firmed with the foot and covered with a thin layer of ordinary sand. The cuttings should be inserted two-thirds their length below the surface, or the exact opposite to cuttings inserted in pots or under glass.

Big Bud.—Black Currant bushes should be examined for big buds. It is surprising the number of mites that are found in a single bud; on placing a piece of bud of the size of a small pin's head under a microscope, I counted twenty-two live mites.

TREES AND SHRUBS.

PYRUS TORINGOIDES.

THIS distinct member of the Malus group of Pyrus is proving to be one of the most ornamental of the fruiting Crabs introduced from China by Mr. E. H. Wilson. He first sent home seeds in 1904 (No. 1,730, W.) when collecting on behalf of Messrs. James Veitch and Sons, and again in 1908 (No. 1,285, W.), when collecting on behalf of the Arnold Arboretum. On both journeys Mr. Wilson found the tree in West Szechuan. It grows at an elevation of 9,000 to 11,000 feet, and is a tree from 15 to 25 feet in height.

Our young, cultivated specimens prove Pyrus toringoides to be a free growing and elegant tree, with usually irregularly and deeply lobed leaves. In May, the corymbs of creamy white blossoms, six to nine in a cluster, each flower ¾ to 1 inch across, are attractive. It is, however, in September and October, when the distinct and most attractive fruits mature, that the tree is in its full beauty. Globose would perhaps best describe the shape of the fruits, which average half an inch in width. As indicated by the illustration (Fig. 42), they are pendulous and freely produced, yellow more or less flushed with red on the sunny side, or, if in full sunshine, very little of the yellow colour remains.

When the plant was first introduced P. toringoides was regarded as a variety of Pyrus transitoria, being named var. toringoides, Rehder, in *Plantae Wilsonae*. More recently, in the *Bot. Mag.*, it was figured as Malus toringoides. P. toringoides belongs to a small section or group, in which the calyx disappears, leaving perhaps a scar, the set including P. alnifolia, P. Sargentii, P. Toringo and P. Zumi. *A. Osborn, Kew.*

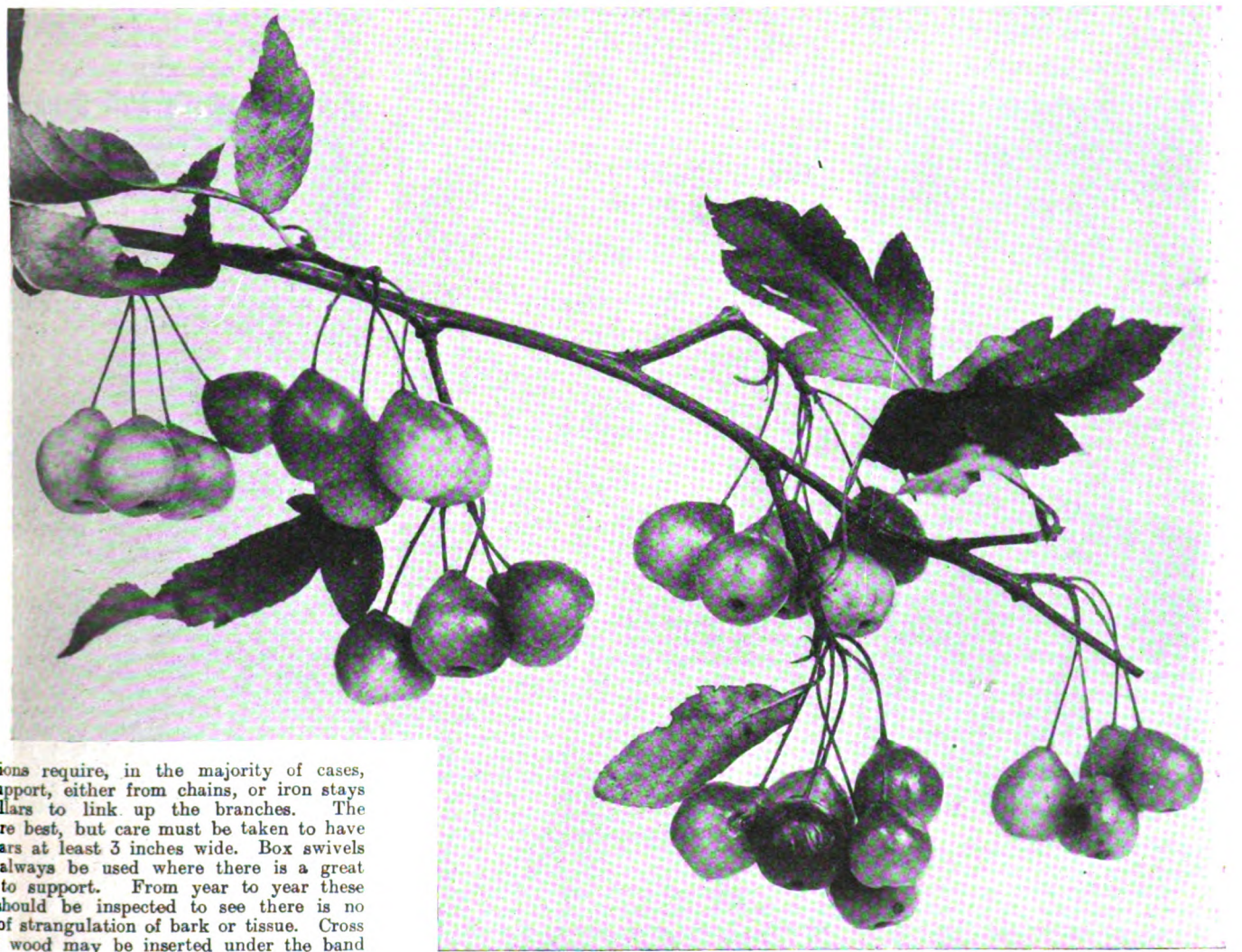

FIG. 42.—FRUITING BRANCH OF PYRUS TORINGOIDES.

SOME UNCOMMON HEATHS.

THOUGH it can scarcely be considered a rare species, Erica australis is very seldom seen in the average garden. This may be due to the fact that it is so often confounded with E. mediterranea, which is often sent out by nurserymen under its name, and there is also a current belief that it is too tender save for our mildest districts. As to its identification there need be no doubt, for E. australis is quite unlike any other member of the genus. Though usually classed as a Tree Heath, there are probably not many specimens in this country more than 4 feet to 5 feet in height. Nevertheless, it has an upright habit, after the manner of E. scoparia, but the foliage is a darker, bluer green and the bark more ruddy.

E. australis is an April-May bloomer, and it is in the flowers that it is perhaps most distinctive. These are borne in flat, terminal clusters (usually four or eight to the cluster), and they are pitcher-shaped, ¼ inch in length and of a brilliant rosy carmine colour. Even the best forms of E. carnea cannot equal the peculiarly vivid colour of these flower heads, which, as I have suggested, are entirely different from those of E. mediterranea, that bears its blossoms at the leaf axils in crowded spikes. E. australis, growing in ordinary woodland loam, has withstood 20° of frost here without injury; it is an unfailing bloomer, and remains in flower for about two months.

E. mediterranea provides us with a white variety (alba), which is not only a good white Heather, producing fine spikes of spotless

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purity in great abundance, but one which is in bloom in spring. In view of the fact that this is the only white Heath (if we except the Tree Heaths) of any real merit which flowers as early as March, it is surprising that it is not better known, and especially as it is quite hardy almost anywhere.

E. hibernica is said to be a form of E. mediterranea, which it closely resembles, but the plants here under that name have a more lax habit than those of the type, the foliage is a deeper, somewhat glaucous green, and flowering does not take place until E. mediterranea is almost over.

In considering white Heaths, the delicate beauty of E. ciliaris alba should not be overlooked. Like the typical Dorset Heath, it appears to withstand almost any amount of frost, but it needs shelter from cold winds. Our best plants of this species are afforded shelter provided by such robust kinds as E. vagans and E. Serlei.

Yet another charming white Heath is E. vulgaris gracilis. In this variety the spikes are long, well furnished with dead-white bells, which have the advantage of a dark-green foliage for background. The forms of E. Tetralix include, in addition to the common white form of the type species, a very pubescent variety of sturdy growth which bears large white flowers at the tips of its silvery shoots. This we have here under the name of E. T. alba mollis.

E. Mackaii is a good garden Heath, which in form and foliage suggests a near relationship with E. Tetralix. The flowers are blunter and fatter than those of the latter and of a pale, clear rose. There is also a pretty double form of E. ciliaris known as Maweana, which, though introduced many years ago, is still uncommon. In this Heath there is no little resemblance to E. ciliaris both in habit of growth and flowers, but the latter are nearer a rich crimson than purple, and they are liberally produced. E. Stuartii, said to be a hybrid, is a pretty Heath which, in our experience, is a slow grower of dwarf habit. Its white flowers, which open at the end of the summer, are sharply tipped with carmine.

E. Watsonii is believed to be a natural hybrid between E. ciliaris and E. Tetralix, and it certainly suggests a combination of those species in its soft, emerald green foliage and rather globular, rosy-pink flowers. But the latter appear in a somewhat flat raceme, as do those of E. Tetralix, and the plants have a closer, more compact habit of growth than is common to either plant. This is a good Heath for the small rock-garden, and as much may be said for the very squat and closely-set E. vulgaris var. Foxii, though this plant does not flower freely with us.

Our native E. cinerea gives us at least one excellent dwarf form, E. c. coccinea, that is well worthy of a choice place in the garden. This is a dwarf plant, slow in growth, with foliage of a very dark green and flowers of a most brilliant crimson-scarlet. The sister variety, named atrosanguinea, is somewhat like the above, but it is rather more vigorous and, though a really fine colour, the flowers are hardly so intense a hue as those of coccinea. Much better known, perhaps, and so much bigger and redundant in every way than the foregoing that it might be taken to be a different species, is the splendid E. cinerea rosea. There are other good ones in plenty, but I know of none that will give such a gorgeous display of clear, yet full rose-pink from midsummer onwards as E. c. rosea when boldly massed on a warm, sunny bank.

I have already alluded to one or two of the E. vulgaris (Calluna) section. But this is a group rich in good plants which are but little known, and I may mention a few. Quite one of the finest is the double variety of the type, a vigorous grower and profuse bloomer which becomes a mass of delicately tinted rosy-lilac colour. Even those gardeners who do not have a great liking for double flowers must make an exception of E. vulgaris fl. pl.

The close-growing E. v. tenuis, with flowers of a lively crimson-scarlet, is an admirable rock-garden variety. The varieties tenella and tomentosa are both good white sorts, refined and distinct, and one cannot overlook the fine foliage effects produced in winter by such varieties of E. vulgaris as cuprea, aurea and bronzifolia.

Rarer than any of the foregoing are E. Williamsii, a remarkably beautiful variety, reputed to be a vagans × Tetralix hybrid, and E. vagans var. St. Keverne, which is very distinct in its clear and delicate rose colouring. These we have only just acquired, and one more novelty which we have not yet been able to secure is E. scoparia prostrata, which appears to have been established at Kew for some time. *A. T. Johnson, North Wales.*

LILIUM SULPHURGALE.

THOSE who find the desire to hybridise Lilies irresistible do not always remember that not for many generations can seminal propagation be relied upon to reproduce the characters of the first children of the cross. The stock of the latter can only be increased by propagating from axillary bulbils, where they exist; offsets, and by scale or leaf bulblets. Seedlings of a mongrel in the first generation rarely show all the hybrid characters of the original. They revert in great measure to the female parent. In a couple of generations the reversion is more marked, and in many crosses all obvious signs of mixed parentage have disappeared in the fourth generation.

The non-recognition of Nature's ways in these matters has already led to confusion in the case of a hybrid between L. sulphureum and regale, to which the name "sulphurgale" has been given. The origin of this Lily is set out by the raiser, Prof. F. Scheubel, in the following words: —

"In 1913 one flower of Lilium sulphureum set with pollen of Lilium regale produced a pod that gave among much chaff 30 good seeds. Sown at once, they came up during the winter, and in early spring grew without any peculiar care in their seed-pot in the open. In the autumn the 24 little bulbs were planted into two boxes along with two bulbs of Lilium regale, which were a year older. The boxes passed the winter dry in a cellar. Next spring they grew well and showed buds. Not to weaken the plants, I removed them as soon as I could. The hybrids grew stronger than the two Lilium regale, and produced bulbils in the axils of the leaves as the mother plant (L. sulphureum) does, but those bulbils were not like those of L. sulphureum, but more like those of L. leucanthemum (Sargentii). In 1915 the new shoots came up very vigorously, and about the end of July they began to flower, about a fortnight after the L. regale, much overtopping it. The flowers were in number from one to eight on a plant, in size of regale and much larger, differing somewhat in form and colour, and very strongly scented. Nearly every flower set seeds; but I allowed only one or two pods on a plant to ripen."

The story is then taken up by Herr Bonstadt, Curator of the Botanic Gardens at Göttingen in 1919:—"Late in autumn 1916 Professor Scheubel sent me his seeds saved from his hybrid lily, Peace lily, as we called it. I sowed at once in hand-boxes in a conservatory. Nearly every seed germinated in a few weeks. As I had sown every seed in a distance of nearly an inch, I could allow the seedlings to grow undisturbed in the same boxes during the following summer. In the open they made speedy progress. During the winter I removed them to a cool pit. In early spring, 1918, I planted the little bulbs in beds in ordinary, rather heavy garden soil, where they came slowly into growth, which increased in the summer when rain set in. I was much surprised that by the end of summer some of the lilies already were showing buds, which came into flower. In winter 1918-19 the bulbs remained in the open without any protection. This last spring their shoots came up very vigorously, most of them with reddish-brown stems, but some with green stems. Nearly every plant developed already one to five flowers which opened in July, their fragrance filling the air to far distance. The plants with the greenish stems brought up flowers in lighter colour. The brownish stripes of the outer sepals changed here to greenish yellow.

"My experience with Mr. Scheubel's lily I can résumé as follows:—It is an easy grower, thoroughly hardy, the flowers excel all others in size, beauty and fragrance. They show a slight tendency to variation and further development."

The only true specimens of this particular cross between the two Lilies will be the original 24 bulbs, and any bulbils or offsets removed from them. The Lilies referred to in the Curator's story are not the original hybrids, but the first generation of their progeny in various stages of reversion. That is why a bed of these Lilies presents such a mixed collection, and why nine-tenths of the so-called L. sulphurgale are not sulphurgale. *A. Grove.*

ORCHID NOTES AND GLEANINGS.

BRASSO-CATTLEYA HANNIBAL VAR. HELEN.

FROM the gardens of G. W. Bird, Esq., Manor House, West Wickham (gr. Mr. Redden), this richly coloured cross between B.-C. Digbyano-Warneri and C. Fabia, shown as B.-C. Helen, deservedly secured an Award of Merit, the rich vinous purple tint of the whole flower being superior to that found in any other class. Mr. Bird also showed the plant last year with its first flower.

In 1920, Sir Geo. L. Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander) showed the same cross as B.-C. Hannibal, and therefore Mr. Bird's hybrid must be recorded as a variety. It is interesting to note that the nearest approach in colour of the whole flower, is found in the plant known as Cattleya Transylvania, a cross between Comet (Dowiana × Warneri) and Fabia (Dowiana × labiata), which was obtained from the same species without the Brassavola factor. This shows the colour-producing power of C. Warneri retained by C. Dowiana when suitably combined.

POTINARA JULIETTAE.

IN this remarkable cross between Brasso-Cattleya Ena (B. Digbyana × C. Lawrenceana) and Sophro-Laelio-Cattleya Marathon (B. Empress Frederick × S.-L. Psyche), Messrs. Charlesworth and Co., Ltd., Haywards Heath, instituted a new race destined to take an important part in colour development in hybrid Orchids; it received a First-Class Certificate at the Royal Horticultural Society, February 28, 1922. The original plant bore orange-red sepals and petals, the latter tinged with violet, the lip ruby-red with gold lines from the base. A fine flower now received shows a variety of larger size and darker colour, the sepals and petals being vinous purple and the wavy-edged lip violet crimson. The mid-ribs of the sepals and petals are ivory-white on the parts nearest the column, a feature which increases the effect of the rich colouring.

VANDA TRICOLOR INSIGNIS.

FLOWERS of this most beautiful form of Vanda tricolor—the variety insignis—shown to the members of the R.H.S. Orchid Committee at a January meeting, are especially interesting as proving that this fine variety is still in existence in the gardens of H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. F. W. Thurgood), where it has flourished and flowered regularly, together with other fine forms which have been in the Rosslyn collection for over thirty years. It is illustrated in Warner's *Sel. Orch.* 1, t.7. The flowers are broad and well displayed, the sepals and petals bright yellow, regularly spotted with purplish-red, the margin being cream-white. The lip is light rosy-mauve, white towards the margin. The Vandas at Rosslyn are grown in a well-ventilated intermediate house, where they remain in perfect health. V. tricolor was introduced from Java by Messrs. J. Veitch and Sons in 1846, as V. suavis, and the yellow as V. tricolor, a classification which, for garden purposes, is useful.

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GREENHOUSE PLANTS AT READING.

In the dull days of winter, and particularly during the two first months of the year, brightly-flowered greenhouse plants have a special value inasmuch as they brighten up the greenhouses and conservatory during a period when there is comparatively little sunshine and very little that is attractive in the open garden. It is during such a period that greenhouse Primulas, particularly those of the popular florists' group, are available; but these easily grown and beautiful subjects are equally valuable for the decoration of dwelling rooms, and if grown cool, they will withstand the dry atmosphere of a living room for a considerable period without suffering injury. Moreover, Primulas have a peculiar grace and their flowers are set off pleasingly by foliage that is almost as attractive as the flowers themselves and of considerable variation in type.

Viewed in the mass in the conservatory or

FIG. 43.—PRIMULA SINENSIS, THE PEARL, IN A DRAWING-ROOM.

greenhouse, Primulas are undoubtedly effective, but a specimen plant in a room is far more interesting inasmuch as it permits of closer inspection. A careful examination of a well-grown Primula set in a pleasing receptacle in a dining-room or drawing-room will reveal many points of interest, which would not be noticed in the general effect produced in a conservatory. For instance, there is the beautiful frilling on the large flowers of the Giant section of the florists' type; the wonderful arrangement of the colours; the form of the centre or eye; and also the colour and form of the foliage, for the last varies very greatly. Then, also, an examination of a specimen plant will usually have the effect of calling to mind the marvellous advances that have been made by the florists during half a century. Even thirty years ago Messrs. Sutton and Sons had not made a very great advance either in the blue or crimson shades, whereas a visit now to their nursery at Reading to see the Primulas will reveal the fact that there are several shades of real blue and also some very rich shades of crimson and crimson-scarlet. These striking advances in colour production have been obtained only as a result of infinite patience and perpetual vigilance, and it is these qualities aided by skilful cultivation that have made the Primulas of this famous firm so popular.

From a scientific point of view the Reading Primulas offer many points of interest, and while some fully prove the correctness of the Mendelian theory, others seem to be governed by no law whatever. From the gardener's point of view, the Primula serves a very useful purpose, but from the point of view of the home it is doubtful whether Primulas have yet received the attention they deserve. Hence the illustrations accompanying these notes (Figs. 41, 43, 44), which are given by way of encouragement to those who, perchance, have not yet had an opportunity of appreciating the beauty of a Primula in the pleasant surroundings of the home.

Messrs. Sutton and Sons have a magnificent display of Primulas in their nursery, and it is interesting to observe that certain varieties appear to do best in a cool, moist season like that of 1922, while others appear to need a hot, bright summer like that of 1921, to bring out their best form and colour. The Duchess apparently likes a cool season, whereas Reading Blue prefers a hot one, and similar peculiarities apply in some degree to most other varieties; hence it is worth the while of any gardener to keep notes of the results obtained each year, so that he may safeguard his reputation no matter what the season may be. It is hardly necessary in these notes to enumerate the many exquisite varieties of the florists' Primulas, Giants or otherwise, which Messrs. Sutton and Sons have raised and grow so wonderfully well, but it may be said in passing that the variety Intensity is a glorious advance in crimson shades, while Symmetry, with rich rose colouring, and a habit and flowers intermediate in character between the Star varieties and the older florists' type, is already immensely popular. Coral Star also stands out conspicuously good this season, and all the Giant varieties are producing trusses of immense blooms, which suggest that a long, cool season of growth, such as that experienced during last autumn, suits them.

With regard to cultivation, it is a matter for surprise that Messrs. Sutton and Sons never supply their Primulas with liquid manure or artificial fertilisers, but they have great faith in lime as an ingredient of the potting compost. It may be that where gardeners fail with Primulas is that they maintain too high an atmosphere, do not add lime to the potting compost, and as soon as the plants are well rooted commence to apply liquid manure to the roots.

Messrs. Sutton and Sons have some good new varieties in store in most sections of greenhouse Primulas. They are also making progress with new shades of colour in Primula malacoides and they also have a form of this type in which the flowers are circular and entire instead of being deeply incised. It looks as though, before many years have elapsed, we may have a real blue form of Primula malacoides, and possibly a deep magenta from which eventually crimsons may result.

Apart from the Primulas, the Cyclamens at Reading are in themselves well worth a visit, and on looking back over many years, we can confidently state that never before have we seen these useful plants in such superb condition as when we saw them a week ago, and among all the exquisite shades of colour now presented, the new and brilliant Firefly stands out conspicuously. On one plant of a white, purple-based variety, growing in a small 32-sized pot, we counted seventy blooms, and other buds were pushing up from the corm.

Cinerarias, like the Primulas and Cyclamens, show evidences of skilful crossing, selection and cultivation, but these are only just beginning to flower at Reading. There are other matters of interest at this nursery, and one that indicates the business progress of the firm is the erection of a new block of greenhouses.

THE ALPINE GARDEN.

ERYTHRAEA MASSONII.

I FREQUENTLY wonder how it happens that Erythraea Massonii, generally offered in catalogues as Erythraea diffusa, under which name I first grew it, is not to be found in almost every rock garden of any considerable size. It cannot be that its beauty is not appreciated when seen, as it has more of charm to commend it than many alpines much more popular and very widely grown. The race has been likened to that of the Gentian, and the general aspect of the Erythraeas does remind one of that valuable genus, but in the matter of colour the plants are very distinct from the smaller Gentians, which they resemble in some other features. None of the Erythraeas has the exquisite blue flowers of the best of the Gentians, but instead they have generally lovely little flowers of wax-like appearance and of a charming rose-pink. E. Massonii is one of the best, as, whereas some of the Erythraeas are little more than biennials, it is a true perennial, which,

FIG. 44.—PRIMULA MALACOIDES IN A DINING-ROOM.

with moderate care, will live for many years. It loves a light, fully drained soil, but at the same time does not appear happy when kept too dry; I found that good soakings of water during spells of dry summer weather help it greatly, and also that it prefers a little shade.

SYNTHYRIS RENIFORMIS.

FOR a cool corner of the rock garden, the margin of the woodland walk or edge of the shrubbery, this is a delightful plant. It is a N. American, Rocky Mountain alpine, therefore perfectly hardy, and though not particular as to soil, so long as this is not too dry, a mixture of leaf-mould, peat, loam and sand suits it best. S. reniformis makes a bold, orderly tuft of round, dark-green, shining leaves with scalloped margins. From among these the flower stems rise in early spring to a height of some eight inches, their upper parts being crowded with blue-violet flowers, which are borne for several weeks. The flowering date differs considerably with the season. I have seen S. reniformis in bloom in February, and on other occasions it has not flowered until May. A second crop of flowers in October is by no means uncommon. *A. T. J.*

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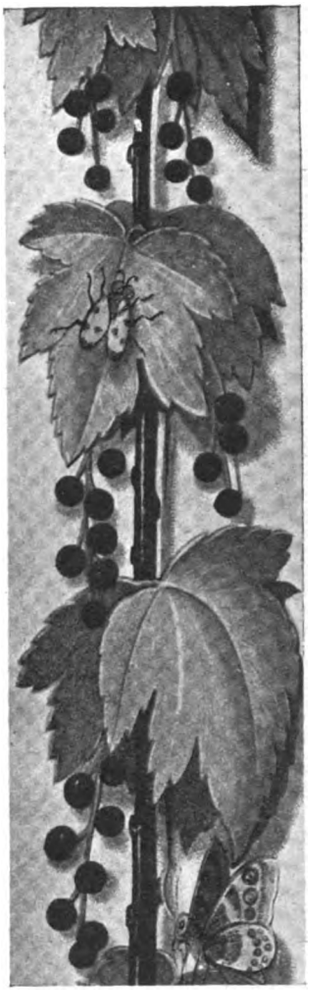
EARLY BOTANIC PAINTERS.

No. 2.—JEAN BOURDICHON.

IN reviewing the early botanic painters, one naturally calls to mind many examples of the arts of the illuminator and the painter, which, although having no intimate connection with early botany, are yet of much value as contemporary witnesses. Some of the Books of Hours of the late fifteenth and early sixteenth centuries, with their broad borders of gold or colour, on which were painted, often with an exquisite freshness, snippets of flowers, together with fruits, insects, etc., reveal a very intimate love for natural beauties. These charming little scraps of nature painting are almost like the forerunners of better things in botanic illustration, which at the time they were painted was more or less in the primitive stage found in the earliest illustrated herbals. Again, in some of the works of the early painters are to be found flowers painted with much skill and charm; though many of these can hardly be classed with botanic paintings, as they represent only distant views of plants. Good botanic illustration is to be obtained only from a "close up" portrayal of plants; and it is a well-known fact that the best botanists are often short-sighted. It would seem evident, therefore, that the true line of descent of botanic painting (and of botanic illustration generally) was by way of the miniaturist's art, and not by that of the painter of pictures. As much of the work of the early painters really partook in some measure of miniature-painting on an enlarged scale, it is easier to note this distinction by a comparison with modern easel-pictures, in which even a group of flowers is usually painted too far away to properly distinguish the details. Without doubt, the general progress in the art of painting had its due effect upon the technique of botanic artists; yet till a late period we find botanic paintings referred to as being "in miniature," which no doubt meant, not "on a small scale" as we understand the word to-day, but "in detail," that is, a representation of a near view of a plant—near enough to see clearly all its details.

Among the illuminated vellum manuscripts referred to above, is one which is peerless of its kind. This is the famous *Livre d'Heures de la Reine Anne de Bretagne* (Bibliothèque Nationale. MS. Latin 9,474), the work of Jean Bourdichon, "premier peintre du Roi," who was born at Tours in 1457, and is supposed to have died at Lyons in 1521. Never before or since has such a wonderful prayer-book been produced, for the numerous miniatures of plants which decorate it constitute a valuable early Florilegium. Executed in the early years of the sixteenth century (in 1508 the artist was paid a considerable sum for his work), it contains 337 paintings of diverse plants, most of which occupy upright rectangles, 165 × 45 mm., placed at the outer margins of the text; and besides whole pages filled by elaborate devotional pictures, there are many with borders, or half borders, covered with flowers, etc. A series of twelve of these borders



FIGS. 45 AND 46.—BOURDICHON'S FIGURES OF THE BLACK CURRANT; FROM L. CURMER'S FACSIMILE. LEFT, FLOWERS; RIGHT, FRUITS.

give delightful scenes typical of the months, one being a view of a castle garden, showing its walls with their turf-seats. The paintings are executed in body-colour on a gold ground, which is edged at the right with bright red, the same colour also forming a base for the French name of the plant, which is written in gold. A Latin name, often of a barbarous type, appears in red Gothic letters above each rectangle. The plants are made to stand away from the gold ground by the careful painting of their cast shadows. Included with the plants are large numbers of well-designed insects, and even a few animals. The dragonfly is especially well painted, and appears to have been a favourite with this artist, who in some instances tried to render the subtle colour effects of flowers partly seen through its wings!

The great merit of Bourdichon's plant-figures lies in the fact that he got away from the conventional types of plants then in vogue, and went to Nature for inspiration. During the Middle Ages illuminators had contented themselves with a few flowers for decorative purposes—especially the Rose and the Lily; but Bourdichon painted all the flowers he found growing either wild or in gardens. It is true that he had to consider first of all the decorative treatment of his MS.; and, even with the plant before him, he did not scruple to apply its form and colour to his design in his own way. His representations are not those of a botanist, but of one who delighted to paint a pleasing picture of a plant; not caring too much about exactness in details, but joyfully using the general beauty and bright colouring of flowers in a way that fitted in with his decorative scheme. However, the majority of his plants have had their modern names determined.

This beautiful MS. has not failed to attract the attention of botanists. Antoine de Jussieu, first of a line of famous botanists, was allowed by Louis XV. to take it home and study it at his leisure. In 1722 he read a memoir on it to the Académie des Sciences; but his manuscript was not published until 1886, when L. Lalanne found it. In 1859, L. Curmer, of Paris, published a fine chromolithographic facsimile of Bourdichon's MS., limited to 850 copies, adding in a second volume (which, by an error, was dated 1841), a French translation of the prayers, and a memoir on the plant miniatures by the botanist, J. Decaisne. The best memoir on the plant miniatures, correcting the errors of the two previous writers, is by Jules Camus, who in 1894 published a complete account in the *Journal de Botanique*, vol. 8, giving an alphabetical list under the old French names, adding the modern determinations, and many notes, the whole forming a valuable guide to the MS. He points out how in some instances the painter has given the different varieties—wild, cultivated, double and white-flowered—of the same plant. Perhaps the most interesting of his notes is that

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regarding the Black Currant. Two miniatures (Figs. 45 and 46) representing this plant, which was unknown to the Ancients and the herbalists of the Middle Ages, are believed to be the earliest figures of this species done in Europe. One shows a stem in flower, and the other, which is part of one of the half-borders, an ample representation of the fruit. The inscriptions are "*Poyvrier. Flores piperi,*" and "*Poyvre. Piperi rotondi.*" If we turn to Bailey's *Standard Cyclopaedia of Horticulture*, 1919 (p. 917), we find it stated that "the Currant is not known to have been under cultivation before the middle of the sixteenth century." Can these paintings be taken as evidence of the cultivation of the Black Currant in France about 1500? These two miniatures are selected for their special interest; but many of the others are far more elaborate and charming.

Jean Bourdichon certainly deserves a place among the early botanic painters. Had he lived a century later, no doubt he would have produced a Florilegium rivalling even the best of that period. As it was, he accomplished this long series of beautiful plant-pictures, which constitute at least part of his book a true Florilegium. *S. Savage.*

INDOOR PLANTS.

SINGLE CAMELLIAS.

CAMELLIAS, at one time favourite conservatory plants, have for many years been poorly represented in gardens, and this is due to the fact that their stiff, heavy flowers are practically useless for cutting. Apart from this defect there are few handsomer evergreen shrubs for the embellishment of cool conservatories, whether planted out in beds or borders, or grown in pots or tubs. Not the least of their merits is the fact that they may be had in flower from the beginning of November until June.

There are not wanting signs that Camellias are regaining in some measure their former popularity. This is probably because a large number of beautiful single varieties have been introduced. Planted indoors in beds or borders, in a compost of good fibrous peat and loam, made quite firm, their successful cultivation presents no difficulty beyond giving attention to watering and keeping the plants clean.

The successful cultivation of single Camellias in pots or tubs, however, requires more skill and attention. As regards soil, they grow very freely in peat, but do not flower so freely as when the compost consists of equal parts of good fibrous peat and loam with enough clean, coarse sand to keep the whole sweet and porous; efficient drainage is also essential as Camellias enjoy copious supplies of water when in good health; they should also be potted firmly. The best time to repot them is when they have finished flowering and just before they start into fresh growth; sometimes it may be necessary to pot them before flowering is quite finished. After repotting they should be kept close and warm in a temperature of 55°, and syringed twice a day during bright weather. As the young growth approaches maturity the plants should receive more air, and when growth is finished for the season Camellias should be stood outside for the summer months, standing the pots on a bed of ashes in a sheltered position. Strict attention to watering is essential as dryness at the roots and a too dry atmosphere indoors are common causes of bud dropping, though this may also occur if the plants are allowed to carry an excessive crop. Thus it is often necessary to thin the buds. Grown in pots and tubs they make very hard, compact balls of soil and roots which are apt to get dry in the centre; if this should happen the pots should be stood for several hours in a vessel of water to make sure the soil is thoroughly soaked. Single Camellias may be had in flower for many months by keeping a succession of plants in a cold house and introducing them as required into a warm greenhouse. It thus follows that the early started plants complete their growth and set their flower buds early, and are in condition to be started early the following season.

Camellias require a certain amount of pruning to keep them well furnished and in good shape, and this is best done when they have finished flowering and just when they are starting into fresh growth. When the pots are well filled with roots occasional supplies of dilute liquid manure or soot water are desirable, but the use of artificial fertilisers is not desirable.

Camellias are quite hardy, either in the open or trained against walls, but as they bloom early the flowers often suffer from inclement weather. Camellias may be propagated by means of seeds, layers, cuttings and grafting. The varieties that root readily may be used as stocks on which to graft the less robust varieties. Side grafting is the method practised; this, in fact, is the only way to successfully increase the beautiful C. reticulata; even so, many cultivators fail with this plant as they are not aware that scions of two-year-old wood must be used. This beautiful species is not so hardy as are the japonica varieties, and it is not long happy under pot cultivation, but is seen at its best when planted out in a large conservatory.

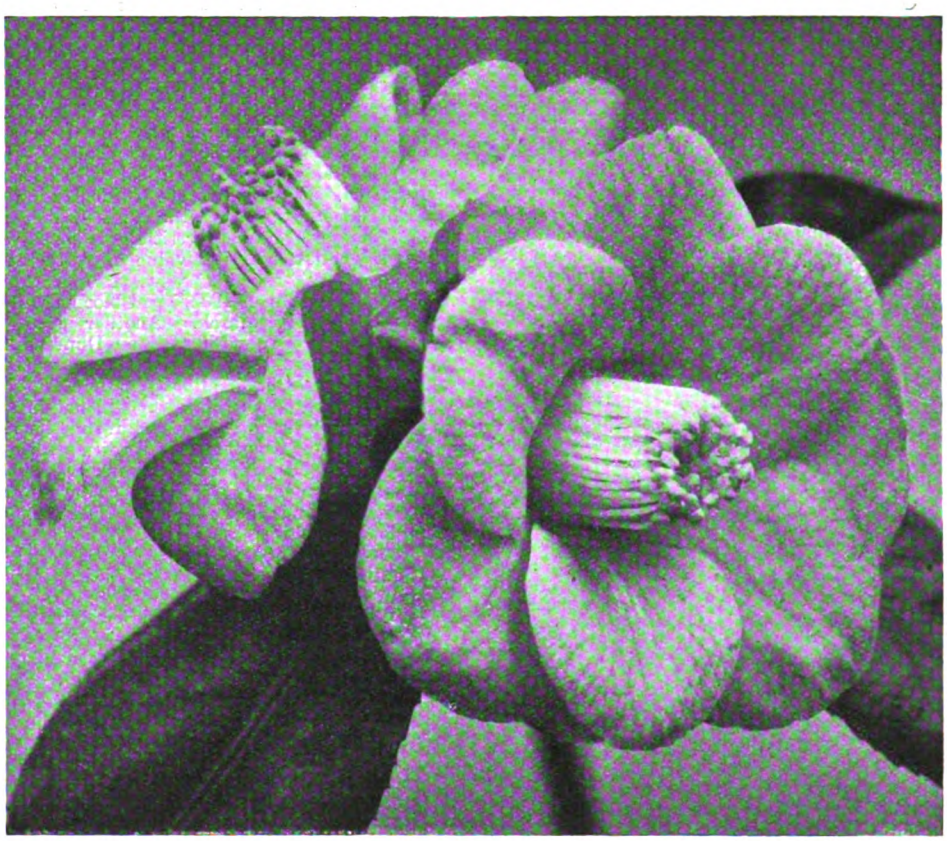

FIG. 47.—CAMELLIA JUPITER, A SINGLE VARIETY WITH LIGHT FLAME COLOURED FLOWERS.

Camellia japonica is a native of China and Japan, and was introduced to this country in 1739, and is figured in the *Bot. Mag.*, t. 42; from this species the large number of garden varieties have descended. In *Bot. Mag.*, t. 1654, the variety anemonaeflora or Warratal is figured; this has a single row of outer petals, the stamens being replaced by a round boss of petaloid filaments. There are two huge specimens of this old variety in the Temperate House at Kew.

At the meeting of the Royal Horticultural Society, held on January 30, Messrs. Chaplin Bros., Waltham Cross, exhibited some fine single varieties, including Waltham Glory, The Swan and Jupiter (Fig. 47). A few other fine single sorts are C. japonica var. grandiflora, a very large white variety, with a double row of petals and great boss of golden stamens; Lady Clare, a large flower, a beautiful shade of salmon rose; Kimberley, brilliant red, and of the anemonaeflora type; White Rose and Lady Mackinnon.

Other good species are C. rosaeflora (*Bot. Mag.*, t. 5044), and there is a double variety of this in cultivation, a very charming plant with rose coloured flowers; unlike the varieties of japonica, its flowers remain on the plant for a long time. Lady Ardilaun, a small white-flowered anemonaeflora variety, also possesses this desirable quality. C. japonica var. magnoliaeflora is perhaps the most charming of all the single varieties, its flower being a beautiful shell pink, and almost campanulate in shape. The very distinct and elegant C. Sasanqua, of more recent introduction, is a slender growing species, of which there are a number of single varieties. *J. Coutts.*

CLERODENDRON FALLAX.

ALTHOUGH Clerodendron fallax is a plant which may be grown on for an indefinite period under suitable conditions, the rich heads of scarlet flowers are never finer than on plants of one year's growth, raised from seed. Seeds should be sown now in well-drained pans of light soil, plunged over a brisk bottom-heat. Germination occupies about a fortnight, and when it takes place the receptacles should be placed near the roof-glass in a shady corner of the stove. When large enough pot the seedlings into 3-inch pots, using a mixture of equal parts loam and peat, with sufficient sand to ensure porosity. Regular attention in regard to light, syringing and watering will, in the moist atmosphere of the stove, soon fit the plants for the final potting into 6-inch pots. At this stage the proportion of loam to peat should be as two to one, and this mixture may with advantage be enriched with a little dried cow dung and bonemeal. Crock the pots liberally, and pot firmly. It will be necessary to exercise care in watering and shading until the roots have taken hold of the new soil.

When in full growth Clerodendron fallax needs copious supplies of water, and liberal feeding when the pots are full of roots. When the flowers are about half-open, the plants may be removed to a cooler structure, preparatory to being taken into the conservatory, where in bold groups they are seen to great advantage from August to October. *Y. G.*

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COMMERCIAL HORTICULTURE IN THE ISLES OF SCILLY.

(*Concluded from p.* 66.)

BESIDES being horticulturists, the majority of the men on the island of St. Martin's are fishermen, and a very profitable industry is carried on in "potting" for lobsters, crayfish, and crabs. Since the best fish are always found around the rocks and ledges, these brown-faced, weather-beaten fishermen-flower-growers continually risk their lives in quite small boats when setting out to sea to haul and bait their pots.

The rock-strewn coasts and channels of Scilly are a terror to the average sailor, yet these men set out with no sense of heroism, but with smiling insouciance and casual quip—it is all in the day's work!

Early Potatos come next in importance to bulbs and flowers, and are usually carried on in conjunction with the latter. It is the only change of rotation at present practised—bulbs and Potatos—Potatos and bulbs. The variety commonly grown is Advance, which is only a synonym for Dargel Early. The seed is once grown in Lincolnshire from Scotland, and imported by special steamer (the advent of the "tater boat" is a great event to the islanders), usually during the middle of October. The boat unloads at the three largest islands, St. Mary's, Tresco, and St. Martin's, and the tubers are at once stacked in sheds, barns, flower-houses, and the like, to chit or sprout. Planting commences about the third week in December. All the seed is cut, and a "set" consists of two stubby sprouts and a small portion of tuber. It is usual to plant from two to two-and-a-half tons per acre, which may yield a two, three, or four fold crop. The average yield is from four to five tons per acre. A very heavy dressing of seaweed is applied some weeks prior to planting, so that it may decompose, after which it is ploughed in with the Potatos.

The crop is lifted by hand labour, and in an early season lifting commences about the last week in April. High prices are obtained for the first earlies, and there is great competition to be the first to dig. The honour usually falls to Tresco, as this island, owing to its position, well-timbered and sheltered condition, is warmer and not so liable to damage from the terrific wind storms which frequently sweep over the islands. Scilly can nearly always capture the early markets three weeks ahead of the Channel Islands. The only difference between the Scillonian and mainland method of Potato culture is in the manner of earthing up. Instead of the ridging plough or moulder we cultivate more or less on the square or flat. These squares, encompassed by high Escallonia hedges, are subdivided into long narrow beds raised above the level of the field, and earthing up, or "grooting," as it is termed here, consists in top-dressing these beds with a layer of fine soil when the Potato growth is about three inches above ground.

The Potato crop is very profitable, and every cottager grows his patch, the results being put away for the proverbial rainy day—it is the cottager's harvest.

TRESCO ABBEY GARDENS.

This account of the Scillies would be incomplete without reference to the world-famous Tresco Abbey gardens. Situated on one of the finest sites on the finest island, here luxuriate masses of tropical and sub-tropical plants. Great feathery Palms—Phœnix canariensis—are in evidence everywhere. The walls of the old monastery are graced with the pendant red flowers of Lapageria rosea, and the air is laden with the pungent scent of the creamy white flowers of Hedychium coronarium. Even in the autumn and winter, flowers are always abundant. At the end of the year, the trumpet-like flowers of Datura sanguinea were giving a brilliant splash of colour to the old Rose garden and the Lobster Claw Flower or New Zealand Glory Pea, Clianthus puniceus, was in bloom. Masses of the purple bracts of Bougainvillea glabra are a common and beautiful sight out of doors, and the golden yellow of the fruit of the large Citron is strikingly evident. The gardens teem with interest for the garden and flower lover—the great natural rockeries alone would absorb days of the visitor's time. And for guide the visitor may have a grand old gentleman who has grown up with the gardens. His work has not been toil, but an all-absorbing interest. He has been building now for fifty-five years in these gardens, and has neither known nor wished for any other life. Kindly, shrewd, and possessing a fund of knowledge that a university professor might well envy, Mr. James Jenkins is more than head gardener—he is an institution within the beautiful gardens of Tresco Abbey. *Sidney P. Weils, General Manager to Major A. A. Dorrien-Smith, Tresco, Isles of Scilly.*

FLORISTS' FLOWERS.

LATE CHRYSANTHEMUMS.

To the *Gardeners' Chronicle* of January 21, 1922, I contributed an article under the above heading, which brought me several replies and a fine batch of cuttings of the Chrysanthemum Autocrat, a variety I had especially alluded to. A year's experience has proved it, in my opinion, to be synonymous with Cheshunt White, and in one catalogue I see it is now listed as such. Another interested reader sent me Enfield White, which has also proved identical with the two first-named. Synonyms are evidently on the increase amongst Chrysanthemums—which is a pity. But under whatever title growers have it, there is no doubt of the value of Autocrat for late blooming, as this year, owing to the favourable autumn of 1922, good blooms will not be uncommon in March. Another good late white sort I have found in Madame Dupree. This was sent me as an incurved, a few seasons ago; it has a stronger habit altogether than Autocrat, and as a consequence the latter will not increase in favour with me. The blooms are of the usual size for a decorative sort, and when grown for January and later flowering they are more reflexing than incurved, and the colour is pure. The Favourite has now established itself amongst reliable late whites, and I know of none with a more pleasing habit.

The illustration which appeared in the issue of January 6 (Fig. 2, p. 6) of the old yellow variety W. H. Lincoln will doubtless tempt many to give it another trial with, I am afraid, meagre results, unless a clean, rested stock is obtained. The writer, in an article accompanying the illustration referred to, would have us believe that Chrysanthemums do not deteriorate, but he clears himself with a word of warning against slipshod methods of propagation and culture. Therein lies the secret. It is not the privilege of all private gardeners—not that many would regularly avail themselves of it if they could—to grow a batch of several sorts each year on the "resting" principle; the majority are satisfied to grow a good thing for just so long as their methods of propagation will permit profitably, trusting that amongst newer introductions there are sure to be some to act as worthy successors. Market growers are concerned only with profits, and means towards that end must come before new names. Yellow Thompson, if so old as W. H. Lincoln, does not appear to have deteriorated to the same extent as the latter.

From the same source as Autocrat I received a yellow Chrysanthemum, which goes under the name of Liverpool. It is a free-grower, with medium-sized incurved blooms of the richest yellow. As a December-flowering variety it is a desirable acquisition. Winter Gem is also good. Now that The Favourite has given us a pink sport, a long-felt want will soon be supplied. In the meantime Bertha Lachaux, well grown, is a dependable variety in the richest pink, for flowering in January. Corcyne, a variety I had sent from Cornwall, is even later, and being a much better doer than the last-named will doubtless soon take its place. Winter Glow is another pink sort with a habit somewhat like December Gold. Another lovely pink Chrysanthemum for December is Mdlle. L. Charvet: it is remarkably free in growth, and good disbudded or in sprays. Pink Pearl still continues satisfactory.

The best crimson I have grown is Mrs. Geo. Monro, a variety of exhibition fame. It makes a grand bush for Christmas flowering on account of its free but dwarf habit. Rooted late and finally potted into 7-inch pots, the blooms are of a useful size, and very rich in colour. Similar remarks apply to another exhibition variety—Nurse Cavell.

Of late singles Mrs. A. Robertson is a fine, clear pink for December, and is at its best in sprays. J. J. Morris, a bright golden-yellow, is also reliable. Sandown Radiance, though at its best grown on exhibition lines, is nevertheless easily kept back, and crimson-red is a useful colour. The really indispensable late single is Mary Morris, with a grand, bushy, dwarf habit, and its blooms closely resemble those of Mary Richardson in colour. *Y. G.*

LATE APPLES AND PEARS AT GUNTON PARK.

MR. WM. ALLAN, who has been in charge of the gardens at Gunton Park for very many years, has a reputation as a grower and raiser of hardy fruit, and his name, coupled with Gunton Park, has been well known by gardeners and garden lovers for a great many years.

Those who were present at the Norwich Horticultural Society's Chrysanthemum show last November witnessed Mr. Allan's ability in the cultivation of hardy fruit. His Pears were especially fine, some of the individual fruits turning the scale at 23 ounces.

The fruit room at Gunton Park is especially interesting at the present time, because the contents show clearly a selection of the best late varieties of Apples and Pears. The following lists of some of the best sorts may be of interest to other growers.

Of Apples, the variety Winter Ribston is held in high esteem at Gunton Park, and it is a pity this choice dessert variety is not better known. Its quality is first rate, and, being of a medium size, is very suitable for dessert purposes. The season for this Apple has been given as October-November, but here it is kept successfully until January-February. The variety William Crump is also grown to perfection at Gunton, and is found to keep well. As a dessert sort, this Apple is likely to rival the popular Cox's Orange Pippin, which is one of the parents of William Crump. The crop of Cox's Orange Pippin was exceptionally large here last year. Claygate Pearmain, Hornmead's Pearmain and Christmas Pearmain also do well here, and they are well known as good, late dessert Apples.

Of the Pippins we have Allington Pippin, Woodstock Pippin, Bowhill Pippin, Col. Harbord, Sturmer Pippin, and Ribston Pippin, all good late sorts, and of a useful medium size.

Three popular Russets grown here for late use are Brownlee's Russet, Egremont Russet and Aromatic Russet. The Houblon, Baumann's Reinette and the American Mother Apple are all keeping well.

Included among the culinary sorts still in good keeping and which, in many cases will remain good for another three or four months, are Newton Wonder, Gloria Mundi, Beauty of Kent, Encore, King of Tompkins County, Striped Beefing and Lane's Prince Albert.

There are, of course, many more Apples grown at Gunton than those I have mentioned. Those I have enumerated are some of the best that are still making a good display in the fruit room.

Of Pears, mention need only be made of a few to show that a good collection is grown at Gunton Park. Doyenné du Comice, Glou Morceau, Santa Claus, Soldat d'Esperen, Beurré Bachelier, Beurré Clairgeau, Beurré de Arenberg, Charles Ernest and Josephine de Malines, are a few of the carefully selected collection at Gunton Park.

One Pear worthy of special mention is Blickling. It is a good-looking fruit of high quality, and is very useful for dessert purpose during February. *H. W. Stenning, Gunton Park Gardens.*

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HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

An Educational Fruit Exhibit at Stafford.—For the purpose of encouraging the cultivation of hardy fruits in the Midlands, and as a demonstration of what may be accomplished by good cultivation, Lord Stafford, of Swynnerton, Stone, Stafford, set up a large exhibit at the fruit show held in the County Technical School, Stafford, in November last. This exhibit, Fig. 48, occupied a space of fourteen feet by six feet, and included thirty distinct varieties of Apples and Pears arranged in various receptacles, so as to show their value for market, as well as methods of packing, while others were shown on dishes, as displayed in the ordinary classes at fruit shows. The principal varieties of Apples shown were Lane's Prince Albert, Newton Wonder, Annie Elizabeth, Lord Derby, Bramley's Seedling, Allington Pippin, Cox's Orange Pippin, Gascoyne's Scarlet, James Grieve, and Ellison's Orange, while Doyenné du Comice and Pitmaston Duchess were the principal Pears on view. The exhibit attracted a great deal of attention, and was much admired for the evidence it afforded of good cultivation, as well as for its educational value. Lord Stafford and his able gardener, Mr. M. Quinn, are to be congratulated upon their effort. *C.*

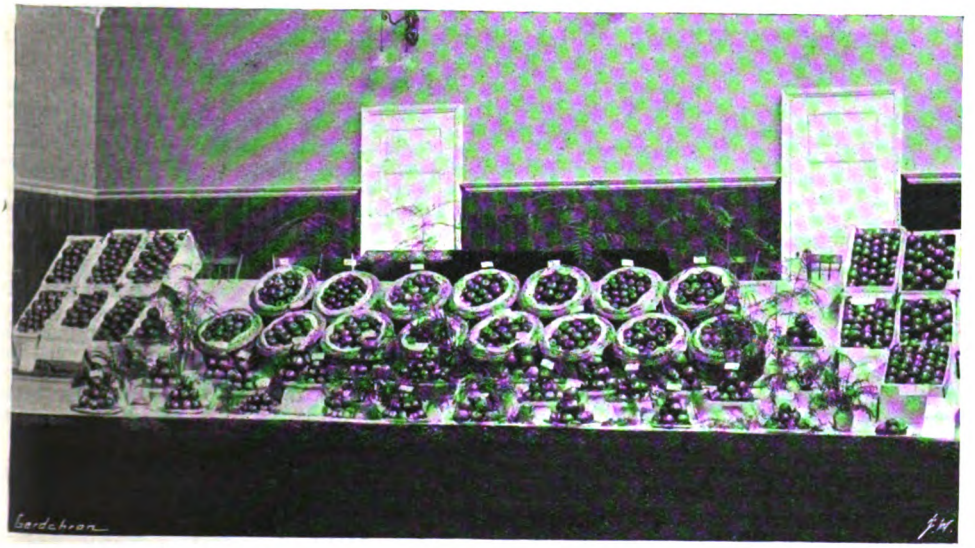

FIG. 48.—LORD STAFFORD'S EXHIBIT OF FRUIT AT THE STAFFORD FRUIT SHOW.

"To Chortle."—I am interested in the English of the *Gard. Chron.*, and in that of its correspondents. But valuable as the *Gard. Chron.* is horticulturally, it is, perhaps, not the most suitable place to discuss philological questions, except to a limited extent, in so far as they relate to horticultural contributions, though simple inquiries may be permitted by the Editor. In a recent article Sir Herbert Maxwell tells us that "amateurs are prone to chortle." What does chortle really mean? Is it a Scotch word, an English one, or a mere provincialism? One can, of course, give a guess, but the guess may be wrong. In the South I hear young men occasionally use the word, but I have hunted everywhere I can for it. I have consulted at least twenty dictionaries, some slang, some provincial, without result. *The Oxford Dictionary* may contain a definition of it, but that work is not available for me for the present. *C. H. P.*

Stored Apples.—Many growers stored Apples last autumn, and most of them must regret having done so. For some weeks they have been selling at prices lower than those ruling when they were picked. I have just sold some Blenheim Pippins, which would not have kept longer in good condition. They made 2s. per bushel less than when stored away. The case of those who stored Cox's Orange Pippin is even more serious. Fortunately Apples are keeping very well, so that such varieties as Bramley's Seedling and Newtown Wonder can be held. There must surely come a time when imported fruit becomes less plentiful, and they will be wanted. *Market Grower.*

Jane Loudon.—I have not at hand Mr. Brotherston's article, concerning which Mr. Britten has contributed so many interesting facts in the *Gard. Chron.* of February 10, p. 77, and so I do not know if he mentioned Mrs. Loudon's *Short Account of the Life and Writings of John Claudius Loudon*, London. 1847, of which I have a copy. My copy is interesting because it is inscribed "—— Libri Eqr. Presented by Mrs. Loudon, Bayswater, Jany. 8, 1851." This was Guglielmo Libri, the notorious book collector, who lived for many years in London, which he found a more healthy dwelling-place than the Continent. He had a very fine taste for rare books, but very little in differentiating between *meum* and *tuum*. The *affaire Libri* was very much in the public eye in France and elsewhere in the middle of the last century, as may be gathered from the catalogues of the British Museum and London Library. To return to Mrs. Loudon, in *The Family Economist* of April 7, 1860, there is an interesting article on Kensal Green Cemetery, with a woodcut of the monument to J. C. Loudon. Close by, states the writer of the article, is a stone, "more recently erected, recording the death of the wife of the above"; and on part of this stone is the following inscription: "Mrs. Loudon will never again shed the light of her genius and industry over the most captivating of our intellectual pleasures, yet by no true lover of flowers will her fame be forgotten, or her works laid aside, So long as English gardens shall be cultivated, or English flowers cherished, Mrs. Loudon's name will be remembered." *W. Roberts*, 18, *King's Avenue, S.W.*4.

——In *Pot-Pourri from a Surrey Garden*, Mrs. Earle devotes several pages to Mrs. Loudon and her writings. The detail mentioned by Mr. Britten in *Gard. Chron.*, p. 77, as being additional to that contained in the article on p. 368, December 23, 1922, is given: "The Loudons lived in a charming house at Bayswater, which was then quite in the country, and *The Gardener's Magazine* alone brought him in £750 a year. Soon after their marriage they saw at Chester, in 1831, the first number of Paxton's *Horticultural Register*, the earliest rival to *The Gardener's Magazine*, which gradually declined from that time." . . . "The original debt on Loudon's *Arboretum et Fruticetum Britannicum* . . . was £10,000 . . . this great work has not yet been superseded, though it calls for re-editing." Mrs. Earle also mentions that at one time she thought of giving some account of the Herbals and botanical works at the library of the South Kensington Natural History Museum. She states, however that this proved to be too ambitious an undertaking. There appears to be a revival of interest in old garden literature, and probably some keen gleaner has already acted on this suggestion. *Fred W. Jeffery.*

SOCIETIES.

ROYAL GARDENERS' ORPHAN FUND.

THE thirty-fifth annual meeting of the Royal Gardeners' Orphan Fund was held on Thursday, the 8th inst., at Simpson's Restaurant, Strand. Mr. Leonard Sutton presided, and there were present Messrs. D. Ingamells, J. M. Bridgeford, J. Gregory, J. Linford, W. Howe, W. Bates, Geo. F. Tinley, J. Wort, A. Dawkins, R. B. Leech, Chas. H. Curtis, Geo. Reynolds, D. Swain and W. P. Thomson.

After the minutes of the previous annual meeting were read and confirmed, the chairman submitted the Annual Report of the Committee for 1922, of which the following are the more important items:—

EXTRACT FROM THE REPORT.

In presenting the thirty-fifth annual report dealing with the general position and prospects of the Fund and in particular with the work during 1922, your Committee is enabled to record another satisfactory year in the affairs of the Institution. The appeal for monetary aid has been splendidly responded to, and the raising from all sources of a sum of nearly £2,000 on behalf of the orphans of gardeners cannot be considered other than gratifying in these difficult financial times.

Your Committee has been enabled to meet the claims of all deserving cases during the past year, and have pleasure in recommending the election of fourteen candidates to-day to receive the full benefits of the Fund without the need of a ballot. This will bring the number of children who are enjoying the benefit of the charity up to one hundred and six. Gratifying as this is, your Committee realises that the calls on the Fund are sure to increase in the future, as many dependents of gardeners are now receiving help from the Ministry of Pensions, but with the lapse of time there are bound to be many sad cases of gardeners' widows and orphans who will have no claim to Government assistance. Already this is reflected in the number of cases before us to-day.

It is the earnest desire of your Committee to restore the investments to their pre-war amount at the earliest opportunity. To do this, as well as carry on the yearly commitments will need the utmost efforts of all who have the welfare of the Fund at heart, but the Committee are sure that all will recognise the wisdom of having a strong reserve fund, and do their utmost to put the finances on their former sound basis.

The Committee are greatly encouraged by the splendid amount realised at and in consequence of the annual festival dinner held at the Connaught Rooms on May 9, under the presidency of Mr. Lionel de Rothschild, O.B.E., M.P. There were one hundred and fifty-nine supporters of the Fund present, and the dinner proved to be one of the most successful of the series.

Your Committee gratefully record the formation of a Trust Fund in connection with the Worshipful Company of Gardeners, sufficient to provide an allowance to an orphan boy in perpetuity.

A very valuable source of income is that contributed by horticultural societies in various parts of Great Britain, and the Committee desires to express their wholehearted thanks to the members of those societies, and especially to the secretaries and others who have been the means of collecting the amounts.

Very substantial amounts have also been received from Mr. F. C. Stainsby, Brocklesby Park Gardens, Lincolnshire: Mr. W. Auton, Pyrford Court Gardens, near Woking, and Mr Thomas C. Cook, Royal Gardens, Sandringham, all of whom organised entertainments on behalf of the Fund. Your Committee would welcome the co-operation of others, and especially gardeners, in instituting similar schemes for augmenting the Fund's finances.

Amongst the special contributions received during 1922 was a legacy of £20 bequeathed by the late Mrs. William Wildsmith, whose husband's memorial of £138 14s. 9d. heads the list of the Fund's memorials, legacies, etc., having been received so far back as 1890.

All will regret the absence of the Secretary, Mr. Brian Wynne, through serious indisposition, and will wish him a speedy recovery from his prolonged illness.

The cash statement showed total receipts, including a balance of £957 12s. 7d. from the last year's accounts, of £2,874 6s. 9d. The chief sources of income being subscriptions, £217 7s. 2d.; donations, £209 18s. 11d.; proceeds of the Festival Dinner, £1,110 4s. 0d.,

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and dividends from invested funds, £293 0s. 6d.

The chairman, in moving the adoption of the report and statement of accounts, regretted the absence of two important officials, Mr. Edward Sherwood, the Treasurer, and Mr. Brian Wynne, the Secretary. The former was on his honeymoon, and on behalf of the Fund he wished him every happiness. The absence of the Secretary was, he regretted to state, due to serious illness, but although he was still very indisposed and suffering much pain, he was informed by the Chairman of the Committee, Mr. David Ingamells, that he was progressing slightly towards recovery.

The Fund had cause for congratulation in raising the sum of £2,000 for gardeners' orphans during the past difficult financial year. The work involved in gathering this sum, most of it in small amounts, was very considerable, and needed the full assistance of all; he urged everyone to do their best for such a splendid institution.

The adoption of the Report and Balance Sheet was moved by Mr. W. Bates, and carried without further comment.

After a hearty vote of thanks had been passed to Mr. Leopold de Rothschild for presiding at the annual festival dinner, and his election as a Vice-President of the Fund, the election of officers was proceeded with. Mr. Edward Sherwood was re-elected Treasurer. The retiring members of the Committee were all re-elected; the retiring Auditor, Mr. Peter Barr, was re-appointed, and Mr. Brian Wynne re-elected Secretary.

General regret was expressed at the cause of the Secretary's absence, and it was stated that it was the first annual meeting he had missed since the inception of the Fund 35 years ago. The Chairman of the Committee, Mr. David Ingamells, stated that Mr. Wynne had been granted special leave of absence by the Committee. On the proposition of Mr. C. H. Curtis, seconded by the Chairman, it was decided to send a message of sympathy and the good wishes of the meeting to Mr. Wynne, with hopes for his speedy recovery.

The meeting then proceeded to the election of fourteen candidates to the benefits of the Fund by resolution. On the proposition of Mr. W. Bates, seconded by Mr. John Gregory, the following fourteen children were elected, Ernest John Smith being the nominee of the Worshipful Company of Gardeners: John Axford, Lionel Axford, Edward Trevor Bridle, Doris Kathleen Bridle, Ethel Marjorie Burgess, Mary Irene Burgess, Elizabeth Alice McKenzie, Jean Thompson McKenzie, Ethel Massey, Mary Annie Massey, Mary Katherine Shadbolt, Audrey Eunice Smith, Ernest John Smith, and Norman Peter Smith. A vote of thanks to the Chairman concluded the proceedings.

ROYAL CALEDONIAN HORTICULTURAL.

FEBRUARY 6.—The first ordinary monthly meeting of this Society for the session was held at 5, St. Andrew Square, Edinburgh, on this date, Mr. M'Hattie, president, in the chair. The president delivered his inaugural address, taking as his subject "The City Beautiful," and by the aid of lantern slides showed by comparison with similar subjects which came under the influence of real artists in floral decoration how dismal backyards and front garden plots could be transformed into objects of real beauty by the simplest of treatment. Garden plots and backyards played an important part in the making of the city beautiful, and one of the objects of the Society was to encourage the owners of such plots of ground to convert them into pleasant gardens, and thereby bring better health and greater happiness to the inhabitants.

The exhibits were: Iris tingitana from the Public Parks Department, per Mr. M'Hattie; Persian Cyclamen from ALLAN L. MENZIES, Esq., Larchgrove, Balerno; Vegetables from Mr. J. W. SCARLETT, Sweethope, Musselburgh. Each of the exhibitors was awarded a Cultural Certificate.

ROYAL HORTICULTURAL.

FEBRUARY 13.—As is usual on the date of the Annual Meeting, there was an excellent exhibition of flowers and fruits and a large attendance of Fellows. The hall was well filled, and the principal subjects shown were Cyclamens, Carnations, Orchids, Daffodils, Tulips, early spring flowers, Primulas, Azaleas, and Oranges in fruit. The Floral Committee had a busy session owing to the large number of groups, but novelties were not numerous. The Fruit and Vegetable Committee had little to do. The first meeting of the Narcissus Committee for the season was a small one, and it was chiefly occupied with domestic affairs, *i.e.*, the Daffodil Show and the Classification List. The Orchid Committee found plenty to do as novelties and groups were numerous

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson (assistant secretary), G. F. Moore, C. J. Lucas, Fred K. Sander, S. W. Flory, H. T. Pitt, J. E. Shill, A. McBean, W. J. Kaye, E. R. Ashton, Stuart H. Low, Fred J. Hanbury, J. Wilson Potter, J. T. Barker, John Cypher, Henry H. Smith, H. G. Alexander, and Chas. H. Curtis.

FIRST CLASS CERTIFICATES.

Odontonia Baroness Schroder (*Miltonia Bleuana Pitt's var.* × *Odontoglossum The Czar*), from Messrs. CHARLESWORTH AND CO., LTD., Haywards Heath. One of the greatest productions, with outstanding merits which cheer the patient hybridist in his intricate workings. The flower has much of the form of M. Bleuana and its size, but the colour is gorgeous and quite unlike any other of its class. The sepals and petals are bright vinous-purple, with slight white margins; the broad lip is beautifully marked with ruby-purple.

Dendrobium Gatton Monarch var. F. J. Hanbury (*Lady Colman* × *nobile nobilius var. A. A. Pearson*), from FREDERICK J. HANBURY, Esq., Brockhurst, East Grinstead (gr. Mr. Matthews). D. Lady Colman is one of the finest of hybrid Dendrobiums, and its influence in the present hybrid, the type of which was raised at Gatton, is most satisfactory. The flowers are the size of the well-known D. Wardianum, the sepals and petals white with a heavy tinge of rosy mauve, the large lip being deep maroon at the base, with white zone and rose-pink apex.

Odontoglossum Purple Queen (*percultum* × *Dusky Monarch*), from J. J. BOLTON, Esq., Claygate Lodge, Claygate (gr. Mr. S. Lyne). A grand Odontoglossum, originally raised by Messrs. CHARLESWORTH, who flowered it in 1921. The variety shown by Mr. Bolton has flowers of fine shape and substance, deep violet-purple with a slightly lighter margin and front to the lip.

CULTURAL COMMENDATION.

To Mr. H. G. ALEXANDER, gr. to Lt.-Col. Sir Geo. L. Holford, K.C.V.O., Westonbirt, for six splendidly grown plants of the pure white Cattleya Percivaliana Lady Holford, a charming Cattleya and very floriferous.

GROUPS.

A Gold Medal was awarded to Messrs. CHARLESWORTH AND CO., LTD., Haywards Heath, for a magnificent group arranged in a space 35 feet by 6 feet, and containing a fine set of novelties. The back was of richly-coloured Odontoglossoms arranged with their snow-white xanthotes hybrids, a fine plant of O. ardentissimum xanthotes bearing a branched spike of sixty-five flowers. Odontioda Beryl and other richly-coloured Odontiodas gave fine colour; well-bloomed Calanthes with their arching spikes gave good effect, and Cattleyas, Laelio-Cattleyas and Sophro-Laelio-Cattleyas were shown in profusion.

Messrs. COWAN AND CO., LTD., Southgate, obtained a Silver Flora medal for a splendid group with many very fine Cypripediums, the best of which was C. Lord Wolmer var. Duke of Marlborough, a model flower of nice colour; Laelio-Cattleya Dodona was represented by a rich vinous purple form; L.-C. Hasselli alba had large pure white flowers with crimson lip. Good forms of Cattleya Tityus were also shown, the variety Princess being the best.

Messrs. J. CYPHER AND SONS, Cheltenham, had a fine group principally of Cypripediums, among which were noted Scipio, Hercules, Monarch, Nivinable, Archie Neild, Troilus varieties, Bridgesii, Alcibiades illustris, Princess Patricia, Snow Queen, Queen of Italy, Helen II. Westonbirt var., Hermes, Vandyke, and a large number of C. insigne crosses of fine type.

Messrs. J. AND A. MCBEAN, Cooksbridge, were awarded a Silver Flora Medal for a select group in which the varieties of their elegant Laelio-Cattleya Eunice (C. chocoensis alba × L. anceps alba) were attractive features arranged with both the parents, Messrs. McBean's form of C. chocoensis alba being the best ever introduced; Laelio-Cattleya Schröderae, white with purple lip, was an effective centre-piece, and with it were Sophro-Laelio-Cattleya Rosalind and other Sophronitis crosses, Phaius Norman, one of the best of the Norman C. Cookson crosses, and good Cattleyas.

Messrs. SANDERS, St. Albans, received a Silver Flora Medal for a very interesting group, the central feature of which was a selection of their fine violet-purple winter flowering Laelia Gouldiana, around which were arranged the white Vanda Wilsonii, a very fine selection of Odontoglossums, Odontiodas and Cypripediums. Among those especially noted were the new Laelio-Cattleya Aethropian (bletchleyensis × Aphrodite), a distinct flower; white Cattleyas, C. General Pulteney, and some singular species, a pretty Bulbophyllum being probably new.

A Silver Banksian Medal was awarded to J. J. BOLTON, Esq., Claygate Lodge, Claygate, for a very nice selection of Dendrobiums, Odontoglossums, and Sophro-Laelias.

OTHER EXHIBITS.

Sir JEREMIAH COLMAN, Bt., Gatton Park (gr. Mr. Collier), showed a new Odontioda with clear, lemon-yellow ground, showily marked with reddish purple, a very distinct hybrid with Odontoglossum shape; the elegant white Dendrobium fusiforme with several spikes, and a probably new and very curious Dendrobium with dwarf-pseudo-bulbs netted with brown fibre and a short two-flowered inflorescence of purple flowers.

PANTIA RALLI, Esq., Ashtead Park (gr. Mr Farnes), sent Odontioda Rubicon with rich claret-red flowers.

R. GERRISH, Esq., Milford Manor, Salisbury (gr. Mr. Sorrell), sent grand forms of Cattleya Tityus Gerrish's var., Odontioda Lerna Gerrish's var. of a rich claret-red colour, and Odontoglossum crispum Sir Bedivere, a large white flower with a blotch on the lateral sepals

Messrs. STUART LOW AND CO., Jarvisbrook, Sussex, staged a selection of good Cypripediums, Dendrobiums, and Cattleyas. An interesting plant was the rare Bulbophyllum sillemianum.

FREDERICK J. HANBURY, F.L.S. (gr. Mr. Matthews), sent his new and very beautiful Dendrobium Florence E. King.

A very cleverly executed collection of paintings, including Orchids, was shown by Miss HILDA M. COLEY, Four Oaks, Birmingham.

Floral Committee.

Present: Messrs. H. B. May (in the chair), John Heal, W. J. Bean, G. Harrow, G. Reuthe, W. Howe, C. R. Fielder, J. F. McLeod, H. J. Jones, J. B. Riding, M. C. Allwood, W. H. Morter, J. Jennings, W. H. Page, Amos Perry, Donald Allan, W. B. Cranfield, Reginald Cory, R. C. Notcutt, E. A. Bowles, H. V. Warrender, Clarence Elliott, W. G. Baker, G. W. Leak, W. P. Thomson, D. B. Crane, J. W. Barr, Hugh Dickson, Andrew Ireland, C. Williams, Chas. E. Pearson, Chas. E. Shea, H. D. McLaren, Arthur Turner, W. B. Gingell and Jas. Hudson.

FIRST-CLASS CERTIFICATES.

Rhododendron Ne Plus Ultra.—A fine old variety of the Javanicum group of greenhouse hybrids raised many years ago by Messrs. JAS. VEITCH AND SONS; indeed, it received an Award of Merit so far back as 1894. The rich orange-

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red flowers are borne in large trusses, and a big plant like the one shown on this occasion, with eight trusses of bloom (and others to open), is very effective, and a fine example of skilful cultivation. Shown by SIR GEORGE HOLFORD (gr. Mr. Clarke), Westonbirt, Tetbury, Gloucester.

AWARDS OF MERIT.

Prunus Conradinae.—A charming early flowering Prunus from Western China. The stems, except in the case of recent growth, are blackish, and contrast with the white, often blush-tinted flowers, which are freely produced in clusters of from three to five, at the ends of short twigs. A distinct and useful addition to early flowering trees. Shown by the DIRECTOR, Royal Gardens, Kew

Primula calciphila.—This species from the limestone cliffs of Ichang, Western China, promises to be a useful pot plant for conservatory decoration as it flowers abundantly in 48-sized pots. The individual flowers are rather more than an inch across, pale mauve, with soft lemon yellow eye, and with a notch in the apex of each of the five segments. The leaves much resemble those of the sinensis type, but are smaller and dull green. The whole plant from the rim of the pot is about eight inches high, and such a plant may carry a dozen spikes and each spike eight or nine expanded flowers. Shown by the DIRECTOR, Royal Gardens, Kew.

GROUPS.

What was probably the most meritorious exhibit of Cyclamen that the show-attending public has ever seen was made by Messrs. SUTTON AND SONS. Not only was the quality exceptionally high, but it was a most extensive collection. Generally it was arranged in colour blocks, but these were artistically broken by baskets and occasional specimen plants in an ornamental vase of such sorts as Giant Rose Queen, Vulcan, Giant Crimson and White, Sutton's Silver-leaved Salmon, Giant White and the curiously beautiful crested varieties. Amongst the many hundreds of plants there was not one which would not have been a source of legitimate pride to any cultivator of greenhouse plants. On a staging at the opposite side there was a smaller collection of Primula sinensis varieties, and these evidenced the same high-class strain and expert cultivation as the Cyclamens. Most fascinating amongst the Primulas were the plants of Symmetry and Silver Star. These floriferous varieties are especially graceful. Of the typical P. sinensis varieties the deep crimson Etna and Intensity compelled unstinted admiration (Gold Medal).

A collection of forced Azalea mollis-sinensis seedlings was contributed by Messrs. R. AND G. CUTHBERT, and the warm, glowing colours of the splendid plants were very attractive.

Adjoining the Azaleas Messrs. CUTHBERT had a pretty collection of miniature Hyacinths and Irises. Greenhouse Azaleas with forced deciduous shrubs were well shown by Messrs. L. R. RUSSELL, LTD.

Carnations were shown in greatly increased quantities and of high quality. Messrs. ALLWOOD BROS. set up a large collection of first-class blooms, giving especial prominence to Wivelsfield Claret, Edward Allwood and the fragrant Mary Allwood (Silver Flora Medal). Mr. C. ENGELMANN included such valuable sorts as Tarzan, Carola, Lady Northcliffe, Boadicea and Improved Waud in a large collection (Silver-gilt Flora Medal).

Carnations of high quality and in good quantity were also shown by Messrs. STUART LOW AND CO., who made a special feature of White Pearl, Mrs. Hamilton Fellows and Reginald Cory. In addition to the Carnations some well-grown plants of Mimosa (Acacias) and Hippeastrums were shown (Silver Banksian Medal).

A very praiseworthy collection of greenhouse Cyclamen was arranged by E. WORMALD, Esq. (gr. Mr. R. Lay), Sheepwell House, Potters Bar. The very many plants all evidenced skilful cultivation (Silver Banksian Medal). Cyclamens, illustrating a good strain, were also well shown by Messrs. BLACKMORE AND LANGDON, who added smaller groups of Primula malacoides and Blue Primroses (Silver Banksian Medal).

Just inside the entrance Messrs. CARTER AND CO. had an attractive display of Hyacinths, Tulips, Primula sinensis and P. malacoides varieties in shallow, ornamental baskets (Silver Banksian Medal). Messrs. MOYSES STEVENS, LTD., again contributed well-grown Azalea indica in variety, Hyacinths and other spring bulbs. Messrs. WM. PAUL continued to show very floriferous bushes of Camellias, and on the present occasion the exhibit was of even greater value than its predecessors (Silver Flora Medal).

Violets were represented by a large number of bunches of most desirable flowers. Miss E. HEATHCOTE staged a large quantity of Violet Princess of Wales of exceptional size (Silver Banksian Medal). In the annexe Mr. J. J. KETTLE had an interesting collection of fragrant varieties and Messrs. R. GILL AND SON included some with their Rhododendrons and Anemones.

Himalayan Rhododendrons were shown in moderate quantity and in sufficient variety to interest lovers of these beautiful flowering shrubs. The greatest variety was shown by LADY ABERCONWAY, Bodnant, Tal-y-cafn, N. Wales, and this exhibit would have increased in effect had the trusses occupied less space. The central stand contained several interesting forms of the early-flowering Rhododendron Nobleanum. Silbred's Early Pink, of the hardier sorts, was also shown well, while the delicate colouring of R. sutchuenense was appreciated by many of the visitors (Bronze Banksian Medal). Messrs. R. GILL AND SON brought some Rhododendrons from Falmouth, but their collection of Anemones, named Gill's Giant, and of St. Brigid type, attracted most attention, by reason of their exceptionally good quality. Amongst his customary exhibit of uncommon shrubs and alpines Mr. G. REUTHE had a few trusses of early Rhododendrons.

No doubt owing to the exceptional earliness of the season, there were more alpines in flower than is customary at mid-February meetings, and, although some of the species and varieties were not quite in season, they had not been forced unduly. A very meritorious exhibit was made by Mr. MARK FENWICK, whose many plants of Saxifraga burseriana Gloria bore countless flowers of unusual size and purity of petal. Saxifraga Irvingii was also represented by several pans of splendid plants (Silver Flora Medal).

In the annexe Messrs. R. TUCKER AND SONS had an interesting variety of alpines in small pots. The many plants of Primula Juliae bore flowers of intense colouring (Silver Banksian Medal). Messrs. SKELTON AND KIRBY had several large bushes of Erica carnea in full bloom amongst their collection of alpines. Mr. G. W. MILLER again staged a number of his Polyanthuses of a good strain, and also showed Primroses and Daisies (Silver Banksian Medal).

The deep-red flowers of Pulmonaria rubra were very prominent in an exhibit by Messrs. WATERER, SONS AND CRISP, who also included several useful Crocus species and Narcissus minimus (Silver Banksian Medal). At one end of their alpine exhibit Messrs. CARTER PAGE AND CO. had a batch of Anemone blanda albocoerulea, which provided a welcome blue colouring. They also had plants of Primula denticulata and Grape Hyacinths.

Daffodils and Narcissus in variety, with Hyacinths, formed a floriferous background to the collection of alpines displayed by Messrs. BARR AND SONS. Near the entrance Messrs. W. CUTBUSH AND SON arranged excellent plants of Azalea indica varieties, and adjoining them made an informal rockery of pleasing design, which they furnished with suitable plants (Silver Banksian Medal). A small alpine exhibit was made by Messrs. BAKERS, LTD.

An attractive little rockery arranged by Messrs. J. CHEAL AND SONS served to display various low shrubs, particularly splendid bushes of Andromeda floribunda, and some alpines. Messrs. R. WALLACE AND CO. had a number of bushes of the fragrant Viburnum Carlesii in flower, and also showed Crocus species. Mesembryanthemum turbinatum roseum and the white variety were included in an exhibit by Messrs. MAXWELL AND BEALE. The tiny little Bellis sylvestris was shown by Mr. CLARENCE ELLIOTT and Mr. M. PRICHARD in their alpine exhibits, while Mr. G. G. WHITELEGG included some plants of Saxifraga longifolia, which had unusually large rosettes of foliage.

Narcissus Committee.

Present: Mr. E. A. Bowles (in the chair), Mrs. Brodie, and Messrs. W. W. Fowler, H. V. Warrender, G. Churcher, Peter R. Barr, G. Reuthe, W. Poupart, F. H. Chapman, and C. H. Curtis (Hon. Sec.).

Mr. VAN DER WEYER submitted a pot of the dainty little Narcissus Bulbocodium nivalis, which was greatly admired. Messrs. R. H. BATH showed a handsome pale yellow poetaz variety named Orange Cup, and the same firm arranged a large group of Daffodils and Tulips growing in bowls and pans, in fibre; the King Alfred Daffodils and Mon Tresor Tulips were unusually fine. Hyacinths and Irises completed an attractive exhibit (Silver-Gilt Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (chairman), W. Poupart, A. H. Pearson, W. P. Seabrook, J. Cheal, Owen Thomas, G. Reynolds, H. Prince, Geo. F. Tinley, E. Neal, G. Woodward, W. Bates, W. H. Divers, W. Wilks, S. B. Dicks, H. S. Rivers, E. A. Bunyard, J. C. Allgrove, H. Markham, A. Bullock, E. Beckett, A. C. Smith, P. C. M. Veitch, F. Jordan, E. Harriss, A. N. Rawes, J. Harrison, and H. V. Taylor.

A bunch of the seedling Grape Ecclesdon, cut on February 12 and weighing 2 lb. 1 oz., was shown by Mr. W. BUTCHER, of Ecclesdon Manor. It was stated that this new variety was being grown at Wisley under trial.

Mr. N. F. BARNES showed two new Apples he has raised at Eaton Hall gardens from Cox's Orange Pippin crossed with Gascoyne's Seedling. They were the results of reciprocal crossings; the one, Gascoyne's Seedling × Cox's Orange Pippin was named Millicent; the other, Cox's Orange Pippin × Gascoyne's, was named Arthur Barnes. The latter was the better and was recommended for inclusion in the trial of commercial varieties at Wisley. It is a showy fruit of medium size, broadly conical in shape, with very regular outline, so that it would lend itself well for packing; has a shallow eye, short stalk, and is of a deep red colour. The flesh is of good quality, juicy, and of fair flavour.

Messrs. DOBBIE AND CO. showed 19 baskets of excellent Potatos, some remarkably large Parsnips of Dobbie's Selection type, and roots of Model White and Golden Ball Turnips. The Potatos were extraordinarily good, and included such sorts Di Vernon(Climax, Crusader, Arran Comrade, Arran Rose, Majestic, King Edward, and Immune Ashleaf (Silver Knightian Medal).

Messrs. T. S. RIVERS AND SON were awarded a Gold Medal for trees and fruits of Oranges, Lemons and other Citrus fruits. The trees were splendidly cropped, the large specimens of Orange Silver and Citrus corniculata having 60 and 50 large fruits respectively, and presenting very imposing features. There was also a big tree of Citron of Paradise, with numerous fruits the size of Grape Fruits. The Oonshiu or Satsuma Orange is hardy in this country. Large collections of gathered fruits with small Orange trees in flower contributed to an exhibit of great interest.

Messrs. E. WESTMACOTT AND CO., 368, Strand, London, were awarded a Silver Knightian Medal for Plums, Peaches and Nectarines from the Cape. The Plums were exceptionally good; the variety of finest quality was named Apple Plum. Others were Satsuma, Santa Rosa, Duarte (red-fleshed), and Chalcot, the last a broad, round Plum somewhat like a Nectarine in appearance.

Annual meeting.

The lecture room was filled to overflowing on the occasion of the annual meeting and many Fellows were crowded at the entrance. The President, Lord Lambourne, presided, and he was supported by most of the members of the Council. After the formal proceedings of reading the notice convening the meeting and the minutes of the last annual meeting, one hundred and thirty-nine new Fellows and two Associates were elected and six societies affiliated to the R.H.S. The President, who met with a hearty reception, rose to move the adoption of

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the Report and Balance Sheet. He stated that he was present in direct opposition to his doctor's orders. He said the report would be considered satisfactory as regards membership and finances. The revision of Pritzel's index had proved a longer task than was anticipated, and it would be at least two years before the results would appear in print. The publication of the *Botanical Magazine* was delayed through there being no reserve of drawings. He welcomed the new members of the Council, Mr. E. A. Bunyard, Sir William Lawrence, Bart.—an honoured name, he being the son of Sir Trevor Lawrence; and the Hon. H. D. McLaren, a keen gardener and exhibitor. The Society, said his lordship, owed a special debt to Mr. Nix, who was retiring, the others retiring being Mr. R. W. Wallace and Mr. F. Hanbury. He said much had been heard of Wisley of late, and criticisms offered, but before forming an opinion he asked the Fellows to go there and judge for themselves. There were, he recognised, faults, but when the size of the gardens is considered and the varied interests that had to be catered for there, it was not surprising there was some grumbling. The Council recognised that Mr. Chittenden had been overworked, and they had provided him with an assistant.

The Council was anxious that British horticulture should be well represented at the forthcoming Ghent exhibition, and he appealed especially to amateurs to assist.

He moved the adoption of the Report and Balance Sheet. The Hon. Treasurer, Mr. C. T. Musgrave, seconded, and took the opportunity to refer to some items of the balance sheet. He said that the Society had enjoyed a successful financial year, due in part to the sum of £9,747 received from the War Office as compensation for the acquisition of the hall during the war. This was an exceptional payment.

The Council had increased the sum to £10,000, added £5,000, and placed the £15,000 to a general reserve fund. The annual subscriptions had increased, also the hall lettings, the latter by £1,300, the total receipts from this source being £5,100. Expenditure had increased, the establishment charges being greater. The takings from the shows almost equalled the expenditure on them. Of the miscellaneous expenditure of £920 in the Wisley accounts much was in respect to the growing, packing, and distribution of plants to the Fellows.

Mr. Cuthbertson was called upon by the chairman at this stage to give some details of the Wisley Gardens in reply to criticisms in the Press. Mr. Cuthbertson said all would recognise the difficulty of gardening by a Committee, and the members were not always unanimous in their decisions. They had made an effort to fill the late Mr. S. T. Wright's place, and had advertised for a gardener who possessed sufficient scientific knowledge to bridge the gulf between the garden and the laboratory. They had been unsuccessful in finding a man 75 per cent. practical and 25 per cent. scientific, and had appointed Mr. Simmonds, who was 50 per cent. practical and 50 per cent. scientific, as assistant to Mr. Chittenden. Mr. Chittenden had promised to pull the gardens round, and it was especially urgent to have all plants named correctly.

In response to the Chairman's invitation for questions, the Rev. Canon Fowler asked that the hall should not be let up to the eve of the Society's shows. In reply, the Secretary stated that the present rule was to have all staging ready for exhibitors by 2 o'clock on the Monday. Mr. W. Stephens asked that the agenda should include in future "questions" and "any other business."

The report and balance sheet were adopted.

The election of officers and Council was followed by interesting presentations of the Victoria Medal of Honour to Messrs. C. G. A. Nix, A. C. Bartholomew, J. Lowe, and R. W. Wallace; the Veitch Memorial Medal to Messrs. W. J. Bean and Lloyd Praeger, and the Lawrence Medal to Mr. H. J. Jones. A vote of thanks to the President, proposed by the Rev. W. Wilks, concluded the proceedings. Mr. Wilks stated that it was his 60th annual meeting, and he claimed to be the oldest Fellow present in point of membership.

Obituary.

George Cannon.—We deeply regret to announce the death of Mr. George Cannon, who was for many years manager of Messrs. Lee's famous nursery at Ealing. He died on the 24th ult. in the West Middlesex hospital in his 80th year. Mr. Cannon was for thirty years with Messrs. Lee's, and when the Leeland Estate was sold for building purposes, he took over Mr. Weedon's establishment, known as St. John's Nursery, on his own behalf. Mr. Cannon was well known to frequenters of the Royal Horticultural Society's meetings. During his long residence at Ealing he saw the town develop from a rural district into a great suburb and, as a member of the Ealing Incorporation Committee, he had a share in getting Ealing its charter. He took a great interest in the Ealing Horticultural Society, and was twenty years Secretary, retiring from that office in 1914, when he was elected a Vice-President. Mr. Cannon disposed of his business some three or four years ago, but not until the spring of last year did his health fail him, and up to then he was able to give considerable assistance to his successors in the business. His remains were interred in the Westminster Cemetery, Hanwell, on the 31st ult.

Thomas Winter.—Following closely upon his resignation of the Treasurership of the United Horticultural Benefit and Provident Society, owing to illness, it is our melancholy duty to record the death of Mr. Thomas Winter, which occurred on Thursday, the 8th inst., at Goodmayes. Mr. Winter was for many years superintendent of the gardens and open spaces of St. Marylebone, and only retired from service last year. Previous to taking charge at St. Marylebone, he was employed at the late Baroness Burdett Coutts' Gardens, Holly Lodge, Highgate, under Mr. Jesse Willard. Mr. Winter had a wide experience of gardening in the London district, and his advice on such matters was frequently sought by garden guilds and other societies which aim at brightening the lives of London dwellers by means of the cultivation of plants and flowers. Mr. Winter was the oldest member of the Committee of the United Horticultural Benefit and Provident Society, and occupied the position of treasurer for the past ten years. He had been ailing for some considerable time, and had undergone two operations for internal trouble. He leaves a wife and daughter to mourn his loss. The funeral took place on Tuesday, the 13th inst., at Aldborough Hatch, and was attended by representatives of the society in which he had taken a great interest for five and twenty years.

ANSWERS TO CORRESPONDENTS

BOTTLE GRAFTING OF VINES: *H. L.* Foster's Seedling Vine is a suitable stock for most varieties of Grapes, and you can safely graft yours with Madresfield Court. Bottle grafting is a sure method of securing a good union, and the best and safest time to graft is just after the first rush of sap is over, or when the vines are approaching the flowering stage. Cut a fairly deep slice from the graft, in the middle, leaving about 5 inches below to insert in the bottle, and about 3 inches above, with a good bud. Take a similar slice from the stock, fit the two cut surfaces together and bind fairly tightly with broad raffia. No other covering of clay or moss is necessary. The operation should be done quickly and neatly; the bottle being kept filled with soft water, with a little charcoal added to keep it sweet. As soon as the graft has grown 4 feet or 5 feet, remove the ties and the bottle; guard against injury, and success is almost certain.

CELERY WITH PITHY LEAF: *C. S. and Co.* The plants are not attacked by a fungus and no organic disease is present. Your suggested explanation of the cause of the pithiness and of grossness of growth is probably the correct one.

COMMERCIAL CULTIVATION OF VIOLETS: *H. A. F. M.* With your favourable climate the requirements for the cultivation of Violets will be few and simple. Given a new position each year and a sufficient supply of moisture, you may plant Violets the requisite distance apart and place your frames over them in due course, with every chance of success. The plants will bloom rather earlier than in the open, and the quantity and quality of the crop will be as good as from lifted plants, provided hoeing and cleaning are attended to. Pinch out the early runners during the growing season, and, later, select three or four of the strongest runners from each plant as near the parent plant as possible. This method will provide you with good late flowers, and young plants ready for planting out, also obviate the trouble of dividing the old crowns. You can easily test this method against other plants restricted to single crowns.

FUEL FOR HEATING GREENHOUSES: *C. F.* We have no personal knowledge of the usefulness or value of the fuel to which you refer, but several of our correspondents have written appreciatively concerning it after putting it to severe tests.

FUMIGATING CHRYSANTHEMUM CUTTINGS: *C. F.* The reason why some Chrysanthemum cuttings withstood the effects of fumigation better than others may possibly be found in the condition of the cuttings; that is to say, some may have been very soft and newly inserted, whereas others of hardier growth and those already rooted would be better able to withstand the fumes.

GARDENER'S WAGES: *J. McA.* You do not state whether any allowance such as house, coal and vegetables is made. Without such allowances £3 to £3 5s. per week would be adequate, in your district, while 50s. to 55s. with the usual gardener's cottage, etc., would be fair. As you require an experienced man to take charge of your garden, you would lose rather than gain by paying a lower salary to an inexperienced man.

NAMES OF FRUIT: *T. H.* (1) Golden Reinette; (2) Herefordshire Pearmain. *Shropshire.* (1) Dumelow's Seedling (syn. Wellington); (2) Queen Caroline; (3) Reinette du Canada; (4) Lord Burghley. *J. P.* Dutch Mignonne (syn. Reinette du Caux). *C. F. G.* (1) Grange's Pearmain; (2) Hambledon Deux Ans.

PELARGONIUM LEAVES UNHEALTHY: *W. B.* The plants are attacked by the fungus Botrytis, a common disease of cultivated plants. An excess of moisture in the soil and in the air will predispose the plants to attack, as the fungus is usually a secondary agent appearing after decay sets in, such as would be caused by damping. Keep the plants healthy, burn all affected leaves and admit plenty of fresh air in the house.

THE JUDAS TREE: *W. J. H.* Without seeing the tree of Cercis siliquastrum, we suggest that the disease known as "Coral Spot" may be the cause of the growths dying. Our experience with the Judas Tree is that it is not infrequently attacked by this disease, which usually enters through a wound in the bark, caused by a knock with the mowing machine, or the cut surfaces made in pruning. Remove the portions that are dying, cutting back to healthy wood and immediately dressing the cut surfaces with tar. It would be desirable to remove the grass around the tree, corresponding with the spread of the roots, and give a liberal top-dressing of equal parts turfy loam, leaf-mould, and manure from a spent hot-bed or old mushroom bed. The growths dying has nothing to do with the age of the tree; at 30 to 35 years the specimen should be vigorous and healthy, as the Judas Tree lives to a considerable age.

Communications Received.—E. B., Worthing—H. W.—C. T.—W. A. C.—W. H. A.—J. C.—J. B., Mon.—A. V.—W. K.—J. C. W.—S. B. & S.—Dr. P.

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THE
Gardeners' Chronicle
No. 1887.—SATURDAY, FEB. 24, 1923.

CONTENTS.

Apples, freightage of Australian .. 100
Pourdichon's figures of Black Currants .. 110
British Empire Exhibition 99
Bulb garden, the 103
Canada, encouragement for horticulture in .. 99
Colour in the garden in winter 104
Cucumbers and Onions 111
Edinburgh Botanic Gardens 104
Flowers out of season .. 99
Forestry—
The most profitable trees to plant .. 108
Fruit Register—
Apple Tompkin's King 110
Fruit show, 1923, Imperial 101
"Gardeners' Chronicle" seventy-five years ago 101
Garden notes from S.W. Scotland 104
"George Monro Ltd" Concert 100
Germination 111
Hardy flower border—
Herbaceous perennials for cut flowers .. 105
Herb garden, the .. 109
Horticultural Club .. 99
Horticulture at the British Empire Exhibition .. 99, 110
Indoor plants— 108
"Irish moss" industry at Brest 100
London Daffodil show.. 100
Loudon, Mrs. .. 110
Lowe, Mr. Joseph .. 100
Manures, the application of artificial .. 101
Obituary—
Parsons, Samuel .. 112
Orchid notes and gleanings— 101
Plant pathology at the Imperial College of Science 100
Plants, failures with .. 109
Plants new or noteworthy—
Primula calciphila. 101
Rotation, manures or fertilisers 99
Scotland, allotments in 99
Societies—
Manchester and N. of England Orchid .. 111
Royal Horticultural 111
Royal Scottish Arboricultural 111
United Hort. Ben. and Provident .. 111
"The Orchard and the Garden" 106
Timber, Canadian .. 100
Trees and shrubs—
Juglans cathayensis . 103
Vines, grafting.. .. 111
Ward's, Mr. Kingdon, seventh expedition in Asia 107

ILLUSTRATIONS.

Crocus biflorus, 103; C. versicolor 105
Lowe, Mr. Joseph, portrait of 100
Odontonia Baroness Schröder 107
Oxalis enneaphylla 109
Primula calciphila 101
"The Orchard and the Garden": last page of, 106; title page of. 106

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years, at Greenwich, 39.7°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, February 21, 10 a.m. Bar. 29.3.; temp., 43°. Weather—Mist, with rain at intervals.

The British Empire Exhibition.

The British Empire Exhibition should provide a great opportunity to horticulturists both of these islands and of the whole Empire. In it should be displayed in attractive and comprehensive manner the achievements of horticulturists. Those who are organising the horticultural exhibits have doubtless concerted plans to secure this object and the general horticultural public may expect in due course an announcement of the kind of exhibition which it is intended to make. There should be no great difficulty in formulating schemes, for horticulture is rich in spectacular subjects. The exhibition will extend over a considerable period of time, so that there need be no period when exhibits of popular interest, beauty and scientific value are lacking. To illustrate the best in horticulture and to win for the horticultural industry enhanced credit are objects which are worth achieving. To achieve them, however, something more than occasional flower shows is necessary; what, in our opinion, is wanted is a continuous exhibit of constantly changing items, each of which illustrates some important feature of the art and science of horticulture. We trust that the horticultural section will be so organised that every visitor will make first for it and that all will realise that among the many industries of the Empire, though some are larger, none is prosecuted with greater assiduity and success than that of horticulture. We do not know to what extent the several organisations—the Royal Horticultural Society, the Chamber of Horticulture and others—are engaged in co-operating with the organisers of the exhibition to draft on bold and novel lines a horticultural exhibition worthy of the occasion. From the letter by the Chairman of the Horticultural Committee, published on p. 110, it would appear that the main plan is already determined, and it is to be hoped that when carried out it will prove admirable both in inception and execution. It should be easy to enlist support from horticulturists of all kinds, and it should not be impossible to secure a measure of financial support for the effective carrying out of a scheme that will give a due and brilliant prominence to the horticulture of the Empire.

Rotation, Manure or Fertilisers?

The results obtained by Messrs. Muller and Hudelson* from experiments on rotation and manuring extending over a period of thirty years, although carried out with farm crops, are of real interest to gardeners. The object of the experiments was to discover the difference of yield obtained by continuous as opposed to rotational cropping, both on unmanured and manured land. As might be expected, rotation of cropping gave yields superior to those obtained by continuous cropping. The difference of yield was evident in manured, but far more marked in unmanured land. On the latter, also, it was demonstrated that by lengthening the rotation better results were secured than when a given crop succeeded another of the same kind at a shorter interval. Thus, with Maize, continued cropping gave a yield of 20·9 bushels, 32.6 on a three years' rotation, 38.5 on a four years', and 41.5 on a six years' rotation. In general, however, a four years' rotation served to give the maximum yield. The authors make an interesting comparison between continuous cropping on manured and rotational cropping on unmanured land. With a three years' rotation continuous cropping on manured land gives better results than rotational cropping on unmanured land, but with a longer rotation the unmanured land beat the continuously cropped manured land. Needless to say a combination of rotation cropping and manuring gives the best results. The addition of manure has also the advantage in maintaining soil fertility better than does rotation without manure. The relative values of manures and chemical fertilisers vary with the crop; Maize, for example, does better with manure; Wheat and Oats with appropriate fertilisers. Generally speaking, however, a combination of manure and fertiliser gave the best results of all, and moreover, soil fertility is maintained better when manure is used than when chemical fertilisers only are employed. Expert gardeners will find their own experience confirmed by these results, but nevertheless two points are worthy of their close attention. One is that a long rotation of four years is better than a shorter rotation, and the other that artificials, e.g., phosphatic and potash-containing manures, should be used with dung. With respect to the former point, and even in spacious gardens, there is a tendency to use a much shorter rotation than one of four years; yet it seems evident from these experiments that by so doing lower yields are obtained. Therefore, in these days of economy it would be well to remember that a longer rotation will lighten the manure bill without reducing yields. Needless to say, the rotation chosen must be a judicious one and that attention must be paid not only to the type of crop, but also to its position in the sequence. Greediness, depth of root system and power of fixing nitrogen are among the factors which have to be taken into account in determining any rotation, whether in field or in garden.

* *Missouri Agricultural Experiment Station Bulletin*, 182, Columbia, Missouri.

Claim for Prizes.—An exhibitor at the Maer Horticultural Society's show, held in August last, has successfully sued the committee for the sum of £1 12s., the amount of prize money that had been awarded him and not paid. His exhibits consisted of vegetables, including Spring Onions and Kidney Beans. Some of the Onion plants he had received from another source, but all the other exhibits were, he claimed, cultivated in his own garden. He won seven first prizes, two second prizes and a silver medal, the total value being £1 12s. It was stated by the defence that the committee, in consequence of rumours, appointed a sub-committee to inspect the plaintiff's garden, and the opinion was formed that the produce the plaintiff had shown had not come from his garden. The judge decided it had not been proved to his satisfaction that a fraud had been committed. He believed the produce sent to the show was the plaintiff's own produce, and gave his verdict accordingly.

Allotments in Scotland.—At the annual meeting of the Scottish National Union of Allotment Holders, held recently in Glasgow, emphasis was laid on the need for a greater support of the allotment movement on the part of local authorities. It was stated that there were still very large numbers of allotment holders in Scotland, and that the movement was not going back; it was merely settling down. The Union considered that many local authorities had failed to grasp the value of the allotment movement and had entirely overlooked the fact that one of the best ways of mitigating the hardships of unemployment was to provide men with allotments and seeds and manure for their cultivation. It was stated that the Union would endeavour to educate the local authorities with regard to the movement, and to get them to realise that it was their duty not only to provide allotments to meet a demand, but to create a demand.

Flowers Out of Season.—Mr. R. C. Notcutt, nurseryman, of Woodbridge, near Ipswich, sends sprays of Coronilla glauca from a plant growing in the shelter of a wall, but exposed to the sea, which is within a hundred yards. Mr. Notcutt writes: "The early flowering of the plant is doubtless due to the mild season, but few people realise what a good shrub this Coronilla is, particularly for coast planting, where it makes short joints, and is simply a sheet of yellow from now to the end of June, and often again in the early autumn. I have had a plant growing out of doors for some ten years, and never known it to be harmed by the winter, neither does it seem to be affected by drought. It has not at all an unpleasant scent. I have never before known it to bloom quite so early as this on the Suffolk coast. I find it does not flower so freely inland; it seems to make more soft growth and longer joints, but my plant by the sea is such a mass of yellow, it is difficult to see any foliage when at its best."

—— Mr. John Clark, parks superintendent of Scarborough, has forwarded a box of Roses as evidence of the remarkably mild weather experienced in the Scarborough district. The blooms were picked on February 5 from plants growing in the open, in the Scarborough Public Gardens, within two hundred yards of the sea. Mr. Clark states that the bushes have been flowering all the winter, and there are still hundreds of good blooms to be seen. He writes: "It appears to be the popular opinion that the East Coast is colder and bleaker than other parts, but Roses have frequently been picked here in February. We have had no snow as yet, and only twice has the thermometer been below freezing point, two degrees of frost only being registered on each occasion." He sends the following list of plants in flower:—Berberis Darwinii, Viburnum

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Tinus (Laurustinus), Escallonias, Veronicas, Carnations, Antirrhinums, Violas, Marigolds, Candytuft, Arabis, Aubrietia, Wallflowers, Mesembryanthemum, Saxifragas, Valerians, double Nasturtiums, Geum, Rose of Sharon, Centaurea Sea Thrift, Sun Rose, Doronicum, Polyanthus, Forget-Me-Not, Snowdrops, Crocuses, and other early-flowering bulbous plants.

Plant Pathology at the Imperial College of Science.—The new Botany (Plant Pathology) Building of the Imperial College of Science and Technology was opened on the 16th inst. by the Duke of Bedford. The building has been designed by Sir Aston Webb, P.R.A., and is intended to accommodate the technological developments of botany. An old student of the college, Mr. Pinching, recently from Malay, has been placed in charge of the new building, under Prof. J. Bretland Farmer, head of the Department. The investigations will include diseases and pests attacking economic plants in different parts of the empire. On the opening day a large series of cultures of fungi and bacteria were on view. The exhibits also included apparatus capable of registering the 250th part of an inch of growth in a plant.

"Geo. Monro, Ltd." Concert.—The Committee of the "Geo. Monro," Ltd., Concert is to be congratulated on the success of the twenty-fourth annual Bohemian Concert held at Queen's Hall, Langham Place, on Thursday, the 15th inst. The large building was filled with an appreciative audience, and the concert was one of the best of the series. The platform was beautifully decorated with foliage, and flowering plants by Messrs. Wills and Segar, while the tables were pleasingly decorated with flowers, kindly presented by Messrs. Lowe and Shawyer, Ltd. It may be expected that there will be, as usual, a sum available from the profits in aid of charitable institutions.

"Irish Moss" Industry at Brest.—The preparation and exportation of Chondrus crispus, one of the marine Algae, is carried on to a considerable extent at Brest. According to the *Journal of the Royal Society of Arts*, the plant is gathered by the Brittany peasants along the rocky coast during the summer neap tides. The moss is spread out to dry, being washed by frequent rains. It is then sold to dealers, who pack it in tightly compressed bales after a second cleansing and sorting according to quality. Previous to the war the moss was largely exported to Germany. In 1921 the establishment at Brest, probably the most extensive in France, with a capacity of 300 tons annually, exported to the United States a total of 220 bales, weighing 55,376 pounds.

London Daffodil Show.—The Royal Horticultural Society's Daffodil show will be held at the Royal Horticultural Hall on Thursday and Friday, April 12 and 13. The schedule of classes and prizes provided for this exhibition may be obtained from the Secretary at the Society's offices. Seventy classes have been arranged, and in the more important ones silver-gilt, silver and bronze medals are offered in addition to cash prizes. The Engleheart Challenge Cup will be awarded as first prize in the class for twelve varieties of Daffodils not yet in commerce, one stem of each, while the Barr Silver Daffodil Vase is the first prize in a class for a collection of thirty-six varieties fairly representing most sections into which Daffodils are now classified. Two new classes have been arranged for commercial growers; one is for six varieties, twelve stems of each, as packed for market, to be judged from the market standpoint; while the other is for a market box of Daffodils as packed for market. At this exhibition the Council of the Society will be responsible for the provision of the Engleheart Cup and the medals offered, but the cash prizes are subscribed for by Daffodil lovers, and Messrs. P. R. Barr, E. A. Bowles, and C. H. Curtis are responsible for their charge and payment. Mr. Herbert Smith is hon. secretary of the Daffodil Show Committee, which consists of Messrs. P. R. Barr, E. A. Bowles, C. H. Curtis, G. W. Leak, J. D. Pearson, and the Rev. J. Jacob.

Mr. Joseph Lowe, V.M.H.—The award of the Victoria Medal of Honour in Horticulture to Mr. Joseph Lowe is well deserved, and in making it the Royal Horticultural Society has honoured itself and the flower industry, of which Mr. J. Lowe is one of the captains. Truth is often stranger than fiction, and a full record of Mr. Lowe's life, showing his difficulties and successes, would read like an Eastern romance. At nine years of age he commenced to earn his own living, and worked in a private garden for the small salary of 2s. per week. Now his firm pays more than £1,000 a week in wages. With the exception of one year spent in Mr. Chas. Turner's nurseries, at Slough, Mr. Lowe worked in private gardens until, at the age of twenty-one, he felt it necessary to embark on a new line of business, so that he might be the better able to help his parents. In 1864 he rented a small piece of open ground and commenced business as a jobbing gardener, as the absence of funds would not allow him to launch out on a larger enterprise. His first glass structure was a frame, six feet by four feet, in which he raised a few seedling plants for sale, but right from the beginning he took a very keen interest in Roses and commenced to grow them

MR. JOSEPH LOWE, V.M.H.

for sale as plants. So well did these succeed that someone suggested to him the flowers would find a ready sale in Covent Garden market, and he sent a few dozen blooms two or three times a week, so long as the season lasted. Although he has grown many kinds of plants and flowers, it is probably as a grower of Roses for market that Mr. J. Lowe is best known. During his early years as a business man he grew Violets in pots, and in the early spring time these realised 8s. per dozen. A little later he specialised in early Strawberries, marketing them in pots as grown, and these realised so much as 10s. per pot. But eventually almost everything had to make way for Roses, both under glass and out of doors, and with increasing experience he commenced to flower Roses a little out of their ordinary season by building rough pits and providing other means of protecting the plants against inclement weather. Wooden shutters with a covering of six feet by four feet lights were used in large quantities, and even to-day the use of movable sides with a covering of lights is a feature of the nursery work at Uxbridge, where no fewer than two thousand of such lights are in constant use. Low houses with movable lights followed, and were eventually superseded by a more modern type of glasshouse, though there still remains at Uxbridge one range built forty years ago for the cultivation of Maréchal Niel Roses. Another Rose for which Mr. Lowe became famous was Lowe's Baroness, a very popular sort on account of its fragrance, but the variety was actually Mme. Gabrielle Luizet. Tomatos and Cucumbers have also claimed Mr. Lowe's attention, and he grew the first batch of Lockie's Perfection Cucumber for seed. He was also the pioneer of the cultivation of the Chrysanthemum for market purposes, and grew the old variety Elaine so well that he obtained from 8s. to 9s. per dozen disbudded blooms. Many other varieties of Chrysanthemums, such as Princess Teck, Mme. Desgrange, the Rundle group, Avalanche and others were planted in the ground in such a way that movable houses could be built over them just before they came into flower, the Chrysanthemums being followed early in the spring by permanent crops of Roses. Thought tall and stately, Mr. Lowe has never been physically robust, but by working almost day and night, and exercising his genius as a plantsman, he built up a wonderful business, which is probably the largest of its kind in the country, as the nurseries now cover over 130 acres of ground. As the years increased he suffered from failing health and at one time thought of selling his business, but about twenty-five years ago he induced Mr. George Shawyer to join him in partnership, and to relieve him of the more arduous duties of the management. This combination of forces proved eminently successful, and fortunately it continues. Comparatively few subjects are grown by Messrs. Lowe and Shawyer, and although Mr. Lowe still takes considerable interest in Chrysanthemums, Carnations, Sweet Peas, Tulips, Narcissi, Gladioli, and Irises, his great love for and interest in Roses still remains. Although the duties of management now rest largely on other shoulders than his own—as Mr. T. Stevenson now shares these responsibilities with Mr. Shawyer—Mr. Lowe continues to take a fatherly interest in the welfare of his employees and in all charitable works connected with the town, while nothing pleases him better than to go among his people at the village fair to talk of old times and show an interest in all their doings.

Horticultural Club.—A Club dinner of the Horticultural Club has been arranged for Tuesday, February 27, at 6.30 p.m., at the Hotel Belgravia, Grosvenor Gardens, Victoria. After dinner, Mr. W. B. Cranfield, President of the Pteridological Society, will give a lecture entitled "British Ferns and their Varieties as Subjects for Garden Decoration," which will be illustrated by lantern slides. A musical programme will follow the lecture.

Yields of Whole Potato Sets and Cut Sets.—Experiments conducted at the New York Experiment Station showed the greater superiority in cropping of whole Potato tubers used as seed compared with pieces of the same average weight cut from large tubers. The first experiment, conducted so long ago as 1906, showed that the whole tubers gave a crop of 21.4 bushels of marketable tubers and 8.6 bushels of small tubers per acre in excess of the crop from cut sets, and in the second experiment, conducted in 1920, the advantage was again with the uncut tubers. The growth of the latter was better and earlier, fewer plants were attacked by leaf-roll and the yield was larger.

Freightage of Australian Apples.—A conference recently convened by the National Federation of Fruit and Potato Trades' Association, and attended by the principal dealers in Australian Apples, also representatives of the Governments of New Zealand, Tasmania and the fruit-growing States of Australia, was for the special purpose of considering the freightage charged on Apples for refrigerated tonnage. It is stated that the prospects of the ensuing Australian Apple season were not very satisfactory, whilst the difficulties of ensuring and financing shipments had materially increased. A resolution was passed appealing to the Refrigerated Tonnage Committee to reduce the freight on Apples to 4s. per case, as the industry could not bear a higher charge than this amount. The conference has requested the Refrigerated Tonnage Committee to receive a deputation.

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Imperial Fruit Show, 1923.—The dates of this show, which will be held this year at Manchester, have been fixed for October 26 to November 3. A Committee representative of the various sections of the fruit-growing and distributing industry, has been elected under the Chairmanship of Mr. George Swift. Mr. Swift is a grower of fruit in Worcestershire, and he has a distributing business at Manchester. Before the Imperial Show was instituted, there were three important fruit shows, held every year at Maidstone, Cambridge, and Worcester respectively. The industry has decided that whereas it may not be of advantage in future years to allow these large district shows to disappear, it will be well to maintain the established principal show, which has now become an Imperial institution.

The Application of Artificial Manures.—Starting from the premises that low crop yield is often due less to insufficiency of chemical fertilisers than to their imperfect utilisation by the crop. Mr. A. Baudry* carried out experiments during a number of years on the effect of sowing fertilisers in shallow drills in close proximity with the seed, and at the time of seed sowing. He observes that by adopting this method the amount of fertiliser used need not exceed two-and-a-half to three cwts. to the acre, and that the plant is benefited from its youngest stages onward. The manure is applied in drills about an inch deep, and drawn close to the seed drill.

Imperial Timber Resources.—H.R.H. The Prince of Wales is taking a keen interest in the movement for developing the timber resources of the Empire. He has accepted the Presidency of the Empire Forestry Association, and will preside at the Association's annual meeting at the Guildhall at 3 p.m., on March 2. At this meeting the new Council of the Empire Forestry Association will be elected, consisting of 45 members—9 for the United Kingdom, 10 for the Dominions, 2 for India, 6 for the Crown Colonies and Dependencies, and 18 for affiliated societies—nine representing Overseas Associations. The Empire Forestry Association is promoting a permanent exhibition of Empire Commercial timbers in London, and will play an important part with regard to the timber section at the British Empire Exhibition in 1924.

Appointments for the Ensuing Week.—Tuesday, February 27: Royal Horticultural Society's Committees meet; Horticultural Club Dinner, at the Hotel Belgravia. Wednesday, February 28. Mitcham, Tooting and District Horticultural Society's meeting. Thursday, March 1: Manchester and North of England Orchid Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—It may be useful now to warn your readers that spring brings us impostors as well as flowers. Last year a bustling, rather athletic female called on me with "choice Ranunculus roots" for sale, very cheap and quite fresh, for the lady had just received them from her husband—a small nurseryman in Yorkshire. These tales catch many of the unwary. The fact is that the roots offered were those of the common Pilewort (Ficaria ranunculoides), which she had just collected from the hedge-banks; and, from her appearance, had done in them a flourishing trade. "Fresh Anemone roots" also were offered to some parties, but not having seen these, I cannot say what the lady collected for the gratification of Anemone fanciers. Plants of the Orchis mascula, when their attractive spotted leaves are an inch or two long, are sometimes collected in Gloucestershire and hawked about the country with the accompaniment of an outlandish sort of name to make them valuable. These, however, unlike the Pilewort, are plants worth having, if they were sold without being coupled with dishonest intentions. Yellow Rose trees, collected from the same nursery-grounds as the Ranunculus roots, were articles of commerce about three years ago by some of the partners of the company of flying florists. These recollections may suffice to guard your readers against similar impositions.—*B. Maund, Bromsgrove. Gardeners' Chronicle, Feb.* 19, 1848.

PLANTS NEW OR NOTEWORTHY.

PRIMULA CALCIPHILA.

THIS charming Primula which was shown and received an Award of Merit at the Royal Horticultural Society's meeting on February 13, 1923 (Fig. 49), has for many years been regarded as the wild type of Primula sinensis, but increased knowledge of the plant under cultivation has led to the conclusion that it has nothing to do with the garden race of Chinese Primulas. At Kew, for the past ten years, all attempts to hybridise it with many varieties of the garden race have proved unsuccessful. The same negative result has been experienced at the John Innes Horticultural Institute, and, I believe, by Messrs. Sutton and Sons, Reading, and all this has led to renaming the plant.

The Kew plants are from seeds originally collected by Mr. E. H. Wilson, on the limestone cliffs of Ichang, Western China, where it was first discovered by a Mr. Walters in 1878, and also by the French missionary, Abbé Delavay, and Dr. A. Henry. The first plants to flower in this country, in 1892, were those of Mr. Edmund Hyde, Ealing, and the *Bot. Mag.* tab. 7559 was prepared from one of his plants in 1896. This early stock was lost to cultivation, and the species was reintroduced some years later by Mr. E. H. Wilson.

The plants set seed quite freely if artificially pollinated, and by this means the Kew stock of plants has been maintained and grown in increasing numbers each year.

At Kew, Primula calciphila is given exactly the same treatment as the Chinese Primulas; but it is by no means so easy to cultivate successfully. It grows quite well in a compost which suits the Chinese Primulas, but as lime in the soil is essential to success, old mortar may largely take the place of sand in the potting compost. Careful watering is always essential, and on no account should water be poured into the dense rosette of leaves, or wholesale damping off will result. The plants may be kept for several years, when they develop woody stems and root stock; as they age these are increasingly difficult to keep in good health, the flowers getting smaller and eventually scarcely rising above the foliage, thus closely resembling the plant in its native state.

In a large batch of plants the flowers vary somewhat in size and colour, the latter varying from a soft lilac to deeper rosy lilac. The plants also vary in habit, some throwing their flowers well up above the foliage, while in others the flowers do little more than appear above the leaves. Except in those respects the plant has so far shown no signs of variation. The flowers are delicately scented, and the plant is altogether a very dainty one for greenhouse decoration. *J. Coutts.*

FIG. 49.—PRIMULA CALCIPHILA; AWARD OF MERIT R.H.S., FEBRUARY 13; FLOWERS PALE MAUVE OR LILAC, WITH LEMON YELLOW EYE.

ORCHID NOTES AND GLEANINGS.

LAELIO-CATTLEYA AETHIOPIAN.

A FLOWER of this new cross between L.-C. bletchleyensis (C. Warscewiczii and L. tenebrosa) and L.-C. Aphrodite (C. Mendelii × L. purpurata) from Messrs. Sanders, St. Albans, shows good advance in rich colour. It is a secondary cross with four of the finest species as parents, and when fully matured it should surpass the parents in size, as it does already in colour. The sepals and petals are bright mauve, the lip claret crimson with some gold lines from the base to the centre, which has a ruby shade merging into the claret crimson of the front, the margin being of a lighter shade.

BULBOPHYLLUM SILLEMIANUM.

IT was interesting to see this very pretty and distinct species shown at the Royal Horticultural Hall on February 13 by Messrs. Stuart Low and Co., Jarvisbrook, Sussex. It is a native of Burma, and was first described in *Gard. Chron.* by Reichenbach, 1884, Vol. 2, p. 166. It was shown by the late Sir Trevor Lawrence at the Royal Horticultural Society's meeting on April 12, 1892, when a Botanical Certificate was awarded.

Bulbophyllum Sillemianum belongs to the Sarcopodium section, bearing ovoid pseudo-bulbs and single, lanceolate leaves, the habit being similar to that of B. Lobbii. The slender scape, about two inches long, bears one flower about one inch across, coloured light yellow, with dark-coloured, mobile lip. It should be noted that the flowers close at night.

The species was imported and flowered by Mr. J. Sillem, of Sydenham, an enthusiastic orchidist of his time.

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Vanda, Aerides, and Saccolabium.—Any plants of these genera may receive attention when showing signs of renewed root action. It is not desirable to repot them unless a shift is absolutely necessary, but even in the case of well-rooted, healthy specimens, it is desirable to renew the compost on the surface after the long season of rest. Where top dressings of this kind are necessary, care must be taken that the drainage is satisfactory. I am not much in favour of top dressings, simply for the reason that it makes the watering of plants so much more difficult, and only practise it in exceptional cases. Plants that have become leggy may be treated in precisely the same manner as advised for Angraecum sesquipedale on p. 88, and the lowest leaves, if possible, brought down to the level of the compost. This shortening must be governed by the condition of the roots, for it is not desirable to remove them all. The growths should be securely fastened to stout stakes to keep them in an upright position and prevent swaying. Use scrupulously clean pots and pans, which should be well drained; place the plants in position, the roots carefully inside the pots, and fill the space with a compost similar to that used for Angraecums. Vanda tricolor, V. suavis and V. coerulea all thrive in a warm intermediate house, whilst V. Sanderiana requires a warm position in the warm house, where Aërides odoratum, A. Lobbii, A. virens, A. Fieldingii, A. Lawrenceae and A. Sanderianum will grow satisfactorily. A. Lindleyanum, A. crispum, A. crassifolium and A. Warneri all grow best in an intermediate temperature. Saccolabiums require the temperature of the warmest house the whole year round.

Masdevallia.—As the days lengthen, Masdevallias that have produced their flowers during the winter will commence to grow, and that stage is suitable to undertake any necessary repotting. The beautiful white M. tovarensis will have passed its flowering period, and may be attended to in this respect. I prefer growing all the smaller Masdevallias in shallow pans in order that they may be suspended, and thus receive all the light available. A suitable compost for these plants consists of equal parts of peat, Polypodium fibre, Osmunda fibre, and clean Sphagnum moss, with a fair sprinkling of half-decayed leaves, after they have been rubbed through a half-inch sieve. The compost should not be placed too tightly around the plants, but pressed just sufficiently firmly to hold the plants in position.

THE HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Animal Pests.—Rabbits and hares often do considerable damage in the garden, especially in young plantations, by barking the trees sometimes so seriously that the latter are killed. The practice of smearing certain kinds of grease directly on the stems is not to be recommended; I have seen a number of trees ruined in this way. It is more satisfactory to wire the whole enclosure; the base of the netting should be buried 6 inches deep in the ground and turned outwards, replacing the soil in the trench and ramming it well. We have recently encircled 4 acres in this way. The only alternative is to place wire around the stems of the trees that are likely to be attacked. Where bush fruits are concerned, the former is the only effective method.

Winter Spraying.—Any arrears of this work should now be completed. A combined wash late in the season will sometimes destroy numbers of pests, including Pear leaf blister mite, leaf-curling aphis, Currant scale, the small ermine moth, as well as fungus spores. The caustic copper sulphate, paraffin emulsion is a very searching mixture for dealing with insect and fungous pests. I have not, as is often recommended, found this the best time to deal with mussel scale. The outer coat of this pest is very hard and seems impervious to washes, but, if dealt with in May and June, as the old scales lift and the new generation begins to migrate, a simple paraffin emulsion or emulsified soft soap alone may destroy them. Varying proportions for this specific are recommended. I have found one per cent. of paraffin efficacious, and that amount does no harm to the trees, excepting in the case of Cox's Orange Pippin Apples. Half-strength lime sulphur is advisable for this variety, the foliage being very susceptible to burning. For dormant trees, the amount of paraffin may be increased to 5 per cent. In both cases the percentage may be increased slightly without harm, but that recommended is the average or border line of safety. This insecticide, if applied just before growth commences, is most useful in destroying the Pear leaf blister mites, which congregate mostly round the buds and points of the shoots; a dressing of kainit to the roots will also considerably reduce this pest on the older trees. Paraffin emulsion may also be used with good results. When the gall mite (big bud) of the Black Currant is migrating, which takes place between April and June, the late Mr. George Massee recommended to me a certain composition which I believe had a basis of tar. He contended this material would, when applied to the lower part of the bush, prevent migration of the mites. I have not seen it tried, and the views of readers would be welcomed. From now onward it will be necessary to carefully watch for waking insect life, and a pocket lens is a great help in detecting insects missed by previous spraying. A very handy and compact garden lens is sold by Messrs. White and Sons, Paddock Wood, Kent.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Calathea and Maranta.—There are many species of these beautiful foliaged plants, remarkable for the varied and handsome colouring of the leaves. They are often seen in an indifferent condition, due to their requirements not being generally understood. They require ample drainage, a rich and free root run, and a sweet compost at all times. When well established they need liberal supplies of water at the roots, a moist atmosphere, and partial shade. The compost should consist of about equal parts of good loam, peat and leaf mould, mixed with plenty of sand and fairly large pieces of charcoal. The loam and peat should be in a rough, lumpy condition, to ensure a free and open root run. Although these plants succeed in well-drained pots, pans are the best receptacles for their successful cultivation. The present is a suitable season to repot them, so that they may have plenty of time to become well established. The plants are best turned out and all the old soil washed clean from the roots, thus getting rid of all the old sour material, and rendering division more easy. All decaying roots should be trimmed off before repotting the plants. After that operation they should be kept close and warm in a temperature of 60° to 65°, and the roots afforded water with great care until plenty of new roots have formed. Although they may be successfully cultivated in pots and pans, it will be a revelation to many to know that they may be planted on a well drained rockery in a warm house. If the atmospheric conditions are too dry the plants are liable to be attacked by red spider, which, if allowed to spread, soon disfigures the foliage. A few of the best species of Calathea are C. illustris, C. Lindenii, C. Makoyana, C. Massangeana, C. Veitchiana, and C. zebrina, while of Marantas, M. bicolor, M. chimboracensis, M. concinna and M. sanguinea are a selection of the best garden species.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Spinach.—A small sowing of Spinach may be made on a south border. It is somewhat risky to sow this vegetable too early, but in warm districts, should the weather remain open, it will prove welcome as a change, if it comes to maturity. Rake the ground finely, and draw shallow drills about a foot apart. Sow the seed evenly, and cover it by raking the ground over again. As soon as the plants are large enough, thin them to a foot apart, and draw a little soil up to the rows. Give the soil a dusting of old soot during showery weather, and hoe between the rows on frequent occasions to encourage a quick growth. Small sowings made at intervals of three weeks or a month are preferable to one big sowing. Later batches of Spinach may be grown between rows of Peas or Beans; the partial shade from these crops will be beneficial to the Spinach, especially if the weather proves hot and dry. Long-standing Round and The Carter are two excellent varieties for sowing from now onwards.

Brussels Sprouts.—To produce fine sprouts from September to March, the seed should be sown at a sufficiently early date to enable the plants to complete their growth by early autumn. They should also be allowed plenty of room to permit of sun, light, and air reaching them freely. Plant them 5 feet apart, and grow second-early Potatos between the rows. When the latter are dug, draw fine soil up to the stems of the Brussels Sprouts to support them through the winter. The best place to sow the seed is in a frame on a half-spent hot-bed, in wide, shallow drills, taking care not to sow too thickly. Cover the seeds with half an inch of fine soil, and water them with a rose can. Close the frame and shade it until the seeds have germinated, then admit air according to the weather. When the plants are large enough to handle, prick them out in cold frames or in a bed in the garden, about 4 inches apart, and the same distance between the rows. If grown out of doors, place a 9-inch board edgeways round the bed, and place sticks across at intervals, on which some old fish netting may be stretched. Keep the soil stirred between the plants for the purpose of promoting healthy growth.

Seed Potatos.—Potatos required for planting during March and April should be set up on end in light, frost-proof sheds, etc., to sprout. As this is done, examine them carefully for faulty tubers. It is surprising what a difference sprouting the sets makes to the crop, and the rows are much more uniform when only well-sprouted tubers are planted. Rub off all shoots except two or three at the top of the tuber, and take care these are not broken in handling them.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Early Vines.—The new growth on vines started early in December is now well advanced, and constant attention is required in stopping and tying the young shoots. Pinch the shoots at the first or second leaf beyond the second bunch, according to the space available for full leaf development. The young growths should be kept well clear of the glass, as the temperature at this time of the year immediately under the roof glass is much lower during cold nights than the rest of the house. The drawing of the shoots to the wires should be done gradually, as they break off easily. The border should be examined, and if found to be dry, watered with tepid water, which should suffice until the flowering period is over. Syringe the foliage on bright days when closing the house; this operation should be done thoroughly to keep down attacks of red spider. Air should be admitted whenever the weather conditions are favourable, but cold draughts must not reach the vines. A night temperature of about 60°,

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slightly more or less according to the weather, with a moderately moist atmosphere, should be maintained, allowing a rise of 10° by day without sun-heat. In the successional house, as soon as growth is sufficiently advanced, disbudding should be attended to, and the night temperature increased to 50°.

Figs.—If a house containing permanently planted Fig trees is started forthwith, there will be ample time for the trees to produce and ripen a second crop of fruit without endangering the prospects of a crop in the succeeding year. Provided the soil is moderately moist, water need not be applied to the borders until the roots are in need of moisture, when it should be supplied liberally and in a tepid condition. A night temperature of about 50°, with a corresponding rise by day, will suffice in the early stages of forcing. When the weather is bright, close the house early in the afternoon, syringing the trees at the same time; during cold, sunless weather, restrict atmospheric moisture to a minimum. Trees intended to produce a late crop should be kept as cool as possible for the next few weeks.

Late Vinery.—If not already done, the necessary work preparatory to starting the late vinery should be completed without delay, and the house kept close without fire-heat until the buds commence to burst, when a little artificial warmth will be beneficial. In the colder parts of the country it is advisable to start the latest vines by the end of February, and a week or ten days later in more favoured districts. In turning over an old note-book I found an entry that the latest house was started about February 21; this was in a very cold district—the north-east part of Yorkshire. Grapes from this house maintained the supply until the bunches from the earliest forced vines were ready to cut.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Lawns.—Any bare places in lawns needing returfing or uneven parts which need levelling should be dealt with as speedily as convenient, so that the newly laid sods may unite with the existing sward before hot weather sets in. Broken verges should be repaired, as these detract much from the best appearance of a lawn or border. The ground where lawns are to be re-sown, or new lawns made by sowing seed, should be well dug and levelled preparatory to sowing from the middle to the end of March.

Half-hardy Annuals.—These are best raised in gentle warmth, and about the first part of March is a good time to sow the seed for the earliest batches. A second sowing may, if desired, be made in the open, where the plants will bloom, from the middle of May onwards, according to the season, by which time the earliest plants will be ready for transplanting out of doors. The seed may be sown in pans, boxes, or slightly heated frames. Make the surface soil on which to sow the seed quite firm in all cases. Shading is advisable until germination has taken place, after which, so soon as they are strong enough, prick out the seedlings into other receptacles and gradually harden until it is safe to plant them in the open. Asters, Cosmos, Dimorphotheca, Nemesia and Zinnia respond well to this treatment, whilst the Verbena, although a hardier type of plant, is best treated in this way. A temperature of 50° to 55° is suitable for the raising of these plants, allowing it to rise 10° or so on sunny days.

The Rockery.—Plants on the rockery are very forward, and attention should be paid to the clearance of small weeds and leaves that may have drifted in from other places. The surface soil should be lightly forked over and a top dressing of suitable soil applied to all plants requiring it. Slugs are very troublesome in spring when growth is tender, and need to be guarded against.

THE BULB GARDEN.

CROCUS BIFLORUS.

The "Scotch Crocus," or Cloth of Silver, as it is sometimes called, is one of the most variable species in the genus. It contains many varieties, some of which might well be kept up as distinct species owing to their different habit and appearance. C. biflorus in its many forms has a wider range than any other member of this genus, extending from Northern Italy to North-West Persia. The Western forms of the species are paler in colour than those of the East, in which more colour is present on the outer segments of the flower. It is usually a lowland plant, but in the Caucasus it is found as high as from 4,000 feet to 6,000 feet elevation.

The best known form, which has been in cultivation for a long time (Fig. 50) has silvery white flowers with a golden throat, the three outer segments being buff-coloured on the outside, with three main feathered lines of dark purple. The more distinct varieties include var. Adamii from the Caucasus, with the outer segments pale self purple, or feathered dark purple; and var. Alexandri, a beautiful form from Serbia and Bulgaria, with large flowers flushed or lined with bright lilac. It was introduced into cultivation by Max Leichtlin in the year 1899. From the Dalmatian coastal region we get the beautiful variety Weldenii, with its outer segments shaded or speckled with mauve or blue in some forms, while others are almost all pure white. The variety estriatus is buff-coloured on the outside, without any stripes. A dainty little plant is the variety Pestallozae, from the shores of the Bosphorus, with small white flowers and a golden throat. All are of easy cultivation on a sunny border, coming into flower about the end of January.

CROCUS VERSICOLOR.

This robust growing species (Fig. 51, p. 105) comes from the Maritime Alps, being found in the grassy pastures up to a height of 4,000 feet. The flowers of the various forms present a great variety of beautiful colouring, ranging from white, through lilac to deep purple feathering and veining on the outer segments. It comes into bloom in February, each corm producing a number of flowers of large size. These are of greater substance than many other Crocuses, which enables it to withstand better the unfavourable weather usually met with at this time of year.

The commoner form of this species has white or lilac flowers, striped with rich purple. The variety picturatus is white, with prettily feathered crimson-violet outer segments.

If one were limited to a few kinds, C. versicolor in its various forms should be one of the Crocuses chosen. A colony in a sheltered, sunny spot in the rock garden makes a delightful picture when the flowers are fully expanded in sunshine during the winter months. *W. I.*

GALANTHUS PLICATUS FRASERI.

Galanthus plicatus Fraseri is one of the finest Snowdrops of the plicatus type. It was discovered among a number of plants growing in the garden of the late Mr. P. Neill-Fraser, of Rockville, Murrayfield, Edinburgh, and the late Mr. W. B. Boyd, of Faldonside, Melrose, who detected it at Rockville, was much surprised by its superiority to the other Crimean Snowdrops there. G. p. Fraseri has the plicate leaves of the typical Crimean Snowdrop, but is taller and has finer flowers; it has also a more drooping habit than most of the plicatus varieties. G. plicatus and its varieties are quite hardy and succeed well in ordinary soil. *A.*

Fig. 50.—Crocus biflorus; flowers silvery white, outer segments suffused with buff.

TREES AND SHRUBS.

JUGLANS CATHAYENSIS.

This Chinese Walnut, or Butternut, is proving to be a fast growing and ornamental tree. A native of Central and Western China, it is a common tree in Western Hupeh and Western Szechuan, ranging from a shrubby bush or small tree in the low-lands up to about 70 feet on the hill sides. A loose-limbed tree, it has imposing pinnate yard-long leaves composed of thirteen to seventeen leaflets. The pendulous male catkins are 9 inches to 15 inches long, and the fruits are borne towards the end of a stalk 6 inches to 9 inches long. As the trees commence to produce fruits before they attain a dozen feet in height, it should not be long before trees of the Chinese Walnut are readily obtainable from nurseries. A fruiting spray is figured in *The Gardeners' Chronicle* of September 9, 1911, Fig. 88, the material from which the illustration was prepared having been produced by a tree in Messrs. J. Veitch and Son's nursery at Coombe Wood, Kingston Hill.

Juglans cathayensis appears to have been first introduced to Europe by Père Farges, who sent fruits to M. Vilmorin in 1899. The best trees in this country were raised from seeds collected by Mr. E. H. Wilson in 1903. The nut is of little edible value. *A. O.*

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GARDEN NOTES FROM S.W. SCOTLAND.

THE earliest of the coming crowd of Narcissus to bloom this year is N. cyclamineus, which opened on February 8, followed by N. Pseudo-narcissus on the 10th. Last year their repective dates were February 25 and March 3. The unusual mildness of the present winter has served to illustrate the singular difference in the effect of temperature upon three genera of the Amaryllis family—Narcissus, Leucojum and Galanthus. The first two respond readily to warmth; the Snow Flake—L. carpaticum Vagneri, opening its first blossom this year on January 2, the earliest date recorded in the last twelve years; whereas the common Snowdrop, which first hung a head on December 22 in the winter of 1921-2, did not begin this year till January 5. In the opinion of some good botanists, light has more to do with promoting growth than temperature. Even if that be so, it does not explain the different behaviour of one out of three genera in the same Natural Order.

We have excellent opportunity here for noting the phenology of the common Snowdrop, our woods being very widely carpeted with this flower, and I have never been able to trace the slightest connection between the prevailing temperature and the start in bloom. Those who have tried to force Snowdrops into flower by growing the bulbs under glass must have been disappointed in the result. The plants in the house cannot be induced to flower a single day before their kindred in the open; unless, indeed, the ground outside is hard bound with frost, so as to stop all growth.

That is not the only peculiarity of this delightful plant. None is more easily naturalised in certain places; none more obstinate in refusing to take possession in other places. For instance, at Ardgowan, on the Clyde, it is no exaggeration to say that acres of woodland are sheeted with it; whereas at another large place twenty miles distant, also on the Clyde, frequently repeated attempts to establish it have met with most meagre results, although soil and climate in the two places are similar. Several years ago, when discussing with the late Mr. Dorrien Smith his remarkable success in supplying Narcissus and other flowers to the market in winter, I asked him whether he sent many Snowdrops from Scilly. He replied that it was no use planting Snowdrops in his island; he had tried them, and they would not grow. Yet he was hard to excel as a cultivator. Where Snowdrops are not a success, Snowflakes (Leucojum) form an effective substitute, flowering at the same season and being just as easy to naturalise. It is difficult to understand why more use is not made of this beautiful and fragrant flower. It is a rare thing to see it grown except as a clump in a border; but it is a famous plant for woodland, and, like other Amaryllids, is immune against attack by rabbits; being protected, I presume, by the presence in its leaves and flower-stalks of crystals of calcium oxalate, known as raphides, which render them indigestible. Would that all the Irideae and Liliaceae had similar defence.

It may be noted that it is not well to plant Snowdrops and Snowflakes together; the form of the flowers is so nearly similar as to cause a jar, and justice can only be done to their beauty by keeping them well apart.

Great things were expected of Adonis amurensis when it was first introduced early in the century. True, it usually begins to flower in January (this year not till February 5); but it has proved a poor thing in the dozen years we have had it here. Its dingy blossoms are no match for the "goblin gold" of A. vernalis.

Mr. Dykes has commented in *The Gardeners' Chronicle* of February 10 on the effect of a cold, sunless summer in retarding the bloom of Iris unguicularis. At that date our plants had not borne a single flower—a striking constrast with last winter when it flowered continuously for months. The Winter Heliotrope—Petasites fragrans—also seems to have taken umbrage at the past season for there are few sweetly-scented blossoms among its abundant leafage. This, of course, is no plant for garden borders, but for waste places in the wild, and so is its relative P. albus, which cheers up odd corners towards the end of January with vigorous racemes of white flower appearing before the leaves. But let the amateur beware of introducing P. japonicus, a perfect terror to humbler growths, overshadowing every neighbour with its huge leaves, spreading underground at an appalling rate and making no atonement in the shape of attractive blossom.

Only once before has Ribes sanguineum been noted as flowering here in January. It began on the 23rd of that month, and the bushes, freely self-sown in the woods, are now—February 10—gay with crimson and cream-coloured tassels. Last year the first flowers opened on March 3. *Herbert Maxwell, Monreith.*

EDINBURGH BOTANIC GARDENS.

THE effect of the mild winter, with more than an average amount of bright sunshine during January, is seen in the numerous plants flowering in the outdoor garden. In the arboretum the sunshine, glinting on the moistened boughs of the Elms, suffuses them with rosy colour, a shimmering mirage due to the innumerable twigs, which at the extremities are tinged with red. The iridescent shoots of Jasminum nudiflorum are spangled with yellow flowers, an opulent riot of colour not equalled at this season by any other shrub. Large bushes of Arbutus Andrachne and A. Unedo magnifica, growing in several parts of the garden, are flowering freely. Other shrubs in flower include Hamamelis arborea, with leafless branches smothered with bunches of twisted golden petals and crimson calyces.

Other plants observed in bloom were Lonicera Standishii, a fragrant winter-flowering Honeysuckle; Garrya elliptica, bearing many tufts of pale green catkins; a hedge of Rhododendron praecox, 50 yards in length, and several plants of Azalea acuminata. Shrubs that are about to flower in the rock garden include Rhododendron parvifolium, R. moupinense, R. macronulatum, Escallonia Philippiana and E. exoniensis, Ribes laurifolium, the hardy Heaths, Erica carnea, E. c. alba and E. mediterranea hybrida, Daphne Mezereum, and the trailing D. Blagayana. Skimmia Fortunei is laden with berries.

Blue flowering plants noted in bloom were Lithospermum prostratum, Anchusa myosotidiflora, Vinca Bowle's var., Anemone angulosa and Anemone angulosa nivea, the last with white flowers ¾-inch across; of the Saxifragas in flower there are drifts of S. apiculata and S. Albertii.

The large, green-tipped flowers of Leucojum vernum border the path entering the rock garden.

In the sheltered borders between the plant houses is a clump of a giant Snowdrop, Galanthus nivalis robustus, with flowers 1½ inch across on 1 foot long peduncles. Alongside is Anoiganthus breviflorus, with umbels of yellow, tubular flowers, averaging five flowers to the spike. Here, too, are the bright yellow flowers of Adonis amurensis. Flowering on the indoor rockery are Leontice Smirnowii, with racemes of clear yellow flowers and pea-green foliage, Dendromecon rigida, the yellow-flowered Tree Poppy; Brachycome Sinclairi, a small, white-flowered Composite; Gaultheria fragrantissima, and Osteomeles anthyllidifolia, the last bearing clusters of fragrant, Hawthorn-like flowers.

In the plant houses the Cypripediums in the "E. H. Robertson" collection are at their best; they are in fine condition, and flowering freely. Showy Orchids in flower are Phalaenopsis Stuartiana, Aerides Vandarum, Epidendrum gattonense, Vanda caerulea, Calanthe Veitchii, and C. Sanderiana. A flowering batch of Begonia socotrana is interesting, the species being one of the parents of B. Gloire de Lorraine. Other handsome greenhouse plants flowering are Magnolia conspicua, Rondeletia odorata breviflora, coloured vermilion with a conspicuous yellow eye; R. Roezlii, with trusses of white flowers; Brunfelsia calycina, and Monochaetum alpestre. *Fred. W. Jeffery.*

COLOUR IN THE GARDEN IN WINTER.

THE Rt. Hon. J. R. Clynes has recently made an eloquent appeal through the Press for consideration of colour schemes in the building of our towns and villages, and incidentally paid a high tribute to the landscape gardener.

During this recent wonderful autumn and winter season berried trees and plants have impressed gardeners with their great possibilities at comparatively little trouble and cost, for producing winter colour schemes.

I think not even the gardens of the "sunny South" can compare with a well-planned English garden in a season when we have our full share of sunshine; but a scheme for carrying on the effect through the winter, while not so common, is full of opportunities for brightening the landscape and introducing a sense of warmth and colour to the surroundings of our homes during the dull months of winter.

Not for many years have Hollies been so gorgeously clothed with berries as has been the case in the season just closed, and their effect in many a country road and woodland in the winter sunshine has been indescribably beautiful. During the autumn of last year I was impressed by the effect of the Mountain Ash, weighed down with its crop of scarlet berries, against a background of Scotch Fir. Again, what is more beautiful than a group of the lovely Spindle Tree with its brilliantly coloured pink capsules as one meets with it in the wayside woodlands of Monmouthshire and elsewhere?

There are many vacant spaces in towns and villages which, at very small expense, might be beautified with such subjects as Cotoneaster, and particularly the lovely Himalayan species, C. frigida. This tree is not so well known as its merits deserve, especially as it does well in towns. There is a particularly fine specimen overhanging the road near St. Mark's Church, Newport.

The Welsh Town Planning Association a few years ago introduced Cotoneaster Simonsii as a hedge plant in the garden suburb of Barry. These hedges have been a source of daily delight to passers-by during the winter; where little resistance is required this is a most suitable subject for a low hedge and does not require much attention, while it forms a pleasing contrast to the ubiquitous Privet.

Many an unsightly old wall might be clothed with the well-known C. microphylla, and in suitable places, especially on grey limestone, that most beautiful introduction of recent years, Berberis Wilsonae, and its hybrids might be planted. The subjects perhaps best known for winter decoration are Crataegus Pyracantha and C. P. Lalandei.

It was my privilege to see recently most perfect specimens of these plants on the historic Bishop's Palace at Matherne, and at Mounton House, Chepstow, the beautiful home of Major Holden, in each case planted by a great lover of gardens, Mr. H. Avray Tipping. In the latter case the tree was planted alternately with golden Euonymus on a wall facing north-east, and allowed a liberal amount of freedom, which is too often denied to wall plants.

Opposite to this is a wall well furnished with Garrya elliptica, a shrub much neglected nowadays. Though not brilliant in colour, the long, gracefully drooping, pale green catkins give a most pleasing effect. The Garrya is undoubtedly one of our most useful winter-flowering shrubs.

Chimonanthus fragrans, the Winter Sweet, may be usefully associated with a scheme of this kind, and, indeed, should never be omitted.

The winter Honeysuckle, Lonicera fragrantissima, and the Witch Hazel have also fragrant flowers, and each is worthy of a place in the shrubbery.

For one old favourite I would put in a special plea, and advise, as the Americans, to "plant one more" and plant it in a suitable place where it will have space in years to come to display its beauty. I refer to Arbutus Unedo, a tree that is most suitable for planting in gardens near the coast. It is somewhat slow in growth, and on that account is, perhaps, neglected, but there is no tree that I know to compare with it when furnished with a plentiful crop of scarlet fruits. *Henry Jenkins, Tan-y-Fron, Barry.*

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HARDY FLOWER BORDER.

HERBACEOUS PERENNIALS FOR CUT FLOWERS.

HARDY perennials often remain three, four and sometimes more years in beds and borders without being transplanted; therefore it is necessary to have the soil in first-class condition when they are planted. Water should be applied frequently but judiciously to the plants during times of drought, or they will undoubtedly suffer.

Planting is best done during autumn and spring, when they are at rest or commencing their season's growth. They need to be set sufficiently far apart to allow of their full development as well as to admit of the free use of the hoe in keeping the soil free from weeds and to conserve the natural soil moisture.

In planting the grower should have a knowledge of the habit of the kind or variety he is dealing with. For example, Paeonies, Delphiniums, Phloxes and other large growing plants require plenty of space—from two feet to three feet apart—while the dwarfer or more compact growing subjects may be set from six inches to twelve inches asunder, or as desired.

The propagation of hardy herbaceous perennials is very simple; some are increased by division, some from cuttings and root cuttings, and others from seed. If the plants are lifted and divided to a desired size, any weeds that may be present taken from their roots, and replanted during autumn or spring, they will very quickly become established and flower the following season. Plants with fleshy tap roots such as Poppies and Anchusas, may be propagated from root cuttings in a similar manner to Seakale.

The most opportune time to cut flowers for either exhibition or house decoration is in the early morning or after sunset, as they are then in the best condition, being full of moisture. If required for exhibition or for sending a distance, they should be placed in water for a few hours prior to packing them. When packing flowers for transit the bloom should be perfectly dry.

For furnishing cut blooms the following list, in alphabetical order, may be recommended.

Achillea Ptarmica Perry's White has double, snow-white flowers in bunches. The plant will grow in any garden, and is wonderfully free blooming, the spikes lasting well in water. The variety "The Pearl" is also splendid for furnishing cut blooms.

Aquilegias may be had in great variety, and are well adapted for cutting, but need to be packed with care. The golden yellow flowers of A. chrysantha are exceedingly graceful, as also are those of A. canadensis, which has dull red and yellow flowers; A. glandulosa and A. caerulea, the last with pretty blue and white flowers. The snow-white variety nivea grandiflora is also valuable where white flowers are in request; indeed, all the Columbines are useful for cutting.

The varieties of Anemone japonica are charming for late summer and autumn display, and much prized as cut flowers—they may be had in different shades from the pure white of Lady Ardilaun, Honorine Joubert, and Coupé d'Argent to the rose and deep reds of elegantissima, Queen Charlotte, Lorely, and Prince Heinrich. All the forms of this Anemone are exceedingly beautiful, and include single and double forms. Artemisia lactiflora is a most desirable plant for the back row of the herbaceous border. It forms a tall bush of handsome foliage, and has pretty, milky-white, sweet-scented flowers, resembling those of a Spiraea. It is autumn flowering, and the spikes are very showy when cut and placed in large vases with Kniphofias.

Coreopsis grandiflora Perry's variety, is a plant of recent introduction and certainly one of the most valuable for cutting, as the blooms last many days in water. This Coreopsis forms large bushes of bright green foliage, amongst which rise stout wiry branching stems from two feet to three feet tall, bearing numerous large, semi-double, rich golden yellow flowers. The species lanceolata, grandiflora and auriculata, are also useful as cut flowers.

Chrysanthemum maximum is a popular favourite, and much prized for cutting. The best sorts are Excelsior, of recent introduction, and undoubtedly the best and largest of all; Mrs. L. Bell, King Edward, Robinsonii, the laciniated var.; also Kenneth and Ophelia. All the varieties are exceptionally fine for use as cut flowers, and the stems grow from three feet to four feet tall. The flowering of this easily grown plant extends from June till September.

The perennial Larkspurs or Delphiniums provide a wide range of shades of blue, and are effective planted either in groups, or in sections, to break formal lines in any system of planting. The colours range from the most delicate soft blues to the richest dark blues and purples, with a few white and cream varieties, in single, semi-double and double flowered varieties; they also vary in the formation and density of spike.

FIG. 51.—CROCUS VERSICOLOR; A POPULAR GARDEN SPECIES (SEE PAGE 103.)

Members of the "Belladonna" type lend themselves admirably for cutting purposes, as they have numerous branching stems, and are very free flowering. The varieties are numerous and all are equally effective.

Gaillardia grandiflora, the Blanket Flower, is a very showy subject for the flower border, and extremely valuable for cutting on account of the long flower stems and duration of flowering. There are many varieties, producing large flowers, in shades of lemon, yellow and orange, whilst many have broad crimson and maroon centres. When planted in groups, they give a fine effect on light, warm soils. The roots require a little protection in the form of a mulch during severe weather.

Heucheras have long, graceful, wiry stems from 1½ feet to 2½ feet long, bearing pretty, pendant flowers. The plants make dense tufts of leaves, resembling the Pelargoniums. Associated with other flowers, Heucheras give a very pretty effect, and they may be had in all shades, from pure white to deep rose, and shades of coral to deep crimson. The flowering period is June to August.

Pyrethrums in single and double forms have much to recommend them, and are invaluable as cut flowers, having stout, wiry stems. They lend themselves to any form of decoration, and the flowers are available during summer and autumn. The main crop is produced from the end of May to early July, but by cutting down the old spikes after flowering, a supply of bloom may be had during August and September. The plants are gross feeders, preferring a rich, loamy, well trenched soil, and plenty of decayed manure. The roots need copious supplies of water during the season of active growth. The flowers are very varied in colour, from pure white through all shades to deep crimson, in both single and double varieties.

Other hardy perennials suitable for supplying cut blooms are Rudbeckia, Helianthus, Papaver orientale, P. nudicaule, Erigeron, Eryngium, Hemerocallis, Kniphofia, Paeony and Gypsophila paniculata plena. The last is an example of the few plants that have been improved by doubling. The snow-white, double flowers are produced in abundance on stout wiry stems, and have a light appearance, which renders them most effective when associated with other flowers. *W. Logan.*

CULTURAL MEMORANDUM.

MONTBRETIAS.

WHERE the corms of Montbretia have been wintered in a cold frame, as is practised by some growers, they should now be separated and replanted in their flowering quarter, having previously well dug and enriched the ground. Clumps of Montbretias that have grown undisturbed in the same place year after year should also be lifted and divided. A sunny situation suits this decorative plant best, but it is not fastidious in this respect, and other sites will give good results. Non-flowering corms should be planted elsewhere, to develop into flowering specimens. *C. T.*

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"THE ORCHARD AND THE GARDEN," 1596.

THE danger of assuming finality in bibliographical matters is being constantly illustrated as old libraries, like that of Britwell Court, are being thrown on the market. The distinction of being the first edition of this or that rarity in early English literature is frequently revised as some unrecorded and earlier edition comes to light. This has just happened in connection with one of the rarest of Elizabethan books on gardening, *The Orchard and the Garden*, of which the only edition hitherto known bears the date of 1602. At the sale of a library in the country a few weeks ago, Messrs. Quaritch purchased a beautiful copy of the same little book with the date on the title page of 1596, six years earlier than that previously known. Every effort on the part of Messrs. Quaritch and myself to trace a contemporary record of this book has failed; it is not even mentioned in any of the usual bibliographical books of reference, nor is it to be found in any of the catalogues of the chief book sales held in London during the last two or more centuries. A more exhaustive search may eventually find some reference to it, but the chances seem remote. Even the 1602 edition was supposed to exist in only one copy—at the Cambridge University Library—but of recent years two others have come to light; one is now in the Lindley Library, and the other was in a sale in New York in February, 1920

Messrs. Quaritch have kindly lent me their copy of this little book—unique so far as is now known—and have courteously permitted photographs to be made of the title page and the last page. On placing the 1596 edition by the side of that of 1602, it would seem at the first glance that the only differences were in the dates. But a careful comparison of the text page by page leaves no room for doubt but that the whole of the text was reset for the 1602 edition. The fancy initials—they might be termed "decorative" if they were not so battered in each edition—are quite different in the two issues: a few words are differently spelt, *i.e.*, "alreadie" 1596, becomes "already" 1602 (p. 22); "middest" 1596, is altered to "midst" (p. 46); and two or three of the pages contain a few words more or less in one edition than in the other The text in both is in black letter type, whilst the headings of the paragraphs are in Roman lower-case type. In both cases the collation is the same—A—H in 4's, 32 leaves, the pagination ending on p. 61. It is reasonably certain that the first edition was sold out, and as the demand for it continued, the publisher had a new edition set up as nearly as possible similar to the first; a different compositor would follow his own convenience in the matter of spacing, and would correct what were to him errors in spelling.

A noteworthy feature of this handy little guide to gardening consists of the many woodcuts of garden designs, mazes, garden tools, and so forth, most of which appear to have been borrowed from T. Hill's *Art of Gardening*, 1568, and other works of the period, a period very fruitful indeed in books on gardening and kindred subjects. There are, in all, 24 pages of such wood-cuts, two of which are full-

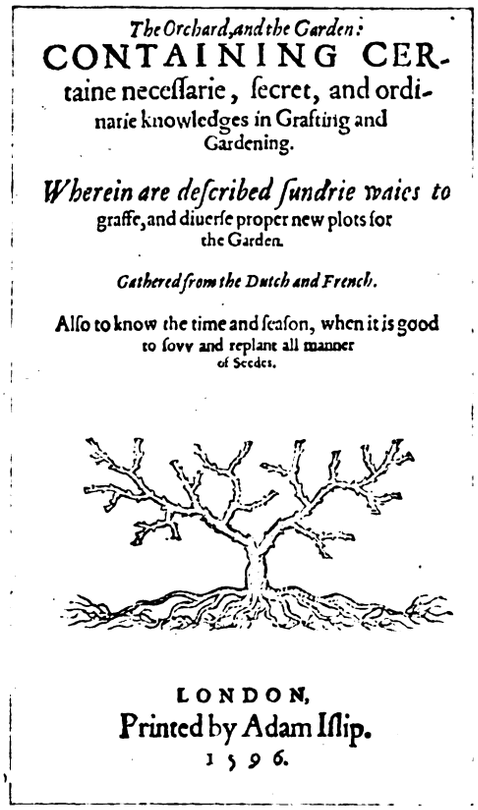
The Orchard, and the Garden:
CONTAINING CERtaine neceſſarie, ſecret, and ordinarie knowledges in Grafting and Gardening.
Wherein are deſcribed ſundrie waies to graffe, and diuerſe proper new plots for the Garden.
Gathered from the Dutch and French.
Alſo to know the time and ſeaſon, when it is good to ſowe and replant all manner of Seedes.
LONDON,
Printed by Adam Iſlip.
1596.

FIG. 52.—TITLE-PAGE OF "THE ORCHARD AND THE GARDEN."

page illustrations showing the "manner of watering with a pipe in a tubbe," and "watering with a pompe by troughs in a garden."

The book itself is a compilation, as is frankly indicated on the title page, "Gathered from the Dutch and French." There is no indication of either the name or the standing of the compiler, and so the book must ever remain a problem of anonymity. Mr. Bunyard has reprinted the whole of the text, and has given a facsimile of the title page, in *The Journal of Pomology* of August, 1921 (pp. 246-261). It would be an interesting task to trace back some of the directions to their original sources, and one wonders if the anonymous compiler obtained some of his inspiration from Leonard Mascall's *Booke of the Arte and Maner how to plant and graffe all sortes of trees*, of which several editions appeared between 1572 and 1592, and was admittedly derived from French and Dutch sources. A good many of the Elizabethan books on gardening were translations or adaptations of Continental works, particularly those of the French or Dutch, who were supreme as gardeners. *The Orchard and the Garden* must have been a cheaper gardening book than most of its rivals, and its comparatively short, "catchy" title an easy one to remember. In 1618, William Lawson appropriated its title with a much better and more exhaustive book, *A New Orchard and Garden*, which had a long life of over 60 years in various editions. Adam Islip, the printer of both editions of *The Orchard and the Garden*, was a Freeman of the Stationers' Company, and printed many books from 1578 until his death in 1639, and among others was the 1594 edition of Didymus Mountain's (Thomas Hill) *The Gardener's Labrynth*, completed by Henry Dethick, another popular gardening book which ran through many editions between 1563 and 1608. Judging from Mr. Sayle's admirable *Catalogue* of the early English printed books in the University Library at Cambridge, Adam Islip was a printer rather than a publisher, though the two callings were more or less synonymous during his time. Besides *The Orchard and the Garden*, he has a further claim to the notice of the bibliographer of gardening books, for in 1616 he printed a translation of Charles Estienne's *Maison Rustique*, and was one of the three printers of the 1633 issue of Johnson's "very much enlarged" edition of Gerard's *Herbal*.

Messrs Quaritch's copy of the first edition of *The Orchard and the Garden* contains the 18th century armorial bookplate of Sir George Shuckburgh, Bt. This would be the 6th Baronet, Sir George A. W. Shuckburgh (1751-1804), whose second wife was the daughter and heiress of James Evelyn of Felbridge, and who was a distinguished mathematician and a Fellow of the Royal Society. The Cambridge University Library copy of the 1602 edition has also an interesting *provenance*. Mr. Sayle, the librarian, tells me that it contains the bookplate of the Royal Library (Bishop Moore's collection) presented to the University in 1715 by George I, who, at about the same time, sent a troop of horse to Oxford, two transactions which gave rise to two famous epigrams by Dr. Trapp and Sir William Browne. The book has also, in a 17th century hand, the following delightful entry: "The name of the Castell wheare my Cosen Thomas Mann is in is called Celling Dalle within 3 myles of Londondery. Inqwyer in Bucklersberey for hors and howse, Mr. Tuker." Here, at all events, we have a clue, slight though it is, to the identity of a former owner. The copy now

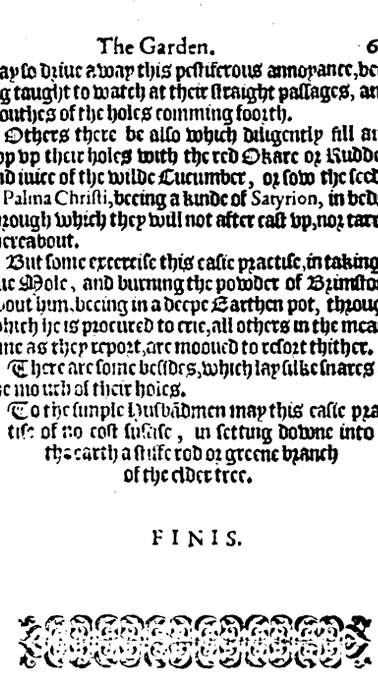
The Garden. 61
may ſo driue away this peſtiferous annoyance, beeing taught to watch at their ſtraight paſſages, and mouthes of the holes comming foorth.
Others there be alſo which diligently fill and ſtop vp their holes with the red Okare or ruddell and iuice of the wilde Cucumber, or ſow the ſeeds of Palma Chriſti, beeing a kinde of Satyrion, in beds, through which they will not after caſt vp, nor tarrie thereabout.
But ſome exercriſe this eaſie practiſe, in taking a liue Mole, and burning the powder of Brimſtone about him, beeing in a deepe Earthen pot, through which he is procured to erie, all others in the meane time as they repoſt, are mooued to reſort thither.
There are ſome beſides, which lay ſulfe ſnares at the mouth of their holes.
To the ſimple Huſbandmen may this eaſie practiſe of no coſt ſuffiſe, in ſetting downe into the earth a ſtuffe rod or greene branch of the elder tree.
FINIS.

FIG. 53.—LAST PAGE OF "THE ORCHARD AND THE GARDEN."

in the Lindley Library has no indication of former ownership, but two of its pages are filled with MS. recipes. Perhaps, as time goes on, and as old and neglected libraries in country houses come into the market, other copies of both editions of *The Orchard and the Garden* may come into the market. *W. Roberts.*

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. IX.—LI-CHIANG AGAIN, AND MR. FORREST.

THE weather now turned fine again, at least on the plain, though the mountains usually had their heads buried in the clouds. The whole country looked beautifully fresh and green, the contrast between the red earth and the verdant forest being most striking. My collectors revisited the limestone range above the Yang-tze, but brought back little that was new to me, a white-flowered, cushion Androsace being their best find. Almost everything else I had found on the Mu-li range in the previous year. They also went back to Lion Rock, with no better success. However, I subsequently came to the conclusion that the Veronica I found there in seed (of which I had hopes) was none other than the common Li-chiang Veronica—V. Forrestii I believe it is called. On July 2, having at last received a mail, we started westwards again in the direction of Chung-tien. In a far corner of the plain, a species of Commelina was in flower; the only plant of its order I ever saw in the whole region.

We crossed the Yang-tze divide a little to the north of the main pass. In the forest were a few scattered plants of Vaccinium modestum, which turned up at Mu-li last year, notable as being one of the very few of the smaller members of the Ericaceae found hereabouts.

Another forest plant, found in a bog, was a variety of Primula Poissonii, with pendant maroon-red flowers. At least, I suppose it is only a variety, though in many respects it merits distinction as a species. Here, at any rate, plants were scattered amongst true P. Poissonii (and easily distinguishable from it), as well as in little colonies by themselves, always in deep shade, however; whereas P. Poissonii wanders out into the open bogs. The plant turned up again at the Kari Pass, considerably further west.

In two days we reached the apex of the Yang-tze loop, but did not descend to the river, as we heard the ferry-boat was not plying. There was no means of crossing either the Yang-tze, or the Sho-lo river, which joins the former at the apex of the loop, and still separated us from Chung-tien territory; so I decided to return to Li-chiang and start again.

During the two days' march down the Yang-tze to the ferry at Fêng-k'ou, I found several interesting plants, including a Violet-flowered Anemone, with shimmering, satiny petals; a Violet-flowered Ipomoea, scrambling over the bushes; and a small, white trumpet Lily with hairy leaves.

After climbing out of the sultry gorge at Fêng-k'ou, we found the mountains of the loop covered with flowers. For the first time in this part of the world I saw masses of Strobilanthes in the forest undergrowth, growing socially, as they do in the forests of Upper Burma; one meets with nothing of that sort at Mu-li. What had been bog in April was now meadow, knee-deep in flowers; Rheum Alexandrae, species of Pedicularis, Polygonum, Habenaria, Caltha, and many more.

Even at this short distance, the forest was richer in trees than it is at Mu-li. A large, white-flowered, fragrant Hydrangea was much in evidence, also a species of Tilia. Lilies, too, began to appear in more variety, and I saw three species new to me, including L. Duchartrei. Mr. Forrest maintains there are no Lilies in Western China, meaning of course, no Lilies worth bothering about. I am inclined to agree with him, and to go even further than that, because I dislike the group altogether. Certainly Lilies are "swell" plants, with a certain stiff, masculine beauty. "Lily," of course, ought to have been a boy's name.) But there is a hint of foolishness about them—they are not quite genuine.

On the limestone cliffs at Chang-san p'ing I found a small Primula new to me, and quantities of Meconopsis lancifolia, but always with four petals only; now the Mu-li plant invariably has six or seven petals, and one naturally asks: Are they really the same? Primula Forrestii—in seed—was abundant here; I have not met with it further north, for, like most of the Suffruticosa group, it is curiously local, though common enough in its locality. Other plants on the cliff were Roscoea, snow-white Thalictrum, Didissandra, etc.

We made an excursion across the backbone of the loop to the western limb of the Yang-tze, where it flows more or less north. In the river gorge the wonderful cinnabar Androsace coccinea was in flower, the farthest point south I have ever come across it. Here, too, was a dwarf, white-flowered Aristolochia. There were many shrubs, too, no fewer than three species of Bauhinia being in flower.

The rains now set in in earnest, and we were badly caught on the banks of the Yang-tze. Turning south, but bearing slightly away from the river, where it issues from the gorge it has cut through the Li-chiang range, we entered the Pine forests. One of the Lavender-flowered bog Rhododendrons was in bloom for the second time—it was already in full bloom when we passed this way in April. This second flowering may be due to an earlier rhythm, impressed on the plant when the climate was different, and not completely suppressed by the altered conditions, which have imposed a new rhythm. For throughout this region there has undoubtedly been a gradual change of climate.

On July 12 we made a long march, rejoining the (relatively) main road by which we had gone northwards in April, and thence to the tiny village by the Hê-shui-ho, where we had pitched our first camp. We did not halt here, however, but pushed on to the Pai-shiri-ho, rather rashly as it turned out. It was already dusk when we reached the meadow, and just then a heavy thunder-storm broke over the valley. The result may be imagined! All down this stretch of the loop, Primula Bulleyana was in flower—it really is a fine colour, much finer, to my thinking, than P. Cockburniana. Evidently my No. 3951 from the Yung-pei district is simply P. Bulleyana, which thus crosses the Yang-tze.

FIG. 54.—ODONTONIA BARONESS SCHRODER. FIRST-CLASS CERTIFICATE R.H.S., FEBRUARY 13 (SEE PAGE 96).

On the following day we were too wet and weary to take much notice of the vegetation, though I did get fleeting glimpses of plants quite new to me—species of Linum, Oreocharis and Impatiens, for example. However, as we were now within a few hours' march of Li-chiang, on Mr. Forrest's private estate, so to speak, neglect of these treasures did not much matter. In four hours we reached the village at the foot of the snow peaks, where Mr. Forrest himself was in residence; also an American botanist, a Mr. Rock, who was working for the U.S.A. Department of Agriculture. I spent July 14 in their company, and on the following day reached Li-chiang. Here I spent four days, reorganising, and on July 20 set out on another journey, travelling this time north-westwards, so as to keep to the west of the Yang-tze. By this time the rains were well under way, and it would rain for forty days, according to local Chinese weather lore; the period of the Flood, be it noted

F. Kingdon Ward.

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17, July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, and February 10, 1923.

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INDOOR PLANTS.

STOVE CLIMBERS.

MANY beautiful, free-flowering climbers are very little known and seldom met with in the stove or warm conservatory, therefore it may be useful to draw the attention of readers to a few which make an attractive display when in flower, hanging from the roof rafters of these warm houses. Amongst them is Ipomoea Horsfalliae, one of the most handsome, evergreen, winter-flowering climbers. Its deep, rose-coloured, trumpet-shaped flowers are borne in dense, axillary clusters; the individual flower is short-lived, but, once the plant is established, the blossoms are so freely produced in succession, unfolding a few at a time, that a showy display is maintained over a considerable period. The foliage is bright green, which adds to the beauty of the plant. It is a rapid grower, readily clothing a large surface of the pillar or roof in a short time. The young shoots require a certain amount of attention when in full growth to prevent them becoming entangled in each other, and some of the weaker shoots should be cut away altogether. This Ipomoea does best planted out in a border, with plenty of room for the roots to ramify in. The soil should consist of two-thirds good, rough, turfy loam, one-third fibrous peat or leaf-mould, with silver sand added. The pocket in which the plant is set should be well drained with clean crocks and brick rubble. To keep the plant in a healthy condition, a warm, moist temperature is essential throughout the year. During the growing season it requires liberal supplies of water, but after flowering, water should be afforded more sparingly until the spring. Before the plant starts into growth, the branches should be shortened. It may be increased by grafting well-ripened pieces on the roots of I. Sellowii, or by cuttings in the spring.

I. Learii is a very free-flowering species, with dark red flowers, and commences to bloom in September, remaining in flower for a considerable time. This plant does well as a pot specimen or planted out.

I. ternata (syn. Thomsoniana) is a very effective evergreen climber, producing white flowers slightly striped with green. This species requires similar treatment to that afforded I. Learii, and may be increased from cuttings formed of the short side shoots and placed in a moist bottom heat. The cuttings should not be allowed to become dry. A winter temperature of 55° to 60° and a summer temperature of 65° to 70° are suitable.

Schubertia grandiflora (syn. S. graveolens) is a beautiful, evergreen climber, not often met with in gardens, doubtless because it is not so well known as many other climbers, otherwise it would be in almost every collection. It is of rapid growth, very free flowering, and is to be highly recommended for growing in warm houses. It makes a very effective display, its white, fragrant flowers hanging in clusters, resembling those of the well-known climber Stephanotis floribunda. The flowers are most agreeably fragrant, the perfume they exhale in the house being like that of a Coconut. The blooms turn yellowish with age, and the plant is often regarded as a yellowish-flowered species. The blooms are invaluable for the making of wreaths and crosses. The plant requires similar treatment to that afforded the Ipomoea, and it flowers freely, grown as a pot specimen, but does not grow so vigorously as when planted out. It may be increased from cuttings of short, half-ripened side shoots placed over moist bottom heat.

Combretum purpureum is a beautiful evergreen climber, with racemes of purplish crimson flowers which make a grand display in the autumn, hanging gracefully from the roof rafters or wires. It may be grown in pots or planted out; in the latter case it grows more rapidly and produces larger clusters of flowers. It requires good drainage, and should not be over-potted. Ordinary soil of good quality is suitable, and it should be mixed with a little charcoal and crushed bricks, or potsherds, to render the texture open. A winter temperature of 55° to 60° and a summer temperature of 65° to 70° are suitable.

The stock may be increased from cuttings of young, half-ripened side shoots, taken off with a heel if possible, and placed singly in small thumb-pots in sandy soil. The cuttings should be rooted in a moist bottom heat and not allowed to get dry, as this is not a free-rooting plant.

Clerodendron Balfouri (syn. C. Thomsonae) is a beautiful, compact, evergreen, very floriferous climber, lasting a long time in flower during the summer and autumn. The deep red flowers have pure white calyces; the blooms are set off by bright green foliage. This Clerodendron is a very useful plant for decorative purposes, and may be easily grown to flower freely in 5 to 6 inch pots, and trained to a single 2 to 3 feet stick, or it may be grown into half specimens or full specimen plants suitable for placing in the conservatory and mansion when in flower, or to brighten up miscellaneous groups of plants at exhibitions. It may also be highly recommended as an excellent subject for planting in borders in a warm conservatory, for covering pillars and rafters.

The stock may be increased by cuttings of half-ripened side shoots when the latter are developing in the spring, or by ordinary cuttings in the autumn placed under a handlight in bottom heat. The plant grows freely in a mixture of light, turfy loam, fibrous peat, or leaf-mould, with silver sand added. After flowering, the plants should be kept moderately dry at the roots until the spring, when they should be pruned back to encourage fresh growth to develop. The summer temperature should be 65° to 70°, and the winter temperature 55° to 60°.

C. splendens is a very effective decorative climber, quite distinct from the others. The flowers are of a rich crimson, and very freely produced during the summer. This species may be grown either as a pot plant or planted out; it requires similar treatment to that afforded C. Balfouri. The two plants make a very pleasing contrast when growing together in a house. None of the climbers described above will be subject to attacks of insect pests, provided they are grown in clean surroundings. *John Heal, V.M.H.*

FORESTRY.

THE MOST PROFITABLE TREES TO PLANT.

WHEN looked at from a purely commercial point of view, the best trees to plant are such as will produce the largest quantity of the most valuable timber in the shortest space of time. There are, however, other points to be considered, such as demand for the timber and suitability of the tree for planting in a variety of soils and different situations. As prices rule at present, the Willow, if the timber is suitable for the manufacture of cricket bats, is by far the most profitable tree to grow; but, on the other hand, only a very limited number of merchants deal in this wood, its uses being mainly restricted to the bat-making industry, and to a lesser extent for the making of artificial limbs. Soil and situation are most important factors in the cultivation of the special Willow that produces timber suitable for the purposes referred to, for only in a few of the Eastern English counties and other places can the tree be successfully cultivated and the best quality timber obtained. But apart altogether from these seeming drawbacks, the Willow in suitable situations is, as before mentioned, by far the most profitable tree to cultivate when rate of growth and price of the timber are considered.

Quite recently £1,000 was paid for 100 Willow poles, of thirteen years' growth, and I was shown trees on the Tirling property of Lord Rayleigh, in Essex, under fourteen years' growth, for which the average price received was round about 20s. per cubic foot, or from £8 to £10 per tree. In a long experience of timber culture in this country, this is by far the most profitable item that has been brought to my notice. Being propagated from cuttings or sets, the first cost of planting is comparatively small.

Quite different is the Ash, which will succeed and produce valuable timber in most parts of the country, and is a most reliable tree for general forest planting. The timber is always in considerable request, and for wood of the best quality up to 3s. 6d. per foot is readily obtained. For purposes in connection with the war, the country was stripped of its best Ash timber, so that first-class trees are scarce, and likely to be so for a long time to come. Even in a young and immature state, Ash timber is of considerable value, and when cultivated in close plantations is greatly in request by the makers of agricultural and other implements. Wherever suitable soil is available, by all means plant the Ash in quantity.

Sycamore is another of the most valuable of our timber-producing trees, and it succeeds well at fairly high situations where the soil is at all suitable. Large butts of Sycamore have sold frequently of late at 3s. 6d. per cubic foot. It is a tree of rapid growth, and is not subject to disease.

Beech, where the soil is suitable, such as of a chalky or gravelly nature, is a profitable tree to grow, the timber being in demand at up to 1s. 4d. per foot where felled. As it reproduces its kind freely from self-sown seeds, the cost of restocking is small. This is particularly the case on the chalk formations of the Chiltern Hills, where seedlings spring up with the utmost freedom, and by gradually cutting out the older trees a young crop is provided. This system of reproduction has been going on regularly in some of the plantations in Bedfordshire and Buckinghamshire for long periods.

Poplar is one of the most profitable trees to cultivate in damp ground, the rate of growth being rapid, while the timber is greatly in demand for the box-making and match trades. The selling price varies considerably with the situation of the timber, but about 1s. 2d. per foot is commonly paid for large, clean butts.

Timber of the Sweet or Spanish Chestnut has come to the front since the war, and prices have been more satisfactory than was previously the case. It is a valuable wood for many purposes, and sells at about 1s. 3d. per foot for clean, bulky trees.

The Oak should be included where soil and site are favourable, but as a couple of centuries are required to produce mature timber, the tree is rarely planted for forest growth, though largely for park and farm purposes. The timber is cheap on the market, plenty being offered at present at the low figure of 1s. 2d. per foot in the woodlands. With a great influx of American, Japanese and European timber of this kind, it is not at all likely that the price of that of home growth will increase for a long time to come.

Going still further down in the scale of profitable timber trees, the Elm and some other species might be included, but they rarely enter into the formation of plantations that are formed for purely economic purposes.

Amongst Coniferous trees, the most profitable to plant are the common and Japanese Larches, the Sitka Spruce, Scotch, Weymouth and Corsican Pines, and the Douglas Fir. The Larch should receive a large share of attention, as it is by far the most valuable Coniferous tree for timber production that has been introduced. Judging by existing plantations of the Silver or Sitka Spruce, and the quantity and quality of timber produced, this tree has a bright future before it in British commercial forestry. It can also grow at high altitudes and on poor soils—that is, where an abundance of moisture is provided. The Douglas Fir is only suitable for planting in sheltered sites in this country, but produces a large volume of timber when growing at low altitudes and in a light, loamy soil. The Scots Pine is invaluable for growing on exposed lands and on the poorest of soils, and this is also true of the Corsican Pine, while the White or Weymouth Pine will only attain perfection on deep, sandy and moist soils.—*A. D. Webster.*

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FAILURES WITH PLANTS.

LIKE all his valued "Garden Notes from S.W. Scotland," those by Sir Herbert Maxwell in your issue of January 20 (p. 36-37) are full of interest and evoke much thought. Unfortunately, too many people have similar disappointments with most, at least, of the plants which have baffled him. It is but little comfort, I grant, for any gardener to learn that others have been disappointed as well as himself, yet it is some consolation as it points to the fact that there are certain difficulties, frequently insurmountable, which we encounter in our gardening. Sir Herbert refers to the Hepatica. With this fine old plant we can lay down specified directions, but, even when these are religiously followed, the results may be aggravatingly disappointing. I know of many places where these flowers flourish exceedingly and grow into big clumps. In other places, under what appear to be precisely similar conditions, they dwindle away and refuse to thrive. One may suggest shade in summer, a great factor in the cultivation of the Hepatica, but even this may fail. This happens in almost neighbouring gardens, and the problem of diagnosing the cause is insoluble.

With Romneya Coulteri the question of sunshine is, undoubtedly, an important factor, but the comparison drawn by Sir Herbert Maxwell between his failure in the "snuggest" places at Monreith, and the success at Castle Kennedy, only a short distance away, is illuminating. I may point to its blooming at Culzean, and its failure to flower, although it forms buds, in a very sunny place at Formakin, Renfrewshire, as other instances. I could cite others were it necessary. One would have thought that the conditions at Monreith would have been almost ideal for Cypripedium spectabile and C. macranthum, but with these, again, there are too many who will sympathise with Sir Herbert all the more deeply seeing that they have had similar disappointment. Then the smaller Mertensias named by him are too frequently short-lived in gardens. We sometimes attribute their loss to slugs, but these enemies are not always guilty of the crimes attributed to them. Oxalis enneaphylla (Fig. 55) is, I consider, much more satisfactory, but it requires some shade and, I think, more moisture in summer than it often receives with us. Parochetus communis, while a capital grower in very mild places, is not too reliable, and I do not expect that it will ever be really perennial, even at Monreith. It is a misfortune, too, that Echinacea purpurea has not the vigour and endurance of the perennial Rudbeckias, with which it was at one time included. I know from long experience and observation that it is rarely a good perennial if left alone without frequent propagation. It is a great pity that such a fine plant should be so unreliable.

I have had Polemonium confertum mellitum for five years, but lost it after that. It was grown in exceedingly poor soil, with plenty of sandstone grit and sand in it, and had to be frequently watered with pure water in dry weather. Cyananthus lobatus is one of the greatest beauties we have, and it, too, seems to need thorough soakings with water in dry weather. It needs covering in winter if we want to be sure of retaining it, and it is a safe thing to keep a plant or two in a frame over winter. Dicentra, or Dielytra, spectabilis is often seen in good condition, but in a very dry soil it does not appear to succeed well. Draba (Petrocallis) pyrenaica is most troublesome, and I believe that moraine treatment is the best for it with us. Gentiana verna is a gem which I have always found calls for some consideration. I lost a very fine plant which I had had for years and which throve well by having fine gravel and grit worked among its growth two or three times a year. This I learned from seeing a glorious plant in a garden, and cultivated in this way. My plant did not survive its removal to my present garden under the unfavourable conditions which had to be encountered. I have seen many grand plants.

Sir Herbert Maxwell has acted with wise judgment in never attempting Eritrichium nanum. Many will sympathise with your correspondent in losing Fritillaria pudica and F. aurea after one season. I have been a trifle more fortunate, but the former is less stisfactory by a long way than F. aurea. I once had a planting of about a hundred bulbs of the latter, but they gradually dwindled away, although I had some flowers on the group for several years. But I think I could succeed in the same garden with a little more attention to details. But this is perhaps only a dream, though "hope springs eternal in the human breast." Sternbergia lutea is hopeless with most of us, but the variety angustifolia is more obliging in special places, and the Californian Soaproot baffles most folk.

I have already trespassed upon space too freely, but I may add that I am in general agreement with Sir Herbert regarding his Lilies. But with some of these, failure after failure may eventually be compensated for by success at last. This is, I think, specially applicable to L. Humboldtii. But who can teach Sir Herbert Maxwell anything about the queenly Lilies? *S. Arnott.*

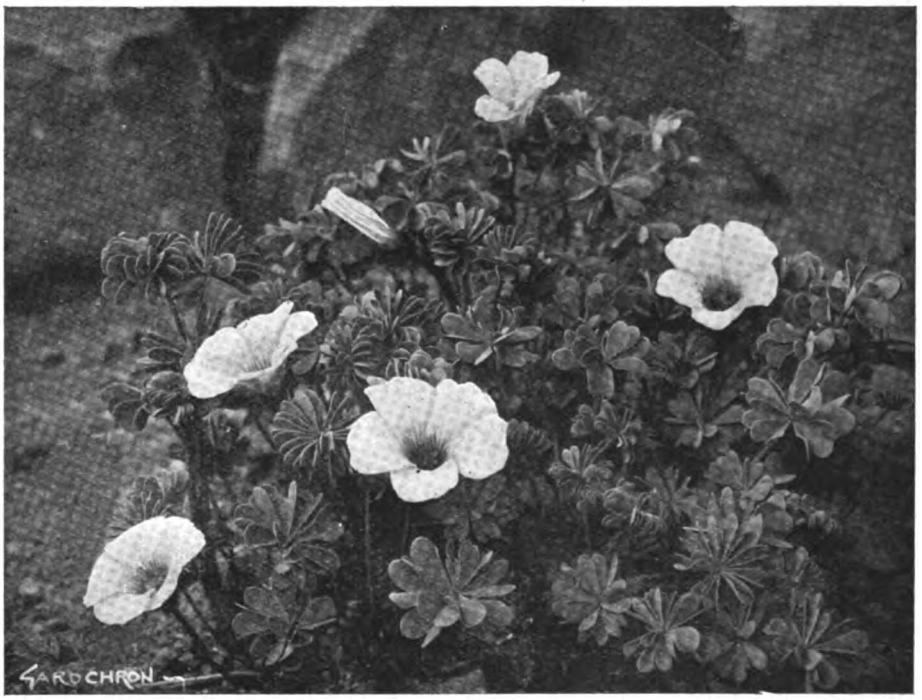

FIG. 55.—OXALIS ENNEAPHYLLA.

THE HERB GARDEN.

IN most gardens the herbs which are in demand for culinary purposes are grown in a quarter of the kitchen garden, and this quarter is a very interesting and useful one; but a herb garden proper as an adjunct to the flower garden may be made a most delightful and attractive feature, and if a position can be chosen between the kitchen garden and flower garden it would be very appropriate.

There is a fascination about herbs, for they seem to carry us back to the time when gardening was first attempted seriously in this country, and it is not too much to say that from the old herb gardens have developed the beautiful gardens of flowers, shrubs, trees, and other ornamental plants of to-day. Herbs include some of the sweetest smelling plants of the garden, and for that reason alone they are worthy of being grown.

Any ordinary garden soil suits most herbs, although, naturally, the same soil will not suit all equally well; but with a little forethought in supplying individual requirements, quite a large collection of herbs may be made to flourish in one garden.

If the site is clear of large trees, the aspect is not a matter of great importance, but it is essential that plenty of sunshine and air should reach the plants, without which they would grow feebly and much fragrance would be lacking. The shelter of an existing wall or hedge is an advantage.

The size and shape of the garden must necessarily be governed by circumstances, and these will affect the scheme of design; but, whatever the size and shape, a good plan is to enclose open sides with hedges.

The Moss Rose, the Damask Rose, Sweet Briar and Rosemary are good subjects for this purpose, and quite in keeping with the scheme. Having defined the boundary, a narrow border may be retained on the perimeter, with a 2 ft. path inside it, thus dividing the garden into a continuous, encircling border and a central block. Transverse paths in each direction may be laid through the centre, and, if space permits, further paths made in each direction at equal distances from the centre to the outside border, thus dividing the central part into sixteen beds. The paths may be laid with irregularly shaped flag-stones, the spaces between being planted with dwarf Thymes and Mentha Requienii. If broken tiles are obtainable, a much prettier path may be made by laying these on edge in diamond blocks, the long edge of one block to meet the short edge of the other. These should not be laid too closely, the intervening spaces being filled with soil for the growth of dwarf plants.

The arrangement of the herbs may be left to individual taste, but I suggest that each of the following subjects is worthy of a single bed, and might occupy the sixteen beds in the central part:—Spearmint, Peppermint, Catmint, Woolly Mint, Alecost, Balm, Horehound, Marjoram, Sage, Common Thyme, Lemon Thyme, Lavender, Hyssop, Summer Savory, Winter Savory, Tarragon. For the borders, such dwarf-growing subjects as Chives, Fumitory, Pennyroyal, Prunella, Saffron, Woodruff, Parsley and Chervil might be planted as an edge, with groups of Alkanet, Angelica, Anise, Basil, Borage, Burnet, Camomile, Caraway, Coriander, Cotton Lavender, Dill, Elecampane, Fennel, Mallow, Marigold, Purslane, Rue, Southernwood, Sweet Cicely, Valerian and Wormwood behind.

Many of these plants are annuals or biennials, and may easily be raised from seeds. The perennials may be increased by division or cuttings. It is best to divide the plants in the early autumn; but strong plants from cuttings may be set out at any time when the weather is favourable. *W. Auton, Pyrford Court Gardens.*

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FRUIT REGISTER.

APPLE TOMPKIN'S KING.

THIS variety of Apple is more familiar to growers in this country under the name of King of Tompkin's County, which is the spelling adopted by Hogg in the *Fruit Manual*, and King of Tomkin's County, according to Bunyard in *A Hand-book of Hardy Fruits*. As the variety, however, originated in America, where it is known as Tompkin's King, the last is doubtless the correct name. It is also known in that country as King, and Winter King, and is widely distributed throughout the north and east of America, but is most commonly grown in the district of New York. According to Hedrick in *Cyclopedia of Hardy Fruits*, the variety originated in Warren County, New Jersey, whence about 1804 it was brought to Tompkin's County, New York, and given its name of Tompkin's King, our name of King of Tompkin's County being doubtless derived from this fact. Gardeners in this country will probably continue to grow it under its synonym of King of Tompkin's County, but whatever name it is grown under does not affect the fact of it being one of our best late dessert Apples, for it is in season so late as May.

Mr. George Carpenter, of West Hall Gardens, Byfleet, has sent us a splendid sample of this Apple and states that in West Hall Gardens the tree is a strong grower and heavy cropper, and it is especially suitable for training as standards, but is not such a success when grown in bush form. Mr. Carpenter considers the flavour to approach that of Cox's Orange Pippin, and although it is not so excellent in quality as that sort, it is certainly one of the best late dessert Apples available from January to May. In America the tree is found to lack hardiness, healthiness, longevity and productiveness, but the behaviour of varieties in that country and in this differs considerably, for whilst we are unable to succeed with some of the best American Apples, the same is true there with some of our choicest varieties. This, doubtless, arises from the suitability of the respective varieties to certain climatical conditions, which may be favourable in the one country and the reverse in the other. Those planting Apples this spring may be recommended to include a tree or two of this showy and high quality variety that seems to be especially suited to the lighter soils, and which Mr. Bunyard, in *The Hand-book of Hardy Fruits*, says he has seen equal to American samples when grown on a sandstone soil.

HORTICULTURE AT THE BRITISH EMPIRE EXHIBITION.

I HAVE the pleasure to inform you of the preliminary arrangements accepted by the Management of the Exhibition upon the recommendation of the Horticultural Committee.

The Committee have formulated proposals which include the provision of a large and suitable site of nearly ten acres (indicated on the plan contained in the accompanying booklet) immediately adjoining the new Great Central Railway Station, and between the station and the model stock farm. They regard as very satisfactory the terms agreed by the management, who have approved the provisional plans for the arrangement of outdoor exhibits prepared by Mr. Edward White, of Messrs. Milner, Son and White, consulting landscape gardeners to the Exhibition, in order to give an approximate idea of the general lay-out proposed.

Applications for space from trade exhibitors will be considered in the light of the suitability and attractiveness of the proposed exhibits, and in view of the period of the Exhibition (end of April until end of October, 1924) preference will be given to exhibits which will be maintained in an attractive form for the longest time possible.

I ask your careful attention to the various facilities offered, as follow:—

(a) The large area adjoining the station will be available for flower gardens, formal gardens (with or without such features as statues, vases, fountains, pergolas, topiary work, garden houses, etc.), rock gardens and other ornamental gardens with special plant or shrub treatment. A charge of four shillings per foot run of frontage of these sites will be made to exhibitors to cover the cost of water supply, path-making, etc.

(b) In various prominent position throughout the Exhibition grounds opportunity will be given to nurserymen to co-operate with the management in furnishing and maintaining beds and borders with shrubs and flowers, in accordance with plans to be prepared by Mr. White and approved by the management—these spaces will be allotted preferentially to those firms who apply for space under (a).

(c) Sites for horticultural buildings, greenhouses, kiosks, groups of garden ornaments, etc., will be available on the main curved avenue in the horticultural section. The depths of sites will be approximately 50 feet, and the charge per foot of frontage will be £5. The design of such buildings, kiosks, etc., will be subject to approval by the architects of the Exhibition.

(d) A hall for horticultural and agricultural exhibits (machinery, seeds, fertilisers, and sundries), including small spaces for offices for firms whose exhibits are only or mainly outdoors, will be built on the avenue dividing the group of gardens from the model farm. Space will be charged for at the rate of £1 per superficial foot, subject to additions for extra frontages and to discounts as set out in the general regulations attached to the form of application. There will also be a Garden Exhibitors' Clubroom, for outdoor exhibitors who do not desire a separate office, the charge for membership, including use of private locker and writing desk, being £20 for the period of the Exhibition.

The allotment of sites under (a) and (b) will be made by an expert sub-committee, who will proceed to deal with applications as soon as a sufficient number has been received.

Allotments under (c) and (d) will be made by the management as soon thereafter as possible.

Arrangements for large periodical exhibitions are under consideration, and it is expected that these will be in every way worthy, both of the Exhibition and of the horticulture of the United Kingdom.

I am to ask you, if you intend to exhibit, to fill up and return in duplicate at your earliest convenience, in any event not later than February 28, the enclosed forms, on which you may make application for space according to the four methods of exhibiting described above under (a), (b), (c) and (d). The management will be pleased to assist you with any further information at their disposal, if you will address your inquiries to the Secretary of the Committee at the above address.

The Committee earnestly hope that all who are interested in gardens will assist in the effort to make British horticulture a great feature at an exhibition which will do much to restore the prosperity of Imperial industry. *W. Cuthbertson, Chairman, Horticultural Committee.*

[The foregoing letter, which we received last Monday, is, we assume, sent by way of reply to our observations (on p. 85) regarding the absence of information on the position and prospects of horticultural affairs at the British Empire Exhibition at Wembley, in 1924.—EDS.]

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Bourdichon's Figures of Black Currants.—It is noteworthy that the Black Currants illustrated on p. 92, are named respectively, in the English equivalent, "Pepper plant or Flowers of Pepper," and the one in fruit, "Pepper or round Pepper." Are there any data to show that the fruit was ever used as a substitute for Pepper? I think not. Seventy years after the date given for the painting, Lyte, in a long note "Of Pepper," remarks that the "Pepper cornes or berries [hang] even like the Ribes or beyondped Gooseberries (black currants), as ye may see in this countrie; for Pepper is brought fro the Indians to Antwarp preserved in confiture, with the stems and foot stalkes hanging on it." So that the painter may have associated these preserved fruits of Pepper with the wild fruit of his native country, and given it the name of Long Pepper accordingly for lack of a vernacular name. *R. P. Brotherston.*

"To Chortle."—I suppose that, in using this expressive verb, I ought to have placed it between inverted commas. *C. H. P.* will not find it in the Oxford or any other English dictionary, forasmuch as it is one of many quaint vocables coined by that remarkable genius, Charles Lutwidge Dodgson, better known by his literary pseudonym, Lewis Carroll. The word in question occurs in the ballad of "Jabberwocky," in *Through the Looking-glass* (1871):

"And hast thou slain the Jabberwock?
Come to my arms, my beamish boy!
O frabjous day! Callooh! Callay!"
He chortled in his joy.

I have termed Dodgson a remarkable genius, and so, indeed, he was in his peculiar way, for *Alice in Wonderland* and *Through the Looking-glass*, are secure in their niche as English classics; but Dodgson betrayed no discernible symptom of genius in the early days, when, as an undergraduate, I attended his mathematical lectures at Christ Church, Oxford. *Herbert Maxwell.*

——Where *has C. H. P.* looked for this expression? I find it given in Burrere and Leland's *Dictionary of Slang, Jargon and Cant*, as equivalent to "to howl (popular)." In the *Standard Dictionary*, by Funk and Wagnall, Lewis Carroll is credited with the invention of it as a portmanteau word from "Chuckle" and "Snort," with the meaning, to chuckle or make loud noises to express joy, and the quotation: "He chortled in his joy," is given from *Through the Looking-glass* (The Jabberwocky) in illustration. *C. N.*

[Dr. Stansfield, Mr. George Yeld, Mr. C. E. Pearson, Mr. J. W. Drummond, and Mr. W. Cuthbertson have also written drawing attention to Lewis Carroll's use of the verb "chortle" in its past tense.—EDS.]

Mrs. Loudon.—Thanks are due to Mr. Britten (p. 77) for supplying the date of Mrs. Loudon's birth and pointing out two mistakes in the article published in the issue of December 23, 1922. "Wells" for "Webb" is obviously due to the difficulty of reading my handwriting. How the other mistake occurred I cannot hazard an opinion upon. But in the sentence "In 1840 she produced *The Lady's Flower Garden*," that title should read *Gardening for Ladies*, and the next sentence, "In the same year *Gardening for Ladies*" should be deleted, and the rest of the sentence follow the termination of that preceding, when it will read, "In 1840 she produced *Gardening for Ladies*, ostensibly to afford increased information to those who found the volumes just mentioned to be too meagre for their requirements. It is an 8vo of 406 pages, and was sold on the day of publication to the number of 1,350, and up to 1851 as many as eight editions had been asked for." This explanation will remove Mr. Britten's difficulty. Some of the other notes by Mr. Britten are most interesting, and, indeed, we cannot have too many additional facts relating to such extremely interesting people as Mrs. Loudon and her husband, concerning whom I contributed an article about eighteen months ago, chiefly in relation to his connection with *The Gardeners' Magazine*, in which are some remarks repeated by Mr. Britten. Though Mr. Britten takes exception to Mrs. Loudon's memoir of her husband being designated "brief," I still think that term to be correct, for it extends to only an incomplete forty 8vo pages, most interesting so far as it goes, but leaving much to be inferred. Concerning their mutual tour through the West and North of England and through part of Scotland, Mr Britten assumes that tour to have been one of hymeneal import. We possess no data for

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that assumption, and as the wedding took place on September 14 of one year, and the commencement of the tour on April 24 in that succeeding it, to say the least, seems to strain what we know from the accounts of both parties to have been merely a business journey mixed with pleasure, to one of a nature never referred to by either. In Vols. VII., VIII., and IX. of *The Gardeners' Magazine*, a detailed account of the journey in question is given by Loudon himself, as was his custom under similar circumstances earlier and later in his career. All the dozens of gardens, estates, nurseries, etc., visited are named, and many described, either with approbation or otherwise, for he described the bad management of a ducal establishment with the same sincerity of purpose that is apparent in applauding the high cultivation of the smallest garden visited. While delighted with the perfect palace of Lord Grosvenor, he could find no words strong enough to condemn the condition of huts of the peasantry he inspected—"Not fit for dogs or pigs to live in." In one part of England he found farmers so lethargic that they still employed six horses to drag a plough at two miles an hour, while otherwhere farming was being pursued with the latest improvements. Nothing escaped his keen eye, and the remarks elicited prove him to have been a very long number of years ahead of his day and generation. The tour terminated suddenly in September, on news reaching him of the illness of his mother, who, with his sisters, was domiciled with him at Bayswater, not at Edinburgh, as Mr. Britten states. It may be not amiss to add that Mrs. Loudon reprints at the end of the memoir a series of anecdotes relating to her husband which appeared originally in the *Derby Reporter*. These all go to the enhancement of our respect for the high character of the man whose wife was in every way worthy of him.—*R. P. Brotherston.*

Cucumbers and Onions.—Your correspondents *P.* and *H.*, p. 54, January 27, are surely more than humorous. *P.* suggests 700° for germinating Cucumbers! And *H.* suggests as "much wood ash as can be procured." . . . "All rough stones and rubbish should be removed . . . raked perfectly level." I doubt if any gardener would successfully follow this advice. Stones are as necessary in most soils as any other ingredients of the land. Remove all stones from the soil, and it becomes unworkable, also unhealthy for growing crops. *Harry Williams, Redruth.*

[The 700° is a printer's error, and cannot be attributed to our correspondent. It is obviously intended for 70°.—EDS.]

Germination.—The article in your issue of February 3rd, entitled "The Spring Awakening of Arable Land," is one of the most suggestive I have read for a long time. It recalled to my mind a successful trial which I saw carried out by Mr. Alexander Malcolm, Duns, three or four years ago. He had some difficulty in getting a lot of valuable Sweet Pea seed of low vitality to germinate in ordinary soil. He tried them in pots of fine, sea-side, shell gravel and had striking results. Not only did the seeds all germinate, but the roots revelled in the gritty, saline material, and when potted on in the ordinary course never "looked over their shoulder." *W. Cuthbertson, Duddingston, N.B.*

Grafting Vines.—I would advise your correspondent *H. L.* to bud-graft his Vine in preference to bottle-grafting. It is far easier and quicker to perform, and there are no corresponding edges to cut to fit. Take a dormant shoot, make an oblique cut opposite to, and a little above, the eye selected, coming out about two inches below the eye. Then make a cut just above the eye, severing it from the rest of the shoot. The result will be a wedge-shaped scion with the eye at the thicker end. Next make a T-shaped incision in the bark of the Vine to be used as the stock, exactly as in budding Roses, at the exact spot where the young cane is to commence. Raise the bark and insert the graft, tie in securely with thread or fine twine, cover the incision with grafting-wax, and the operation will be completed. The time for doing this is when the Vine is in flower. *H. L.* would find the bark of the old Vine rather thick, but it would lift easily at the time stated. An eye inserted in this manner will make several inches of growth in less than a month, and the bunches it produces should be removed. In all grafting operations I always remove a slight layer of the outer bark from the scion, exposing the cambium layer and allowing the same to come in contact with the growing tissue in the overlapping bark of the stock. *J. Pitts, Pett Place, Charing, Kent.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THURSDAY, FEBRUARY 1.—*Present:* The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, Coningsby, D. A. Cowan, J. Cypher, A. G. Ellwood, J. Evans, W. Giles, A. Hanmer, J. Howes, J. Jackson, A. Keeling, J. Lupton, D. McLeod, E. W. Thompson, and H. Arthur (secretary).

FIRST-CLASS CERTIFICATES.

Cypripedium Forest King (*Desdemona* × *Beekmanii*), a large flower of good form, intermediate between the two parents; and *Cypripedium J. M. Black var. Samson* (*Beryl* × *Eurybiadēs*), with broad sepals and large, well spotted dorsal sepal. From H. T. PITT, Esq.

Oncidium splendidum holoxanthum, a pure yellow variety of the type. From B. J. BECKTON, Esq.

Cypripedium Londinum (*parentage unknown*), from the Rev. J. CROMBLEHOLME.

Laelio-Cattleya Schröderae var. Imperator. The sepals and petals are pure white, the lip and tube deep crimson. From S. GRATRIX, Esq.

Cymbidium Arthur (*glebelandense* × *rosefieldense*), a distinct new hybrid with green sepals and petals and a prettily marked lip. From the Hon. ROBERT JAMES.

Laelio-Cattleya Eunice magnifica (*C. chocoensis alba* × *L. anceps alba*), from D. LOSH THORPE, Esq.

Cattleya Tityus var. Ada Evans (*Enid superba* × *C. Octave Doin*), a variety with large flowers of fine colour, and exceedingly dark lip. From Mr. J. EVANS.

AWARDS OF MERIT.

Odontioda Cordor (*Odta. coronation* × *Odm. Doris*); *Odontoglossum Amazon* (*crispum* × *mirum*); *Cattleya Enid alba magnifica*, from S. GRATRIX, Esq.

Cypripedium Desdemona var. Radiant; *C. Thais Gratrixiae*, from Mrs. GRATRIX.

Cypripedium General Degoutte (*Earl of Tankerville* × *Mrs. F. W. Ashton*), and *Odontoglossum Odyssey* (*parentage unknown*), from A. HANMER, Esq.

Calanthe Rosabelle (*Wm. Murray* × *George*), from B. J. BECKTON, Esq.

Cymbidium Schlegelii var. Serena, from the Hon. ROBERT JAMES.

GROUPS.

S. GRATRIX, Esq., West Point (gr. Mr. J. Howes), staged a group for which a Gold Medal was awarded.

A. HANMER, Esq., Buxton (gr. Mr. G. Giles), was awarded a large Silver Medal for a group.

A. T. CUSSONS, Esq., Prestwich (gr. Mr F. Cookson), staged a group for which a large Silver Medal was awarded.

Messrs. J. CYPHER AND SONS, Cheltenham, also received a large Silver Medal for a group.

B. J. BECKTON, Esq., Irlams-o'-the-Height (gr. Mr. W. A. Stewart), staged a miscellaneous group, for which a Silver Medal was awarded.

ROYAL HORTICULTURAL.

Trial of Leeks.

THE following awards have been made by the Council of the Royal Horticultural Society to Leeks after trial at Wisley.

FIRST-CLASS CERTIFICATES.

4, *Royal Favourite*, purchased from Messrs. SUTTON AND SONS; 25, *Goliath*, sent by Messrs. STUART AND MEIN.

AWARDS OF MERIT.

28, *The Lyon*, sent by Messrs. STUART AND MEIN.

HIGHLY COMMENDED.

9, Carentan, sent by Messrs. J. CARTER AND CO.; 14, Monstrous Carentan (see also No. 12), sent by Mr. HOLMES; 21, Champion, sent by Messrs. NUTTING AND SONS, LTD.; 33, The Lyon, sent by Messrs. HURST AND SON; 42, Monarch (Renton's) (see also No. 45-48), sent by Messrs. WATKINS AND SIMPSON; 54, Musselburgh No. 2, sent by Messrs. HURST AND SON.

COMMENDED.

2, Leicester Hero, sent by Messrs. HARRISON AND SONS; 8, Large Rouen, sent by Messrs. TOOGOOD AND SON, LTD.; 12, Carentan, sent by Messrs. NUTTING AND SONS, LTD.; 22, Sent as Champion (Dobbie), but it is of Musselburgh type, sent by Messrs. BARR AND SONS; 27, Emperor, sent by Messrs. BARR AND SONS; 45, 46, 47, Monarch (Renton's) No. 2, sent by Messrs. HURST AND SON, R. VEITCH AND SON, and BARR AND SONS; 48, Musselburgh, sent by Messrs. J. KELWAY AND SON.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE monthly meeting of this Society was held in the R.H.S. Hall on Monday, February 12, Mr. Chas. H. Curtis presiding. The Chairman reported the death of the Treasurer, the late Mr. Thomas Winter, and votes of sympathy to the widow and daughter were passed in silence.

Mr. Arthur Bedford, being appointed Treasurer, resigned his position as Committeeman and Vice-Chairman, and Mr. W. H. Divers was elected Vice-Chairman *pro tem.* in his place.

Seven new members were elected. The sum of £106 11s. 11d. was passed for payment to four members from their deposit accounts, and the sum of £65 17s. 5d. was paid to the nominees of two deceased members. The sick pay for the month amounted to £97 16s. 6d. on the private side, and to £78 13s. 2d. on the State side; maternity benefits came to £4. A grant of £2 15s. was made to one member for dental treatment, and six further claims were considered. The sum of 30s. was granted to one member from the Convalescent Fund, and £500 was voted for investment on the State section.

Final arrangements were also made for the annual meeting on March 12, at which Mr. Chas. H. Curtis will preside; members are urged to attend that evening.

ROYAL SCOTTISH ARBORICULTURAL.

FEBRUARY 7.—The annual business meeting of this Society was held at 5, St. Andrew's Square, Edinburgh, on this date, the Duke of Atholl, K.T., president, in the chair. The membership, it was reported, was 1,724, the same figure as that for the previous year. The Council recommended that the excursion this year be to Sherwood Forest, and this was agreed to, the time to be the beginning of July.

Mr. John D. Sutherland, C.B.E., F.S.I., Assistant Forestry Commissioner for Scotland, gave an address on forestry, entitled "An Industrial Opportunity." He referred to the steps taken by the Government to inaugurate works for the benefit of the unemployed, and he thought the present time opportune to begin anew by assisting the cultivator with an outlet for his full productive capacity, and to the necessity for a national policy sufficiently comprehensive and elastic to be adapted to the requirements of the various parts of the country. There was not enough good agricultural land to go round. It was not enough to establish land settlements unless the occupiers were placed in a position to pay their rents, and to enable them to make good it was necessary to follow the process further by developing industries to which they could lend their full productive energies. The best source of development was afforestation, but commercial afforestation alone must be the object. He estimated that each thousand acres afforested would give employment over a period of sixty or seventy years to the value of £90,000 to £100,000, and this

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only included the utilisation of the crop down to the stage at which it left the saw-mills. He suggested a limited contribution in money to planters, on prescribed conditions. If the present temporary unemployment grant of £3 per acre planted were continued permanently, a plantation of 1,000 acres would cost the State only £3,000, and there would be a cent. per cent. expenditure by the planter, all of which practically passed to labour. The sum required in this country to assure the making of forests by the method suggested need not exceed, say, £30,000 annually, which would fix an annual planting of 30,000 acres, and an expenditure on labour of £27,000,000 within sixty or seventy years. Could any other known encouragement to rural industry show anything approaching this result?

The Duke of Atholl, who was accorded a vote of thanks for presiding, was re-elected president, and the following were elected to the vacancies caused by retirals by rotation—vice-president, Mr. John Broom, Bathgate; Councillors, the Earl of Stair, Sir Hugh Shaw Stewart, Bart., and Messrs. J. D. Sutherland, G. U. Macdonald and A. Morgan.

Obituary.

Samuel Parsons.—The American newspapers record the death of Mr. Samuel Parsons, a prominent landscape gardener, of New York, in his 78th year. In the early seventies he joined the firm of Calvert Vaux, and under them Mr. Parsons held the office of superintendent of the planting of the Central Park, New York, and for the greater part of his life was actively associated with that public park. In 1905 he was appointed Park Commissioner in succession to Commissioner Dallas. He laid out many large parks in America, including one of 1,400 acres at San Diego, California. He was also the author of several books on landscape gardening. Since 1916, he has been head of the firm of Samuel Parsons, 101, Park Avenue, New York.

TRADE NOTES.

THE Chamber of Horticulture has for the past several weeks had under consideration the question of freight charges in the Spalding and Wisbech areas for the cut flower traffic. A strong case, stating the position of matters in great detail, has now been completed by Mr. Seymour Cobley, and the Railway Clearing House authorities have been asked to receive a deputation of two growers from each district for the purpose of hearing the numerous arguments. In view of the probability of an early commencement of the outdoor flower season, it is hoped the deputation will be received shortly.

The main points of the case deal with the development of this branch of the industry in the locality concerned during the past 30 years. In early days, with but a small number of growers sending a few boxes daily, the owner's risk rate, or slightly reduced station to station rate, was considered reasonable; but there are now more than 80 growers in the district sending by the van load, and the boxes consigned in one day exceed those sent previously during the whole year, while the basis of the rates remains unchanged. This local industry has not yet recovered its pre-war level, but it is calculated that reasonable railway facilities will not only allow this to be done, but even increase it beyond former dimensions.

In 1922 the flower traffic from Spalding alone was over 1,500 tons; on one day 25 van loads (80 tons) left the station, and during the busiest months 10 to 15 van loads left daily for London and the large towns. The original rate (plus 50 per cent.), is still in force, and no advantage is given over a total weight of 56 lb., although the daily weight consigned is often two thousand times as much. Offers from a motor transport company prepared to handle the whole of the London traffic have been received. Facts and figures showing the fall in prices and cost of production, together with comparison charges on other goods, will be laid before the railway authorities, who are asked to provide a sliding scale rate for this cut flower traffic. The undermentioned scale is suggested as fair and reasonable to all parties: Up to 56 lb., present rate; 56 lb. to 1 cwt., 25 per cent. off existing rates; 1 cwt. to 5 cwt., 30 per cent. off existing rates; 5 cwt. to 10 cwt., 40 per cent. off existing rates; 10 cwt. to 1 ton, 50 per cent. off existing rates. The result of these negotiations will be published in due course.

AN important item in the production of flowers and vegetables is the use of a suitable and reliable fertiliser. Under the title of Abunda the Stonehouse Works Co., of West Bromwich, are offering a good fertiliser in cartons or bags in quantities suitable for small as well as large gardens.

As we hear that certain Dutch firms are again flooding this country with their gaily got-up catalogues, we think the following letter, which we last summer received from a customer, may interest your readers:—"I should like to thank you for the way in which you executed my small orders for rock plants last autumn. My garden is now full of colour, and I am more than satisfied. The plants came so well packed and grown that I do not think I have lost one. I had some of the same kinds of plants at the same time from a Dutch firm, and though yours were certainly about double the price, they are ten times the value."

The opinion expressed by our customer is by no means exceptional, and it is really where the Britisher scores every time over the Dutchman by giving his customer a better article and better service than he ever gets from Holland. For obvious reasons we should prefer that you do not publish our name, as we have no desire for a gratuitous advertisement. *London Seedsman.*

THE WEATHER.

THE WEATHER IN JANUARY.

THIS was one of the most persistently "westerly" Januaries during the fifty-two years' observations. It was also one of the mildest and most equable of those months. Wind velocity was considerable, but steady, rarely attaining gale-force; and, indeed, after the 11th, barometric pressure was unusually high. The air was very humid, but the normal rainfall was not reached. There was an exceptional abundance of ozone, and a slight excess of sunshine. The mean temperature was 43°, or so much as 4¼° above the Southport average. There were nearly 46 hours of sunshine, or two more than the normal number. Rain fell on 21 days, or four more than usual; but the total quantity was only 2.34 inches, or 0.29 inch below the average. There was no evaporation. The ground water-level was nearly normal. Gales were restricted to the 9th, 10th and 20th, and only developed any strength on the 10th. Thunder did not occur. Hail fell on four dates, but there was no trace of snow. Ground-frost was registered on 6 nights only, but nothing froze in the shade. Glazed-frost formed on exposed roads on the morning of the 13th. *Joseph Baxendell, The Fernley Observatory, Southport.*

THE WEATHER IN SCOTLAND.

Two slight falls of snow have been the only visible indications of a winter that has two-thirds gone, while a feeling of springtime in what should be the coldest month of the year has awakened the dormant activities of plants. The mean temperature for January was almost 2° above that of a normal March, the number of hours of sunshine was high and the rainfall little more than half that of an average first month of the year—a happy combination of weather ameliorating factors. Rain fell on 15 days—the first nine days contributing 8, and yielded a total of 1.69 inch, the wettest day being the 5th, with a fall of 0.38 inch. Bright sunshine was registered to an aggregate of 66.3 hours, giving a daily average of 2.14 hours and a percentage of 29; there were 8 sunless days. Barometric pressure, with a mean of 29.13 inches, varied between a highest of 30.45 inches on the 18th and a lowest of 29.03 inches on the 10th. The mean temperature for the month was 41.5°, against a normal of 37.3°, with a mean maximum of 47° and a mean minimum of 36°. The highest maximum, 53°, was recorded for three days—the 21st, 26th and 31st—and the lowest minimum of 30° also for three days—the 1st, 2nd and 13th. On four nights the temperature fell below the freezing-point, but as the lowest maximum was 32°, we were far from having even one day of continuous frost. On the grass, the mean temperature (minimum) was 33°, with a lowest of 26° on the 1st and 2nd; there were ten nights of ground frost. At 1 ft. deep the soil temperature fell from 38° to 36°, and then rose to 41°. On five days the wind was northerly, but during the greater part of the month westerly or southerly winds prevailed. *John Davidson, Meteorological Station of the St. Andrew's Provincial Committee, Training College Gardens, Mayfield, Dundee.*

ANSWERS TO CORRESPONDENTS.

HANBURY'S GARDENING, 1769: *W. B.* If by the above meagre title you mean *A Complete Body of Planting and Gardening . . . with practical directions for raising and improving woods . . . instructions for laying out . . . pleasure and flower gardens, etc.*, we cannot find an edition for 1769 recorded. There is one in folio, two vols., 1770-71, with 22 plates. Johnson considers it was commenced in December, 1769, and completed in 150 sixpenny weekly numbers in 1773. This work does not often appear on the market, and we can find only one reference to it in recent years. A well-known West End firm of second-hand booksellers offered a copy of it for £1 10s. in February, 1920. This evidently contained 38 plates of garden flowers, the date being given as 1771.

LAWN MOWER: *D. M.* A 10-inch lawn mower is large enough for a lady gardener to use alone for any considerable length of time. With the assistance of a boy, a 14-inch or 16-inch would be found suitable. Much, however, depends on the age of the boy, the lawn and the amount of grass it produces.

LILY LEAVES: *A. O'L.* The damage is not due to fungous disease; the trouble is caused by scorching, and may be due to scalding by sunshine, or the use of some specific at too great a strength.

NAMES OF PLANTS: *H. M.* 1, Lonicera Standishii; 2, Luculia gratissima; 3, Cobaea scandens; 4, Trachelospermum jasminoides; 5, Cotoneaster frigida; 6, Prunus cerasifera atropurpurea (syn. Pissardii); 7, Prunus Mume. *E. B.* Cornus Mas. *J. B. Mon.* (1) Euonymus radicans var. variegatus; (2) Cupressus pisifera var. plumosa aurea; (3) Pseudotsuga Douglasii; (4) Abies nobilis; (5) Picea pungens var. glauca; (6) Cedrus atlantica var. glauca; (7) Tsuga canadensis. *J. F. D.* Mesembryanthemum conspicuum. *H. E. B.* (1) Ornithogalum longibracteatum; (2) Liriope striata; (3) Tradescantia virginica.

NARCISSUS ORNATUS: *C. M.* The bulbs are attacked by the fungus Botrytis.

RASH CAUSED BY HANDLING PRIMULAS: *R. C.* No similar case of skin poisoning, caused by any of the Primulas you mention, P. sinensis, P. stellata and P. malacoides, has come to our notice before, although eczema caused by P. obconica is quite common. The susceptibility of a person to skin poisoning of this nature depends on the sensitiveness of the skin-nerve terminations. These vary in different individuals, and whilst many are readily affected by such plants as Primula obconica and Rhus Toxicodendron, others are able to handle them with impunity.

"RED SPIDER" ON CUCUMBERS: *C. C.* What you take for Red Spider apparently attacking your Cucumber leaves are the nymphs of a mite called Gamasus coleoptratorum. These mites are entirely carnivorous, and do no damage to the plants; therefore, they need not be feared.

REINFORCED CONCRETE FOR GLASSHOUSE CONSTRUCTION: *J. E.* Much depends on what you wish to grow in the houses. Reinforced concrete might be used with advantage for sills and uprights, but it would be unwise to use it for the rafters; wood would be drip-proof, warmer, lighter and much more serviceable, and last as long as the concrete. Ventilation would be more easily arranged in woodwork, and extremes of heat and cold would not have the same effect on wood as on concrete, nor would there be such sharp reactions on the temperature of the house.

SEED GROWING: *R. H. A.* The only book dealing with this subject with which we are acquainted is *Seed Farming in Britain*, by A. J. Macself. This may be obtained from the Hortus Printing Co., Burnley, price 2s. 6d. net.

Communications Received.—F. D.—E. B.—J. R. C.—P. P.—W. T. P.—G. L.—J. P., Sweden—W. H. W.—A. B

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THE

Gardeners' Chronicle

No. 1888.—*SATURDAY, MARCH* 3, 1923.

CONTENTS.

Books, notices of—
Fruit Foes 117
Journal of the R.H.S. Gardens Club .. 113
The Apple Tree .. 117
Canada, encouragement for horticulture in .. 115
Cirsium eriophorum .. 123
Cultural memorandum—
Propagating Begonia Gloire de Lorraine from leaves .. 118
Flowers in season .. 114
"Gardeners' Chronicle" seventy-five years ago 115
Glasnevin, notes from.. 121
"Gordon's Gardening" 120
Heaths, hardy 123
Hardy flower border—
Lychnis chalcedonica 122
Pulmonaria angustifolia azurea .. 122
Horticultural exhibition at Gothenburg .. 114
Horticultural societies, local 114
Indoor plants—
Solanum hybridum.. 115
Obituary—
Martin, R. F. .. 126
Waters, A. 126
Orchid notes and gleanings—
Odontioda Red Dragon 118
Paris Spring Show .. 114
Parks and gardens, public 118
Perennial carpeting plants 118
Pettigrew, Mr. A. A. .. 114
Plants, failures with .. 123
Plants in the Antipodes, northern 120
Potatos, wart disease of 114
Scotland, northern, as a forest area 115
Societies—
Association of Economic Biologists .. 126
Manchester and North of England Orchid 124
Reading and District Gardeners'.. .. 124
Royal Horticultural.. 124
Timber, Canadian .. 114
Vegetable garden—
Asparagus 123
Forcing Cauliflowers.. 123
Week's work, the .. 116
Wisley, notes from .. 121

ILLUSTRATIONS.

Pettigrew, Mr. A. A., portrait of 114
Primula Inayatii in the rock garden at Glasnevin .. 121
Pulmonaria angustifolia azurea 122
Roath Park, Cardiff: group of succulent plants in the conservatory, 115; lake embankment with formal beds, 117; students' garden in 119

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 40.1°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, February 28, 10 a.m. Bar. 29.4; temp., 51°. Weather—Dull.

British Sylviculture. Everyone who is concerned with British sylviculture will find matter of much interest in Mr. Duchesne's lectures* which are published in the July number of the *Journal of Forestry* of last year. Mr. Duchesne estimates that ninety per cent. of the timber used in this country is of foreign origin. The magnitude of importation may be judged from the fact that in 1920 timber imports were of the value of eighty-two million pounds sterling. It follows naturally that prices and demand for home-grown timber must be determined by prices and supplies of imported timber; and therefore that only very sound judgment in planting is likely to lead to remunerative results. Many factors have conspired to render timber production precarious in this country. The Navy no longer requires Oak, which was, in the days of wooden ships, the mainstay of the British forest. The railway has ousted wood from its previously pre-eminent position as a fuel. Hence the once profitable coppice is apt to be no longer profitable. Rural industries—those of the wheelwright, for example—are less widespread now than formerly, and hence local demand for wood is more restricted. Few people now use charcoal for burning for domestic use. Hence improved transport and the centralisation of industry handicap owners of woodland unless their woods happen to lie in the neighbourhood of special industries. The general unremunerativeness of woodland is not, however, due solely to declining and precarious demand; it is also in part due in not a few cases to the fact that the methods adopted have not always changed swiftly enough with the new and more difficult conditions. As an example, Mr. Duchesne cites the case of woodlands containing so many as seventeen different species of trees. To expect hardwoods, such as Oak and Beech, to grow in association with Larch and Douglas Fir is to ensure failure. On the subject of mode of planting, Mr. Duchesne is emphatic. He holds that most Conifers, with the possible exception of Larch, should be planted pure. Timber, like that of Spruce and Douglas Fir, is wanted without knots, and to ensure the supply of such timber mixed planting must be avoided. Of specially objectionable mixtures, Mr. Duchesne cites that of Scots Pine and Larch—the former needs to be grown close, the latter open, and therefore they cannot be mixed. With hardwoods, the case is somewhat different. Ash, for example, which has a higher value when young and has an open canopy, does better when grown with a shade-bearer, and a mixture recommended is Ash, European Larch, and Spanish Chestnut or Beech. Larch will draw the Ash and such drawn trees are said to produce the best timber. Again, Oak and Beech is a good mixture—Beech, indeed, being known to Continental foresters as the mother of the forest. With the former mixture there will be Ash poles and Larch thinnings saleable at an early age, and there is the Chestnut or Beech to conserve the soil; moreover, either Ash or Chestnut may, if it be profitable, be coppiced. Like Ash, Spanish Chestnut is in demand—the latter for furniture making—Spanish Chestnut being the material used in much "Oak" furniture. Larch is valuable, particularly when grown within range of coalfields, and there is also a demand for large Larch—so that the growers have alternatives which may enable them to make profits. Mr. Duchesne regards Douglas Fir as a most promising tree and one which should be grown on a large scale, for example, in the West of Scotland, where the rainfall is high. It will not, however, do on a chalky soil—as soon as its roots get down to chalk the leaves turn yellow and the tree dies. Douglas Fir grows well in Devonshire and in the Lake District. Spruce for high land, Douglas Fir for valleys is Mr. Duchesne's dictum. The pulp of the former enters into the composition of paper, and the timber yields "white deal." For exposed positions the Corsican Pine, which withstands gales, is to be commended—a tree for the poorest of lands. Other trees which may pay are Poplar and Willow—the former the fastest growing tree in this country. Both need plenty of room; they cannot have too much. Mr. Duchesne recommends that Ash, Spanish Chestnut and Oak should be cut down within an inch of the ground one or two years after planting, in order to encourage them to throw up a more vigorous shoot.

* "British Timber." Three lectures delivered at the College of Estate Management, 1922, by M. C. Duchesne, F.C.I. *Quarterly Journal of Forestry.* 3. XVI. July, 1922.

Our Coloured Plate.—With this issue we present our readers with a coloured supplementary illustration. This illustration represents one of the finest of hybrid Nepenthes—N. mixta, which is the result of crossing N. Northiana with N. Curtisii. The two parent species were discovered in Borneo many years ago by Mr. C. Curtis, when collecting for Messrs. Jas. Veitch and Sons, Chelsea. The hybrid is brilliantly coloured with crimson and scarlet on a green ground, and the wide, frilled rim to the mouth of the pitcher has an exquisitely polished appearance. It is a pity that Nepenthes have gone so largely out of cultivation, but at Kew and other botanic gardens there are representative collections of this wonderful genus of insectivorous plants, and, no doubt, as taxation declines and prosperity arrives, they will be grown again in many private gardens.

Peat Composts.—The value of peat in the preparing of composts is dealt with by Professor A. P. Dachnowski in *Departmental Circular* No. 252 of the United States Department of Agriculture. Peat in its natural condition is of little value as a fertiliser, and the chemically treated peat and bacterised peat put on the market have not proved very satisfactory. Prof. Dachnowski, however, advocates its use in the making of composts. It has power not only of absorbing and retaining water, but also ammonia. Peat supplies the soil with organic matter, which is not only of value in improving the physical properties of the soil and rendering the latter warmer and drier in winter and more retentive of moisture in summer, but is a source of energy to bacteria, which fix the atmospheric nitrogen. Its acidity assists materially in the decomposition of mineral salts and fertilisers, and with moderate applications of lime from time to time, the danger from sourness is obviated and the soil rendered suitable to beneficial soil organisms. The more fibrous peats need to be air dried and shredded, or else subjected to disintegration by the action of frost, for freezing breaks up the fibres, makes them softer and more elastic and generally reduces the peat to a more favourable condition. One of the best composts of peat is made by mixing it with stable manure, the proportions being sometimes one of each, or two parts peat and one of manure, or three parts peat to one of the dung. It is useful also to supplement the composts with clay, sod-loam, or mineral-fertiliser ingredients, notably ground rock phosphate or potash, in varying proportions, as may be required. The heap may be 6 feet to 8 feet wide and indefinitely long. Composts with coarse fibrous peat should remain in a compact pile out of doors for at least six months. They should be located in a shady, cool, well-ventilated place, kept in a fairly moist condition, and should be shovelled or forked over at least twice before use. Weed seeds carried by the manure in the compost pile will be killed by the increasing heat, which results mainly from the action of moulds and bacteria. If the pile gets too hot in summer, it should be turned over, and in doing this a little more of the fibrous peat should be added. Peat used in this manner in concentration camps for horses, cattle, poultry, and other live stock becomes transformed into a rich black manure and should make a valuable organic fertiliser. The possibilities of the use of peat as a deodorising absorbent and for conserving the fertiliser value of night soil have been recognised in several European countries, notably in Sweden. Observations of tests extending over a number of years, weighed in connection with the results of the practice from the point of view of profitable returns, have convinced many that sewage composts have not received the attention they deserve.

Journal of the R.H.S. Gardens Club.—The issue for 1922, forming No. 15 of this series, contains matter on a variety of subjects especially interesting to the past and present members of the Club, as well as to those interested in gardening generally. The volume has been edited with his usual thoroughness by Mr. John Fraser, who is one of the oldest members of the R.H.S. Gardens Club, for he was engaged in the old Chiswick Gardens so long ago as 1880. The articles and correspondence show that the members are spread over all parts of the globe: one of the most interesting contributions is from Mr. L. C. Edwards, who describes gardens in central tropical Africa. It is interesting to note that Roses are equally popular in that remote district as they are in Europe, and Mr. Edwards gives a list of the names of a few sorts that he has seen doing well, including La France.

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Maman Cochet, and Frau Karl Druschki. Ramblers, however, are not a success, for they refuse to flower in that country. He states that Solanum Wendlandii will grow anywhere, and in Uganda he has seen it completely covering a tree sixty feet in height. Bougainvilleas, Passion flowers, Allemandas, and Gloriosas are also common climbers in those parts. He has considerable praise for Arctotis grandis, which he states is a splendid subject for supplying cut blooms. Salvia splendens forms a small shrub in Central Africa, and requires to be cut back to the ground from time to time, as it becomes untidy. It is interesting to know that plants raised direct from seeds obtained from England are never a success, but that when seed is saved from them the plants become better each succeeding season. We learn that the antiquities discovered at Wisley and referred to in Vol. LXXII., p. 292, were found in the seven-acre field; in 1922 a few hut dwellings were discovered about three feet below the surface, and from evidence that was forthcoming it seemed that the place was a site of an ancient village for the manufacture of pottery, dating somewhere between 50 B.C. and A.D. 50. The list of members and their addresses at the end shows that a very large number of prominent gardeners have been associated with the R.H.S. gardens, either at Chiswick or Wisley.

Paris Spring Show.—The French National Horticultural Society has completed its preliminary arrangements for the holding of the spring show in Paris, which will take place at Cours-la-Reine from May 25 to June 3, 1923. There will be many prizes and medals, some offered by the French Government, some by private individuals; and besides these, the Society itself will award Diplomas of Honour for the best exhibits, only one award, however, being made to any one exhibitor. The Grand Prix d'Honneur will be awarded to an individual exhibitor, not to a collective exhibit; and there will be special classes for amateurs. Members of the jury will be permitted to exhibit, but not in any section which they themselves will judge. Details of the conditions for exhibits may be obtained from the Secretary of the Society (84, Rue de Grenelle, Paris), but it may be mentioned that all plants and flowers (except cut flowers, for which a little longer time is allowed) have to be at the show-ground two days before the opening date.

Canadian Timber.—The Imperial Institute Advisory Committee on timbers is conducting an inquiry into the possibility of extending the use in Great Britain of the timbers produced in the various countries of the Empire. The current report of the Committee deals with timbers from British Columbia and the eastern provinces of Canada, and the attention of the Office of Works has been called to the value of British Columbian Douglas Fir, Spruce and Hemlock for constructional purposes. As a result of special trials these woods are now included in their official specifications for Government buildings as alternatives to European woods. The Eastern Canadian timbers dealt with comprise soft woods, such as Spruce, red, yellow and white Pine, and hardwoods, including white Birch, Rock Maple, Beech and white Elm. According to the *Journal of the Royal Society of Arts*, the committee consider that the technical qualities of Eastern Canadian timbers are such as to warrant a far larger use of these woods in this country than obtains at present.

Horticultural Exhibition at Gothenburg, Sweden.—It is with considerable pleasure we learn that the horticulturalists of Sweden are reviving their quinquennial exhibitions, the sequence of which was broken by the great war. The last of the series was held in 1912; the next will be held at Gothenburg, from September 14 to September 23 of the present year. The authorities at Gothenburg are anxious that the horticulture of Great Britain and Ireland shall be represented at the forthcoming show, and they extend a hearty invitation to raisers and introducers of plants, flowers and fruits to exhibit their novelties, but all such novelties should be those put into commerce on or since January 18, 1920. As the horticulturists of Sweden, Denmark, Norway and Finland will take part in the great autumn exhibition, it is hoped that Great Britain and Ireland will avail themselves of this opportunity of displaying their new and rare plants and of getting into touch with Scandinavian gardeners and nurserymen. Inquiries concerning the show and notification of intention to exhibit should be addressed to Mr. T. Berg, 5, te Nordiska Trädgärdsutställningen, Göteborg 5, Sweden.

Mr. A. A. Pettigrew.—The Chief Officer of the Parks and Open Space Department under the Cardiff City Council is the youngest of three brothers who occupy notable and responsible positions in the horticultural world. The family name is well-known in Cardiff, as the late Mr. A. Pettigrew was for many years gardener to the Marquis of Bute at Cardiff Castle, and for a long time unofficial adviser on horticultural matters to the governing body of the capital of South Wales. Mr. A. A. Pettigrew was

MR. ANDREW PETTIGREW.

Superintendent of Cardiff Public Parks and Gardens.

apprenticed after the old Scottish method, and following six years' training under his famous father at Cardiff Castle, he went to Kew, where, as in the case of his two brothers before him, he took full advantage of the great facilities a Kew training affords. In 1900 he became gardener to the Earl of Plymouth, at Hewell Grange, Worcestershire, where he distinguished himself by creating many new features. Here he remained for fifteen years, and when his elder brother was appointed to the charge of the Manchester parks in 1915, Mr. A. A. Pettigrew was appointed his successor. All who have seen the public parks of Cardiff will agree that they are maintained in excellent condition. Some additions and several alterations have been made during Mr. A. A. Pettigrew's superintendency, and these have also added to the beauty and usefulness of the parks and open spaces of the busy city, which are described on p. 118.

Flowers in Season.—Mr. T. R. Cuckney, Arnside, sends sprays of a species of Pyrus which he states is the Japanese variety of Prunus communis (syn. P. domestica), gathered from an orchard at Arnside, Westmorland. He also states that he "has had this tree under observation for several years, and that it always flowers early in February, but was even earlier this year. The flowers are always destroyed either by frost or cold winds, and the tree in consequence never fruits. This Prunus appears to me to be the earliest of all the Plums to flower." Branches sent by Mr. Cuckney are smothered with blooms like small Plum flowers, the individual blossoms being about half an inch in diameter, and with stalks more than that long. The leaf buds are just expanding, and give a pretty touch of greenery to the shoots, which have a very dark bark. The tree is probably Prunus cerasifera, the Cherry Plum or Myrobalan, which is sometimes used as a stock for Plums. Except that the plant flowers earlier, it is difficult to distinguish it at this stage from the wild Plum, Prunus communis (P. domestica). The fruits, however, are very distinct.

Wart Disease of Potato.—As a result of the Wart Disease Immunity Trials carried out at Ormskirk, in 1922, the Ministry has decided to add the following varieties to its list of sorts approved as immune to Wart disease: Millar's Beauty, Marquis of Bute, Ben Lomond, Ben Ledi, Ben Cruachan, Utility, Golden Las, International Kidney, and Clifden Seedling. A report on the Ormskirk trials, together with details of the characteristics of the above-mentioned varieties, will be published in the Ministry's *Journal* for March, 1923. A complete list of the approved immune varieties, which alone may be planted on land infected with Wart Disease, may be obtained on application to the Ministry at 10, Whitehall Place, London, S.W.1.

S. T. Wright Memorial Fund.—We learn that the S. T. Wright Memorial Fund will close on March 31. Up to the present a sum of nearly £300 has been contributed, including £100 from the Royal Horticultural Society.

Northern Scotland as a Forest Area.—Professor Hosmer, Dean of Forestry in Cornell University, U.S.A., who made a lengthy tour of Europe, including Scotland, last year, in the interests of forestry education, has, in his report, made special reference to the northern half of Scotland as a potential forest area. He characterises as an enormous undertaking the scheme the British Forestry Commission has in hand at Craibstone, near Aberdeen, where the nurseries contain some 50,000,000 trees. He considers Craibstone an excellent field for research, in connection both with the nurseries themselves and the adjoining woodlands. About 650 acres of these latter have been added to the Craibstone estate since Professor Hosmer's visit. He also visited, in the course of his tour, the famous Ballochbuie forest, near Balmoral Castle, Aberdeenshire, the Seafield Woods in Upper Strathspey, in both of which districts the natural Scots Pine woods may be seen at their best; and the young woods of Douglas Fir and Sitka Spruce recently planted by the Forestry Commission on the banks of the Caledonian Canal. Summing up his Scottish impressions, Professor Hosmer declares that the North of Scotland is essentially a forest country, and forestry ought to be receiving more attention than it was doing at the present time, on the part of all sections of the community. There is need, he thinks, for greater activity on the part, not only of landowners, but of the State, as well as local authorities, who should be afforded an opportunity of co-operating with the Forestry Commission in afforestation work being undertaken in the districts in which they are specially interested.

Local Horticultural Societies.——It was stated at the annual meeting of the Norfolk and Norwich Horticultural Society, held on the 14th ult., that the spring show had never resulted in a success financially, the loss on these exhibitions averaging £50, and it was decided not to hold a spring show this year. The Chrysanthemum show, however, was, as usual, a great success, while the Rose exhibition was fairly well attended. There is a proposal to hold a show in June in connection with the exhibition of the Royal Norfolk Agricultural Association, and the Committee was authorised to enter into negotiations with the Agricultural Association. The Chrysanthemum show this year will be held on the same days as the Norwich Fat Cattle

See p. 118.

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show.——Two interesting presentations were made at a special meeting of the Hythe Gardeners' Society, held on the 5th ult. The secretary, Mr. G. Andrews, was presented with a walking-stick, and the chairman, Mr. Waghorn, who has held that office for twenty-one years, was presented with a smokers' outfit. The Mayor of Hythe has accepted the office of president of the society for the ensuing year. The society will hold an autumn show on November 7, and has arranged for a special exhibition of Roses at the meeting to be held on June 18.—— Aylesbury Chrysanthemum Society has had a very successful year, and been able to make contributions of £33 2s. to the Royal Bucks Hospital and £10 to the Aylesbury and Walton Sick Nursing Association. The society commenced the year with a balance in hand of £16 6s. 3d., and finished with a balance of £12 19s. 3d., notwithstanding that the prize money of last year's show was increased by over £10. The society has total funds amounting to £68 4s. At the annual meeting Mr. R. Partridge was elected president, and Mr. H. A. Papps reappointed secretary. Mr. S. G. Waters has offered a Chippendale Rose bowl for the finest display of cut Chrysanthemums at the next show, which is fixed for Thursday, November 15.——Mr. F. M. Vokes, of Sholing, delivered a lecture to the members of the Winchester Horticultural and Gardeners' Association on the 20th ult., his remarks being illustrated by photographs in natural colours of new and rare Daffodils. Mr. Vokes is a most successful exhibitor, and during his professional career has won over 4,000 prizes. He stated that the Sholing Daffodil and Spring Show would be held on Easter Monday.

Encouragement for Horticulture in Canada.—The person doing the most valuable work for the advancement of horticulture in Canada during this and succeeding years is to be awarded a medal by the Canadian Horticultural Council, which has accepted a donation of £20 annually from Mr. J. E. Carter, of Guelph, Ontario, for the purpose of providing the medal.

Appointments for the Ensuing Week.—Sunday, March 4.—Wakefield Tulip Society's meeting. Tuesday, March 6.—Royal Caledonian Horticultural Society's meeting. Wednesday, March 7.—Wimbledon and District Gardeners' Society's meeting; Lewes and District Horticultural Society's meeting. Thursday, March 8. —Wargrave and District Gardeners' Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*The Dumelow Crab.* The Dumelow Crab probably was raised by Thomas Dumolo, of Newhall, near Burton-on-Trent, who died about the year 1812 or 1813. He had a small farm there of his own; he did, or rather his wife did, rear Apple trees from pippins, and sold them or gave many away. Amongst his friends and acquaintances about Ashby-de-la-Zouch, he was called by some in that neighbourhood, the Apple-tree man. He had an orchard with many young trees in it, and two larger ones very good bearers The one a Northern Greening, the other bore a fine transparent, and when ripe, wax-like looking Apple, with the most beautiful yellow and red hues; both were very good keeping Apples, the one as good as the other in that respect, and these were the two principal trees from whence he had his winter stock for use. His wife's method was, when peeling Apples for use, to select the finest pippins and preserve them to plant at the proper season. When the pippins had grown and were of sufficient size to be removed, they were planted out in rows; there they remained, row after row, good and bad, year after year, until they bore fruit, when the best were marked with a piece of list or string, the inferior ones marked (blazed) to be grafted. Those that were not grafted were sold or given away under the name of a Crab Apple; those that had been grafted retained the name of the graft. The writer has heard the old man tell many tales about his Crab Apples, and knows what is written to be correct.—*J. D., Coleshill, Gard. Chron., February* 26, 1848.

INDOOR PLANTS.

SOLANUM HYBRIDUM.

This Solanum is undoubtedly one of the best plants to cultivate for the decoration of the conservatory or for giving brightness to rooms in the dwelling-house during the dull days of winter, on account of its bright red berries and dark green foliage. The plant is of very compact habit, and produces berries freely when grown in 5 inch and 6 inch pots, a size that is useful for standing in small vases for the decoration of dwelling-rooms.

Solanum hybridum may be easily raised from seed sown in heat in February or March, and the young plants, if grown on freely throughout the summer, will give a profusion of berries the following autumn. Its propagation may also be effected by cuttings of the young shoots placed in a warm temperature under a handlight or frame. This method is to be recommended, as it gives the opportunity of taking the cuttings from the finest-berried plants, thus ensuring stock of the best strain.

Many cultivators plant this Solanum out of doors during the summer, in rich soil, on a warm border. The plants are started into growth in the spring, and gradually hardened before they are planted out. They make stronger growth in this way and become more robust; but they require careful handling when lifted in the autumn; otherwise a considerable quantity of the foliage will drop after the roots are lifted and potted. A good plan is to give the roots a copious watering a day or two before lifting, especially if the soil is at all dry, to secure a good ball of soil and prevent a check to the plants. Be careful not to overpot them; as regards the size of pots, the grower should be guided by the size and vigour of the specimens.

After potting the plants, place them in a shady part of the greenhouse or pit until they begin to make fresh roots. When they are well established grow them in a sunny part of the house. Be careful not to grow them in too much heat, otherwise the foliage and berries will drop. Water the roots in moderation for a few weeks after potting, and shade the plants from the sun. Specimens grown in pots are the most successful, because if properly looked after, they receive no check such as is occasioned by lifting, and as soon as they are established in 5 inch or 6 inch pots may be plunged out-of-doors in ashes until the cold weather sets in, then taken indoors like any ordinary greenhouse plants, and treated accordingly. The top of the shoots should be cut away at the point where the last berry is formed. This will divert the whole strength of the plant to the development of the berries that are already formed.

If required for decoration early in the winter, the plants should be placed in a temperature of about 55° to 60° for a few weeks; otherwise cool treatment suits them best. Green fly is sometimes troublesome on the young shoots, and must be kept in check. Thrip and red spider often attack the plants when they are kept too dry, and feed on the tender leaves; the under sides of the foliage then turn a rusty colour and the leaves generally drop. The plants should be syringed frequently, and as a further precaution, the house should be fumigated occasionally. *John Heal, V.M.H.*, 10, *Musgrave Crescent, Fulham.*

FIG. 56.—GROUP OF SUCCULENT PLANTS IN THE CONSERVATORY, ROATH PARK, CARDIFF (SEE P. 119).

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The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Masdevallia Chimaera.—Masdevallias of the Chimaera section, which comprise M. bella, M. Chimaera and its varieties, and others, may receive attention if they are in need of potting. It is a mistake to disturb these plants if they are healthy and making satisfactory growth, but care must be taken that the compost does not become decomposed, as they resent a decayed rooting medium. Masdevallias of the Chimaera section should be grown in shallow baskets, as their flowers are produced from spikes which often come from the bottom of the plants and grow in a downward direction. The stronger-habited kinds such as M. Harryeana, M. Veitchii, and M. ignea, are best grown in ordinary pots; any specimens requiring a shift may be repotted at this season. It is not advisable to disturb the roots more than is necessary, only removing the sour, decayed material.

Cymbidium.—Such species of Cymbidium as C. giganteum, C. Tracyanum, the hybrid C. Winnianum and others which produce their flowers during the early part of the year, have passed out of bloom. Any necessary repotting may be done as soon as the young growths are sufficiently advanced, using a compost consisting of two parts good fibrous loam, one part peat fibre, some broken leaves, and Sphagnum moss, with sufficient broken crocks to ensure porosity of the compost. The latter should be used in a rough state, as the fleshy roots of these plants do not succeed in a compost that is very fine. The roots of all Orchids are a good guide to cultivators in this respect; those of a fine nature delight in a compost of a closer texture than the more succulent and thicker roots. Cymbidiums, when growing freely, are gross feeders, and soon exhaust the material unless it is of a strong, retentive nature. Use a liberal amount of crocks for drainage, as when thoroughly well rooted these Orchids require liberal supplies of water at their roots. These useful plants grow well in a cool position in the intermediate house, or the warmer end of the cool house, but generally the cool house is too moist and humid for them. Red spider, and sometimes a small scale insect attack the leaves, especially if the atmosphere of the house is at all dry, so that every precaution should be taken against these troublesome pests. Before repotting the plants it is advisable to thoroughly cleanse them, so that there will be less fear of attacks of insects afterwards.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Acacias.—As these shrubs pass out of flower they should be pruned hard, and kept a little warmer and closer until they break into growth; they will be assisted in doing this if they are sprayed with clear water several times daily in bright weather. If it is necessary to repot them, this is best done just as they are starting into growth. When growth is completed they may, with advantage, be stood out-doors during the summer. Some of the species are not well suited to cultivation in pots, this is especially true of A. dealbata and A. Baileyana and A. cultriformis; all of them make fine specimens when planted out in a cool conservatory. The species and varieties best suited for pot cultivation are A. armata and its varieties; A. diffusa, A. Drummondii, A. juniperina, A. obliqua, A. longifolia, of which there are many varieties, the variety mucronata being one of the best; A. platyptera, one of the earliest to flower, A. pulchella, A. Riceana and A. verticillata. They may all be propagated from seed, but it is usual to increase the best kinds from cuttings. For this purpose shoots with half-ripened wood should be selected, choosing the more slender growths for preference. The cuttings should be dibbled into pots of sandy peat made very firm and stood under a bell glass in a cold case.

Tuberous-rooted Begonias.—Seedling tuberous Begonias should be kept growing freely by giving them frequent shifts into light, rich soil; in their younger stages they are best grown in shallow seed-boxes. When they have attained a suitable size they may be potted, and a portion of them planted out in cold frames, where, in due course, they can be hardened and planted out of doors when danger from frost is over. Treated in this way they will make excellent, tubers for pot cultivation next year. Dry tubers should be started in sufficient quantity to meet the requirements of the establishment.

Other Begonias.—Begonia fulgens, B. gracilis, B. Davisii, B. Pearcei and B. Sutherlandii are all beautiful and interesting species, worthy of more general cultivation, also B. weltonensis and B. Evansiana. The last is nearly hardy, as it will survive in the open for several winters at the foot of a warm wall. In addition to the above, there are large numbers of so-called shrubby species, which are invaluable for furnishing the greenhouse and intermediate house. Some are winter flowering, others are at their best during the summer. They include such useful sorts as B. coccinea, B. fuchsioides, B. echinosepala, A. acuminata, B. Ingramii, B. Corbeille de Feu, and many others, which I hope to deal with in due course. They are nearly all easily propagated by means of cuttings inserted in pots and rooted in a warm propagating case.

General Remarks.—Continue to introduce forcing plants into warmth according to requirements. An increased amount of ventilation will be required, as frequent bursts of sunshine quickly send up the temperatures, but as cold winds are frequent, great care must be exercised in ventilating, opening the ventilators on the sheltered side of the houses, as nothing is more harmful to plants than cold draughts; shutting up the houses with plenty of sunshine is also harmful. Many plants will now require increased attention as regards watering.

THE HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Apricots.—As these trees come into flower the blooms should be carefully pollinated. If free setting varieties are not intermixed with shier fruiting sorts, pollen should be transferred to the blossoms of the latter from the former. Trees growing under wall cases should be examined to see if they are dry at the roots and watered or not, accordingly. Careful attention should be paid to the stopping of the young shoots as they develop. This should also be done in the case of Peaches and Nectarines grown in similar structures. The trees may be mulched with well decayed manure.

Quinces.—Do not allow the branches of Quinces to be crowded, as air and light are essential to the full development of the fruit.

Wall Trees.—Newly planted trees which have settled in the soil may be trained. Avoid crowding the young shoots, and allow ample room in the ties or shreds for the swelling of the stems.

Espalier trees and trees on Pergolas.—Newly planted trees of this description should be carefully trained. Where shoots are required to be turned up at appropriate distances apart thin sticks or canes should be tied on the iron or wire supports, one for training each shoot. The latter, when in full growth, soon strengthens, therefore, if raffia is used for tying it will last long enough for the shoot to retain the desired shape. The shoots should be cut back to a point as near the required width between them as possible; a distance of 16 inches to 18 inches apart is suitable for trees on pergolas.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Sweet Peas.—Make a sowing of this hardy annual in ground that has been well prepared. To allow for damage by mice or squirrels, sow rather more thickly than it is intended the plants shall remain, as thinning can always be practised and the surplus seedlings planted elsewhere. If Pea guards are not available, stretch strands of black thread over the seed-bed to keep off birds. Stake the plants early. Plants bitten by birds will grow again, but they will be much later in flowering because of the check.

Hardy Flower Borders.—Where these have not been attended to since the plants were cut down and cleaned, the free spaces between the plants should be dug over a few inches deep, not only for the sake of tidiness, but to aerate and warm the soil. Care is necessary not to damage any fleshy-rooted subjects or disturb any choice plant. Should the root-stock of any specimen have grown undesirably large, the plant should be taken up, divided and replanted. During the operation of digging over those beds some growers incorporate manure at the same time, but I prefer to apply the latter as a mulch later—when the ground has become a little warmer, and the surface roots more active. Granted the first method finishes the work at one operation, a matter to be considered where labour is scarce, but the latter method is, to my mind, the better.

Eccremocarpus scaber.—This quick growing, desirable climber, which is sometimes known as Calampelis scabra, may be raised from seed sown now in a warm greenhouse. The plants will produce a little bloom at the end of the summer or early autumn. After the seedlings have been potted and recovered from their disturbance, place them in a cold frame for a period before planting them out of doors. The second year and onwards the plants will flower earlier and more freely, especially on light, well-drained soils. In cold gardens some covering around the roots is advisable. Plants of Eccremocarpus in these gardens did not get cut down last winter, and the growth-tips of last year are already growing apace, while a few seed-pods are still in evidence. The flowers of this pretty rambler are orange and red, and tubular in shape.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Cucumbers.—If young Cucumber plants are nearly ready for planting out, make the hot-bed from fermenting materials that have been suitably prepared, and place a continuous ridge of soil, or mounds of soil, consisting of light fibrous loam mixed with leaf-mould, on the hot-bed; if the soil is of poor quality, add well rotted manure and bone flour to it. The young plants should be as near the roof-glass as is convenient. The heat of the bed should be on the decline before the plants are put out. A steady bottom heat of 75° to 80°, and an atmospheric temperature of 65° to 70° by night, and 75° to 80° by day are essential. Encourage free growth by affording abundant atmospheric moisture; provided the walls, paths, etc., are damped frequently, ventilating may practically be dispensed with. Apply water sparingly until the roots become active. If wireworms are present in the soil, they may be trapped by inserting slices of Potatos or Carrots deeply in the soil; the place of insertion should be marked, and the traps examined daily.

Pot Vines.—Young vines of last year's raising which have been rested in a cool house may now be started in gentle warmth preparatory to repotting them. The vines having been cut back some weeks ago to the two lowest, plump buds should have the ball of soil gradually moistened to encourage the vines to break into growth When the shoots have attained a

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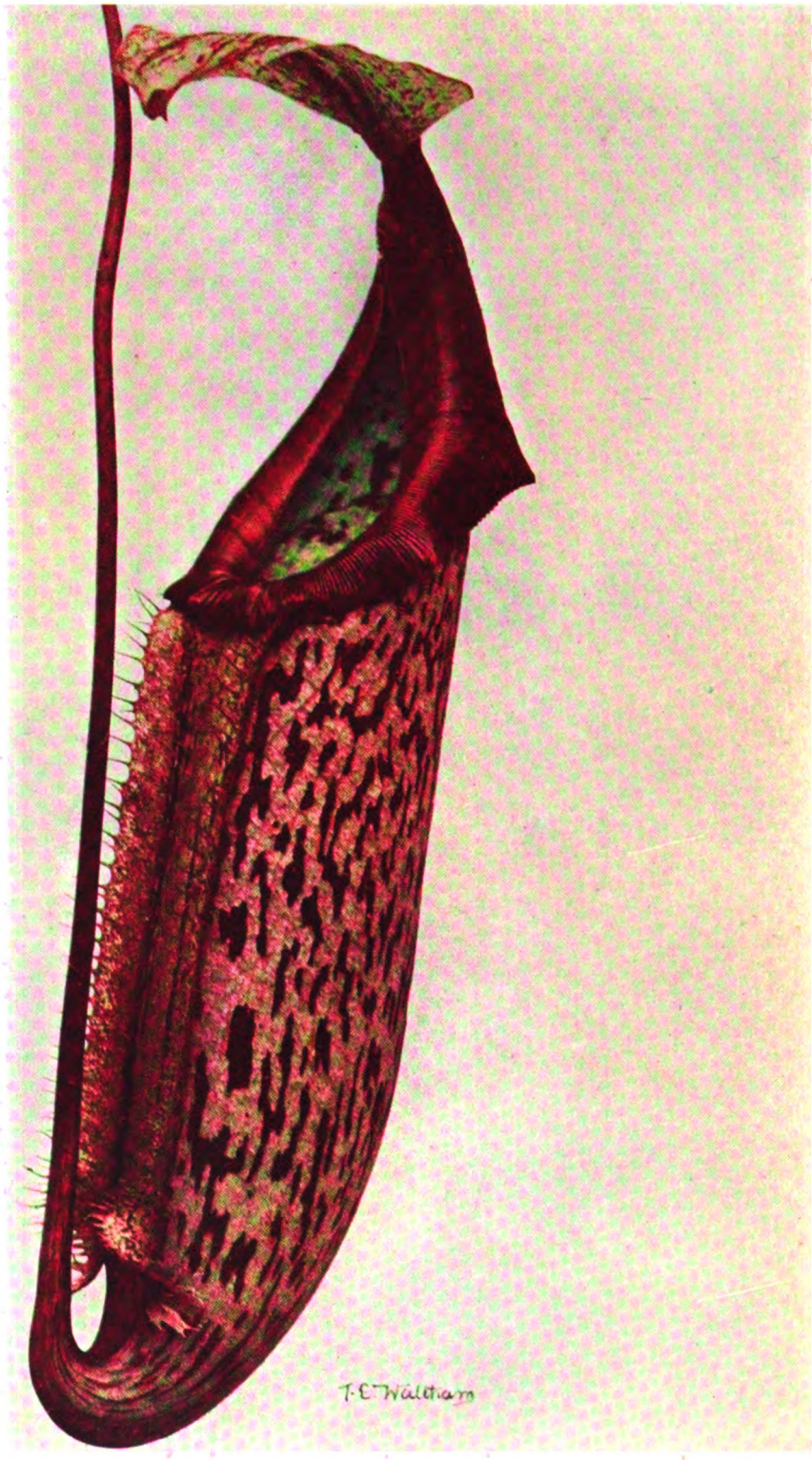

NEPENTHES MIXTA.

A hybrid from N. Northiana and N. Curtisii.

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length of about two inches, the vines will be ready for repotting. The potting compost should consist of good fibrous loam mixed with bone-meal and a liberal sprinkling of wood-ash. The compost should be prepared and stored in a dry, warm place in readiness for use when required. If the soil is deficient in lime, a dusting of freshly slaked quick-lime—a five-inch pottul to each barrowload of soil—will prove beneficial. Use 11-inch pots and see that they are crocked carefully, as efficient drainage is all-important. If the soil at the time of potting is reasonably moist, water should be withheld for a few days and then sufficient moisture given to soak the soil thoroughly. By plunging the pots in a mild bottom heat, root action will be accelerated. Syringe the vines daily. After a short period, remove the weaker shoot where two have started, securing the stronger to a light stake. Stimulants will not be required at the roots until the latter have permeated the soil.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Onions.—The plot of ground where it is intended to plant Onions should receive a dressing of soot and wood ash, and, if in a suitable condition, be lightly forked over, but this should not be done if the ground is wet. The past month, with its continued falls of rain and snow, has not been very favourable to ground operations, and nothing will be gained by attempting to do this work in a hurry. More especially does this apply to heavy and tenacious soils, which are benefited by being left in a rough state for so long as possible. To produce good serviceable-sized Onions for ordinary use, seed may now be sown in frames on a hot bed which has been used for forcing such crops as Asparagus. Fork the soil over, add a little fresh compost to it, and make it very firm. Draw the drills about six inches apart and sow the seed thinly, covering them with about half an inch of the soil. Rake the surface with a small iron rake, and give the bed a good watering. Keep the frame closed until the seedlings appear, then admit plenty of air according to the weather, and the result will be a fine crop of sturdy, young plants. In about a month or six weeks the seedlings will be ready for transferring to the open ground, planting them about six inches apart, and allowing a foot between the rows.

Cucumbers.—Beds should now be made in the Cucumber house for the reception of young plants raised from seed, sown as advised in a previous calendar. Make a hot-bed consisting of two parts leaves to one of long, stable litter, mixed well together, and placed about eighteen inches or two feet thick, taking care to make the materials equally firm all over the bed. On this place a layer of turf cut from an old pasture, and place the turves grass side downwards. Allow this to remain for a few days to allow the heat to moderate, then apply a light dusting of soot and old mortar rubble. Prepare a compost consisting of two parts of rough turfy loam, pulled to pieces by hand, one part leaf-mould and one part manure from an old Mushroom bed, with a sprinkling of half-inch charcoal to keep the materials sweet. Place the soil along the centre of the bed, and when it is warmed through turn the young plants out of their pots, and plant them firmly in the bed at intervals of about two feet. Place a neat stake to each plant, but do not tie it to the trellis for a few days, as the bed will sink a little. Water the roots sparingly for a time, as there will be sufficient moisture arising from the bed for their needs until the plants begin to grow. Syringe the latter overhead on bright days, and conserve all the sun heat possible rather than allow the pipes to become too hot, by resorting to much fire heat. Keep the walls and paths well damped, otherwise red spider may make its appearance. Pinch the leader out when the plants reach the first wire of the trellis, and as growth proceeds continue to pinch the leading shoots at every second or third joint. Do not allow the plants to crop too soon, but remove the first few fruits that form.

NOTICES OF BOOKS.

The Apple Tree.*

The author of this little volume is well known as the writer of several text-books on American horticultural practice. His latest work is of a different order. It is really a nature study book—a genial chat about the natural history of the Apple by one who evidently loves his subject and is a close observer. He takes his reader to the tree at various stages of its development and in all seasons, and shows them how it grows, how bloom and fruit are produced, what pests and diseases commonly attack the tree, etc. Although the object is to interest rather than instruct, there are lessons to be learned about pruning, grafting, budding and repairing wounds. Everyone who undertakes to prune Apple trees can do his work with more intelligence if he knows how the growth develops in a state of nature, uncontrolled by the knife. This is well shown by the author, who points out how the shoots, spurs and fruit-buds have developed during three years' growth of a branch. He is not amongst those who accept the common belief that an Apple tree should bear only every other year. "It is assumed that the making of a flower-bud requires more energy than the making of a plain leaf-bud. If this is true, there may not be energy enough to carry a flower-cluster and to make a new flower-bud at the same time. But if the tree is in proper vigour, is well fed, protected from noxious organisms, not allowed to overbear, it should have sufficient energy to make a crop every year, frosts and accidents excepted. It is probably a question of nutrition." Several of the chapters have reference only to American practice and varieties.

Fruit Foes.†

Gardeners, particularly amateurs, will find this book extremely useful in identifying the many pests and diseases that attack fruit trees and bushes. The most valuable feature is the series of thirteen coloured plates, depicting twenty-seven insect enemies, from drawings made by the late Miss Kate Ashley. These are well executed, and they are supplemented by numerous illustrations prepared from photographs and drawings, mostly of a helpful nature. In the text, brief life histories and descriptions of the pests and diseases are arranged under their principal host plants, which include Vines, Figs, Strawberries, Loganberries, Nuts, and Peaches, in addition to the ordinary orchard and bush fruits. In each case remedies or preventives are suggested. Generally these are reliable and up-to-date, but there are several errors and omissions. The only remedy given for the various aphides which attack the Apple tree is autumn spraying with soap and nicotine mixture "to destroy the newly deposited eggs." It is true that some entomologists have recently advised this method of killing the egg-laying females (not the eggs themselves), but it is hardly out of the experimental stage. Spraying just before the bloom opens, before the aphides have multiplied and protected themselves by curling the foliage, is still the standard remedy, and should certainly be mentioned, as should also the possible necessity of spraying again during the summer in the event of an attack by winged migrants from elsewhere, against which autumn spraying can never be any protection.

To keep hares and rabbits out of an orchard the old-fashioned barrier of tarred cord is recommended. That this may prove quite useless the present writer has learned from bitter experience.

In an otherwise useful chapter on sprayers and spraying, the reader is impressed with the importance of seeing always that the liquid is delivered in a "mist-like diffusion." This is correct for summer fungicides and arsenate of lead, but is useless in the case of contact washes used against sucking insects, and winter washes, both of which must be applied copiously through a coarse nozzle to be effective.

The section on insecticides and fungicides includes, mainly, modern, proved formulae, but lime-sulphur is wrongly placed amongst the former; and Burgundy mixture, which is so injurious to most fruit trees in foliage, is mentioned as an alternative to Bordeaux mixture. In spite of these mistakes the book is excellent value. *M. G.*

* *The Apple Tree.* By L. H. Bailey. London: Macmillan & Co. 117 pp. 7s. net.

† *Fruit Foes.* By T. W. Sanders, F.L.S., Editor of *Amateur Gardening*. London: W. H. and L. Collingridge. Illustrated. Price 4s. net.

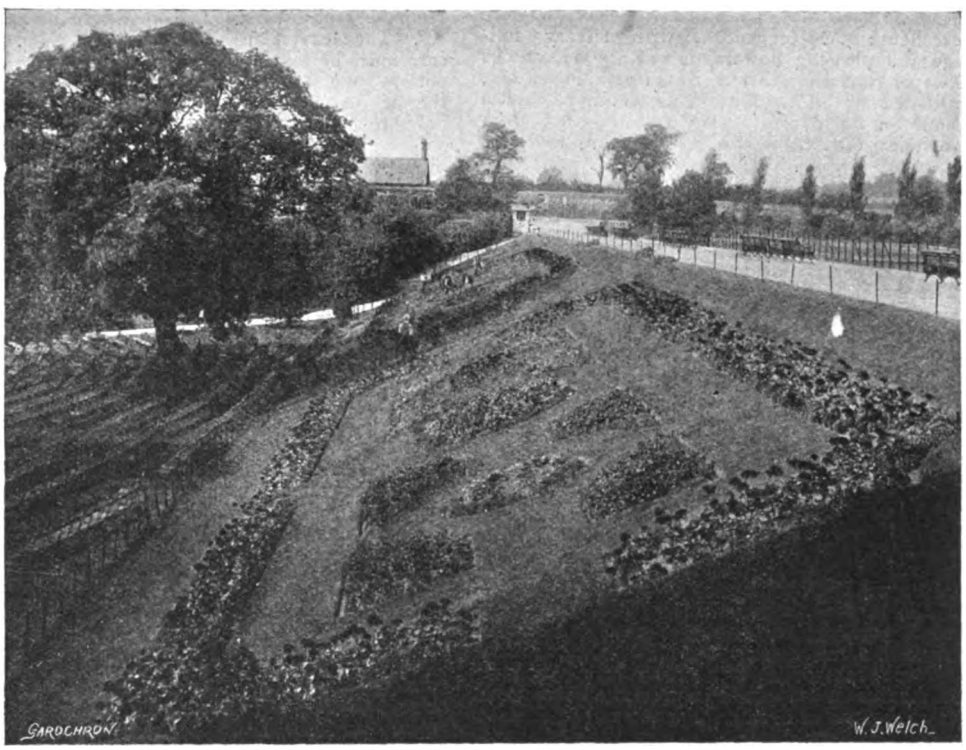

FIG. 57.—LAKE EMBANKMENT IN ROATH PARK, CARDIFF, WITH FORMAL FLOWER-BEDS

(SEE P 119)

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SOME PERENNIAL CARPETING PLANTS.

For carpeting the ground occupied by hardy early-flowering bulbs, the foliage of which dies off early and leaves the soil bare, or for furnishing the space between taller subjects, it is frequently necessary to carpet the ground with low-growing species. It is advisable to choose for these carpeters subjects which will not grow so strongly and densely as to interfere with the other plants. There are many suitable carpeting plants, but those named will be found fairly representative and generally useful for the purpose. Nor are they very expensive, which is a great consideration, as it is necessary to plant them in considerable numbers. Any of those named may be planted in spring or autumn.

The Acaenas, or New Zealand Burs, are excellent, and are much varied in their appearance. A. Buchananii, with Pea-green foliage, is exceedingly pretty, and so are A. inermis, bronzy-green, and A. microphylla, which, besides its small bronzy foliage has attractive, crimson, ball-like burs, set thickly above the leaves. Some of the Achilleas, or Yarrows, are excellent; A. tomentosa, with silvery foliage and pleasing flowers, is quite good, and is cheaper than the others. Antennaria tomentosa, with silvery-white foliage, is another capital plant for the purpose. The various species and varieties of Arabis are well known, and are excellent carpeters. One of the best of the single-flowered varieties is A. alpina compacta.

For shady parts, where a very close grower is required, Arenaria balearica is a charming plant with green foliage and tiny white stars; and I have seen the pretty A. laricifolia and even the exquisite A. montana, both with white flowers, employed for ground work.

Aubrietias will readily occur to the reader, and it is almost superfluous to say that purple, blue, lilac, pink, rose, blush and white may be selected for the flowering groundwork supplied by these useful plants. Cerastiums need no description, but the ordinary C. tomentosum is as good as any. The drawback of most of these Cerastiums is that they afford a harbour for slugs.

Many of the Dianthuses, or Pinks, are eminently suitable, and full choice of these may be made by studying nursery lists. The old double white Pink is good as a large carpeter; so also is Dianthus caesius, the Cheddar Pink. For a pretty green carpet adorned with rose-purple flowers we may have D. deltoides, the Maiden Pink, or its larger and finer congener, D. graniticus. Gypsophila prostrata is a good grey carpeter with white blooms, and in Herniaria glabra we have a green carpeter of small stature.

The Moneywort, Lysimachia Nummularia, makes a good carpeter, and the golden-leaved variety, L. Nummularia aurea, is a capital plant where a golden groundwork is needed. This last plant has the advantage of doing well in a damp place, even in the shade. Sagina glabra is a very good plant, and gives a dense carpet of greenery; while any of the Mossy Saxifrages give lovely carpets, and are attractive whether in or out of flower. Dwarf Sedums supply us with some pretty plants for our purpose, and among them are the common S. acre; the pleasing S. album; and the charming S. lydium, while the stronger S. stoloniferum may be utilised with advantage. Silene acaulis is a choice subject, but, although a good carpeter, is a shy bloomer with me. The bonny white Silene alpestris is a capital carpeter, and in the dwarf Thymes, varieties of T. Serpyllum, we have some admirable carpeters. Dwarf Veronicas, such as V. incana, V. Teucrium dubia, and V. repens are excellent. For places where a spreading habit may be allowed Linaria Cymbalaria may be acceptable, and such Campanulas as C. pusilla, C. carpatica and C. portenschlagiana may be cited as among the best. Tunica Saxifraga is also a capital subject. These are a few of the many useful carpeters which await the call of these who require them to give an added charm to their garden, and set off to the full the beauties of other flowers. *S. Arnott.*

CULTURAL MEMORANDUM.

PROPAGATING BEGONIA GLOIRE DE LORRAINE FROM LEAVES.

The present is a suitable time to commence propagating the different types of Begonia Gloire de Lorraine, such as Konkurent and Glory of Cincinnati. Propagation of the plants by leaf-cuttings, besides being a simple method, is a prolific one, as each leaf will give from two to five small plants, also, later, ten or fifteen root cuttings. As is well known, plants raised from leaves or stem-cuttings grow much more freely when once they make a start, and make much better specimens than those propagated from root-cuttings.

Presuming the plants have been kept on the dry side for a month or so, the leaves will have become more leathery and not so liable to damp in the propagating pit. Cut off each leaf with about half an inch of stalk and cut half through the veins of the leaves. Place the latter on a bed of sand, and make them firm by inserting the half-inch of stalk firmly in the sand. I root them in a temperature of 85° to 90°. The leaves are covered with glass, but care must be taken that too much moisture does not become condensed, for that would cause the leaves to rot before developing roots. Should there be signs of decay, remove the decayed portion at once. I place pieces of porous brick or charcoal on the leaves to absorb the excessive moisture; at the same time these help to keep the leaves pressed close to the sand.

With care and attention good results will be obtained in the propagation of these and other fleshy-leaved plants, such as Gloxinias, Streptocarpus, Gesnera, Kalanchoë flammea, from leaf cuttings in July or August when the plants have finished flowering and have been rested for a short time. A bulb will form in the case of the Gloxinia large enough to flower the following year. Dibble the leaves in sand or light sandy soil, inserting the thick end about one inch deep. This very old method of propagating, besides being prolific and economical, is also very interesting, especially to amateurs. In making the bed over a tank with hot-water pipes running through it and covered with slates or galvanised iron sheets, a good plan is to place a layer of broken potsherds covered with moss to prevent the sand running through; on the moss place a layer of washed sand two inches thick. press the sand firmly and water it before inserting the leaves. No further watering will be required, except a light syringing overhead in bright weather. As soon as the small plants appear, cut them carefully from the leaves and place them in small pots, in leaf-mould and sand. Place them in the propagating pit until they are well rooted. *James Page, Adelsnas Tradgard, Atvidaberg, Sweden.*

ORCHID NOTES AND GLEANINGS.

ODONTIODA RED DRAGON.

C. J. Lucas, Esq., Warnham Court, Horsham, sends the first flower of a very richly coloured Odontioda of good shape and large size, which he states was acquired with four other small seedlings from the Phillips collection. The cross is Odontioda Mars (Oda. Charlesworthii × Odm. Lawrenceanum) and Odontoglossum Clovis (Lambeanianum × Wilckeanum). In this, as in many crosses in which Oda. Charlesworthii takes part, the tendency is to produce almost wholly richly coloured sepals and petals, but the lip, especially in crosses in which Odontoglossum Pescatorei appears, usually retains the well-expanded white front, characteristic of that species. The sepals and petals are deep ruby crimson, the sepals with a very slight margin and the petals having a broader white band at the edge and white tip. The lip is pure white in front and ruby red at the base, the margin being white. There are gold markings on the crest; the column is white at the tip.

PUBLIC PARKS AND GARDENS.

I. CARDIFF.

It is the proud boast of the citizens of Cardiff that their municipal buildings have the finest environment of any civic buildings in this or, indeed, in any other country. Architect and gardener have both contributed to this result, for the magnificent buildings have been associated in the most pleasing manner with the Cathays Park, an open space of some 65 acres, on land that was formerly a part of the park and gardens of Cardiff Castle, which is quite near. Both buildings and park have been designed with a view to scenic splendour, and the result is most praiseworthy—a model for other towns.

The available land has been laid out as a series of open spaces, including a sunken garden. This is the smallest of the three principal areas which the Cathays Park includes, the others being known as Alexander Gardens and the Gorsedd Gardens respectively. The name of the latter is derived from the Gorsedd stones—the Gorsedd Circle, which encloses the prostrate Logan-stone that forms the seat of the Arch-Druid when the National Eisteddfod is held in Cardiff.

The Alexandra Garden is situated in a particularly sheltered spot, and includes lawns, flower beds, and shrubberies, the latter being filled with such interesting subjects as Picea excelsa pygmaea, various Cotoneasters and Barberries, Olearia macrodonta, Griselinia, Azara microphylla, Daphnes, various species of Osmanthus and beautiful Japanese Maples. The flower-beds are exceedingly beautiful in summer when they are furnished with bedding plants, including Ivy-leaved and Zonal Pelargoniums, Fuchsias, Heliotropes, Begonia semperflorens, and similar subjects.

Cardiff owes its wealth of municipal gardens mainly to the generosity of the Bute family, and it was only so recently as 1887 that the then Marquis of Bute, the Viscount Tredegar, and one or two other gentlemen presented the city with 140 acres of land for establishing what is now known as the Roath Park, the most important public park in the city. This delightful public open space includes all the best features which are possible in a park of this kind, and so skilfully has it been designed and planted that new features meet the visitor at every turn. But such beautiful places have to be made, and the chief credit must be given to the two successive members of the Pettigrew family, Mr. W. Pettigrew, now superintendent of the Manchester public parks and gardens, and his brother, Mr. A. Pettigrew, who succeeded him; these most capable gardeners having presided over the destinies of the park from its commencement. Roath Park is divided into six distinct parts, each of which has a character quite different from the other. The part nearest the town, comprising 23 acres, is used as a recreation ground, and on a summer's evening this is alive with old and young engaged in all manner of sports. In order to provide more space for games, the Roath Brook, which originally flowed through the centre of the recreation ground, was diverted to one side, and considerable expense was entailed in levelling the land for the purpose for which it was intended.

Leaving the recreation fields, the visitor enters the pleasure garden, an area of some 11 acres, full of the quiet beauty which lawns and flowers provide, with a wealth of trees and shrubs in happy association with them. The Roath Brook winds its irregular way through the garden amidst the natural vegetation of the banks, with trees meeting overhead—a scene of rustic beauty on which town-dwellers love to ponder. The planting of the brook with aquatics has not been overdone, but, where opportunity affords, Water Lilies and other water plants have been introduced, with a few suitable subjects here and there on the banks.

It is a very pretty park, with flower beds on the grand scale. Four large horse-shoe-

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shaped beds cut in the grass and furnished wholly with Geum Mrs. Bradshaw present a mass of glowing scarlet colour in late summer. The public bowling greens and tennis courts are in this part of the park. The borders, shrubberies and paths are in the best-dressed style, and the whole place is maintained in a highly efficient manner.

Another section of Roath Park is known as the Botanical Garden, and this is especially interesting to horticulturists for its collections of trees and shrubs, herbaceous and medicinal plants, and Alpines. The area of the Botanical Garden is 15 acres, and the list of plants it includes is published, and occupies 43 pages of the official guide to the park. This large assemblage of plants is of the greatest value to students of botany; a typical portion of the students' garden is illustrated in Fig. 58. It will be seen from the illustration that this garden is not of the severely formal type usually associated with such places, but has a setting of select trees and shrubs, with borders of

FIG 58.—THE STUDENTS' GARDEN IN ROATH PARK, CARDIFF.

such showy flowers as Pentstemons, Calceolarias, Violas, and Dahlias at appropriate spots. A rock garden occupies a considerable area of the Botanical Garden, and is situated on rising ground on the east side, and is reached by crossing bridges over the Roath Brook.

The conservatory (Fig. 56) is mainly occupied by a collection of succulents; the large Opuntia nigricans was brought from Palestine, 18 years ago, by the Vicar of Marshfield. Another fine feature of this part of Roath Park is the Fernery, that is mostly furnished with British species. This is in the direction of the lake, which is one of the glories of the place, and has been made by damming the stream, one of the embankments, furnished with flower beds, being shown in Fig. 57. The lake has an area of about 32 acres, and is used for boating, the sailing of model yachts, and fishing, for which charges are made. The water tumbles down a series of cascades in a corner of the Botanical Gardens, where it continues as the Roath Brook, and this spot is most beautiful, with Wistarias and species of Vitis overhanging the water, and such trees as Salix daphnoides and Eucallonia Ingramii near the water.

At the extreme northern end of the lake is a large area of land known as the Wild Garden. Beyond draining it and the provision of paths, this part is retained in its natural state, and is filled with native shrubs and flowers, of which we noted large numbers of Aconitum Napellus, a plant that grows plentifully in Wales.

The fish ponds, in which young trout, hatched in the Corporation hatchery, are reared, are situated in the Wild Garden. The rearing of trout in the Roath Park was described in *Gard. Chron.* of April 15, 1911.

A small, self-contained, enclosed garden to the extreme north of Roath Park—Llandenis Garden—contains some very fine Bamboos, Rhododendrons, and Heaths. In it is a pool known as Ffynon Llandenis, that is interesting because of the miraculous cures that were formerly associated with the waters. Llandenis Garden, although separated from it by fields, may be regarded as a part of Roath Park.

We are able to give only a very incomplete description of this beautiful park, for it would require much space to deal with it fully, and there are several other open public spaces to which we desire to refer. They include, beside Cathays Park and Alexandra Gardens, the Llandaff Fields, Victoria Park, and Sophia Gardens.

Llandaff Fields comprise a playing area of some 70 acres. During the war, 40 acres were devoted to allotments. In the entrance is a fountain and water pool surrounded with flower beds. In one snug spot is a fine clump of Arundinaria anceps, with a background of tall Elms near a stream. A large rockery is effectively planted with Alpines, on the lower slopes of which are excellent specimens of Cotoneaster horizontalis and C. microphylla. In the foreground of the water are clumps of Nymphaeas, with golden Lysimachia Nummularia, Spiraea Aruncus, Thalictrum glaucum, and other moisture-loving subjects on the banks. A Fern dell in the woodland provides a cool retreat in summer.

Victoria Park has an area of 19 acres, and is principally devoted to games, tennis and bowls being popular pastimes of the Cardiff people. It contains a bandstand, and, like all the open spaces of this important city, is well laid out, the fine lawns being freely dotted with specimen trees. Flower beds have been formed near the bandstand. This park also includes a large area of water which is the home of many wild-fowl and a seal.

A feature of this park is an avenue of Cupressus Lawsoniana, a most accommodating Conifer, which seems to do well in most districts. Around the pond are many ornamental trees, including Pyrus Aria, the Copper Beech, Taxodium distichum and Cedrus atlantica glauca, with a setting of Hollies, Bamboos and other evergreen shrubs. There are several very fine specimens of Pawlonia imperialis in this interesting park, which includes amongst other amenities, a miniature zoological garden.

The Sophia Gardens are in a very central position. They are approached through a double row of Elms and Chestnuts. This public garden has an area of 15 acres and is freely timbered, the boundary on the west bank of the River Taff being planted with a variety of trees. It is in the Sophia Gardens that flower shows and fêtes are held, and our readers will remember that the Royal Horticultural Society held a provincial show there a few years ago—unfortunately, during a spell of very wet weather, such as South Wales indulges in occasionally.

NEW PUBLIC PARK FOR GOUROCK.

WE learn that Gourock Town Council has purchased Gourock House and the adjoining grounds, extending over fifty-six acres, as a public park, the purchase price being £10,075. It is intended to develop a part of the area as a decorative park, and to devote the rest to recreation purposes. The grounds include a glen through which a burn flows, with a waterfall at one spot, and this is a most delightfully attractive feature. The estate of Gourock was formerly known as the barony of Finnart-Stewart, and in ancient times formed a part of the patrimony of the Douglas family. Upon the forfeiture of the Earl of Douglas in 1445 it was gifted by King James II. to the Stewarts of Castlemilk, from which family the barony was purchased in 1784 by an ancestor of the present owner, Colonel Duncan Darroch.

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"GORDON'S GARDENING."

THE only copy of this book which I have either seen or heard of is my own, an 8vo in plain calf binding. Its full title is *The Planters', Florists', and Gardeners' Pocket Dictionary; being a Practical Collection from the most approved Authors in the English Language, Relating to the above Three Parts of Gardening—adapted to the Climate of Scotland.* By James Gordon, Nurseryman and Florist, at Fountainbridge, near Edinburgh. Edinburgh: Printed for the Author M.DCC.LXXIV.

The site of Gordon's nursery is now covered by streets; it lay to the west of the city of Edinburgh. The volume is dedicated "To the Operative Gardeners in Scotland," and the author describes himself as an "affectionate Brother," which will remind the older generation of gardeners how in the days of their youth all young "Cabbages" were "made" brother gardeners.

In a brief preface Gordon approaches the eloquent in his praise of gardening, and quotes Addison and Cowley; but elsewhere he is baldly practical. And yet it is strange that he should give prominence to a method of producing variegation in the branches of trees by laying, day by day, corn or small pieces of bread round the stem of any tree, with the result of variegation following!

The arrangement of the work is alphabetical; the names are English, and the generic name follows, though that of an earlier date than Linnaeus. Indeed, it would require a special education in the plant names of the eighteenth century to enable one to locate the most of them, especially of the species. And in the many appendices, where English names only are used, the difficulty is vastly accentuated. On the whole it may be suggested that the value of the book consists in the longer articles in which common garden fruits, flowers, and vegetables are treated, and however dubious one may be regarding the originality of much of the contents these are obviously from the experience of the writer. Some are sufficiently interesting at the present time—Potatos, for instance. Eight varieties are named, four "mealy," and two "watery" to suit tastes. The Yam was grown to feed "fowls, etc." Medium-sized seed is preferred, small seed producing small plants, though a great change must have taken place in the productivity of small seed in the intervening period. Large Potatos were cut to two eyes, and what is now called the "rose-end" and preserved, was at that time cut off, as it still is by some growers. The rows were arranged 18 inches to 24 inches apart and the sets at 12 inches to 18 inches asunder. They were planted by means of a "dibble" manipulated by foot pressure, the set being dropped by a person following, who covered in the hole with soil moved by the foot. How that nothing new can be looked for in gardening appears from advice to hoe the surface before the growths appear—the more certainly to keep weeds under.

The Carnation may be selected for a flower, and our author gives a very good account of himself and it. It was immensely popular, and the varieties endless. The sections were Flakes, Bizarres, Piquettes—"These have always a white ground, and are spotted or pounced with another colour, such as scarlet, red or purple." How pretty some of them must have been! The fourth section were Painted Ladies. Gordon recommends that the smaller seeds be very carefully looked after, because from these the finest varieties were produced. The other cultural remarks are to the point, and an old-fashioned method of slitting up the lower end of cuttings is noted, which, if essential to the production of roots in bygone times, in these is not required.

The old florists had an elaborate system of tubs filled with water, raised on flower-pots, and trellises upon the tubs to hold the Carnation pots for protection when "in blow against the ear-wigs." Of the Clove July-flower, it is stated how "At present it is pretty scarce about Edinburgh, occasioned by the smoak, and the ashes, and over-dunging of the ground about that city." It was propagated by cuttings in July. "The true Clove is never propagated from seed, because it has none." Of Pinks "the new Dobson is the prettiest of the whole tribe, being of a more lively colour than the old, having the extremities of its petals finely tinged with white." The Charlotte "is a very beautiful flower of a red colour, something resembling the Clove-gilly-flower, but not so dark." From the China Pink a variety named the Sweet William Indian Pink had recently been raised, which came true from seed. Of the "Double fair-blowing Sweet William—called in England Sweet John," is a variety "called by some Fairchild's Mule."

The method of propagating Vines from eyes had not yet reached the Scottish capital, but Vines were grown in pots in stoves, on hot walls, and where there was a vinery therein. Gordon advises those who think of erecting a vinery to "see one that has ripened large quantities of fine fruit for several years in the Right Hon. Lord Alemoor's garden near Edinburgh." Under various heads there is much information regarding Apples, but of Scotch varieties there are comparatively few named, a noteworthy omission in connection with those named in the anonymous work on fruit culture six years earlier by Dr. Gibson. However, there are four "Lydingtons," Gogor, Hawthornden, Luphness, MacLean and Bancrieff, the spelling of most being phonetic. Similarly with Pears, the names of Scots varieties are limited, but there are Swan's Eggs, Muirfowl Egg, St. Andrew, Crawfords, Carnock, Achon, and Green Pear of Pinkie; Pinkie was an estate near Edinburgh celebrated for its trained Pear trees, and later for the transplanting of these successfully to a new garden.

There is a very interesting note on the doubling of flowers produced from seeds. Gordon believed that double flowers were degenerates, and notes that Stocks, Wallflowers, Marigolds, Larkspurs, and others, from seeds self-sown on gravel walks, gave more doubles than elsewhere in the garden! *R. P. Brotherston.*

NORTHERN PLANTS IN THE ANTIPODES.

SOME time ago Sir Herbert Maxwell, in terms to which I need not now refer, drew attention to the interesting question—How is it that plants of the North can establish themselves and make a new home in countries of the Antipodes, while plants from those countries, New Zealand for instance, are unable to establish themselves in the North?

The answer must lie, of course, in the endowment that the plants possess for efficient competition or adaptation to more or less new physical conditions in the one case, and not in the other; an explanation in the sense of accounting for all the facts we may not, perhaps, expect, but from the facts of a case it is often possible to arrive at a principle in action. Such a principle which applies to the above question—but apparently to the side only of direct competition—(since very special and peculiar adaptations to quite exceptional conditions in a given area are put aside)—I find stated by Sir Ray Lancaster on casually reading one of his books, *More Science from an Easy Chair*, and it may perhaps be of interest to readers of the *Gard. Chron.* In his chapter on "Animal Life in New Zealand," on p. 255, he writes, "Here I may state the great principle which, in regard to plants as well as animals, determines the survival of intruders from one region to another. It appears that setting aside any very special and peculiar adaptations to quite exceptional conditions in a given area, the living things, whether plants or animals, which are brought to, or naturally arrive at, such an area, survive and supplant the indigenous plants and animals of that area, if they themselves are kinds (species) produced or formed in a larger or more variegated area; that is to say, formed under severe conditions of competition, and of struggle with a larger variety of competitors, enemies and adverse circumstances in general."

Such is the principle as stated, and in accordance with it the flora of an oceanic island is exterminated by arrivals from a continent. Darwin especially maintained that plants produced in that wide spreading belt of land—Europe, Temperate Asia, and North America, always pushed their way down the great southern stretches of land by cool mountain roadways, and when they have arrived in the temperate regions of the southern hemisphere, they have at various geographical epochs starved out, taken the place of, or literally "supplanted" the native southern flora, which in every case has been formed on a narrow, restricted and peninsula-like area. The same greater "potency" has led to the inevitable survival of the animals of the larger area, when brought into contact with the animals of the small and restricted area. "Applying these principles to New Zealand, we see that no country, no area of land, could have a worse chance for the survival of its animal and vegetable children, than that mysterious land, isolated for many millions of years in the ocean, the home of the Tuatera, solitary survival of an immensely remote geologic age, the undisturbed kingdom of huge birds, so easy going that they have ceased to fly, and have even lost their wings!'

Is there not here surely a lesson for man; that the kingdoms of the earth wishing to survive must maintain a fighting capacity? It will be said at once that the point of view of Sir Herbert Maxwell's question is not the same as that referred to above. In the first case transfer of stock by the hand of man is understood, while in the second the workings of nature alone are in question, but there is, I think, an interesting parallel from the first that results are the same.

It may, perhaps, be suggested in this connection that while the easy-going birds of New Zealand were losing their wings, the plants, even the highly organised Compositae, were at least failing to acquire the adaptability that would enable them to live beyond the limitations of their own original home. *R. Irwin Lynch, V.M.H.*

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NOTES FROM WISLEY.

A WILD garden is a comforting possession in these days of enforced economy, and many unsatisfactory conditions may be excused by the fact that it is a wild garden. Even so, a good carpeting medium is most desirable since flowers show up to a greater advantage against a green background than against the bare earth.

The wild garden at Wisley rejoices in a luxuriant growth of Mosses. Through this soft carpet innumerable leaves of spring-flowering bulbs are now forcing their way; already flowers have appeared, and the Moss is starred with Narcissus cyclamineus, and with Snowdrops and Crocuses. Contrasting with this vivid green carpet is a little colony of Schizocodon soldanelloides, which stands out because of the crimson hue which its leaves assume at this time of year.

Other plants attractive in the wild garden at the present time are the Whortleberries (Vaccinium Myrtillus) with their fresh green stems, and self-sown seedlings of Pernettya mucronata which still retain their shining berries, ranging from a soft pink to dark red.

Another handsome berried shrub, but larger and of more recent introduction, is Cotoneaster serotina. This Cotoneaster has comparatively large, ovate-lanceolate leaves, and many loose bunches of brick-red fruits which remain for a long time on their long, green stalks. This plant received a Certificate from the Royal Horticultural Society under the name of C. glaucophylla. It is interesting to observe that Berberis japonica var. hyemalis not only bears its sweetly scented, yellow blossoms, but still retains the autumnal colouring of its foliage.

On the rock garden some of the early blooming, dwarf Rhododendrons are in flower, such as R. praecox and the smaller flowered R. dauricum. Several early flowering Irises are also to be seen, including I. histrioides, I. Bakeriana and I. reticulata. The dwarf variety of the latter, known as var. Krelagei, is flowering, the leaves of which are not visible until the almost sessile flower is over.

Numbers of Saxifrages, belonging chiefly to the Kabschia or "cushion" group, are in flower both out in the open and in the Alpine house. A nine-inch pan of Saxifraga burseriana var. Gloria is remarkable in that it bore no fewer than one hundred white blossoms, fully expanded. The variety S. burseriana crenata, though less floriferous, is a delightful plant and quite distinct by reason of the wonderfully neat crenation of the margin of the corolla.

Other Saxifrages of the Kabschia group or Kabschia strain now in flower are S. Paulinae and S. Faldonside, with pale yellow flowers, S. Irvingii, S. Boydii, and S. Ferdinandi-Coburgii, of a deep yellow colour, and perhaps most attractive of all, S. lilacina. Although the leaf rosettes of this beautiful little plant are but one-eighth of an inch in diameter, the flowers often measure as much as half an inch across.

Another section of the Saxifrages known as the Engleria group is also well represented. Most of its members are red or pink flowered, such as S. Frederici-Augusti, S. Griesbachii and S. media, all of which are in bloom; also S. Kotschyi which, with the exception of S. luteoviridis, is the only yellow-flowered example to be found in this group. There are several well-known hybrids between the Kabschias and Englerias, such as S. kewensis and S. Suendermannii, which are both curious and interesting plants.

A pleasing feature of the Alpine house is the natural and characteristic habit displayed by the plants, some of which it would be difficult to identify with the forced specimens frequently seen at exhibitions.

The alterations in front of the laboratory at Wisley are being continued and a broad walk is being made from the main doorway towards the rock garden, which necessitates considerable cutting into the existing bank of rock-work. The position of the glass-houses, however, makes impossible a satisfactory garden picture. Progress is also being made with the new Rose garden and large numbers of bushes have already been planted. *J. E. J. White.*

NOTES FROM GLASNEVIN.

MANY anomalies are apparent this year in the flowering of outdoor plants. Why, for instance, should Chimonanthus fragrans have been almost flowerless, while Prunus Davidiana has never before been so good? Although in no way related, they respond to a sunny season in the matter of ripening their wood and producing flowers. Last summer did not seem favourable to ripening, and no surprise was felt at the failure of the Winter Sweet, but the display made by the Prunus, aided by the absence of frost, was indeed a welcome surprise.

Again, Iris unguicularis last year was abnormally fine, yet this year very few flowers have been produced, although some are now appearing on the variety lazica; while we have rarely had such a wealth of bloom on Iris reticulata, which is planted in different positions. Iris Histrio and I. histrioides have not flowered at all, yet I. sind-pers and I. sindja-reichi are both in flower at present.

burseriana tridentina is one of the most satisfactory of the Burseriana section, a free grower bearing abundantly its large, pure white flowers. Primula Inayatii (Fig. 59), raised from seed received from Kashmir some years ago, has been flowering freely of late. Though not strikingly attractive from a decorative point of view, it is nevertheless of more than ordinary interest at this season, and is not without beauty in its umbels of pale lilac flowers. The Satin Flower, Sisyrinchium grandiflorum, old and well-known in gardens, is always admired. It likes a stiff, moist soil and resents disturbance.

In an earlier note I alluded to that fine Snowdrop, Galanthus Elwesii, always the earliest to flower, but among all the species and forms of Snowdrops grown here, I give the palm to G. plicatus Digby's variety. Of vigorous growth, producing broad, glaucous leaves, it bears the flowers on stout scapes well above the leaves; the blooms are as large as those of a good Elwesii, and of what one may call perfect Snowdrop form. This fine variety came to Glasnevin

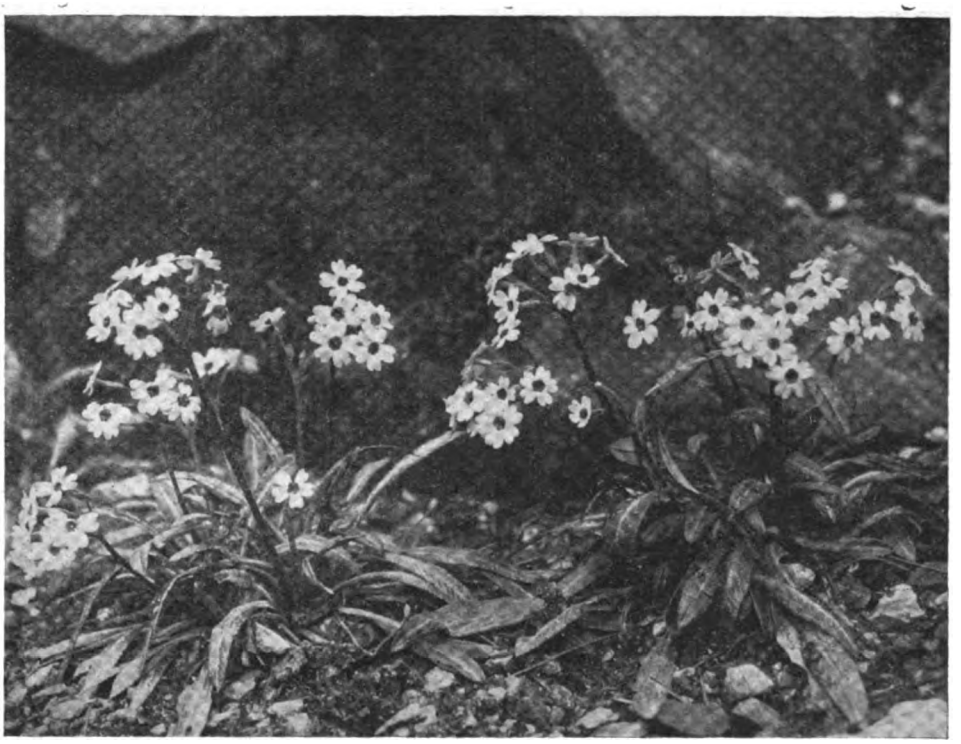

FIG. 59.—PRIMULA INAYATII IN THE ROCK GARDEN AT GLASNEVIN.

One of the most charming shrubs now in flower is Prunus dehiscens, a round, twiggy bush some 5 ft. high and as much through, the leafless twigs bearing abundance of large, shell-pink blossoms. Interesting, too, is Viburnum nervosum, flowering for the first time. The flowers are borne in sessile clusters on short side shoots, and are pink in colour, with a sweet Daphne-like scent. Our plants were raised from seeds presented by Mr. A. K. Bulley, who got them from Bhutan, where the plant grows in the Conifer forests at 12,000 ft. altitude. The white Daphne Mezereon is a delightful shrub; it grows here freely, sowing itself and coming true from seed. The purple form, considered the type, almost refuses to grow at Glasnevin, yet in the Trinity College gardens at Ballsbridge, a fortnight ago, many large bushes of it were smothered in flowers. Ribes laurifolium bears pendant racemes of pale, greenish-yellow flowers quite attractive at this season. Here it does best grown against a wall. The flowers are unisexual, borne on different plants, and to get the fleshy fruits artificial pollination is necessary.

Rhododendrons continue to be represented by R. moupinense, in different positions, while R. oreodoxa is already showing colour.

Many rock garden plants are rapidly developing their flowers, but the soaking rains are not conducive to their lasting qualities. Saxifraga through the good offices of Mr. E. A. Bowles, who recommended it to Sir Frederick Moore, and a supply was soon procured from the Rev. C. Digby, from his Lincolnshire garden. It may not be generally known that Snowdrops "move" best just when they have passed out of flower. We have proved this over and over again at Glasnevin, and always find that the bulbs reestablish themselves at once and flower the following year, while "dry" bulbs bought in the usual way take years to become vigorous. The Snowflakes, like Snowdrops, are good this year. Leucojum vernum is flowering freely, and also the varieties carpaticum and Vagneri.

The most striking plant at present in flower under glass is Solandra grandiflora, recently recorded as flowering at Cambridge. When given too much root room the plant is inclined to grow vigorously without flowering, but when the roots are confined in a pot, the water supply regulated, and the main shoots suitably "stopped," the flowers are freely produced from short laterals. The large, greenish white corolla, 7-8 inches long and half as wide at the mouth, has the lobes undulate and rolled back. This is without doubt one of the finest members of the Solanaceae.

Columnea magnifica, with its brilliant orange-red flowers from the leaf axils, always makes a good display, attracting attention from those who prefer ornamental plants apart from botanical

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interest. Begonia trigonoptera is a comparatively recent introduction from South America, and has somewhat the aspect of B. heracleifolia, having stalked, deeply-lobed leaves and tall flower stalks bearing many rather small, pink flowers.

Trevesia palmata is a handsome foliage plant from India, well enough known in Botanic Gardens, but probably not now much grown elsewhere. The large palmate leaves with irregularly lobed segments are the plant's chief attraction. The umbels of greenish-white flowers, in character much like other members of the Araliaceae, are of no special interest. Clematis florida is a beautiful and interesting greenhouse plant, though capable of cultivation in the open under favourable conditions. The comparatively large, creamy-white flowers, with a central boss of purplish staminodes, are of more than ordinary beauty and quite as good as many modern hybrids.

Orchids are still much in evidence, the numerous hybrid Cypripediums flowering over a long period. Others of interest are Masdevallia peruviana, Maxillaria dichroma alba, M. porphyrostele, the Javanese Coelogyne sulphurea, C. intermedia and C. cristata in variety. Dendrobium Hedyosmum from Burmah is a charming little species, bearing delightfully sweet-scented small flowers at the ends of the pseudo-bulbs. Other Dendrobiums include D. nobile Sanderiana and various hybrids. *J. W. Besant, Glasnevin.*

FIG. 60.—PULMONARIA ANGUSTIFOLIA AZUREA.

HARDY FLOWER BORDER.

PULMONARIA ANGUSTIFOLIA AZUREA.

The true Pulmonaria angustifolia azurea (see Fig. 60) is one of the purest and sweetest of the blue flowers of spring. The blooms are borne in twin-heads, each division carrying five or six flowers, but the great charm of the plant lies in the quality of its beautiful, clear blue flowers. There is no purple or pink in the petals; indeed, no colour other than the purest blue except for the buds, which are purple before they unfold. When fully expanded the flowers are about half an inch across. The plant grows no more than 6 or 9 inches high, and there is no spotting on the leaves, which are covered with soft, downy hairs. From this brief description it will be observed that this plant differs from our native Blue Cowslip (P. angustifolia), the flowers of which are at first pink, and afterwards turn bright blue, while the leaves are faintly spotted with cream, in two rows. The variety azurea is a great improvement on P. angustifolia, which is often erroneously sent out as azurea. To distinguish clearly between them the true azurea is now known in the trade as Munstead variety. This blue form is not common in gardens, though it has been grown at Munstead Wood for many years. The flowers open outdoors in March and April, and remain open for many weeks. At Munstead, where so many hardy flowers are grown to good purpose, this Pulmonaria is used as an edging to garden paths. Every third year the plants are taken up and divided after flowering, usually in late May. *Herbert Cowley, Tunbridge Wells.*

LYCHNIS CHALCEDONICA.

Long cultivated in British gardens, Lychnis chalcedonica has held the field wonderfully well, when we consider what numbers of charming new flowers have been introduced and how many others, once held in esteem, have been relegated almost to oblivion. The Jerusalem Cross, as it is commonly called, remains a favourite with those who cultivate it and do it justice by supplying it with its few requirements. It enjoys a rich soil, and if afforded this and plenty of manure, it will tower boldly up in the border to three feet or more in height, and will create a showy effect with its heads of bright scarlet flowers, which last a long while in perfection and hold their own among other border flowers.

The plant is easy to propagate by division in autumn or spring, and the single variety may be raised from seeds with the same ease as are the most obliging of hardy flowers. Besides the typical single scarlet form, there are at least two or three others in cultivation. I have heard of another—a pale red one—but it has never come within my observation. A white variety with single flowers is appreciated by some, but it has not the bright effect of the scarlet type.

Seeds of this white variety are offered by seedsmen, but will hardly come absolutely true. The double scarlet variety is a notable flower which has for many years been a great favourite. It can only be propagated by division or cuttings. It is a splendid border flower. A double white sort was formerly in cultivation, but I do not think that it is offered now. *S. Arnott.*

HORTICULTURE AT THE BRITISH EMPIRE EXHIBITION.

It was evident at the two meetings of horticultural traders held recently in London, one at the Board of Trade on January 30, the other at the hall of the Royal Horticultural Society on the 13th instant, that the great purpose of the British Empire Exhibition to be held at Wembley Park in 1924 is not grasped. The Exhibition was "designed to furnish a display of the natural resources of the various countries within the Empire, and the activities, industrial and social, of their peoples." At Wembley Park arrangements are being made on a scale which will enable this to be done. The resources of every part will be mutually displayed there. Producers will find markets, markets will find producers. Sufficient progress has been made already to satisfy the management of the Exhibition that the whole Empire, commercially speaking, will be at Wembley. Our overseas Dominions, Colonies and Dependencies are preparing for a display of their products to an extent that has already exceeded all expectations. There is every prospect that this Exhibition will surpass in magnitude and interest all others ever held in this country, and that it will afford opportunities for trade development that have never before been attempted.

So much for the Exhibition generally. But how does the project appeal to horticulturists generally, and to the horticultural trade in particular? Preparations are being made on an elaborate scale which will afford exhibitors in every department of the industry a splendid chance of demonstrating how the United Kingdom stands with respect to horticulture. That it occupies an important position among the great industries of the country is abundantly evident. Have we sufficient enterprise to seize the great opportunity which the Exhibition will afford to inform the world what horticulture means to us, and what our plant breeders and growers are in a position to supply? The object of the Exhibition is to enable them to do this on a scale that has never been attempted before. At the great International Exhibition held in Hyde Park in 1851, horticulture was scarcely represented, notwithstanding the fact that Sir Joseph Paxton was on the executive. No such oversight will take place at Wembley in 1924, if the facilities provided there at very considerable outlay by the Exhibition management are made adequate use of.

The Horticultural Committee is composed of sixteen representative men, Mr. William Cuthbertson being chairman, and potential exhibitors may rest assured that the efforts of this committee are on very commendable lines. A subcommittee looks after the interests of sundriesmen, including horticultural builders, machine makers and engineers, and it is intended to appoint a Press Committee for publicity purposes. A hundred leading men, including amateurs, traders and scientific workers, have accepted an invitation to form a Horticultural Council, with Lord Lambourne as president.

Although the Royal Horticultural Society does not appear to be willing to hold the May Exhibition in 1924 at Wembley, instead of at Chelsea, I feel sure the Society has the interests of the British Empire Exhibition at heart, and that the Council intends to take an active part in the efforts being put forward to make horticulture at Wembley a big success. This is as it should be, and I hope the other societies will also co-operate in the same spirit. The permanent features, such as formal and rock gardens, the beds and borders of shrubs, Roses, hardy herbaceous, perennials, etc., will be additional to the special exhibitions which the management desire to hold at Wembley. It is also hoped to provide exhibits of growing fruit trees, showing correct methods of planting, pruning and training, and plots of vegetables under the control of expert cultivators.

Another unique feature will be provided by India, the Dominions and Dependencies, who intend to have gardens furnished with striking decorative and economic plants representative of their vegetation and their agri-horticultural industries. These gardens will occupy areas

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adjoining the exhibition halls of the respective Dominions, etc., and should be of considerable attraction and interest. The plants for these displays are being specially prepared in their overseas homes, and they will be supplemented by others obtained from nurserymen in this country.

The circular letter published in the *Gardeners' Chronicle* last week gives particulars as to the lay-out of the Horticultural Section at Wembley, which will occupy about 10 acres in a favourable position with respect to accessibility and the grounds generally. Considering the period of the Exhibition, from April to October, the charges for space are not excessive. Special shows would be held in large marquees erected on a site adjoining the Horticultural Section. The profits made by societies when their shows were held elsewhere will be guaranteed by the Exhibition authorities. Some nurserymen have notified their intention to maintain a continuous display of indoor plants in specially erected greenhouses. In conclusion, I feel certain that if British horticulturists make the best of the opportunities which this great exhibition will provide, horticulture will be the greatest attraction of the many that will be set up at Wembley. *W. W.*

VEGETABLE GARDEN.

ASPARAGUS.

THE advice on page 80 as to the best method of preparing Asparagus beds reminded me of a plan which occurred to me some years ago, but which I have not yet had an opportunity of carrying out. I intend, however, to try it as soon as I have a garden again of my own, if indeed that happy time is ever coming.

We all know the appearance of the usual Asparagus bed when the growth is fully developed in summer. The plants are crowded together by seedlings which have appeared since the original plants were put in position, and it is no longer possible to distinguish each one as a separate individual. The result in the following spring is a crop of thin weak shoots and few of the fine fat sticks that gardeners would like to be able to show.

But how is this state of things to be avoided? Seedlings seem to be accepted as a necessary evil in Asparagus beds. Every gardener knows the difficulty of deciding when to cut down the plants in the autumn. He knows that the longer the stems are allowed to remain the stronger will the crowns be and the stronger the young growths in the following spring. He also knows that if the stems are left uncut until they turn yellow, the seeds are bound to fall about, and it is not always easy to make certain the following year that no seedling is allowed to grow up among the stems of the permanent plants.

Nature, however, has given us a remedy for this evil, for Asparagus officinalis is a dioecious plant, and each individual is either male or female. All we have to do, then, is to raise our plants from seed and to destroy or give away all the female plants. Obviously, if only male plants are grown, there will be no seeds to fall about and give rise to seedlings. If young seedlings are well treated, they ought to flower in their first, or at any rate in their second, year. A little close observation with a lens will then show the difference between the two sexes, and all the female plants can either be pulled or dug out at once, or marked for removal in the following April.

At first sight it might seem unfriendly to offer the female plants to a friend at a distance, but presumably, if he had no other Asparagus plants, they would remain unfertilised and produce no seed!

There is one other point. Asparagus does not like either transplantation or overcrowding. No plant in the usual Asparagus bed grows with the vigour of the self sown seedling, which has planted itself in a position where it has ample room to develop.

Seed is cheap compared with plants, and my advice would be to prepare beds of fertile soil and then sow seeds thinly in drills three or even four feet apart. The young plants should be thinned out till they stand a few inches apart, and should then be encouraged to make rapid growth by frequently hoeing the surface, and by giving occasional light dressings of nitrogenous manure. Then when the flowers appeared late in the summer, it would be hard luck if male seedlings could not be found which would stand three or four feet apart in every direction. All the others should be removed immediately, and those that were left should be treated and maintained as individual plants. Then, provided that the seeds of a good variety had been obtained from a reliable source, there should be no difficulty in growing those large fine sticks of Asparagus which seem to be almost the monopoly of French market gardens. The method advocated is not so rapid as the planting of purchased three-year-old plants, but the result in the long run should be infinitely more satisfactory. *W. R. Dykes.*

FORCING CAULIFLOWERS.

CAULIFLOWERS are amongst the easiest of vegetables to force, and are much appreciated at a time of the year when other vegetables are very scarce, namely in April and May.

I have just planted a house with 700 Cauliflower plants raised from seed sown in September in a cold frame. As soon as the plants were large enough they were pricked out into boxes filled with sifted loam mixed with old mortar rubble or lime. One of the chief points to observe is not to coddle the plants, but to grow them in as cool conditions as possible. In November they will be ready for potting in small pots filled with similar soil as before. A good plan is to grow them at this stage on shelves in the fruit houses, which are ventilated day and night, except when it is freezing.

In January, as soon as the Chrysanthemums are finished, we make a warm bed of leaves and manure, cover it with soil 7 or 8 inches deep, then plant the Cauliflowers from pots. Between the Cauliflower plants I grow Radishes and Spinach, which are ready for use before the Cauliflowers require all the space. (I made 1s. 6d. each for the heads in April, 1922.)

I always try to get this crop finished early, in order to plant a crop of Cucumbers or Melons on the same beds.

A house of Cauliflowers in April here is a good thing to see, also to have, as we cannot produce much in the kitchen garden after October or before July, but by careful management I have had Cauliflowers over a period of very many months.

The latest crop we lift with large balls of soil in October and place the plants in cold frames, protecting them from frost only.

I am certain that this method would be successful in some parts of England. Dig up the plants with a good ball of soil, say, in December, and pack them as closely together as practicable in a sheltered place. Cover them with straw or Bracken in severe weather. They will form good heads, and may be taken in any quantity at a time to a warmer place to prolong the season of cropping. I have had nearly all my Broccoli crop completely spoiled by frost in the South-West of England, even, but by the method described nearly all the plants will be saved, while the ground on which they are grown may be dug or ploughed in the winter, this being of benefit to the succeeding crop. Another point is that by lifting the plants and laying them in the ground, sappy growth, which is very detrimental to Broccoli in a severe winter, is prevented. *James Page, Sweden.*

The Earliest Peas.—In a trial of Peas conducted by Messrs. Kelway and Son, to test their order of cropping, the variety First and Best matured pods earliest, followed by Eclipse or Earliest of All, one day later; Ideal, three days later; Early Somerset, seven days later; and American Wonder eight days later.

HOME CORRESPONDENCE.

Hardy Heaths.—In my article on Heaths (p. 90) an error has inadvertently crept in. It is stated, in writing of E. Mackayii, that there is "also a double form of E. ciliaris known as E. Maweana." What I meant to have written is that there is a double form of E. Mackayii; E. Maweana is, of course, a single variety, but whether it is a hybrid or a form of E. ciliaris there seems to be some doubt. If the latter, it is larger flowered and better coloured than the type species. *A. T. Johnson.*

Cirsium eriophorum.—In my illustrated note on this handsome Thistle (*Gard. Chron.*, October 14, 1922), it was briefly stated that Dr. Petrak, of Czecho-Slovakia, calls the English form sub-sp. anglicum. A second letter from him has at last arrived. In it he states that the ample material sent him last autumn agrees with the only English specimen he had previously seen, and confirms his belief that "the C. eriophorum that occurs in England is certainly different from the forms found on the Continent; a good and easily distinguishable race; from [? by] the structure of the scales of the involucre and the size and shape of the flower-heads." Dr. Petrak's Monograph on the genus Cirsium is not yet published, it having been delayed by the war. *H. S. Thompson.*

Failures with Plants.—Sir Herbert Maxwell's notes on the many rare and interesting plants that he grows in his favoured garden at Monreith always prove a source of great delight to me. Sir Herbert's knowledge is so varied and extensive that one never fails to learn much that is new, and it is rarely indeed that the opportunity occurs for filling in a blank. I wonder if his account on pp. 36 and 37 of a few failures has given me one of those rare opportunities; if so, I shall be gratified. Most of the species to which he refers have never even been tried by me, but I have grown some of them. Of these, Dicentra spectabilis must be regarded as established and happy here. In one place in this garden there is a good-sized patch of it; I do not know how long it has been there, but it was large and flourishing when I came here in 1920, and is doing very well. It is in a distinctly shady spot, amongst well-grown shrubs—Rhododendrons, etc., and gets but little direct sunlight. I know of another clump planted below the window of a house on its N.N.E. side. It flourished for years to my knowledge, being gay for months each year, although a more discouraging situation could scarcely be imagined. I wonder if Sir Herbert has treated his plants too well, or put them in too sunny a position. I know of another place where the species thrives in a shady, woodland walk, amidst a mass of Blue Bells. With Gentians I have never done much good, but I once had a measure of success which may possibly afford a hint worth following. When in Switzerland years ago, before I had become especially interested in rock and alpine plants, I collected some plants of G. verna. I dug them up from a meadow, and each plant was a tiny thing with but a single stem in most cases. On reaching home, the smallness and feebleness of the individual plants so impressed me that I carefully gathered them together, as one might a bunch of Violets, and planted them, about 30, perhaps, all told, as one plant. I put them into a ridiculously unsuitable spot, a dry bank where birds enjoyed dust baths in summer, and they flourished! They spread into a fine clump, about half a square foot in size; flowered freely in spring and a little all the year round, and were a joy for a few years, until there came a year of drought—1911, I think—and I lost them. Of course, at home G. verna would grow packed tightly in a dense tuft, but we are not likely to succeed in similar conditions here; my bunching of these tiny plants, however, gave them somewhat similar packed condition, and perhaps, therefore, anyone who is fortunate enough to have sufficient plants to test the method, might also find planting them in a tight bunch a success, as it proved to be in this one case. *Calbran J. Wainwright, Daylesford, Handsworth Wood, Birmingham.*

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SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Thursday, February 15.—*Present:* The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, A. Burns, J. Birchenall, A. Coningby, D. A. Cowan, A. T. Cussons, J. Cypher, J. Evans, A. Hanmer, J. Howes, J. Jackson, W. M. Jackson, A. Keeling, D. Losh Thorpe, J. Lupton, D. McLeod, F. T. Paul, F. K. Sander, G. W. Thompson, J. Whitham and H. Arthur (Secretary).

First-Class Certificates.

Miltonia Reine Elizabeth var. Roi des Belges. A well formed flower with petals and dorsal sepal heavily blotched with crimson-purple; the large lip is pure white and striped in the centre with rosy-brown. From Mrs. Bruce and Miss Wrigley.

Odontioda Mulatto. A pleasing variety with rich madder-brown flowers. From S. Gratrix, Esq.

Vuylestekeara Rutherford's Sylvia (*Miltonia Bleueana* × *Odta. Joan*). A very distinct variety, the whole of the flower being coloured rich purple. From Col. Sir J. Rutherford, Bart.

Cypripedium Eurybiades var. The Baroness. The dorsal sepal of the well-set flower measures four inches across, and is beautifully spotted, with a deep, white margin; the petals measure 1¾ inch across, and are coloured rich reddish-brown; the lip is of even colour. From Baron Schroder.

Awards of Merit.

Cypripedium Admiral (*G. F. Moore* × *Beryl*); *Cyp. Icarnus West Point var.*; *Odontoglossum crispum Olympe*; *Dendrobium nobile Sir G. W. Moore* and *Odm. Dodeham Prince of Orange.* From S. Gratrix, Esq.

Odontoglossum Agapetum var. Brunette; *Odm. Adula var. rubens*; *Odm. Aireworth Beardwood var.*; *Brasso-Cattleya Vilmoriniana Rutherford's var.* From Col. Sir J. Rutherford, Bart.

Odontioda Mary Gratrix. From Mrs. Gratrix.

Cymbidium Schlegelii var. rubrochilum. From A. T. Cussons, Esq.

Cypripedium F. M. Ogilvie var. Conyngham. From Dr. Craven Moore.

Cypripedium Pioneer var. Alpha (*Zoe* × *Desdemona*). From P. Smith, Esq.

Groups.

S. Gratrix, Esq., West Point (gr., Mr. J. Howes), staged a collection of Orchids, for which a Gold Medal was awarded.

A Silver-gilt Medal was awarded to A. T. Cussons, Esq., Prestwich (gr. Mr. F. Cookson), for a group.

Capt. W. Horridge, Bury (gr., Mr. A. Coningby), staged a collection of cut Orchid blooms, and was awarded a Silver-gilt Medal.

Large Silver Medals were awarded to Mrs. Bruce and Miss Wrigley, Bury (gr., Mr. A. Burns), for a group comprised principally of Lycastes of the Skinneri section; to Col. Sir J. Rutherford, Bart., Blackburn (gr., Mr. J. Lupton); and to Messrs. J. Cypher and Sons, Cheltenham.

J. Whitham, Esq., Crompton Hall (gr., Mr. E. Greaves), exhibited a group of Cypripediums, and was awarded a Silver Medal.

A collection of photographs of Cypripediums in natural size was exhibited by B. J. Beckton, Esq., for which a Silver Medal was awarded.

READING AND DISTRICT GARDENERS'.

The fortnightly meeting of this Association was held on the 14th ult. Mr. A. H. Fulker presided. The subject for the evening was "Garden Roses," and the lecturer was Mr. A. J. Cobb, of Reading University College. An excellent and prolonged discussion followed the lecture. A prize presented by Mr. J. Wynne in a competition for three plants of Cyclamen, was won by Mr. W. Broomfield, Cliffe House Gardens, Mapledurham, with growing plants carrying splendid blooms and foliage. In the non-competitive section, Mr. E. Blackwell, Foxhill Gardens, was awarded a First-Class Certificate for plants of Primula malacoides, and a similar award went to Mr. M. Goddard, Bear Wood Gardens, for splendid blooms of Cheshunt White, Mme. Oberthur and Helena Stevens Chrysanthemums. Mr. F. Townsend, Hillside Gardens, staged some excellent sticks of The Sutton Rhubarb, and Mr. T. B. C. Udale some highly coloured sticks of Rhubarb pulled from one-year old plants. Six new members were elected.

ROYAL HORTICULTURAL.

February 27.—The bleak weather outside the R.H.S. Hall was in marked contrast with the spring-time effect inside. Visitors were numerous, and the hall was comfortably filled with exhibits of Orchids, Cinerarias, Daffodils, Tulips, Rhododendrons, Azaleas, Alpines and Carnations. A few interesting novelties were brought forward, and it was cause for pleasure that two of these were exhibited from Kew and from Oxford Botanic Gardens. If exhibits were made by other botanic gardens and public gardens, they would add greatly to the interest of the meetings.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Jas. O'Brien (hon. secretary), Gurney Wilson (assistant secretary), C. J. Lucas, Arthur Dye, S. W. Flory, H. G. Alexander, J. E. Shill, J. Cypher, Fred. K. Sander, A. McBean, Henry H. Smith, T. Armstrong, G. F. Moore, H. T. Pitt, E. R. Ashton, W. J. Kaye, Stuart H. Low, J. Wilson Potter, R. Brooman White, and Chas. H. Curtis.

First-Class Certificates.

Cymbidium Alexanderi var. Rosalind (*insigne* × *eburneo-Lowianum*), from Lt.-Col. Sir Geo. L. Holford, Westonbirt, Tetbury (gr., Mr. H. G. Alexander). Cymbidium Alexanderi, in its many varieties, as raised at Westonbirt, is still the leading Cymbidium, and the variety Rosalind is one of the finest and most distinct. The plant bore two spikes, with altogether twenty-one flowers of large size and model form; they are blush white with darker veining, the lip having a rose tinge in front and rose spotting.

Cymbidium Auriga (*Alexanderi aurantiacum* × *Excelsior*), from Messrs. J. and A. McBean, Cooksbridge. The very fine plant bore two spikes of six and eight large and finely formed flowers respectively. The blossoms are of wax-like substance, cream white, tinged with Primrose-yellow and with a band of light reddish markings on the front of the lip.

Awards of Merit.

Odontioda Colinge var. Rosemary (*Odm. crispum The Baron* × *Oda. Coronation*), from J. J. Bolton, Esq., Claygate Lodge, Claygate (gr., Mr. S. Lyne). Flowers large and of fine form, coloured deep claret red with a white blotch at the tips of the petals; the front of the lip is white blotched with rose.

Odontioda Rufus var. Wickham Beauty (*crispum* × *Oda. beechensis*), from G. W. Bird, Esq., The Manor House, West Wickham (gr., Mr. Redden), the finest of the several forms of Oda. Rufus raised by Mr. Bird. The flowers were formed like a good Odm. crispum, the inner two-thirds of the sepals and petals deep claret red, the tips and broad margins white. The lip is white in front, marked with purple in front of the yellow crest.

Cypripedium Senator (*Gladiator* × *Lord Wolmer var. Duke of Marlborough*), from Messrs. Flory and Black, Slough, a very distinct Cypripedium of the C. Beekmanni class. The large, circular dorsal sepal is pure white, evenly spotted with dark claret. The lip and petals are yellow tinged with chocolate.

Groups.

Messrs. J. and A. McBean, Cooksbridge, were awarded a Gold Medal and general Cultural Commendation for a magnificent group, every specimen in which was grown and flowered in the best manner. Odontoglossums and Cymbidiums were chiefly at the back and each end of the group, the main part being artistically furnished with fine Odontoglossums, scarlet Odontiodas, white Cattleyas and Laelio-Cattleyas. Among the mass of fine examples specially noteworthy were Odontoglossum Melpomene, of rich colour, contrasting well with the white O. crispum Alabaster, of model form, and the violet spotted O. Gorizia (Jasper × President Poincaré). Among the Cymbidiums was a grand plant of C. Alexanderi album, for which Messrs. McBean had previously obtained a First-Class Certificate. Good specimens of the best white Cattleya Trianae alba and C. intertexta alba were arranged with scarlet Odontiodas, several with over forty flowers. The fine Oncidium McBeanianum, with its long, trailing sprays of large flowers, was very effective.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood) was awarded a Silver-gilt Flora Medal for an excellent group in which were several superb novelties, the finest being the large Odontioda Cardinal, which had previously obtained a First-class Certificate, one of the very finest of the rich cardinal-red forms; and the beautiful Miltonia Bleuana Queen Elizabeth, a model flower in which the great feature is the vinous purple colour of the petals. Some fine white forms of Odm. crispum were also staged, with richly coloured hybrids and brilliant Odontiodas; also a selection of Dendrobiums, both hybrids and species, and the sprinkling of rare species usually to be seen in Mr. Pitt's group.

Messrs. Cowan and Co., Ltd., Southgate, staged a well arranged group of rare hybrids in which two fine and very dissimilar forms of their new Laelio-Cattleya Dodona were interesting exhibits. Their strain of Cattleya Tityus showed to advantage, and Laelio-Cattleya Osric and other Laelio-Cattleyas were included in the group, with good Odontoglossums, Odontiodas and Dendrobiums. A richly coloured form of Odm. illustrissimum was specially noteworthy.

Messrs. Stuart Low and Co., Jarvisbrook, Sussex, were awarded a Silver Flora Medal for a pretty group of Odontoglossums, Odontiodas, Dendrobiums and Cypripediums. A pretty novelty in the group was Potinara Lowii (Lowiara insignis × L.-C. Luminosa), a very bright and well-formed flower of vermilion red with a gold shade, the well-rounded lip being rose-purple and having white lines running from the base.

Messrs. Sanders, St. Albans, were awarded a Silver Flora Medal for a pretty group of Dendrobiums, both hybrids and varieties of D. nobile, the best of either section being their D. nobile Our Prince. A good selection of Cymbidiums, including the very pretty Cymbidium Martin, C. Pauwelsii and others, were well arranged with Odontoglossums and other showy flowers.

Other Exhibits.

Pantia Ralli, Esq., Ashtead Park, Sussex (Orchid grower, Mr. Farnes), showed the beautiful Brasso-Cattleya Albion (C. Trianae alba × B.-C. Thorntonii alba), a large flower of model form and pure white.

J. J. Bolton, Esq., Claygate, showed a very finely coloured form of Odontoglossum Fabia.

Messrs. Flory and Black, Slough, staged a selection of showy hybrids, including the pretty Sophro-Laelio-Cattleya Flammea (S.-L.-C. Eros × C. Lawrenceana), and several good Cypripediums.

Baron Bruno Schröder (gr. Mr. J. E. Shill) showed splendid spikes of Cymbidium Pauwelsii The Dell Variety, part of the thirty spikes borne on the plant now in flower.

Lt.-Col. Sir Geo. L. Holford, K.C.V.O. (gr. Mr. H. G. Alexander) exhibited a fine plant of Cymbidium Martin, Westonbirt Variety, with two spikes of fourteen flowers; also the yellow Laelio-Cattleya Ilma.

Mr. H. Mariner, Kingston-on-Thames, showed two forms of Cypripedium insigne of the Maulei section.

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Floral Committee.

Present: Messrs. Henry B. May (in the chair), G. Reuthe, John Heal, W. J. Bean, W. A. Bilney, Reginald Cory, Jas. Hudson, J. W. Barr, J. B. Riding, R. W. Wallace, M. C. Allwood, C. R. Fielder, J. Jennings, W. Howe, H J. Jones, W. B. Gingell, A. Turner, Chas. E. Shea, C. Williams, D. B. Crane, W. P. Thomson, Chas. E. Pearson, R. C. Notcutt, H. D. McLaren, Thos. Stevenson, G. W. Leak, W. B. Cranfield, and W. G. Baker.

AWARDS.

FIRST-CLASS CERTIFICATE.

Arctostaphylos Manzanita. — A beautiful, dense, erect-growing shrub, with dark greyish-green ovate leaves borne on stiff, upright stems. The flowers are pink or white, in small pendulous panicles, like little bells, and much resembling the flowers of an Andromeda, while the older stems have red bark, like that of Arbutus. A visitor described the plant as "an Arbutus with Eucalyptus leaves." At Kew, this shrub grows and flowers freely, and one specimen has become almost a tree. Shown by the DIRECTOR, ROYAL GARDENS, Kew.

AWARDS OF MERIT.

Rhododendron strigillosum.—This interesting species has the merit of being quite hardy, but, of course, being very early flowering, bad weather may sometimes spoil the flowers. In the specimens shown, the shape and colour of the flowers closely resembled those of a scarlet form of R. arboreum, but the leaves are somewhat narrow, about six inches long, and the stems are clothed with rust-red, soft bristles, which give the plant a distinct appearance. Shown by Lady ABERCONWAY, and the Hon. H. D. MCLAREN, Bodnant, North Wales.

Rhododendron ciliicalyx.—An exquisitely beautiful Rhododendron, with large flowers of the purest white. It cannot be regarded as a hardy plant, but it is well worthy of the shelter of a greenhouse or conservatory. It belongs to a group of which R. Veitchiana may be regarded as the popular member. The broadly expanded flowers are about five inches across, and have a pale lemon yellow stain in the throat; they are also slightly fragrant. Shown by Mr. W. G. BAKER, Curator, Oxford Botanic Gardens.

Saxifraga R. V. Prichard.—This fine encrusted Saxifraga is obviously of S. burseriana descent, as it is very like this species in habit and in style and size of flower. The latter, however, are paper white with greenish base. The parentage of the variety was not given. Shown by Messrs. MAURICE PRICHARD AND SONS. Christchurch.

GROUPS.

At the far end of the hall Messrs. SUTTON AND SONS arranged an exceedingly effective collection of Cinerarias. They, wisely, resisted what might have been a temptation to aspire after mass effect, and, by allowing ample room for each plant, gained in natural effect. In raised baskets there were isolated such sorts as Forget-me-not Blue, a really charming variety; Superb Scarlet, an intermediate variety bearing goodly heads of intensely scarlet flowers of velvety texture, and beautiful pink shades. Besides these large-flowered and intermediate varieties, the taller and very free-flowering Stellata varieties were equally well represented (Silver-Gilt Banksian Medal).

Of necessarily more formal character was the exhibit of Hyacinths by Messrs. R. AND G. CUTHBERT. These were mostly in colour blocks of such sorts as King of the Blues, Schotel, King of the Reds, Jacques and Enchantress, and all of them were of excellent quality (Silver-Gilt Banksian Medal).

A splendid display of colour was made by Messrs. L. R. RUSSELL, LTD., with many flowering plants of Azalea mollis and A. indica varieties, Laburnums, Prunus and other shrubs (Silver Flora Medal). Many forced bushes of Laburnum Carlesii were included in an effective exhibit by Messrs. WALLACE AND CO., who also had various Brooms, Osmanthus Delavavi, and a number of shapely Conifers (Silver Banksian Medal).

Rhododendrons made a bright show. Messrs. R. GILL AND SON set up an excellent little collection in which a score or more of the brilliant crimson R. Cornubia attracted a deal of admiration. R. argenteum was also well represented, and there were a few trusses of the beautiful blush Florence Gill. Associated with the Rhododendrons were several vases of inflorescences of Saxifraga cordifolia, while in another place Messrs. GILL AND SON staged a collection of their excellent strain of St. Brigid Anemones and many dazzling blooms of Anemone fulgens. The former were of exceptional size—the individual blooms measuring as much as five inches across—and many good shades of colour were included.

Rhododendron blooms, particularly of R. arboreum roseum and R. pre-vernum, were included in a miscellaneous exhibit by Mr. G. REUTHE, who also showed various alpines and Hepaticas of interest (Silver Banksian Medal). —Azalea Hidomango, one of the most floriferous of the dainty Kaempferi type, was a prominent feature in an exhibit by Messrs W. CUTBUSH AND SON, which also included vividly coloured blooms of Tulipa Eichleri. Adjoining this display they arranged an effective group of Azalea indica varieties with other forced shrubs (Silver Banksian Medal). Messrs. MOYSES STEVENS, LTD., staged well-grown plants of Azaleas and a quantity of Hyacinths in distinct colours (Silver Banksian Medal).

Primulas and Primroses were included in many collections of hardy flowers. Mr. G. W. MILLER had a great quantity of his excellent Polyanthuses, and double Daisies bearing immense flowers. In an effective group arranged by the CHALK HILL NURSERY Co., Reading, there were many floriferous plants of the beautiful Primrose True Blue, which is of uncommon sky-blue colour. There were also pans of Cyclamen Coum rubrum of intense colouring in this interesting exhibit.

Many good clumps of the old favourite double mauve Primrose were included in a hardy flower exhibit arranged by Mr. F. G. WOOD, who also had a fine strain of Polyanthuses and some well-flowered bushes of Daphne Mezereum. Primula Wanda, a deeper coloured and larger P. Juliae was shown by Messrs. BAKERS, LTD., and, although it did not receive an award. Primula Juliae Hector Goode, shown by Mrs. J. J. GOODE, Galba Villas, Cirencester, has considerable merit. It is one of the largest of the varieties, and bears plenty of richly coloured blooms, which have a distinct velvety-crimson centre. Primula cashmeriana was well shown by Messrs. CARTER, PAGE AND CO., in their collection of spring flowering plants (Silver Banksian Medal).

Amongst the little rock gardens, that arranged by Mr. CLARENCE ELLIOTT was very prominent in its restrained character and in the excellence of the plants employed to embellish it. Saxifraga Grisebachii Wisley var. was particularly good, while S. apiculata and S. Elizabethae made beautiful masses of yellow colour (Silver Flora Medal). Mr. W. WELLS, JUN., included Saxifraga oppositifolia Latina in a collection of Alpines, and Messrs. R. TUCKER AND SONS gave prominence to the variety splendens, another good pink sort (Silver Banksian Medal). In a collection arranged by Messrs. MAXWELL AND BEALE, there was a batch of Saxifraga oppositifolia Wetterhorn and especially well-flowered plants of Soldanella alpina.

A pretty little spring garden was made by Messrs. J. CHEAL AND SONS, who planted it with groups of the rich blue Pulmonaria azurea and other appropriate seasonable plants. A large rock garden built by Messrs. J. PIPER AND SON served well to display a great variety of shrubs and alpines, as well as a large patch of Myosotis Blue Bird (Silver Banksian Medal). There were many bushes of the early Rhododendron praecox in an exhibit by Messrs. WATERER, SONS, AND CRISP, who also displayed Saxifraga A. J. Godseff with other alpines (Silver Banksian Medal). Mr. M PRICHARD showed Oxalis splendens, bearing large salmon-pink flowers, in his collection (Silver Banksian Medal); and Messrs. BARR AND SONS also staged many seasonable rock plants, with flowering sprays of Cydonia japonica varieties (Bronze Banksian Medal).

Carnations in quantity and of high quality were shown by various exhibitors. Mr. C. ENGELMANN had a large vase of the new Goliath; a soft salmon-pink perpetual of great size and with distinctly serrated edges. White Pearl and a dazzling vase of Improved Ward were also prominent among the many good varieties (Silver Flora Medal). Chief amongst the many varieties shown by Messrs. ALLWOOD BROS. were vases of the brilliant Edward Allwood and the pale Fancy Chintz adjoining the richly-coloured Wivelsfield Claret. At one end of the collection there was a vase of especially good blooms of mixed Perpetual-Malmaison varieties (Silver Banksian Medal). Carnations were associated with Mimosas (Acacia Baileyana and other species) by Messrs. STUART LOW AND CO. Amongst the Carnations, their scarlet variety Lord Lambourne and the greyish-heliotrope Fancy Arnos Grove attracted a deal of attention. A small collection of good Hippeastrums was also included (Silver Flora Medal).

Roses were displayed in moderate quantity by Mr. ELISHA HICKS, who staged Mrs. Elisha Hicks, Premier, Gruss an Annchen, and other sorts. The last-named is a deliciously fragrant bloom suggestive of Gloire de Dijon. Violets were shown in considerable quantity by Miss ALLEN-BROWN (Silver Banksian Medal) and Mr. B. PINNEY. Both included a bunch of the uncommon pink-coloured Coeur d'Alsace, a free flowering and fragrant variety.

Narcissus and Tulip Committee.

Present: Messrs. W. B. Cranfield (in the chair), P. R. Barr, G. Churcher, G. W. Leak, H. Smith, Geo. Monro, W. Poupart, J. Jones, J. de Graaf, F. Barchard, R. W. Wallace and Chas. H. Curtis (hon. sec.).

AWARD OF MERIT.

Narcissus King Herald. An early flowering, long-stemmed, well-balanced, golden-yellow trumpet Daffodil that promises to be useful for market and for garden decoration. It was for its value for the latter purpose that the award was given. The flower is bold, well posed, and substantial, and suggests that King Alfred and Emperor may have been its parents. Shown by Messrs. BARR AND SONS, Covent Garden.

GROUPS.

An imposing collection of Narcissus was arranged by Messrs. BARR AND SONS, in which the large trumpet varieties were very prominent. Besides such excellent named sorts as Yorick, Alicia, King Alfred and Amynta there were a great many seedlings of much more than ordinary merit. The self yellow seedlings were all characterised by exceptional substance and deep colouring, and there were several bicolors of equal value. The collection also included two seedling Incomparabilis, which had large well-formed coronas of great brilliance (Silver-gilt Banksian Medal).

Facing the entrance Messrs. R. H. BATH, LTD., made a beautiful show, with a large quantity of spring bulbs growing in ornamental bowls of fibre. These were mostly of commercial varieties of Hyacinths, Narcissus, and Tulips, and they illustrated how splendidly bulbs may be flowered by this simple and cleanly method (Silver-gilt Banksian Medal). An artistic display of spring bulbs with some Primula malacoides was set up by Messrs. CARTER AND CO. These were arranged in shallow baskets of good size, and amongst the many varieties of Tulip Prince of Austria was especially effective (Silver Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. J. Cheal (in the chair), H. S. Rivers, S. B. Dicks, W. F. Giles, Geo. F. Tinley, Ed. Beckett, W. Bates, H. Markham, W. H Divers, J. Harrison, W. Wilks, W Poupart, G. Woodward, E. Neal, T. Pateman, G. Reynolds, Owen Thomas, W. Lobjoit, H. V. Taylor, and A. N. Rawes.

There was very little business for this committee to consider. Two seedling Apples of no special merit were submitted for award. The late keeping Crawley Beauty was recommended for inclusion in the trial of commercial fruits at Wisley.

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ASSOCIATION OF ECONOMIC BIOLOGISTS.

A meeting of this association was held on February 23, the president (Professor E. B. Poulton, F.R.S.) in the chair. Sir John Russell, F.R.S., delivered an address on "Partial Sterilisation of Soil." He stated that the discovery that partial sterilisation increased the bacterial activity of soil was, in the first instance, accidental, but when followed up it led to the conclusion that protozoa were present in the soil depressing bacterial numbers. Direct experiment proved the correctness of this view, and the protozoa of the soil are now the subject of important investigations at Rothamsted. A further deduction on the work on partial sterilisation was that certain soil bacteria have the remarkable power of breaking the benzene ring, decomposing such unlikely substances as benzene, toluene, naphthalene and phenol, and utilising them as food. These organisms are being thoroughly investigated in the bacteriological laboratory. Further, partial sterilisation kills or reduces disease organisms. Here, however, heat is the only certain agent; the various chemical substances have specific properties which render their general use difficult. A knowledge, however, of disease organisms to be suppressed and of the substances toxic to these organisms, allows the costly heating process to be superseded by the much cheaper chemical treatment. Owing to its technical importance, this subject is being carefully investigated.

Finally, partial sterilisation produces chemical changes in the soil, some of the products of which have important effects on the plant. Thus, on heating soil something is found which greatly stimulates root development. A full investigation is urgently needed.

The present position of partial sterilisation is that the process is used by the scientific worker to open up new fields of investigation, and by the practical grower to obtain larger and healthier crops as the result of the increased bacterial activity, freedom from disease organisms and the presence of the root-stimulating substances.

Mr. H. G. Thornton dealt with "The Destruction of Aromatic Antiseptics by Soil Bacteria." Since the original work on the partial sterilising action of toluene, the effect of a number of other antiseptics on the soil has been studied. These compounds fall into two groups. First, there are those whose action resembles toluene. Secondly, there is a large group of which phenol may be taken as an example. This group produces a sudden and great increase in the bacterial numbers in the soil, which, however, is only temporary and is not accompanied by any considerable increase in ammonia production. The effect suggested that organisms fed on this group of compounds.

Phenol, cresol and naphthalene, when added to ordinary manured soil, are found to disappear rapidly, and there is chemical evidence that this disappearance is largely due to a biological cause. This evidence led to a search for the causative organisms. Bacteria were found which in pure culture were able to derive the energy necessary for growth by decomposing phenol, the cresols, toluene and naphthalene. These organisms fell into three groups—non-motile, resembling B. phloei; large rods, producing clostridial sporangia; and short, oval pseudomonads. A study of soil samples, collected aseptically, showed the same three groups to be widely distributed in other localities. There is evidence that the pseudomonas group is of chief importance in producing phenol destruction in the soil.

Obituary.

Alfred Waters.—We regret to learn of the death, on February 13, of Mr. Alfred Waters, who died at Queens Park Lodge, Heywood, Lancashire, aged seventy years. He was a native of Kent and commenced his gardening career at Preston Hall in that county, but most of his experience was gained in the north, including gardens in Northumberland, Yorkshire, and at Crow Nest, near Halifax. Subsequently he obtained an appointment at Liverpool, and from thence he went as gardener at Farrington House, Leyland, near Preston. Here he remained for five years, when he took charge of the gardens at Hopwod Hall, Middleton, Lancashire, where he remained for fourteen years. In July, 1906, he was appointed Park Superintendent to the Borough of Heywood. Amongst the offices he held was that of chairman of the local horticultural society, and his wide experience was always at the disposal of the members. He leaves a widow, four sons and one daughter. One of his sons was killed in the war.

R. F. Martin.—It is with deep regret we record the death, on Thursday, February 22, of Mr. R. F. Martin, hardy plant propagator to Messrs. R. Wallace and Co., Tunbridge Wells. Mr. Martin was particularly well known in hardy plant nurseries, having worked with such well known firms as Messrs. Parker, Tooting; Messrs. Ware, Tottenham and Feltham; Messrs. Perry, Enfield; Messrs. Barr and Sons, Taplow; at Bee's Chester Nurseries; Messrs. Toogoods, Southampton; and Mr. Hemsley, Crawley. Last year Mr. Martin left Crawley for Tunbridge Wells, during which time he earned the respect and high esteem of all whose pleasure it was to know him. For over thirty years he was with Messrs. Ware, and while at Feltham the local Horticultural Mutual Improvement Society was started, of which he was the first chairman. He had an exceptional knowledge of hardy plants, which he was ever ready to impart to others, and many young gardeners owe him a debt of gratitude for his kindly help and advice. His whole life was devoted to work among hardy plants, and although he was handicapped by lameness, he was never known to complain. Death, due to heart failure, came suddenly, in his 60th year. Much sympathy is expressed with his widow and family. The funeral took place at Tunbridge Wells Cemetery last Monday.

ANSWERS TO CORRESPONDENTS.

Chrysanthemum Shoots Dying: *F. K.* It would appear that the Chrysanthemum stools have been placed a long way from the root glass, consequently the shoots have become elongated and weak. Low temperature and an excess of moisture have completed the trouble.

Moss in a Lawn: *R. W.* Your suggestion to remove as much of the moss as possible by means of an iron rake should be followed, and a top-dressing of rich material containing a nitrogenous fertiliser should be applied evenly over the grass. Fine soil of a rich nature, such as old potting compost, should be mixed freely with sand and either nitrate of soda or sulphate of ammonia, applied in the proportion of about ½ oz. of the fertiliser to each square yard of surface of lawn. The presence of moss points to stagnant conditions, and the most thorough method of treatment would be to drain the lawn, using either drain pipes or trenches filled with broken bricks or any other hard material.

Oxalis Tubers: *W. T. P.* The species of Oxalis to which you refer is Oxalis crenata, commonly known by its Spanish-American name of Oka. It is a native of Peru and a perennial, but cultivated as an annual. The long, swollen, ovoid tubers are highly esteemed in Peru and Bolivia, where they are largely used as a vegetable. Like all members of the Oxalis family the plant, including the tubers, contains a considerable amount of acid, and this acidity is counteracted in South America by putting the tubers into woollen bags and exposing them to the action of the sun, with the result that in a few days they become floury and sweet. They are sometimes dried, become wrinkled and acquire a flavour resembling that of dried Figs. In this condition they are known as Caui. The leaves and the young shoots are sometimes eaten as salad. Two varieties have been introduced to this country from France, known as the yellow and red variety respectively.

Communications Received.—Anglian — E. S.—A. S. P.—G. H. C.—W. R. G.—J. R. G.—R. J.—F. W. J.—B C.—F. G.—E. L., Kent—G. E M

MARKETS.

COVENT GARDEN, Tuesday, February 27, 1923.

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus, bundle		
—Special Devon	10 6	12 6
—French	10 0	12 0
Beans—		
—Guernsey, lb.	2 6	3 0
—Madeira basket	4 0	10 0
—Worthing ..	2 6	3 6
Belgian Chicory per lb.	– 2½	– 4
Beets, cwt. ..	3 0	5 0
Cabbage, tally ..	2 0	3 0
Carrots, cwt. ..	2 0	3 0
Cauliflowers, doz.	1 6	4 6
Celery, roll ..	1 3	2 6
—Celeriac, doz.	2 0	2 6
Cucumbers, doz.	10 0	24 0
Endive, doz.—		
—English	–	2 0
—French	2 6	3 0
Lettuce, French	1 6	2 0
Mint, doz. ..	4 0	12 0
Mushrooms, lb.	1 3	2 6
Onions—		
—Dutch, bag ..	3 0	3 6
Onions.	s. d.	s. d.
—English, cwt.	3 6	4 6
—Valencia, case	8 0	9 0
Parsnips, cwt. ..	2 6	3 6
Potatos,		
—Canary Island case	18 0	0 0
—Algerian ..	–	2–2½
—Guernsey, new, lb.	11	1 2
—Dunbar ..	£5 10	£6 0
—King Edward ..	£3 5	£4 0
—Others ..	£2 10	£3 5
Rhubarb, forced, doz.	2 0	2 6
—Natural ..	5 6	7 0
Radishes, doz ..	1 0	2 0
Savoys, tally ..	3 0	4 6
Seakale, punnet	1 3	1 9
Sprouts, bushel	2 6	4 0
Spinach, bushel	2 0	2 6
Tomatos		
—Canary Islands	20 0	25 0
Turnips, cwt. ..	2 0	3 0

Remarks.—The general conditions of trade are rather more encouraging, and improved weather conditions should have a favourable effect on business. Pears, Peaches, Plums and Grapes from South Africa are arriving in large quantities and selling fairly well. For best packs of imported Apples there is a better inquiry, and smaller stocks are available. Home-grown Apples should be in better demand, and such sorts as Bramley's Seedling in good condition are in better demand. A few English hothouse Grapes are still available, as well as Belgian Grapes. Oranges and Lemons are a better trade, and Bananas in firm demand. Lower prices are being realised for choice vegetables such as French Beans, Asparagus and new Potatos, probably owing to Lent. Mushrooms are more plentiful, and their prices are slightly lower. Cucumbers are arriving in better supply and their prices are easier. Forced Rhubarb is a rather firmer trade. Green vegetables are plentiful, with prices steady, although on the low side.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz. ..	10 0	18 0
—elegans ..	10 0	12 0
Aralia Sieboldii ..	10 0	12 0
Araucarias ..	30 0	48 0
Asparagus plumosus ..	12 0	15 0
—Sprengeri ..	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Azaleas, 48's per doz.	30 0	48 0
—60's	18 0	24 0
Cacti, per tray, 12's, 15's ..	5 0	6 0
Cinerarias 48's per doz. ..	15 0	18 0
Crotons, per doz.	30 0	42 0
Cyclamens, per doz.	24 0	30 0
Cyrtomium ..	10 0	15 0
Erica melanthera		
„ 48's per doz.	24 0	36 0
„ nivalis 48 „	24 0	30 0
„ 60 „	10 0	15 0
„ Thumbs „	6 0	8 0
Genistas 48's per doz. ..	15 0	18 0
Marguerites, per doz.	18 0	24 0
Nephrolepis, in variety ..	12 0	18 0
—32's	24 0	36 0
Palms, Kentia ..	24 0	30 0
—60's	15 0	18 0
—Cocos ..	24 0	36 0
Pteris, in variety	12 0	21 0
—large 60's ..	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's .	3 6	4 0

CUT FLOWERS.

Remarks.—Richardias (Arums) are amongst the scarcest subjects, and their prices have advanced from 5s. to 10s. per dozen. Further supplies of these flowers are arriving from the Channel Islands, which may relieve the situation a little, but many blooms suffer damage in transit. The supplies of Daffodils and Narcissi are generally increasing both from home growers and from the Channel Islands. The consignments from the latter source are of the cheaper grades, street vendors being the principal buyers. Tulips are arriving in excellent condition. Darwins are improving in quality, and a better selection is offered. The supply of Roses has been more limited during the past week, especially red blooms (Richmond), the pink variety Columbia being the most plentiful. As regards other subjects in this department, the conditions of trade are similar to those of last week.

GARDENING APPOINTMENT.

Mr. P. A. Randall, previously Gardener and Farm Supervisor to Mrs. C. H. Bailey, O.B.E., Gliffaes, Crickhowell, Breconshire, as Gardener to H. Seymour-Berry, Esq., Bucklands, Bwlch, R.S.O., Breconshire. (Thanks for 2s. 6d. for R.G.O.F. Box.—Eds.)

SCHEDULE RECEIVED.

Somerset County Agricultural Association.—Twenty-eighth annual show to be held at Bath on Tuesday, Wednesday and Thursday, May 1, 2, and 3.—Secretary, Mr. A. F. Davey, 13, Hammet Street, Taunton.

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THE
Gardeners' Chronicle
No. 1889.—SATURDAY, MARCH 10, 1923.

CONTENTS.

Alpine garden, the—
Aquilegia azurea 131
Erodium cheilanthifolium 131
Jeffersonia dubia .. 131
Amsterdam, horticultural exhibition at .. 128
Anchusa of Iceland and the Faroes 134
Books, notices of—
Botanical Magazine.. 127
Potato growing in New Zealand .. 129
Vegetable Culture .. 129
Chrysanthemum, the history of the .. 132
Ferns, hardy British .. 137
Foreign correspondence—
Lilium sulphurgale .. 133
Forestry—
Plea for communal forests in Britain.. 136
Fruit, the setting of .. 128
"Gardeners' Chronicle," seventy-five years ago 128
Gardeners' Royal Benevolent Institution .. 128
Garden notes from S.W. Scotland 135
Gardens at Olympia .. 128
Hardy flower border—
Herbaceous perennials 132
Verbascum Miss Willmott 132
Veronica Traherne .. 132
Obituary—
Rev. W. Wilks .. 127
Orchid notes and gleanings—
Cattleya Rothmos .. 133
Large-flowered Cypripediums 133
Oncidium McBeanianum 133
Palms of the Riviera .. 136
Plants new or noteworthy—
Rhododendron strigillosum 135
Sisyrinchium filifolium 135
Societies—
Elgin Horticultural.. 139
Newcastle and District Hort cultural .. 139
Ward's, Mr. Kingdon, seventh expedition in Asia 134
Week's work, the .. 130
Wheat and nitrogen fixation 127
Wilks, the late Rev. W 127

ILLUSTRATIONS.

Cypripediums, a group of a large-flowered strain of .. 133
Erodium cheilanthifolium 131
Jeffersonia dubia 130
Polystichum aculeatum var. gracillimum Cranfield .. 137
Rhododendron strigillosum 135
Sisyrinchium filifolium 129
Wilks, Rev. W., portrait of the late 128

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 40.1°.

Actual Temperature:—

Gardeners' Chronicle Office. 5, Tavistock Street, Covent Garden, London, Wednesday, March 7, 10 a.m. Bar. 29.2; temp., 45°. Weather—Showery.

Rev. W. Wilks. At the last annual meeting of the Royal Horticultural Society the Rev. W. Wilks proposed a vote of thanks to Lord Lambourne for presiding, and claimed the privilege of so doing because he was the oldest fellow of the Society present. For well over half a century Mr. Wilks occupied a foremost position in horticultural activities and for thirty-two years was secretary of the Royal Horticultural Society; indeed, it is not overrating his services to horticulture to state that no one man ever did so much as he to bring the R.H.S. to its present exalted position. Even so recently as Tuesday, February 27, Mr. Wilks was at the Royal Horticultural Hall chatting with old friends and criticising plants and flowers, and occupied his seat on the Fruit and Vegetable Committee, and also on the Council. And "now the labourer's task is o'er." On Thursday, March 1, Mr. Wilks passed away at his home at Shirley, near Croydon, full of years and of honour. His great wish to remain on duty to the last was therefore fulfilled. The Royal Horticultural Society was fortunate in that its late secretary possessed not only a strong personality but an extent of vision given to few men. Still more fortunate was it that Mr. Wilks had a suavity of manner which enabled him to coax the timorous and check the unwisely enthusiastic, whilst his tact enabled him to handle difficult situations—and people—successfully, thus securing harmony of purpose. He was a born leader of men, and even those who disagreed with him held him in high esteem and admired his singleness of aim—the advancement of British horticulture. In our issue of November 28, 1919, we published an appreciation of Mr. Wilks on the occasion of his retirement from the secretaryship of the Royal Horticultural Society, and we can add little to that eulogy. Mr. Wilks was a good gardener, a keen florist, a pomologist of no mean order, a great secretary, and one whose strong purpose and unswerving devotion to a great cause may serve as an example for others. Mr. Wilks aspired and inspired, but he also worked, and the present generation of horticulturists enjoy, and succeeding generations will enjoy, the fruits of his labours. The Royal Horticultural Society stands as a monument to his energy and genius.

Wheat and Nitrogen Fixation. No more surprising announcement has been made for a long time than that published recently in *Science* by two American investigators to the effect that the Wheat plant is capable of obtaining supplies of nitrogen from the air. It is true that there have always been dissentients from the generally accepted belief that the Leguminoseae alone among flowering plants possess effective powers for obtaining supplies of nitrogenous food from the nitrogen of the atmosphere. For example, the German physiologist, Frank, advocated the view that the fixation of nitrogen by the Leguminoseae is only an extreme example of a power possessed by all green plants. Jamieson maintained that he had demonstrated nitrogen fixation by many different plants, and the late Prof. Benjamin Moore published experiments which appeared to demonstrate that green algae and other plants derive their nitrogen from the atmosphere. Moreover, the view has been put forward from time to time, and often supported by careful experiment, that plants which habitually live in symbiotic union with fungi—mycorrhiza plants and others—also possess this power. But from the practical point of view of cultivators, these observations, even if true, would seem to be of little importance so far as cultivation is concerned. The discovery that Wheat is among the nitrogen-fixers is, on the other hand—if it is established—a fact of the greatest practical importance; for it is bound to lead to further investigations which will result in the discovery of the conditions under which this power of winning free supplies of a costly and essential plant-ingredient is exercised. Among the Leguminoseae the habit of fixing free nitrogen depends, as is well known, on the presence of the nodule organism in the roots. Not until the roots have become infected by that micro-organism does fixation of nitrogen take place. That, at all events, is the commonly accepted view, although renewed investigation may prove that it is only true in the sense that the Leguminoseae unaided by the nodule organism are unable to fix nitrogen rapidly enough to supply the nitrogenous food which the young plant requires for its growth. Cultivators know, moreover, that in the case of garden Leguminous crops, it pays to help the plant in its early stages by supplying it with the ordinary nitrogen-containing fertilisers, for example, nitrate of soda; which means that in the seedling stage, even after nodules have appeared on the root, the supplies of combined nitrogen manufactured from the free nitrogen of the air are not at first large enough to provide all the nitrogenous material that the plant can use with profit to itself. It is possible that it may be found that something of the same kind occurs in the Wheat plant; that in its early stages of growth the powers of nitrogen fixation, which according to the most recent research it would appear to possess, are not fully developed. This would fit in with the known fact of the marked effect of dressings of nitrate of soda on the growth of the young Wheat plant. Although it is perhaps premature to speculate further on the subject, the guess may be hazarded that it may ultimately be shown that the remarkable effect of electrification on the development of plants, recently referred to in these columns, may prove to be related with the power of nitrogen fixation. In any case, the ranging of the Wheat plant among these plants which are able to fix free nitrogen must prove a discovery of great economic importance. Of all cultivated plants, Wheat is perhaps the most accommodating. It will grow under the most diverse conditions of climate and soil and give some return for the labour of cultivation. May not its accommodating nature be, in part at least, attributable to the fact—if fact it be—that it is able, if need be, to fend for itself for supplies of nitrogen? Both cultivators and men of science will await with eagerness the publication of the full account of this important discovery.

The Botanical Magazine.—The second issue of this classical work, now being published by the Royal Horticultural Society, comprises Part 2 of Volume 148, and contains illustrations and descriptions of eleven plants. The letterpress as in the previous part, is considerably extended, and the plates give a number of details of value in recognising the species. On the whole, the colour reproduction is well done, but there is room for improvement, particularly in alignment, and in the green of the foliage, especially in the first plate, tab. 8946, and in tab. 8948. Of the eleven plates, four are Chinese species, including Rhododendron sulfureum, tab. 8946, a low shrub with umbel-shaped, five to eight-flowered inflorescences; the flowers are spotted with crimson; Malus toringoides, tab. 8948, which was described and illustrated in *Gard. Chron.*, February 17, 1923, p. 89; Dracocephalum Isabellae, tab. 8952, a member of the Labiatae, forming a tufted herb, about 30-50 c.m. high and bearing almost digitate leaves with five or seven linear segments, and dense spikes of deep violet flowers: and Rhododendron planetum, tab. 8953, a species with tree-like habit and stout branches bearing trusses of pale rose flowers with or without a dorsal, crimson blotch at the base. Two Orchids are illustrated, Maxillaria Fletcheriana, tab. 8949, a very handsome species bearing one-flowered scapes that rise singly at the bases of the pseudobulbs, and bearing creamy-white sepals and arched petals that are white with well marked purple lines; the lip is yellow with deep red stripes running right and left; and Cirrhopetalum tripudians, tab. 8954, first described by Reichenbach f. in *Gard. Chron.*, 1876, p. 816. Other plants illustrated are Euphorbia anoplia, tab. 8947, which has a superficial resemblance to a Cactus, the plant having a think, succulent, ribbed stem, with rather inconspicuous flowers at the apical portion. Amorphophallus coffeatus, tab. 8950, a species with stout, cylindric spadix enclosed within a widely open spathe of rich coffee colour on the face and a bluish bloom towards the tube; the single leaf is borne on a stout, brownish-green petiole, and is divided into three almost equal segments all pinnately dissected; Echinocactus undulatus, tab. 8951, has a globose stem covered with spine clusters and bears at the apex sessile flowers in groups of three, the petals being pale rose colour; Lachenalia convallariodora, tab. 8955, is a South African species with flowers of a very delicate pink shade, borne on slender scapes that are spotted with purple and with lanceolate foliage that assumes a dark red or purple colour towards the tips, and Lonicera Griffithii, tab. 8956, a tall, climbing shrub with leaves of varying shape, and bearing terminal flowers of the usual Honeysuckle shape and pure pink in colour.

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Honour for a Geologist.—The Senatus of Aberdeen University has conferred the degree of LL.D. on Dr. Mackie, Medical Officer of Health for Elgin and Rothes. Dr. Mackie is known as one of the leading geologists in the north of Scotland, and his work is quoted in technical geological literature in this country and America. To him belongs the credit of discovering the fossil plants of Rhynie—a quaint, old-world Aberdeenshire village—which have furnished the highest results in plant morphology and development, and he has written on the glacial phenomena of Morayshire, the sands and sandstones of the Elgin district, the microscopic character of various igneous rock masses, chemical analyses of rocks, and chemical and petro-chemical technique. In 1917 the Geological Society of London awarded Dr. Mackie the Murchison Fund for his research work. He was examiner in geology in the University of Aberdeen from 1902-06.

Legacy to a Gardener and His Wife.—The late Mr. Clement Locke Smiles, of Glen-Noc, Mayburyhill, Woking, who died on November 26 last, aged 77, left a legacy of £100 each to his gardener, Mr. Duffin, and to Mrs. Duffin.

The Nitrogen Industry in Germany.—A review of Germany's resources for the production of nitrogen compounds* states that before the war Germany used over 240,000 tons of nitrogen compounds, of which 200,000 tons were employed in agriculture. To make up this amount, 800,000 tons of saltpetre were imported annually from Chili. Since the war the consumption of nitrogen compounds in Germany has increased, but the plant for synthesising nitrogen compounds has increased at a yet greater rate, and Germany is now able to supply entirely her own requirements, the amount of synthetic nitrogen compounds now manufactured in the country reaching the total of 500,000 tons per annum.

Gardens at Olympia.—In connection with the Ideal Homes Exhibition, at Olympia, Kensington, a section of some two acres, as was the case last year, has been devoted to gardens. The visitor on entering is impressed with the rather curious tone produced by blue gauze under the roof, and although this gives a very pleasing effect when the sun is shining, on a dull day, such as when we were present, the atmosphere seems rather too hazy. Nearly all the gardens are "Royal" gardens; there is the garden of Her Majesty the Queen, of Queen Alexandra, of Princess Mary, etc., but it is not apparent that the gardens were especially designed by these Royal persons. The general assumption of visitors, however, is that they were, and that they are not entirely the work of professional gardeners is more than probable by the many incongruities which exist. For example, no true garden-lover would associate massed beds of blue Hyacinths with blue Cinerarias, even to obtain a "blue" garden, nor would he place gaudy masses of indoor Azaleas in association with Crocuses, yet these and other trivialities may be seen. Although the planting of the gardens may be criticised, there is no fault to be found with the planning, and especially the use that is made of such adjuncts as fountains, water pools, flagged paths, stone seats, and other garden ornaments. In Messrs. Whitelegg's garden, for example, the half-circular pergola with a stone floor and Corinthian columns at the opposite end are very pleasing, and so is the waterfall and stream in the garden arranged by Messrs. Pulham and Son, where the small beds of shrubs and Daffodils in the grass give a quite natural effect; a little rockery in this garden is also well conceived and delightfully planted. Perhaps the most natural of all the gardens is the one made by Messrs. James Carter and Co., which typifies a portion of woodland or wild garden, through which a stream meanders, the background of tall Conifers and other shrubs serving to heighten the effect. The grass is plentifully studded with Daffodils, and there are a few bushes of Rhododendron praecox and Prunus triloba at appropriate spots with Crocuses and other spring flowers: this garden shows originality, resulting in a pretty scheme. Mr. Ernest Dixon has planted a large area as a woodland dell, with an encampment at one end, and the path leading to it is strewn with fallen leaves, suggesting autumn rather than spring. Messrs. Gaze have also made a very attractive garden in which stone and terra-cotta vases are a feature, with garden seats, fountains and other ornaments. Their motif is a water garden—a long, narrow pool planted with Iris tingitana, with beds at either end of yellow Tulips, the whole enclosed by a Yew hedge.

* Cited in *International Review of Science and Practice of Agriculture*, November, 1922.

Horticultural Council of the British Empire Exhibition.—The constitution of the Council of the Horticultural Section of the British Empire Exhibition is, we are officially informed, as follows:—Lord Lambourne, Chairman; Sir Geo. Holford, Hon. Vicary Gibbs, Sir Harry J. Veitch, Sir J. Colman, Sir F. Keeble, Dr. A. W. Hill, Prof. Bateson, Mr. E. A. Bowles, Mr. Reginald Cory, Mr. F. J. Chittenden, Mr. W. J. Lobjoit, Mr. Lionel de Rothschild, Lady Bathurst, Lady Northcliffe, Lady Margaret Boscawen, Miss Willmott, Miss Jekyll, Mrs. H. J. Tennant, Mr. H. V. Taylor, Mr. E. J.

THE LATE REV. W. WILKS.

Holland, Mr. W. R. Dykes, and Mr. W. A. Bilney; representatives from the Chamber of Horticulture, the Royal Horticultural Society, Horticultural Trades' Association, National Rose Society, National Chrysanthemum Society, National Dahlia Society, National Sweet Pea Society, and British Carnation Society; the Editors of *The Gardeners' Chronicle*, *The Garden*, *Gardening Illustrated*, *Amateur Gardening*, *Garden Life*, *Horticultural Advertiser*, *Horticultural Trades' Journal*, *Nurseryman and Seedsman*, *Fruit Grower*, *Country Life*, and *The Field*; with representatives of the following nursery and seed firms:—Messrs. Sutton and Sons, Messrs. J. Carter and Co., Messrs. E. Webb and Sons, Messrs. Barr and Sons, Messrs. Charlesworth and Co., Messrs. Blackmore and Langdon, Messrs. Bees, Ltd., Mr. Elisha J. Hicks, Messrs. Hillier and Sons, Messrs. J. Piper and Sons, Messrs. W. Wood and Sons, Messrs. Fromow, Messrs. Laxton Bros., Messrs. Waterer, Sons and Crisp, Messrs. Clibrans, Messrs. J. Kelway and Son, Messrs. Armstrong and Brown, Messrs. Sanders, Messrs Fisher, Son and Sibray, Messrs. G. Bunyard and Co., Messrs. Stuart Low and Co., Messrs. H. B. May and Sons, Messrs. J. Cheal and Sons, Messrs. T. Rivers and Son, Messrs. Seabrook and Sons, Messrs. R. Veitch and Son, Mr. C. Turner, Mr. H. J. Jones, Mr. Amos Perry, Messrs. T. Rochford and Sons, Messrs. F. Cant and Co., Messrs. J. Cypher and Sons, Mr. L. R. Russell, Messrs. Hurst and Son, Messrs. Lowe and Shawyer, Messrs. Milner, Son and White, Messrs. Watkin and Simpson, Messrs. Cooper, Taber and Co., Messrs. Geo. Monro, Ltd., Messrs. Pennell and Sons, Messrs. Austin and McAslan, Messrs. McGredy and Son, Messrs. Chas. Ramsey and Sons, Messrs. W. Treseder, Messrs. B. R. Cant and Sons, Mr. J. C. Allgrove, Messrs. Alex. Dickson and Sons, Messrs. Dobbie and Co., Messrs. R. Wallace and Co., Messrs. Allwood Bros., Messrs. G. Jackman and Son, Messrs. J. R. Pearson and Sons, Messrs. Murrell and Son, Messrs. Pulham and Son, Messrs. R. H. Bath, Mr. C. Engelmann, Mr. J. Douglas, and Mr. R. C. Notcutt.

Gardeners' Royal Benevolent Institution.—The Earl of Plymouth has kindly consented to preside at the 78th anniversary festival dinner in aid of the funds of the Gardeners' Royal Benevolent Institution at the Hotel Victoria in June next. We learn that Mr. Leonard Sutton has accepted the position of Chairman of the Committee of the Institution.

The Setting of Fruit.—Investigations undertaken by Mr. D. Casella* prove that fungicidal and insecticidal preparations are all most decidedly injurious to the setting of fruits if they come in contact with the pollen. All the specifics he tested were harmful, including sulphur, to which some persons attribute a beneficial action in the setting of fruits. Water also proved injurious; it intensified the harmful effects of previously applied fungicides on the germinative power of the pollen. These conclusions confirm the contentions of many growers that it is harmful to use either insecticides or fungicides at the time when the blossoms of fruit trees are expanding.

Horticultural and Agricultural Exhibition at Amsterdam.—Under the support of the Dutch Government and the Dutch Ministry of Agriculture, the Royal Dutch Agricultural and Horticultural Society will hold an extensive exhibition of Dutch and Indian vegetables, fruits and flowers at Amsterdam from the 15th to the 23rd September, 1923. The exhibition will be held in the Cycle and Motor-Car Association's big hall and surrounding grounds.

Appointments for the Ensuing Week.—Monday, March 12: United Horticultural Benefit and Provident Society's annual meeting; Bath Gardeners' Society's meeting; Reading and District Gardeners' Mutual Improvement Association's lecture on "Popular Annuals for Exhibition and Garden Decoration." Tuesday, March 13: Royal Horticultural Society's committees meet (two days); Jersey Gardeners' Society's meeting. Wednesday, March 14: East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting. Thursday, March 15: Manchester and North of England Orchid Society's meeting; Friday, March 16: Eastbourne Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Dumelow's Seedling Apple.* An article, which I beg to state is incorrect, appeared in last week's number relative to the origin of this Apple. It was raised by a respectable farmer, named Dummeller, of Shackerstone, a small village in Leicestershire, one mile from Gopsall Hall, the seat of Earl Howe, and six from Ashby-de-la-Zouch. Amongst the first plants of it, which he gave away, was one to a friend of his at Normanton, another village, about three miles from him, whence no doubt it derived the name of the Normanton Wonder. Dummeller is generally pronounced Dumelow, even in the immediate neighbourhood; I know the family well, and have frequently heard them speak of the Apple in question. *M. Henderson, Coleorton Hall, February 29. Gard. Chron., March 4, 1848.*

Publication Received.—*Fungus Diseases of Crops*, 1920-1921. Miscellaneous Publications No. 38. Ministry of Agriculture and Fisheries, 10, Whitehall Place, S.W.1. Price 3s., post free.

* "Study on the Pollen of Fruit Trees," by D. Casella (*Cattedra di Arboricoltura della R. Scuola Sup. di Agricoltura in Portici*), pp. 24, 4 pl. Cosenza, 1922.

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NOTICES OF BOOKS.

Potato Growing in New Zealand.*

This is a small and unpretentious book on the subject of Potato growing, both in garden and field; and contains a number of photographic reproductions, illustrative of subjects under discussion. Most books on the Potato commence with its history, possibly because what is obscure is always interesting. The author states that the Potato is more extensively cultivated in Ireland than in Britain, which is doubtful. It is universally cultivated in Scotland, and the farming of Potatos to sell, and as seed for the seedsmen, is yearly increasing. An equally extensive cultivation applies to England since the fens of Lincolnshire and Cambridge were drained, to say nothing of the broad lands of Yorkshire. A surprise is sprung upon us when the author tells us that the Potato disease (Phytophthora) originated in Germany in 1842 and spread all over Europe and thence to America. Mr. Samuel Fraser, of the Cornell University, U.S.A., tells us that there is reason to believe that the disease existed for ages in the western parts of South America, and that it seriously injured the Potato crop in the United States and Canada, in 1843. That seems more likely; for whoever saw Solanum Dulcamara and S. nigrum destroyed by the disease in Europe, although the most likely plants on which it could exist? From the Antipodes comes an echo of the Potato boom, and its disastrous effects in this country. The practical part of the book on cultivation, manures, tools for garden and field are quite orthodox and correct. The more progressive growers of New Zealand have now learnt the value of getting Potato sets from a colder and moister climate.

Some interesting experiments conducted at the Mosgiel District High School Garden showed that sets obtained from Christchurch gave a crop equal to seven tons per acre, while sets from Invercargill, in the extreme south of New Zealand, gave fourteen tons to the acre. While Yorkshire in this country advocates grass in the trenches to prevent the ordinary Potato scab, Pine needles and dry straw are used in New Zealand. Mr. Tannock is an old Kew man, who has not rested on his oars in his adopted country, but has produced a readable and useful book on the Potato.

Vegetable Culture.†

This book of some 144 pages octavo is devoted to a practical exposition of the subject of the cultivation of vegetables. Mr. Davidson lives in a rural district, has a large garden, and in the course of his gardening correspondence has been asked the reasons of the why and wherefore such things are done in a certain way, and proceeds to answer them in his book. There is no index, but the contents show what is in the book, and all the vegetables are arranged alphabetically. He is an advocate of trenching and manuring, and quotes the experiments of Dr. Dyer and Shrivell, of Hadlow, Kent, which are excellent in their way if the amateur would or could carry them out, for farmyard manure is part of the experiments and often unobtainable. When the ground settles down in summer or is beaten down by rain, he advocates the use of the hoe. A very large proportion of amateurs do not know how to use a hoe, or certainly do not hoe, as their weedy plots and gardens testify. If the hoe were used as often as it is necessary there would be no weeds, except such as must be pulled up by hand. The author uses the term air channels to describe the loss of soil moisture by capillarity, but this is only a variant of capillary tubes, which do not exist. He advocates the use of lime once in six or seven years to land containing plenty of humus, but states that it should never be used on sandy soil. It is a plant food, and is necessary for the proper action of various other manures. Besides, the club-root of the Cabbage tribe is often severe in sandy soils, and lime is an antidote, which he recommends later on when dealing with that disease. The use of paraffin emulsion is often recommended for insect pests, but he might have laid more emphasis on the proper making of it, for many amateurs often come to grief over its use. He advocates the cultivation of Vegetable Marrows on the level, in well prepared and manured ground, and this is good, because amateurs are of the opinion that a heap is necessary, usually of manure or dry turf. The author's practice is good throughout, and the book well edited.

* *Potato Growing in New Zealand.* By David Tannock, F.R.H.S., Superintendent of Gardens and Reserves, Dunedin. Whitcombe and Tombs, Ltd., Auckland, Christchurch, Dunedin and Wellington, N.Z., Melbourne and London. Price 2s. 6d.

† *Vegetable Culture: A Practical Manual.* By Hugh C. Davidson, author of *The Culture of Pot Plants, Rational Fruit Culture*, etc. London: Crosby, Lockwood and Son, Stationers' Hall Court, Ludgate Hill, E.C.4. 1922. Price 4s. 6d. net.

FIG. 61.—SISYRINCHIUM FILIFOLIUM.

PLANTS NEW OR NOTEWORTHY.

SISYRINCHIUM FILIFOLIUM.

It is more than a dozen years since I collected Sisyrinchium filifolium in the Falkland Islands and reintroduced it to cultivation in this country. I say reintroduced because so far as I have been able to ascertain, the plant had quite died out in British gardens. It may possibly have existed somewhere, but one could not find it, and at that time there were quite a number of knowledgeable garden enthusiasts who knew of the plant, or remembered it, and were anxious to possess it. I took special care, therefore, before setting out to collect plants in the Falklands, to look it up in the Kew library, where I found an excellent picture of it—I think in the *Flora Antarctica*. And the beauty of the plant as illustrated made me doubly keen to find it.

Sisyrinchium filifolium (Fig. 61) is a favourite flower of the Falkland Islanders. They call it Pale Maidens, and it is almost a national flower. But at the time of my visit it was April, and therefore autumn, and few flowers of any sort remained. My chief quest, Oxalis enneaphylla was not difficult to find, though I saw only one solitary flower remaining. I had grown the plant at home and knew well its characteristic Wood Sorrel leaves of fleshy grey. Pale Maidens were much more elusive. At Kew, I had memorised the flowers rather than the leaves, and now the flowers were all over. Nor could the islanders help me.

It was more by luck than anything else that I discovered and collected a few tufts of a Rush-like little plant on a rocky hillside a few miles from Port Stanley. Fortunately, I got them home alive, and still more fortunately, they turned out to be Sisyrinchium filifolium. The plant is quite easy to grow, and like S. grandiflorum, quite easy to lose, for in late summer it is apt to disappear underground, so that unless its station is carefully marked, it stands a good chance of getting dug up or otherwise destroyed.

It grows about six to nine inches high, with Rush-like leaves and an erect, wiry flower stem, at whose summit is a sort of sheath from which are put forth the flowers, two or three at a time in a long succession. These are bell-shaped, not unlike Snowdrops of satin texture, delicately lined with deep, reddish purple.

I have always heard them described as fragrant, but to me the scent is rank and offensive. Sisyrinchium filifolium is absolutely hardy in this country, and flourishes in light, rich soil. It increases with moderation by multiplication of the root, but it is more readily increased by seed, which it sets freely, and which is easily raised. The plant flowers in May and June. It was figured in the *Bot. Mag.*, tab. 6829; and also in the *Gard. Chron.*, new series, vol. xxiii., page 696.

Sisyrinchium filifolium was first introduced to this country in 1885. *Clarence Elliott, Stevenage.*

RHODODENDRON STRIGILLOSUM.

This distinct and interesting Chinese Rhododendron (see Fig. 65), was given an Award of Merit at the meeting of the Royal Horticultural Society on February 27, when exhibited by Lady Aberconway and the Hon. H. D. McLaren. It was discovered by the Abbé David about 1885, near Mupin, in S.E. Tibet, but was not introduced to cultivation in this country until 1904 by Messrs. James Veitch and Sons, Ltd., through their collector, Mr. E. H. Wilson. In that year he sent home seeds from Mount Omei, Western Szechuan; in 1908 Mr. Wilson again found R. strigillosum in Wa-shan, and in 1910 in the Mupin district. The colour of the flowers varies from white to crimson, but it is the rich blood-red form (Fig. 65, p. 135) that is the most charming and valuable addition.

Mr. Wilson describes this species as an evergreen bush, or small tree, up to 20 feet in height. It is, at least at Kew, a slow-growing, spreading bush with a greater diameter than height. In many gardens this may be rather a good characteristic than a fault, for abundant space will be necessary to accommodate the thousands of seedling Chinese Rhododendrons grown from seeds recently collected by Mr. George Forrest and Mr. Kingdon Ward.

It is the stiff, glandular bristles, a sixth of an inch long, thickly clothing the shoots and leaf-stalks, which give this species such a distinct appearance. The oblong-lanceolate leaves, 3-6 inches long and ¾-1½ inch across, are clothed with brown hairs beneath, especially on the mid-rib. The bell-shaped flowers are 1½-2 inches long and wide, arranged in a neat truss. The mild weather to date this year has been favourable for the early-flowering Rhododendrons, but in ordinary seasons both flowers and young growths are liable to damage by frosts. Hence, except in very mild districts, this beautiful Rhododendron should be planted in a sheltered position. It is figured in the *Bot. Mag.*, tab. 8864. *A. O.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Large Cymbidiums.—Specimen Cymbidiums are fine objects, and wherever room can be given them the grower should endeavour to have some. To maintain a number in vigorous condition, it is advisable to divide some each year, and then a young and healthy specimen will always be ready to take the place of one that is beginning to show signs of exhaustion. When an old specimen is divided, it must not be supposed that it will be in a good state to produce flowers the first season, and unless it is well rooted and in good condition it should not be allowed to bloom. After repotting, watering should be done very carefully, as no Orchid resents an excessively moist compost more than the Cymbidium. Plants that are in flower, and those that are pushing up their flower-spikes, may receive attention at a later date. They are best potted like ordinary plants, leaving plenty of space in the pot in order that the plant, when dry, may have copious supplies of water.

Shading.—Where the shading material, such as canvas and other blinds, were removed from the houses for the winter, it will be advisable to place them in position again. It is at this season, when the plants have passed through the dull, sunless days of winter, that thin-leaved Orchids easily scorch if direct sunshine is allowed to reach them. Too much shading is harmful, and the growth will be finer, more solid, and better developed in every way when grown under proper conditions of light. Some plants are capable of withstanding more light than others, and careful observation of this point will repay the cultivator. Permanent shading on the glass is harmful, especially during dull, sunless weather, and, in any case, will not be necessary for some little time to come.

THE HARDY FRUIT GARDEN.

By A. J. HABTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Bush Fruits.—When the work of pruning Gooseberries and other bush fruits is completed, the ground should be forked lightly and mulched with well-decayed manure; should there be an insufficient quantity of the latter to do the whole ground, a mulch equal to its circumference should be placed under each bush. Raspberry plantations, and more particularly those of autumn-fruiting varieties that were recently cut down, should be treated similarly.

Wall Trees.—Complete the training of wall fruits. Sticks used for the training of trees in the open should be examined and renewed where necessary. Stout canes are preferable for the horizontal supports, which should be tied neatly to the upright sticks and made secure in the ground about 18 inches apart. Tar string should be used for preference as a tying material. In the case of young trees extension tiers should be allowed for. Trees in the reserve garden should also be attended to and the ground dug over.

Apricots.—The blossoms are expanding on Apricot trees, and especially on those under cases. The flowers should be pollinated by means of a camel-hair brush or a rabbit's tail.

Fruit Stocks.—In dealing with new trees it is well to consider the suitability of stocks. There are many trees that are grafted on stocks the origin of which is more than doubtful. It should be remembered that the Paradise or dwarfing stock varies considerably in vigour. It is probable that the bulk of commercial growers use the Doucin stock, as it is clean, and the scion unites readily to it, whilst trees on this stock fruit readily in a short space of time. It may not be the best stock for trees intended to occupy exposed positions, as the roots would not afford sufficient anchorage in the ground, and it would not be suitable for vigorous varieties, for which the broad-leaved English Paradise would be the more desirable. The Crab stock is the best for orchard trees. The main point in grafting is to see that the union is made clean and true. The war naturally affected the class of tree sent out, with the result that some had imperfect unions and did not callus, others had undesirable failings such as suckering. The Quince is mainly used as a dwarfing stock for Pears, whilst of Plum stocks the St. Julien was at one time often favoured. The Myrobalan Plum may be desirable as a stock for weak-growing varieties, and the Mussel Plum for strong-growing sorts. Where stocks of established trees especially Peaches and Nectarines, have a tendency to become hide-bound, parallel incisions should be made with a sharp knife just below the graft. These incisions may be made from four inches to six inches in length.

Walnuts.—Walnut trees are more or less left to take care of themselves, but cross branches and those that are crowded should be removed and broken burrs cut level to the trunk or main branch and the wounds tarred over to keep out wet and disease.

FIG 62.—JEFFERSONIA DUBIA; FLOWERS BLUE (SEE PAGE 131).

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Begonia Gloire de Lorraine.—Cuttings of this useful winter-flowering Begonia should be inserted as soon as suitable shoots are available; young growths from the base make the best plants. They should be inserted singly in thumb pots, or, where large quantities are required, in shallow seed boxes. Some cultivators consider the best plants are raised from leaves; personally, I have never noticed any difference, and certainly ordinary cuttings offer by far the quickest method of increase.

Anthuriums and Alocasias.—These Aroids include many handsome flowering and foliage plants; except in cases where the compost is in really good condition and well filled with roots, it is as well to repot the plants every year, and this is best done just as they are starting into growth, as this involves no check to the young leaves. Ample drainage is essential: the pots and pans should be at least half-filled with crocks. The compost should consist of good fibrous peat and loam, which should be rough and lumpy, and mixed with chopped Spaghnum moss, charcoal and silver sand. If the roots are in bad condition, they should be washed free of soil to admit of cutting away old rhizomes and dead roots. The roots should be carefully spread out and the compost worked in between them, building the whole up in a mound several inches above the rim of the pots, and surfacing the whole with Sphagnum moss. At Kew, we use a short, close, green moss for this purpose. During the growing season, these plants need a temperature of 70° to 80°, with plenty of atmospheric moisture. When well furnished with roots, these require copious supplies of water.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Plants in Cold Frames.—Such plants as Pentstemons, Gazanias, Calceolarias, Violas, Brompton Stocks, Echeverias and Agathaea coelestis all require an increasing amount of air, as the weeks go by, to harden them. The first three plants are often potted early in the year, and where this is practised it may be done now. If the cuttings were not planted closely they need not be potted, but allowed to remain until they are placed out-of-doors. **Potting, however, is best for Agathaea, the Blue** Daisy, as the plant, being rather small and wiry, appreciates a little better treatment. Violas, on the contrary, are so hardy that where the ground is in a workable condition they should be planted, early planting being favourable to a vigorous root action. If the surface soil is in a rough condition, the necessary tilth may be obtained by scattering a layer of fine leaf-mould on it and working in the same as the plants are set out. In some gardens layers of border Carnations are potted and wintered in frames. Such plants should now be exposed to the weather by removing the lights, and, after a period of hardening, set in their flowering quarters, choosing a day when the soil is dry enough to make the latter thoroughly firm around the plants. Varieties of the tall scarlet Lobelia, such as Queen Victoria, are also heeled in cold frames in many gardens, in order to preserve them through the winter; these roots may be potted or boxed, dividing the stronger if wishing to increase the stock.

Cannas.—Roots of these plants that have been resting in a frost-proof house during the winter should be sprayed with clear water from time to time to encourage them to break into growth. The plants may be left to make growth where they are if spaced a little farther apart, or they may be placed in boxes, in each case surrounding the roots with leaf-mould into which they will readily enter, and be sufficiently nourished until they are replanted in the flower garden.

Salvia patens.—The tapering, fleshy roots of this Sage having been wintered in boxes in a similar house to Cannas will also be benefited by an occasional sprinkling of moisture to favour the development of new growth. Only a little artificial warmth is necessary to start the plants into growth—in fact the blue Sage need have no fire-heat.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BENNETS, Esq., Woolverstone Park Gardens, Ipswich.

Early Peaches.—Attention should now be paid to thinning the fruits in the earliest house, commencing with those trees which have set their flowers most freely. Remove fruits that are situated on the under-sides of the branches, then, after a few days, reduce the number to two or three of the most prominent and best-placed fruits; a final reduction to one fruit to each shoot may take place when it can be definitely ascertained which fruit is taking the lead of the others. The above method of thinning the fruits early to the desired number obviates the danger of loss from dropping during the stoning period. Tying the shoots will now claim attention, and, when they are long enough to fill their allotted space, pinch out the points. Young trees of both Peaches and Nectarines usually have a tendency to produce some extra vigorous shoots soon after

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disbudding has been completed, and these, if allowed to grow unchecked, will upset the balance of the trees, but pinching out the points will cause the sap to circulate more evenly to other parts. Stopping on a second occasion may be necessary in some cases. A sharp watch should be kept for any signs of thrip or green fly; if detected, the house should be fumigated and the trees syringed thoroughly the following day. Nectarine fruits are often permanently disfigured by thrips which find a hiding-place under the dead flower caps; these should be removed as soon as possible. Syringe the trees early in the afternoon, and, if done thoroughly, once a day will suffice. A little air should be admitted through the top ventilators as soon as the temperature begins to rise. If the mornings are bright and sunny, damp down the house, taking care not to cause steam to arise from the pipes more than is absolutely necessary.

Strawberries.—The fruits on the early batch of Strawberry plants are fast swelling, and during the last stage of growth the plants require plenty of light and air, with liberal supplies of stimulants to cause the fruits to swell. When the berries are commencing to colour, manures should be withheld, as there is the danger of contaminating the fruit. Support should be afforded to the fruiting spikes; if the trusses are allowed to hang over the sides of the pots, the weight of the fruit bends the stem over the edge and checks the free circulation of the sap. The fruits of successional plants should be thinned out as soon as it can be seen which are likely to prove the best specimens. Six or seven good berries are to be preferred to a dozen inferior ones. A night temperature of about 60° and 70° by day will be suitable. Fresh batches of plants may be introduced into the forcing house as required. Later batches of plants may be allowed to develop steadily in cool frames or pits.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Globe Beet.—Fresh, young Beets are always appreciated early in the season for use in salads, and a sowing may now be made in a frame to obtain early roots, and it will be an advantage if the frame is set on a hotbed. The Globe varieties are best suited for frame cultivation. Any light, friable soil is suitable, and the frame should be nearly filled with it. Sow the seed in drills made about one foot apart, and thin the young plants when they are large enough to handle to about six inches apart. After thinning the plants draw a little soil up to those that remain. Water them with tepid water and spray them overhead on bright days.

Broad Beans.—The first sowing of this useful vegetable should be made in boxes of sifted soil, placing the seeds edgeways about two inches apart and covering them about an inch deep. Well water the soil and then place the boxes in a vinery or Peach house that is just being started. As soon as the seedlings are through the soil remove them to a cold frame and protect them at night in the event of frost occurring. They will soon make fine, sturdy plants, and are much preferable to those sown out-of-doors at this time of the year. Green Leviathan is a splendid Bean for the purpose.

Peas.—Make sowings of Peas in boxes to obtain seedlings for planting out later. Distribute the seeds broadcast thinly and evenly on the surface of the soil, cover them with about half an inch of the latter, and raise the plants in a cold frame. Guard against mice by placing two or three break-back traps among the boxes. Keep the frame closed until the young plants appear through the soil, then allow them all the air possible. Both the dwarf and the first-early tall varieties are best treated in like manner for the first crops, but sowings may be made now on a south border in the open with every prospect of success.

THE ALPINE GARDEN.

JEFFERSONIA DUBIA.

The genus Jeffersonia is a member of the Berberis family, and is limited to one species by some authors, while others admit two. One, J. binata (J. diphylla), is a native of the Eastern States of North America, and has been in cultivation for more than a century. It grows about six inches high, and produces solitary white flowers about one inch across. The leaves are deeply cleft into two lobes. J. dubia, illustrated on p. 130 (Fig. 62) is a native of Manchuria. On account of the fruit having, when ripe, an oblique slit in the capsule, instead of a horizontal one, and other small different characters, it has been placed in another genus, under the name of Plagiorhegma dubia. These characters, however, scarcely justify its separation from Jeffersonia, a much more convenient name for use than the other.

The pretty Jeffersonia dubia has blue flowers three-quarters to one inch across, which are produced in April before the leaves are fully developed. Like many other plants in this family, the petals drop quickly, but the flowers are freely produced when the plant becomes established. The entire leaves are reniform in shape, with a cordate base, and are borne on long, wiry petioles. It is a charming little plant in its early stages, with its ruddy stems and young leaves and lavender-blue flowers.

Both the plants are tufted, perennials, and generally found in Pine forests and other shady woods. They flourish in shady parts of the rock garden, planted in light, rich and moist soil. Although little seed is produced, both species may be propagated by division of the roots in early spring.

Fig. 63.—Erodium cheilanthifolium; flowers white with a purple blotch.

ERODIUM CHEILANTHIFOLIUM.

For a warm, rocky bank several members of the genus Erodium are excellent subjects, planted in the crevices between the stones, where the roots have access to good, well drained soil behind; they soon make large tufted plants, producing a wealth of flowers during the late spring and summer months. They are good wall plants, and dislike anything in the way of heavy soil, which causes them to damp off in the winter. In light and warm soils they do very well on the level ground.

One of the most charming species is E. cheilanthifolium. This is a native of South-eastern Spain, being found on the calcareous rocks of the Sierra Nevada, at an elevation of between 5,500 ft. and 6,000 ft. A low-growing plant, it forms masses of thick, fleshy stems two or three inches high, terminating in tufts of finely divided leaves of a silver-grey shade. The flowers are white, with a purple blotch at the base of two petals, radiating into lines, and they are very freely produced.

The nomenclature of this genus, especially in respect of some of the species, is very confusing, for this plant has been confused with E. trichomanifolium, and is often grown in gardens under this name. The true E. trichomanifolium is found on Mt. Hermon, in Syria, and although somewhat like the plants here illustrated (Fig. 63), it differs in being densely glandular all over the leaves and flower stalks. It is probably not in cultivation in this country; at least, I have not seen the true plant in gardens.

There are two other forms of this species cultivated in gardens, one of which is grown as E. guttatum. This might be called E. cheilanthifolium var. major, as it has much larger flowers than the type. The true E. guttatum is a native of Southern Spain and North Africa, growing up to a foot in height, with rose-coloured flowers. There is also another form with very small flowers, known as E. cheilanthifolium var. Valentinum.

E. petraeum is another species which has been grown in gardens under both the above names. It is a native of the Eastern Pyrenees, where it grows in the fissures of calcareous rocks. The foliage of this plant is green, and the leaves are finely divided, while the flowers are large, rose-coloured, with darker-coloured veins. There is no distinct blotch at the base of the petals, as in E. cheilanthifolium.

Many of the Erodiums freely cross with each other, and there are numerous hybrids grown in gardens, which makes the task of correct naming very difficult. They are all beautiful plants, very free flowering, and lasting for a long time in bloom. Seed is produced freely and they are easily raised by this means, while they may also be increased by means of cuttings in summer. *W. Irving, Kew.*

ASPERULA AZUREA SETOSA.

I think a good many gardeners will be glad to make the acquaintance of the Blue Woodruff, Asperula azurea setosa, an annual long in cultivation, but strangely neglected. It is a hardy plant, growing about one foot high, and of rather decumbent habit.

This species has the graceful foliage which characterises most of the Woodruffs, and charming heads of blue flowers, which are quite elegant in their formation and look exceedingly pretty on the plant and in a cut state. The seed may be sown under glass in March, if desired, but I prefer to sow in the open in April and thin the seedlings as needed.

Asperula azurea setosa continues to flower well into the autumn, and is charming in the border or in rockwork, where it helps to cover the bare spaces left by the leaf-decay of various kinds of early-flowering bulbs. *S. A.*

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HARDY FLOWER BORDER.

VERBASCUM MISS WILLMOTT.

I was pleased to see Mr. Arnott's note on p. 52 of the *Gardeners' Chronicle* in praise of this handsome Mullein, and can subscribe to the opinion that a mass in flower is a most inspiring sight. I should, however, be glad to know if the plant is a true perennial, my experience being that it is only of biennial duration.

Some years since when seeds of this Verbascum were, I believe, first offered in the catalogues, I obtained several packets of seeds, and raised some four hundred seedlings. These were planted out in the spring, when of a sufficient size, in one group, and developed into sturdy specimens by the autumn. Notwithstanding a severe winter—the mercury fell to twenty below zero, or fifty-two degrees of frost—the plants were uninjured, and the following summer none failed to produce spikes between six and seven feet in height, clothed for half their length with large white blossoms. The whole group was singularly beautiful, but the plants all died after flowering.—*A. E. Thatcher, Bar Harbor, Maine.*

HERBACEOUS PERENNIALS.

The following perennial border plants deserve to be planted more extensively than they are at present, therefore attention is drawn to their beauty and usefulness.

Asphodeline liburnica, of bold, commanding appearance when planted in clumps in flower or shrubbery borders, grows from 2½ to 3½ ft. tall, producing pretty, soft yellow terminal flowers on stout stems from amidst a mass of grassy foliage. It is of easy cultivation, thrives in ordinary garden soil, and is propagated by division.

Armeria plantaginea gigantea, a giant "Thrift," of decided merit, ostensibly the finest of the genus, produces dense, close tufts of olive-green foliage, from which rise numerous wiry stems 2 ft. or more tall, with terminal heads of large, globular bright pink flowers, which are produced incessantly from the end of May till July and August; quite hardy, and propagated by division.

Geum hybridum Lady Stratheden has all the characteristics of the well-known "Mrs. Bradshaw," being remarkably free and flowering all the summer and well into the autumn, producing large double, clear yellow flowers on branched stems; it is a real acquisition for the second row in the herbaceous border.

Geum hybridum Lady Hillingdon is of quite different type to the preceding, having a more compact, dwarf habit, and almost prostrate foliage, hence a most desirable subject for the edge of the border or the rockery. The large, bright, clear canary-yellow flowers are produced in abundance; it is a continuous bloomer from spring till autumn.

Papaver orientale Lord Lambourne.—The praise of this variety cannot be too loudly sung, for, as well as being distinct, it is most beautiful, and when planted in bold clumps and established, it would be difficult to compare anything to it for effect. The flowers are massive, and of bold appearance, brilliant orange-scarlet, and when fully expanded they display a large black blotch on the centre of each petal. The latter are deeply fringed, resembling the well-known "Parrot" Tulip. The writer well remembers the sensation created at the Chelsea Show when this Poppy was exhibited by Mr. Amos Perry, of Enfield.

Polygonum campanulatum is one of the most beautiful of "Knotweeds," which may be safely planted in the herbaceous border in a partially shaded position. It quickly forms neat, compact bushes from 2 ft. to 3 ft. tall, producing numerous pretty pink and white Campanula-like, sweetly scented flowers on terminal and lateral branches. It is perfectly hardy and easily propagated. It is also a pretty foliage plant, having fairly large leaves, the upper side Sage green, while the underside is a pretty buff shade. The flowering period is from May onwards.

Cimicifuga simplex, a rare Japanese species, and most effective, thrives anywhere in the herbaceous border, requiring a fairly moist but not wet position. The plants grow 2½ to 3½ ft. tall, producing stout spikes of dense, feathery, snow-white flowers during August and September; propagated by division.

Chrysanthemum maximum Excelsior.—Although the family is well-known to most gardeners, "Excelsior" is of recent introduction, and is undoubtedly one of the finest "Shasta Daisies" yet introduced. The flowers are large and well-balanced, snow-white, and freely produced on stout, wiry stems from June till October. This variety grows 3 ft. tall, and is especially valuable where cut flowers are in demand; propagated by division and seed.

Rodgersia podophylla, one of the most handsome introductions from Japan, is popularly known as the "Bronze Leaf," on account of the handsome five-cleft, broad leaves, a foot or more across, resembling an umbrella, attaining a bronzy shade when fully developed. The milky-white flowers are borne in gracefully erect panicles; an ideal plant for a partially shaded and moist situation, growing 3 to 4 ft. high when established.

Lychnis grandiflora is an extremely showy and interesting Japanese plant, with a pretty, pendulous habit. It forms stout, leafy stems from 1 to 2 ft. long, producing in the axils of their bright green leaves, large flowers of a glowing salmon shade, which are prettily laciniated; perfectly hardy, and flowering from June till October.

Hemerocallis Sir Michael Foster is the most attractive member of a very useful genus, having Lily-like, large flowers of a soft apricot-yellow shade, borne on stout stems 3 ft. tall, amidst masses of Iris-sibirica-like foliage. The flowering period is during August and September; propagated by division.

Digitalis gloxinaeflora The Shirley is a strain of Foxgloves raised by the late Rev. W. Wilks in his famous garden at Shirley. The plants grow from 5 to 7 ft. tall, and produce abundance of spikes, many having 4 feet of inflorescence, in all shades of colour from snow-white to the deepest rose, whilst many are beautifully spotted and blotched crimson and maroon; an ideal plant for woods and copses, hedgerows, or carriage drives, where it soon becomes established and forms a glorious effect. *W. Logan.*

VERONICA TRAHERNE.

Veronica Traherne has all the brightness of the brilliant blue flowers of all the varieties of V. Teucrium, dwarf or tall, but its outstanding feature which distinguishes it from others is the possession of golden foliage. It is a suitable plant for the front of the hardy flower border, as when in bloom it is not more than nine inches high, and it has a somewhat trailing habit of growth.

It is a good perennial on dry soil; a little shade is not unwelcome, though not essential. The plant may be increased by division or cuttings. *S.*

THE HISTORY OF THE CHRYSANTHEMUM.

I observe in the current number of the *Journal* of the National Horticultural Society of France that at a recent meeting of the Chrysanthemum Committee, M. Gaston Clément gave a chatty address upon the Origin and History of the Chrysanthemum.

Our own N.C.S. initiated something of the same sort, and it is an undoubted fact that a little educational information, conveyed by a competent authority in a familiar chatty discourse, is far more welcome to some of the members than a more formal and severe address designated a lecture.

M. Clément quoted from the work of Mr. Harman Payne and M. René Mommeja, and stated that the history of their favourite flower had often been written, but that there were certain facts and points of new departure to which he would draw the attention of his hearers as being those of the greatest interest.

The readers of the *Gard. Chron.* do not need any detailed account of M. Clément's interesting chat, for the subject has very often been dealt with in these pages. My present purpose, however, is to correct a few little slips, some mere printer's errors perhaps, which have crept into the résumé given in the Society's *Journal*, so that, if possible, they may not be perpetuated by other less well informed persons, who may probably borrow some of the details for reproduction elsewhere.

I am inclined to think that Mr. Clément's name for the Chrysanthemum in Chinese, which he gives in French as "*Ku* hoa," should be transliterated properly as "*Kiu* hoa," the latter form being that given by the French Jesuit missionary writer, who was the first to describe the flower in Vol. III. of "*Mémoires concernant l'histoire, etc., des Chinois*," which was written in Pekin in 1767, although not published in Paris till eleven years later. "Le Siku," M. Clément tells us, is the Japanese name for Chrysanthemum; this is an obvious misprint for Kiku.

A very important discrepancy appears under the date 1789, when we are told that "Arsène Blancard," a Marseilles sea-faring man, introduced the flower into France. It is difficult to understand where and on what authority M. Clément gives the introducer's name in that form. For some years, English and French writers attributed the introduction of the Chrysanthemum to one "Blanchard," whose christian name was never mentioned. But in 1901, before the Annual Congress of the French Chrysanthemum Society, held at Bordeaux, Mr. Harman Payne contributed a paper entitled "Historique de l'introduction du Chrysanthème en France et à l'Etranger," in which it was clearly proved that "Pierre Blancard" (his full Christian name was subsequently found to be Pierre Louis) was the real name of the introducer.

This paper, the text of which, in French, can be found in No. 48 of *Le Chrysanthème*, was awarded the large Silver-gilt Medal of the Society, Mr. Payne's researches having definitely settled several important outstanding historical queries, which had not been undertaken by any French member of the Society.

M. Clément recalled the names of the principal seedling raisers, who have contributed to improve the Chrysanthemum from the days of Capt. Bernet, the first European to raise novelties in that way, to the most modern, M. Maurice Martin (recently deceased). Twenty-four of his own countrymen are named—"Marrow," however, is an evident misprint for Marrouch, of Toulouse, a raiser of over forty years ago, who sent out Belle Paule, Mme. Clémence Andiguier, Marguerite Marrouch, and some of the earliest Japanese Anemones.

His list of English raisers is a small one; Wheeler, John Salter, Godfrey, Cannell, Wells and Jones are the only ones he mentions. For America he refers only to Thorp, Hill and Spaulding. Dr. Walcott, Nathan Smith, his son Elmer D. Smith, Pitcher and Manda, Waterer, and several other pioneers in the States might fairly have been mentioned. The only Australian is, of course, Pockett; although here again there are several raisers in that Colony who might have been included in the list.

I may also be permitted to call into question the erroneous spelling of a famous French horticulturist's name — I mean the Chevalier *So*lange-Bodin, as it is given by M. Clément. This gentleman was an ardent enthusiast, a prominent member, and one of the founders of the National Horticultural Society of France. His garden at Fromont was a famous one, and contained many horticultural rareties. But his name should be correctly given as "Soulange-Bodin."

English writers, unfamiliar with the facts, might think that in drawing their information from a French source they could implicitly rely on the material given, and it is for preventing the spread of error that we draw attention to the above very obvious slips to anyone acquainted with the subject. *P.*

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FOREIGN CORRESPONDENCE.

LILIUM SULPHURGALE.

I HAVE followed with great interest Mr. Grove's writings about Lilies, and I was very pleased to notice the praise he bestowed on the Lily cross (and its progeny) of my lamented friend Professor Scheubel, but I am perplexed to find my name brought into connection with "the story," inasmuch as I never had any communication with Mr. Grove. To all inquiring about Mr. Scheubel's Lily I left no doubt as to its origin.

Of the original cross, L. sulphureum × L. regale, to my knowledge no plants have been distributed. Mr. Scheubel called them Lilium Lahnsteineri. The seeds saved from this cross —of which Mr. Grove tells us he had been presented by Mr. Scheubel with a portion— produced all the stock now in commerce. This first filial-generation, when coming into flower, has been carefully watched by Mr. Scheubel and myself for several years, as according to Mendelian law they had to divide, 25 per cent. mother, 25 per cent. father, and 50 per cent. mongrel. This was not the case. We had just the same experience as Mr. Grove, some turned out darker, others lighter, but none of them approached in flower or general habit either of the parents. Every plant was a true hybrid, showing intermediate characters.

One of the parent-plants, L. regale, has a great inclination to vary. Mr. Scheubel wrote me: "The best rose coloured form I got from seeds among Brownii kansuense from Petersburg, I gave it to Mr. Grove," etc. The 24 plants of the first cross, mentioned by Mr. Grove, were not alike, but showed considerable difference. Shortly before his death, Mr. Scheubel sent me seeds of the best plant, which inherited more of L. sulphureum than the others. This shows evidently that variation is forthcoming in Lilies, and need not be reversion. A good many crosses between different species are known, which never revert, for instance, Primula kewensis (verticillata × floribunda), P. Arendsi (obconica × megasaefolia).

The not unpleasing variation in our Lilium sulphurgale could only be regarded as reversion if in the second and third generation forms like a rather true regale or sulphureum would appear. I cannot understand how Mr. Grove comes to the conclusion that nine-tenths of the so-called L. sulphurgale are not sulphurgale, when, a few lines previously, he states "they show a slight tendency to variation and farther development." Even scientifically the mixture of the two species must give in the second filial-generation 50 per cent. true hybrids, but here we have practically 100 per cent. At which point will Mr. Grove fix the limit for L. sulphurgale in the confluent line of the hybrids?

Selection of the best forms has, of course, now to take place, either from the first filial-generation or the following, which, no doubt, will be forthcoming soon.

Mr. Scheubel had, in 1918, the intention to name his Lily the Peace Lily, but the entire stock of the first filial-generation passed into the hands of an English firm of high repute, who put it into commerce as L. sulphurgale, a name which Mr. Scheubel did not appreciate, as it reminded him of Sodom's fate. He always wrote "sulphurale," which, to my mind, is a better word. The name of Peace Lily he abandoned. *C. Bonstedt, Curator, Gottingen Botanic Gardens.*

ORCHID NOTES AND GLEANINGS.

LARGE-FLOWERED CYPRIPEDIUMS.

WE have very much pleasure in reproducing a photograph of large-flowered Cypripediums received from Mr. G. F. Moore, Chardwar, Bourton-on-the-Water. Seven of the nine represented were raised from C. Christopher. Reading from left to right the varieties are: 1, C. Chrysostom var. Henry Moore; 2, C. Doris Stanton; 3, C. Gwen Hanmer No. II.; 4, unnamed (not a C. Christopher cross); 5, C. Mrs. Eley; 6, C. Chrysostom var. George Moore; 7, C. Memoria Henry J. Elwes (not a C. Christopher cross); 8, C. Chrysostom var. Richard Fort; and 9, C. Gwen Hanmer, No. I. As our readers are already aware, Mr. Moore has been particularly successful in the raising and cultivation of a new race of large-flowered Cypripediums, in many of which the ventral sepal shows remarkable development.

CATTLEYA ROTHMOS.

THIS new cross between Cattleya Lord Rothschild (Dowiana × Gaskelliana) and C. Mossiae Reineckiana, from Messrs. J. and A. McBean, Cooksbridge, shows a commendable effort to improve Cattleyas of the large-flowered section, while still retaining their characters as in the type. The flower closely resembles Cattleya Mossiae Reineckiana, but is much larger and of finer form. The sepals and petals are white, of the clear shade seen in C. Gaskelliana alba, which was probably one of the ancestors. The lip is white with a freckling of pale mauve, less pronounced than in C. Mossiae Reineckiana, but similarly displayed.

FIG. 64.—A GROUP OF A LARGE-FLOWERED STRAIN OF CYPRIPEDIUMS.

ONCIDIUM McBEANIANUM.

THE value of this elegant hybrid between Oncidium macranthum and O. superbiens as a decorative flower has always been recognised, and was well demonstrated by the raisers, Messrs. J. and A. McBean, Cooksbridge, who first showed a specimen in their group at Chelsea in 1913, and have frequently shown it since, but probably never with better effect than in their Gold Medal group at the R.H.S. meeting on February 27, where some fine specimens were arranged at the back of the collection. The six to eight feet long, branched spikes may be arranged either extended or twined into one or more heads, and are always effective. The spikes bore fifty or sixty flowers. The sepals are golden yellow with a red tinge, and the fringed petals are white at the tips and darker at the base. It is quite intermediate between the parent species and, like them, flowers the greater part of the year.

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.

No. X.—Over the La-pu Pass.

We left Li-Chiang for the second time on July 20, crossed the plain, now more or less of a bog and, climbing the slippery, red-earth hills, descended once more to the Yangtze.

But what a contrast the river presents here! Instead of the arid cliffs of the loop, the wooded slopes descend almost to the water's edge. Instead of scattered patches of cultivation high up, a continuous shelf of cultivation occupies the river bank, crowded with villages. The river itself is much broader, dotted with islands which are covered with bush or pasture, or sometimes cultivated. And the vegetation is different to that of the loop, though there is only the Li-chiang range between the two regions. The lower slopes are clothed with Oak and Pine trees, the roads hedged with bushes of Berberis and Pyracantha, smothered with Clematis. In the villages are Mulberry trees, Pomegranates, Persimmons, Walnuts, Apples and Peaches. By the river grow Willows and Chionanthus, which last in the spring is a splendid sight, and well-named Snowdrop Tree.

There came a lull in the rains, the sun shone out, and it was pleasant enough in the green valley. On the limestone cliffs were many flowers—old friends some of them, such as purple Roscoea and Didissandra lanuginosa, with milk-white flowers, flushed violet; Thalictrum, Eremurus; and a Tiger Lily with chocolate-red flowers, which was new to me. By the wayside grew masses of Orange-flowered Hemerocallis, darkly speckled, and of Iris, the latter in fruit; it is a washy-flowered species, possibly I. tectorum.

Instead of turning off at Chi-tien to cross the watershed to the Mekong—the main road—we continued northwards by the Yangtze for another two days; then by discovering on the wooded cliffs a Primula quite new to me. It was of the Obconico-Listeri type, a forest plant, heavily shaded; the fruits were almost ripe, yet one solitary flower I found, small, pink, yellow-eyed, probably but a wraith of the real thing. Seed I collected—may it forgive me for cropping it before its time, and germinate in an alien land!

Gradually the villages grew further apart, and their Chinese appearance waned; the houses were now more spacious, and Tibetan in design. Picturesque gardens enveloped each village, where Tobacco, Capsicum and tall Sunflowers flourished; there were pergolas, too, over which sprawled Pumpkins, and a forest of masts up which Beans scrambled in an eager race to reach the top. The valley closed in and became a gorge; no more islands—the river, now less than a hundred yards wide, ran like a mill race. Ahead we could see the great spurs echeloned up the gorges; we were on the threshold of the arid regions, where the flora quite definitely changes.

And right here we turned away from the Yangtze into the heart of the mountains, following up a big stream which flowed from the west. There was ample vegetation here, no fewer than three species of Rhododendron right down in the valley, R. racemosum, R. decorum and R. yunnanense, besides other Ericaceae, Oak, Gordonia, Castanea, Euonymus, etc. Plenty of herbs, too—Pedicularis, Sedum, Saxifraga, and as we got higher, Impatiens, Lythrum, Arisaema, violet-flowered Strobilanthes (in which the bees completely buried themselves), and a fine orange-flowered, black-speckled Tiger Lily, growing eight feet high. In this region the tributary streams flow for the most part of their course, north or south, parallel to the great rivers, the Yangtze and the Mekong, before turning aside to join them. We had not therefore travelled very far west, or north-west, when we once more turned northwards, whence this stream flowed. However, after following it for a full day's march we left it to cross a fairly high pass, that we might reach another and larger tributary of the Yangtze. We were now deeply involved in the forested mountains again. On our left—west flank, somewhere out of sight, was the Mekong-Yangtze watershed, amongst the lower spurs and valleys of which we were travelling. To our right (east) flowed the Yangtze itself, whose basin we had not left, though the river was buried out of sight.

It was the last day of July when we began the ascent of the pass above La-pu. At an altitude of 10,000 feet we found ourselves in the lower forest, where there were some fine trees—Ash, Maple, Elm, Oak, Pyrus, Rhododendron, and a few Conifers. Thickets of Strobilanthes appeared, two species, the second having milk-white flowers with two violet streaks, a pretty combination; species of Begonia, Pedicularis (there were meadows by the stream), Polygonum, Veronica, and what not.

In the open meadows at the summit of the range were violet Iris, and a few lingering flowers of a Nomocharis, which could only have been N. pardanthina. But how different to my plant from the Pine forests of Yung-ning (K.W. 4,000)! In the former, the petals are rose-pink, not white; with smooth edges, not frilled; rounded, not pointed. N. pardanthina bears three or four flowers on the main stem; the Yung-ning plant never more than two. The former grows in open, rain-soaked meadows, flowering in June, after the rains have begun; the latter grows in Pine forests, and flowers in May, before the rains. I had not specimens of both plants by me to make a close comparison, but all this could be seen in the twinkling of an eye, and I suspect other distinctions. If they are not different species, at the very least they are geographical varieties. But since the Hpimaw Nomocharis (which, superficially at any rate, does resemble N. pardanthina) has been raised to a distinct species under the name of (I think) N. Farreri, the same dignity can scarcely be denied to the Yung-ning plant. But it is just here that the personal factor comes in. Mr. Forrest, who, it will be admitted, knows something about Nomocharis in the field, maintains that there is only one species of Nomocharis in Yunnan, including the North-East Frontier of Burma—N. pardanthina; and he it was who first introduced this plant, from the Ta-li range, some years ago. Professor Bayley Balfour, on the other hand, who has studied the genus from all the dried material available, has described several species. I have met with plants of a Nomocharis in northern Burma—meadows full of it; on the Mekong-Salween divide—again meadows full; on the Mekong-Yangtze divide; and, as scattered plants, in the Pine forests above the lake at Yung-ning. And while I can see no difference between the Burma plant and that from the Doker La, thus disagreeing with Professor Balfour, I can see a lot of difference between that from the Doker La and the plant from Yung-ning, thus joining issue with Mr. Forrest. In any case, the differences are slight and technical, not such as to make any serious alteration in the appearance of the plant, as a garden subject. I have said, rather rashly, that Mr. Forrest believes there is only one species, N. pardanthina. He has, however, told me of a wonderful species he once found, with Tulip-pink flowers and no trace of the purple tint which is something of a blemish to N. pardanthina. But as he discovered this during his flight from the lamas, and as neither he nor any of his army of collectors have ever, despite repeated effort, been able to rediscover it, perhaps it was only a hallucination after all!

After crossing the pass, at an altitude of about 11,000 feet, there was an abrupt and complete change in the Rhododendrons. The ridge runs east and west, so that the flanks face north and south; but I had never before realised how sensitive even Rhododendrons are to aspect. On the south flank four species were abundant in the mixed forest; two of these were small trees, and two shrubs or undershrubs. One of the trees grew socially, forming a considerable part of the forest in places, but only where it derived some shelter from the slope of the ground; the others were more scattered.

On the north side, also, there were four species, one of them still in flower. Near the summit, on the steepest slopes, a gnarled tree with copper-red felt on the under-leaf surface (silver-white when young) formed dense forests to the exclusion of everything else. Here and there in open places a dwarf species formed mats a foot deep. Lower down was a large, untidy bush with small pinkish-purple flowers in very loose, floppy trusses; and scattered through the forest was a small tree with brilliantly silvered leaves—R. argenteum, probably. This last did not seem to have flowered at all for a year or two, for I could not find a single fruit.

There was one particular in which the species from the north flank differed from those on the south flank: the under-leaf surface of the former was covered with a dense tomentum, or, in the case of the dwarf species, with a thick layer of scales; the leaves of the latter were glabrous, above and below. One can only suppose that this covering serves to protect the leaves against the late-lying snow on the north face. *F. Kingdon Ward.*

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17, July 1, 15, 29, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10 and February 24, 1923.

ANNELIDS OF ICELAND AND THE FAROES.

The value of the different kinds of worms to the farmer and gardener cannot be overestimated. They not only render the soil porous, and break it up into the most minute portions, but enrich it with their own secretion. On this account it is every way desirable that we should enlarge our knowledge of them to the fullest degree possible. We need in particular to study their distribution, and make ourselves familiar with the species which are most prevalent in the different kinds of soil. Little as the subject has been investigated in this country, we nevertheless know that some worms thrive in one, others in another environment. The brandling is the first large kind to attack rank manure. The gilt-tail delights in vegetable mould. While the steel-blue worm can thrive in heavy loam, the true earthworm is an epicure, and likes his food rich and juicy. For some reason or other hardly any attention has hitherto been paid to the worm-fauna of the Islands north of the Hebrides, notwithstanding the fact that sixty or more years ago Claparède discovered several new species in these latter islands. Along the shores the seaweed harbours vast numbers of tiny red-blooded worms, which

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help to convert the algae into a valuable mulch for the land. Yet only one of these has been recorded for Iceland, and none for the Faroes.

Thanks to the services of my son, Dr. J. Newton Friend, who collected for me during a recent tour in these regions, I am now in a position to make a list of some of the annelids which occur there. In two or three instances they are of peculiar interest, because they shed a new light on the question of distribution. Beginning with those species which are most widely known, I may say that the true earthworm (Lumbricus terrestris) is very common around Reykjavik. I have carefully examined a score of adults and a number of young ones, and found them to correspond in every detail with the typical forms found in the British Isles and on the Continent. They were five or six inches in length, and lived in soil which in this country would most probably have produced the long worm. Of this species, however (Allolobophora longa), not a single specimen was found. The red worm (L. rubellus) and the purple worm (L. purpureus) were not so common, but agreed with the type. The latter is found alike in Iceland and the Faroes, and is the only worm from the latter islands for which I have hitherto been able to find any record.

Two other earthworms closely resembling the purple worm are found in Iceland. They belong to a group frequently known as the tree worms (Dendrobaena), because two or three of the species are peculiarly partial to dead trees and decaying stumps. One of these, known to anglers in some districts as the gilt-tail (D. rubida) is exceedingly common in this country among decaying leaves, and is of exceeding value as a mould maker. The other (D. octoedra) is a much rarer species in Britain, but has long been known to the Scandinavian naturalists, and seems to be a northern species. I believe the brandling also occurs, but at present we have no certain knowledge of any earthworms other than these, either for Iceland or the Faroes.

One of the commonest of our shore worms (Clitellio) has been recorded for Iceland, and here, until to-day, our list was closed. Not a single potworm (Enchytraeid) or red-blooded Pachydrilid is yet on record for Iceland; but I am able to report some interesting forms from the neighbourhood of Thorshaven. The first of these is a tiny red-blooded Pachydrilid (Lumbricillus lineatus) which was first described about 1770, by O. F. Müller. It is very widely distributed, and has many different names, on account of its having been found by various naturalists who regarded it as new. It thrives alike on the shore among seaweed and salt water, in estuaries, ponds and ditches, where the water is brackish, and in moist localities inland, where it is sweet. Like its congeners, of which there are many species, it is an invaluable worker. But the most interesting forms remain to be noted, because two of them have up till the present only been found in one other locality, and all the three species have colourless blood.

Some years ago a correspondent sent me specimens of a new worm (Mesenchytraeus oligosetosus), from Jersey, of which I gave a description in *The Zoologist*. More recently I found a closely allied form near Birmingham, but it differed in some important points from the Jersey species, and may ultimately prove to be distinct. Among the material collected in peaty soil about a mile inland from Horsham, however, I rediscovered the Jersey worm, the two corresponding in every detail. This species, unlike the last, has white or colourless blood, is about half an inch in length, and is distinguished by the presence of enlarged setae in three of the segments near the openings of the spermathecae. This is a characteristic feature of a small group belonging to the genus Mesenchytraeus.

Another white worm which occurs in the Faroe Islands is known as Chamaedrilus or Marionina. I hold that it is distinct from Marionina on account of its free spermothecae, the forward position of its sexual organs, its colourless blood, and other peculiarities.

Finally comes the tiniest soil worm ever yet found (Achaeta minima). This, however, is of such interest that I withhold description until results may be summarised. *Hilderic Friend.*

GARDEN NOTES FROM S.W. SCOTLAND.

"If there were no difference of opinion there would be no fancy waistcoats." Quite so; that is a piece of early Victorian philosophy which comes usefully to mind sometimes in everyday social intercourse. Elastic though it be, however, it is sorely strained by Mr. Kingdon Ward's denunciation of Lilies on page 107. "I dislike the group altogether," says he; "there is a hint of foolishness about them—they are not quite genuine." Methinks that before penning this sentiment Mr. Ward must have partaken of something very indigestible at tea. It is true that in no genus of hardy plants does disappointment lie so surely in wait for the cultivator as among Lilies—in none is the percentage of failure so high; but is there any other in which success secures a more satisfying reward? Is there anyone so insensible to beauty of form and splendour of colour as to regard Lilium regale with indifference, still less with "dislike"? Luckily, that is one of the kindliest of Lilies in cultivation, giving no trouble if provided with a site in deep, well-drained loam, with a dash of lime in it, and a liberal top dressing of wood ashes from which rain has not been allowed to wash the potash. We have had this Lily here over five feet high, with seventeen and fifteen blooms on single stems (not fasciated); but it is more graceful when the blooms do not exceed five or six in number on a stem. This, by the way, is not precisely the season to prose about Lilies, for the planting season is over—or ought to be—and flowering is a long way ahead. Still, there is the promise of good things to come, for as early as yesterday (February 23) I noticed ruddy sprouts showing from established clumps of L. auratum platyphyllum, and the evergreen L. candidum is already six inches high.

While on the subject of Lilies in general, the question suggests itself whether it is not high time that measures should be adopted by the British Government similar to those whereby the United States Government has sought, and to a considerable extent succeeded, in preventing disease being imported with bulbous and other plants. American legislation to this end was at first drastic, and caused much loss and inconvenience to European exporters; but it resulted in putting Governments and nurserymen alike upon their mettle. A phyto-pathological service was established in several countries, and many plants which were at first rigidly excluded from the United States are now admitted subject to a guarantee from the Government of the exporting country. British Potatos, for instance, after being totally prohibited entry at American ports during many years, are now passed in if covered by a certificate of immunity from the

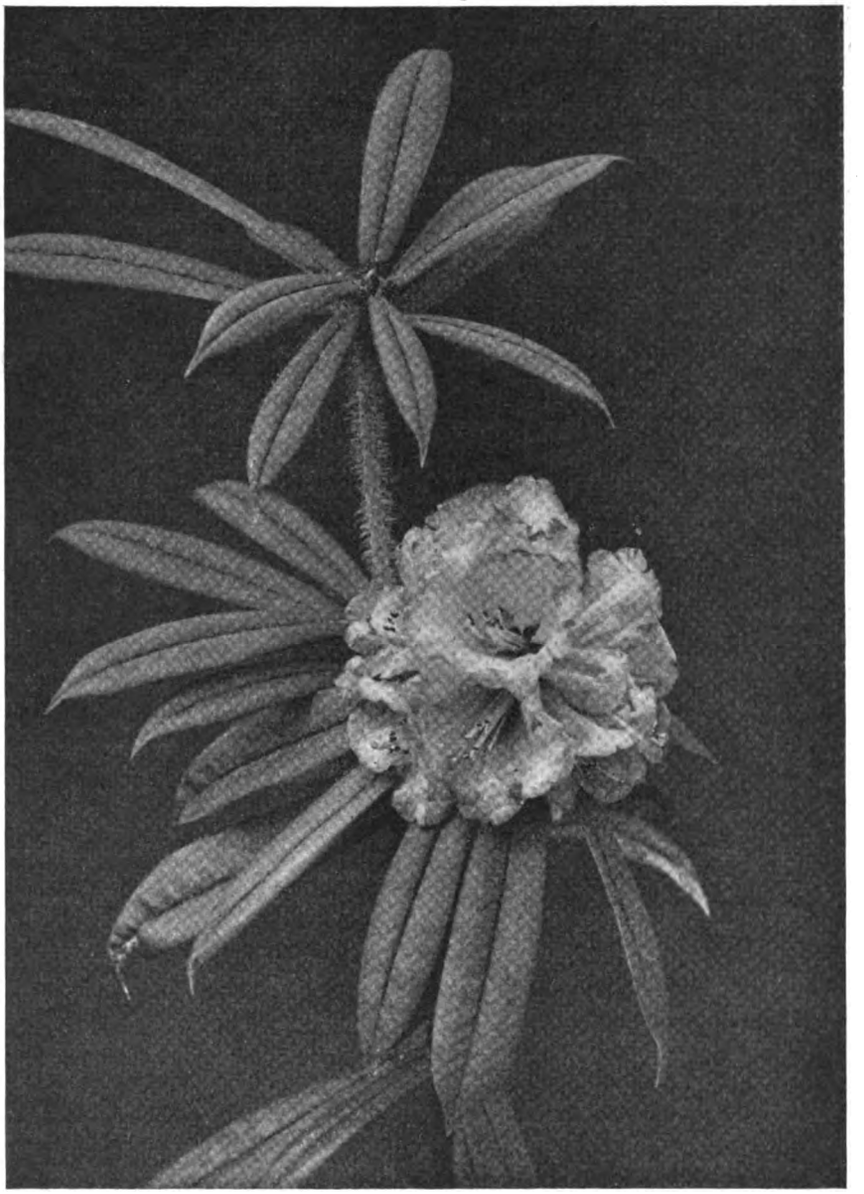

FIG. 65.—RHODODENDRON STRIGILLOSUM; R.H.S. AWARD OF MERIT, FEBRUARY 27 (SEE PAGES 125, 129).

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British Minister of Agriculture, and a later relaxation of the law has been made in favour of bulbs of Galanthus, Chionodoxa, Scilla, Fritillaria, Muscari, etc., which are admitted without any certificate. In like manner, restriction of the importation of Dutch bulbs into this country has been withdrawn in respect of bulbs guaranteed by inspectors appointed by the Netherlands Government.

Now the Japanese are no whit behind any European or American people in scientific intelligence or enterprise. Their export trade of bulbs, especially Lilies, is immense, and must be of very great value; but gardeners and amateurs know to their cost and bitter disappointment the wretched condition in which Japanese Lily bulbs reach this country—what a minute percentage of them are free from the spores or mycelium of Rhizopus necans. Why should our ports not be rigorously closed against the importation of goods infested with this most destructive fungus, until the Japanese Government shall set up a phyto-pathological service such as has been established by other civilised nations for their own protection? This seems a matter which the Royal Horticultural Society might press upon the attention of the Ministry of Agriculture with a view to putting a stop to the free importation of disease. It may be noted that inspection at either port of export or import has been found to be ineffective; it can only be conducted satisfactorily in the grower's grounds and on his premises.

Early Rhododendrons are flowering very irregularly this season with us. Never have I known R. arboreum so sparsely set with flower-buds; while on the contrary, R. barbatum is just beginning a very liberal display. R. Thomsonii is so laden with promise of blossom that I incline to dread the effect upon the constitution of the older plants. The hybrids of R. Thomsonii show similar profusion. Among Chinese species, R. haematocheilon is over, R. lutescens is in full bloom (February 24), R. oreodoxa and R. Fargesi just about to open. *Herbert Maxwell, Monreith.*

PALMS OF THE RIVIERA.*

The last of the Palms I mentioned was Serenoa serrulata, Hook. Some years ago I received seeds of a Palm from Florida under the name of Serenoa arborescens. This name was given to a Palm described by Prof. Sargent (Coulter, *Bot. Gaz.*, XXVII., 90); but Prof. Beccari has placed it in the genus Scoclorapha of H. Wendland. As Scoclorapha arborescens is a strikingly ornamental Palm of southernmost Florida, and the Florida Keys, with very slender trunks, reaching a height of 12 metres, it would be a most valuable acquisition for Riviera gardens if sufficiently hardy. My plants, however, do not correspond with the description given by Prof. Beccari; but up to now quite so to the description of Serenoa serrulata, Hook. H. Wendland substituted the name, it appears (in which publication and with what right?) of Diglosophyllum for the name Serenoa, and, indeed, the very characteristic manner in which the rachis is terminated in a formation like a ligula makes this Palm distinguishable at first sight. As this character is obvious in my plants, there can be no doubt that they are either the common form of Serenoa serrulata, or, perhaps, an arborescent form. As I am very anxious to obtain as many forms as possible of this exceedingly hardy Palm, found growing wild all over south-eastern United States, from South Carolina to South Florida (even, it appears, the very southernmost localities), I should be obliged if readers living in those parts of the United States, where this or other Palm species grow wild, would kindly send me fresh seed in exchange for others. There can be little doubt that a Palm so widely distributed in such different climates must exist in distinct forms, though Prof. Beccari just mentions, in passing, that he has noticed only two forms representing very slight differences in the flowers.

Everybody knows Rhapis flabelliformis, so common in greenhouses and absolutely hardy on the Riviera, where, however, it is not nearly so commonly met with as could be expected from its ornamental value and its ready growth. Where the soil is not too poor and dry, it will form a dense group of very slender, straight trunks, clothed, like those of the Trachycarpus, with blackish fibres, and as the internodes are long, it rapidly acquires height and may form a rather important feature in the garden when the stems have attained some 3 or 4 metres; though the leaves are only small, they are flabelliform, deeply divided, and of a dark green colour.

Two other species, Rhapis humilis, Blume, and R. Kwaniwórtsik, Wend. (of which latter a variegated form exists), are smaller, but much more graceful than R. flabelliformis. R. humilis has stems so slender as a thin lead pencil, and as the small stems form a tuft and bend in all directions, it is a most ornamental Palm. It is, indeed, astounding that these very hardy Palms are so rarely met with here, since there are numerous small front gardens where they would form a most graceful ornament, and at the same time occupy little space.

Arenga Engleri, Beccari, is a hardy Palm, as it has not suffered at all through the low temperature(—8° C.) ever experienced in my garden, the only garden, so far as I know, where this species is found in Europe. It is a small cespitious Palm, which, by its leaves, is entirely distinct from all the Palms I have mentioned hitherto. The leaves, which somewhat resemble those of the well-known Caryotas (Fishtail Palms), are not, however, double-compound, but only singly, while the leaflets are pointed, but with angular, somewhat rounded, divisions. Though this species has proved quite hardy, it has been of slow growth, and I do not know to which size it will attain. In climates where no Caryota or other Palms with more or less similar foliage can exist, Arenga Engleri may at least provide a representative with foliage very different from the ordinary pinnate or flabelliform shape of Palm leaves.

With this species I terminate my summary of Palms which have proved hardy, even during the severe frost of December, 1920, the worst experienced on the Riviera since 1820. By "hardy" I do not mean that none of these Palms has suffered at all—far from it, since some have been injured more or less on the leaves or flowers, but all have recovered rapidly. Besides, it would not be right to condemn a Palm because it was damaged by so unusual a frost—such a one as may occur perhaps once in a hundred years—since all these Palms do not suffer the least in ordinary winters.

My list has been very concise, because many plants of the species which I cultivate are only young, and do not yet exist in other gardens of the Riviera, therefore I cannot give details as to their development and ornamental value. There can be little doubt, however, that not only will such species prove interesting, but many others also if it should be possible to obtain them, though, judging from more than thirty years' experience, this seems to be difficult and a task requiring patience without limit. Let me state only as an example that I never could obtain seeds of the small Palm which once I saw growing by thousands around New Orleans and elsewhere (Serenoa serrulata?). Readers may therefore judge the difficulty of obtaining seeds of Palms growing in wild countries! But if these lines should happen to be read by plant-lovers who would care to contribute to the introduction to cultivation of hardy Palms or otherwise tropical-looking plants, I shall be always happy to send seeds in return or render some other service. I propose in my next article to mention Palms which, up to December, 1920, have proved more or less hardy here, and of which many have not suffered on the Riviera to the east of Nice, where the temperature has not fallen so low, and even in certain favoured localities hardly went below 0° C., the freezing point. *Dr. A. Robertson Proschowsky, Jardin d'Acclimatation, Les Tropiques, Nice, France.*

*The previous articles by Dr. Proschowsky were published in our issues for May 1, June 12, July 10, September 4, November 20, December 18, 1920; March 12, April 30, June 11, October 8, November 19, 1921; January 21, February 11, April 1, June 17, July 29, October 14, November 11, and December 23, 1922.

FORESTRY.

PLEA FOR COMMUNAL FORESTS IN BRITAIN.

Addressing a largely-attended meeting of the Aberdeen University Forestry Society, Mr. Peter Leslie, Lecturer in Forestry, recently made an eloquent appeal for the establishment of communal forests in this country, contending that were these established throughout the country object-lessons in forestry would be everywhere available, and afforestation schemes in general would doubtlessly receive a much larger measure of public support than was accorded them at present.

Choosing for his subject "Communal Life in Alsace-Lorraine," a country which he and the senior forestry students visited last autumn, Mr. Leslie stated that when the woods of the Church and of some of the seigneurs were taken over after the French Revolution by the forest service of France, the situation as regarded the rights of usage was found to be exceedingly complicated, and, in many cases, made good forestry in the State woods impossible. The French Government divided its woods into two parts—the State forest proper and the communal forest. Even yet the process had not been completed, and thus in France they had three kinds of forests—State forests, communal forests, and forests that were as yet undivided between the State and the communes. The communal forests, so far as their management was concerned, were under the control of the State forest service, which managed them in consultation with the communal Council. The returns, after costs of administration had been deducted, were paid into the communal treasury. The inhabitants of the commune were entitled to supplies of firewood and constructional timber, although that became impossible when the villages grew into towns. The money returns from the forests, on the other hand, benefited all the inhabitants of the commune, whether the commune were large or small, in so far as the income permitted a reduction in the rates and assisted in the upkeep of schools, roads, and municipal work. Sometimes the returns were so large that payments in cash were made to each member of the commune.

Comparing the forest services of France and Germany, and those of other European countries, Mr. Leslie declared that the French service suffered from over-centralisation, and that it was well there should be local influences, such as the communal ownership, acting as a mitigating force. In the Forestry Act of 1919, by which the British Forestry Commission was set up, the French forest service was the model that was adopted; but we had no communities in Britain particularly interested in forestry or actively supporting our forest policy. Perhaps the time was not ripe, but had the promoters of the Forestry Act made provision for the acquisition of forests in the neighbourhood of towns and villages, so that the proceeds might be used for the reduction of taxation, a new element would have been introduced which might have proved of vital importance.

The lecturer then proceeded to compare the French and German systems in Alsace-Lorraine and said he had questioned several Alsatians as to whether they thought the German or French administration was best. They all lamented the over-centralisation that was taking place since the German evacuation, and they admitted the German forest administration was the better one of the two—only it was German. An innovation introduced by the Germans in Alsace-Lorraine, and one likely to remain, was the felling of all trees by woodcutters in the employment of the forest service, whereas in France, as with us at home, the timber was sold standing.

After a few favourable comments on the German forest administration in Alsace-Lorraine, Mr. Leslie said communal forests were not confined to Alsace-Lorraine and France, and that one of the classic examples of this type of forest was that of the Sihlwald, belonging to the town

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of Zurich in Switzerland. The communal forest idea was growing in the United States and Canada. They had in Scotland a few examples of community-owned forests. The City of Aberdeen had several acres of forest land which had been carefully planted. The city of Elgin, in Morayshire, owned over 100 acres of woodland which were being carefully managed, and which in due time would well repay the outlay expended. Glasgow and Dundee, and other districts in the south of Scotland, had embarked on somewhat extensive schemes of afforestation; but the sum total was still practically negligible. What was wanted, contended the lecturer, was, in the first place, the setting up of proper machinery, and his suggestion was that the Forestry Commission should be given limited powers of acquiring, with the funds allocated to the Commission by the Treasury, woodland areas in the neighbourhood of towns and villages on behalf of the latter. These forests would become the property of the towns or villages near which they were situated, and the income derived from them, after payment of expenses of management, would be devoted to the reduction of taxation, while the actual management of the woods remained in the hands of the Forestry Commission.

HARDY BRITISH FERNS.*

In introducing his subject, Mr. Cranfield stated that in the time at his disposal it was quite impracticable to deal with it in a comprehensive manner. The biological side alone would occupy much more time; proceeding, he stated that Ferns and their allies probably represented one of the earliest forms of vegetation. They existed in immense numbers and in gigantic stature when the universal temperature was very much higher than the tropics of to-day, and the earth enveloped in an atmosphere of vapour heavily charged with carbonic acid gas. Under these conditions Ferns, Mosses, Equisetums, etc., assumed proportions comparable with the growth of the largest timber trees. The fossil remains of many hundred species of these plants have been found in the coal measures; Ferns and their allies have, therefore, played an important part in the economy of the world. Many millions of years have passed during which both animal and vegetable life have undergone great modification, but the Cryptogams have retained the early method of reproduction by spores, and this I shall touch upon later. Ferns do not produce the richly coloured blossoms and delightful scent of the flowering plants, and for this reason, probably, they have failed to become so universally attractive as their merits deserve, but even the normal forms when growing in congenial conditions present a refreshing verdure and grace of outline, which, however, is far transcended by the choicest of the varietal forms, that have either been found as wildlings amongst hosts of the normal types or raised from such finds by selective cultivation.

There are between thirty and forty species of Ferns indigenous to this country, and these vary in almost every conceivable direction from abnormally foliose sports to extremely attenuated, branched, crested, lax, convoluted, tasselled and very finely divided types, also in stature from giant forms to dwarf examples. In no other country are the native Ferns known to vary to the same degree; the reason of this departure from the type is not known, but when the change has taken place, there would appear to be no limit to a Fern's capacity to vary, the ordinary frond becoming incrested and *vice versa* amongst the more protean varieties, resulting principally in ragged and irregular offsprings. All our native Ferns possess the merit of hardiness, but to attain their fullest development some of the choicer varietal forms need the protection of a cold frame or conservatory. Many species are evergreen and of robust habit; many forms of them having been grown by traders for a long time are obtainable in considerable variety and at trifling cost. When planted in suitable environments these hardy Ferns may be enjoyed the year round, whether in the fresh verdure of their early growth, or as mature specimens bedewed with raindrops or outlined with a delicate tracery of hoar frost. The method of reproduction by spores in Cryptogams differs from flowering plants that produce seed. The spores are produced usually on the back of fronds within capsules grouped in heaps known as sori, either naked or covered with an indusium differing in form in various species, which variations form an important factor in determining the species. Each species has its popular name; thus Athyrium Filix-foemina is known as the Lady Fern, probably on account of its refined and delicate appearance; the Lastreas are known as the Male Ferns, presumably for the opposite reason; Polystichum angulare and P. aculeatum, the soft and hard Shield Ferns respectively, and so on.

Varieties are almost endless in number. In Lowe's *Handbook*, published in 1908, over 1,700 varieties are described, of which some 1,300 were wild finds. Many were, however, quite unworthy of record. Since that date many more have been found, from which vastly improved forms have been raised, until, after a few generations of selective cultivation, they are scarcely to be recognised as descendants of the normal types. In some Ferns two forms of fronds are produced, for example, in Blechnum and Osmunda, and these are popularly spoken of as flowering Ferns.

The number of spores shed annually by a Fern can scarcely be conceived, but it has been computed that a single plant of Athyrium Filix-foemina possessing a single crown and 14 fronds will produce annually 1,120,000,000 spores, every one of which is capable of producing an independent plant. The spores are very minute, but retain their vitality for many years. There is but little wonder that Ferns spring up apparently spontaneously where local conditions of moisture are favourable; the spores may be borne by the wind for very long distances. I can only mention other means of reproduction, such as from bulbils, basal buds, soral and apical apospory.

The varieties of the various species are classified throughout on the same principle; the plumosa forms are usually considered to be the choicest and are usually barren.

At this stage Mr. Cranfield illustrated his remarks with lantern slides as follows: 1, Fern fronds embedded in coal; 2, Sori, spores in various stages of vegetation and mature prothali with the male and female organisms and the young Ferns; 3, bulbils and aposporous growths in various stages of development; 4, Asplenium Trichomanes — inciso crispum Clementii; 5, Asplenium Trichomones confluens; 6, Athyrium Filix-foemina revolvens; 7, A. F.-f. Victoriae, an extraordinary example of the departure at one step from the normal to a combination of the most complex character; 8, A. F.-f. ramulosissimum; 9, A. F.-f. Kalothrix; 10, A. F.-f. Todeoides cristata; 11, A. F.-f. Clarissima; 12, A. F.-f. vars. showing the pedigree of the superbum section; 13, A. F.-f. plumosum Druery; 14, A. F.-f. plumosum percristatum and other forms in the superbum section; 15, Blechnum Spicant concinnum and normal form of comparison; 16, Blechnum S. Maunderi; 17, B. S. plumosum Airey's No. 2; 18, B. S. concinnum Druery; 19, Lastrea pseudo-Mas polydactylla Wills; 20. L. p. M. cristata; 21, L. p. M. cristata fimbriata; 22, L. p. M. angustata; 23. Lastrea montana cristata gracilis; 24, L. m. formosa cristata improved; 25, L. dilatata foliosa cristata; 26,

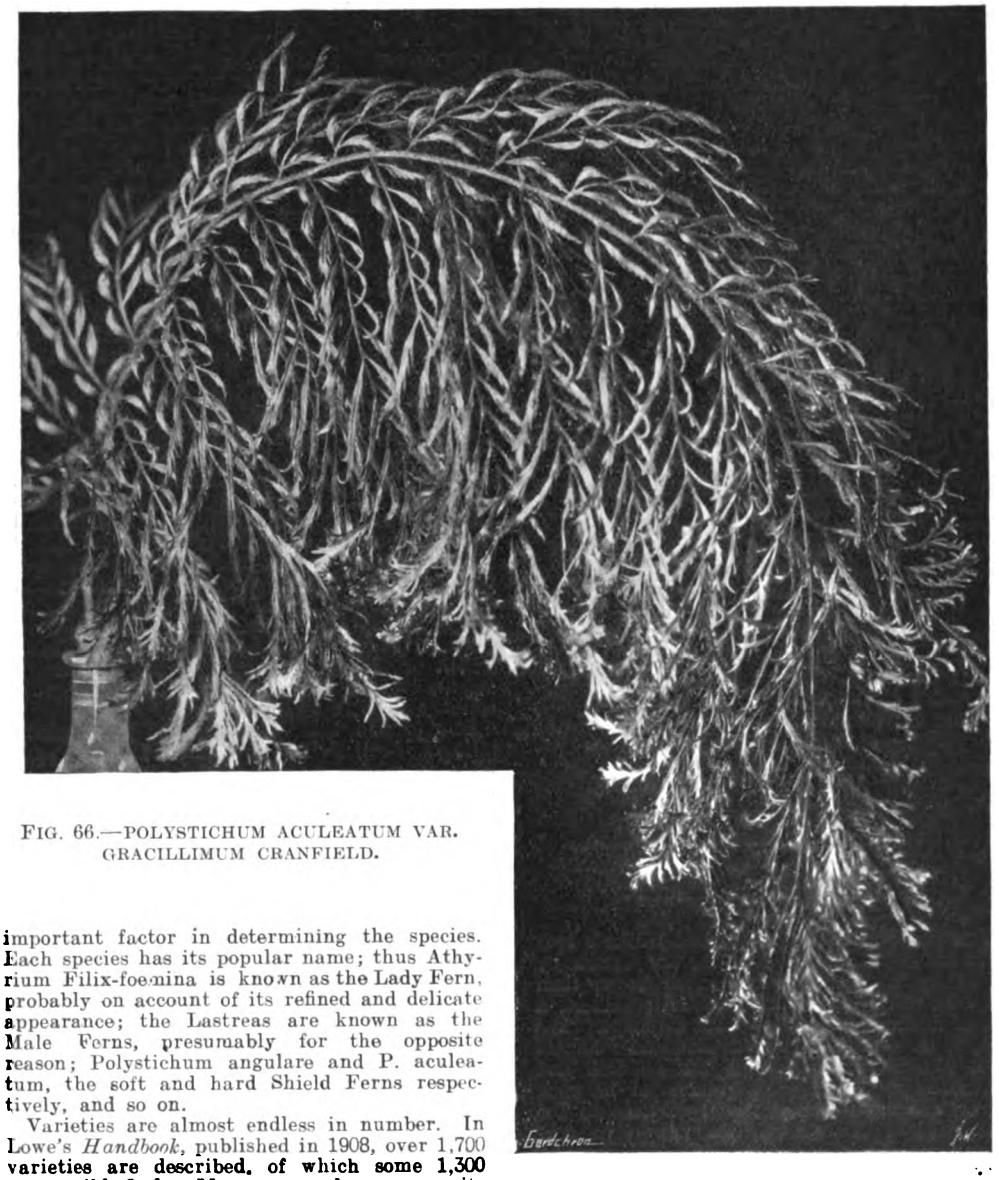

FIG. 66.—POLYSTICHUM ACULEATUM VAR. GRACILLIMUM CRANFIELD.

* Résumé of a lecture delivered by Mr. W. B. Cranfield, President of the British Pteridological Society, at the meeting of the Horticultural Club, Hotel Bellevue, on February 27.

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Polypodium vulgare and varieties; 27, P. v. Omnilacerum, Oxford variety; 28, P. v. grandiceps Parker; 29, P. v. cornubiense; 30, P. v. pulcherrima; 31, P. v. trichomanoides; 32, P. v. cristatum Henwood; 33, P. cambricum Henwood; 34-36, various forms of P. v. cambrium; 39, P. Dryopteris, normal and the plumose form; 40, P. phegopteris in natural habitat; 41, Polystichum angulare grandiceps Moly; 42, P. a. nitescens Jones; 43, P. a. nitescens grandi Cranfield; 44, P. a. divisilobum Bland; 45, P. a. brachiatum Stansfield; 46, P. a. stipulatum Carbonel; 47, P. a. percristatum Moly; 48, P. a. Hirondelle Moly; 49, P. a. plumosum Moly; 50, P. a. plumoso-divisilobum Jones and Fox; 51, P. a. p. laxum Jones and Fox; 52, P. a. p. robustum Jones and Fox; 53, P. a. plumosissimum Birkenhead; 54, P. a. plumoso divisilobum Balwinii; 55, P. a. v. divisilobum variegatum Harris; 56, P. a. pulcherrimum Stansfield; 57, P. a. rarefactum Stansfield; 58, P. aculeatum pulcherrimum Beavis; 59, P. a. pulcherrimum Druery; 60, P. a. gracillimum Druery; 61, P. a. gracillimum cristulatum Druery; 62, P. a. gracillimum Cranfield (see Fig. 66); 63, P. a. foliosum Edwards; 64, P. a. plumosum Green; 65, P. a. varieties illustrating the pedigree of the gracillimum section; 66, Scolopendrium vulgare in sixteen varieties; 67, S. v. sagittato projectum; 68, S. v. cornutum grande; 69, S. v. Coolingii; 70, S. v. plumosum Stansfield; 71, S. v. p. cristatum Perry; 72, S. v. crispum Drummondae superbum; 73, s. v. crispum Drummondae gradiceps; 74, S. v. crispum nobile; 75, S. v. crispum speciosum Moly; 76, S. v. crispum speciosum, a bank of about fifty specimens; 77, S. v. crispum varieties on either side of a ditch; 78, the late Mr. C. Green's fernery; 79, the late Mr. C. T. Druery's fernery; 80, portrait of the late Mr. C. T. Druery.

The lecturer concluded his remarks by stating that the British Pteridological Society, of which he has the honour of being president, was formed for the purpose of encouraging the cultivation of the varietal forms of native Ferns, and that *The Gazette* published by the society afforded a large amount of highly interesting information. A number of questions were asked at the conclusion of the lecture, which led to an interesting discussion in which Dr. F. W. Stansfield, Messrs. C. E. Pearson, P. R. Barr, H. S. Rivers, Geo. F. Tinley and others took part.

NUTS AND FILBERTS.

The best varieties of Nuts and Filberts may be included in a few. Filberts are known by the husks being tubular and much longer than the nut. The best sorts are White Filbert, a nut of medium size, oblong-oval in shape. The bush is an abundant bearer. Lambert's Filbert (syn. Kentish Cob), a large nut, an inch and a quarter long, and three-quarters of an inch wide. The name Cob does not conform to the synopsis laid down for those known as cob-shaped. Cobs are described as follows:—"Husks as long as or a little longer than the nut. Nut roundish, angular." Pearson's Prolific is a splendid polleniser, as it produces catkins freely, and should be planted amongst other sorts. The nut of this variety is of medium size, roundish, and of good flavour. The bush is a free bearer, and very precocious, fruiting in a young state; I have seen very small bushes bearing a heavy crop of excellent nuts. Merveille de Bolwyller is a large, handsome Cob Nut, and worthy of a place in every garden where nuts are in demand. The bush is a vigorous grower, and the nuts are of first-rate flavour. The variety Duke of Edinburgh belongs to the Spanish Nut classification, with husk as long as or a little longer than the nut, which is ovate in shape. It is a very fine variety, and I grew it to perfection twenty years ago whilst in charge of a large garden. The nuts, produced in clusters, were of fine flavour, and looked well on the dessert-table. I also advise the planting of a few bushes of Cosford or Pearson's Prolific, amongst this or any other variety, to ensure fertilisation. The Cosford Nut is a variety for dual purposes—that is, it crops well and produces plenty of pollen. It is a useful sort for market purposes, owing to its prolific bearing. The nut is large, ovate, inclining to oblong. The kernel is large and of excellent flavour. The best plantation of Nuts I ever saw received yearly dressings of basic slag and spent animal manure, the latter in quantity just sufficient to cover the surface. *Pomona.*

VEGETABLES.

WINTER SALADS.

Salads share with raw fruit that richness in vitamines which modern medical science declares to be essential to the preservation of health. It is, therefore, desirable to use this natural food as much as possible, and particularly at the present season, when the supply of fresh fruit is at its lowest. It is, however, precisely at this season that the greatest difficulty is experienced in meeting the demands of the salad-bowl, and the following remarks are intended mainly to meet this difficulty.

The Lettuce is unquestionably the premier salad vegetable, and is available during the greater part of the year. Where facilities for forcing exist, it is not difficult to maintain a constant supply during the whole year, but without such facilities the earliest Lettuces can hardly be expected until April, and the latest supplies cease with the advent of November.

Endive then takes the place of Lettuce, and, with good cultivation and improvised protection, the season of this salad may be extended until February. A variation may be obtained by using Celery, but the supply of the last ceases at about this time, and until spring Lettuces are available it is not easy to provide a daily supply of salads without the aid of glass. There are, however, several plants which are helpful during this season, though most of them are much less used in this country than in France.

One of the best of these is Valerianella olitoria, Corn Salad, or Lamb's Lettuce, supplies of which may be obtained very easily from the open ground during winter and spring. The seed may be sown broadcast in August and September in any odd plot of ground, and the plants will develop useful leaves without being transplanted.

Chicory is also valuable at this season. The common variety is, perhaps, easier to grow, but the improved variety, Witloof, is recommended if a more refined product is desired.

In order to obtain good roots of this variety, the following method of cultivation may be recommended. The seed should be sown in drills, drawn 12 inches apart, in June, and the plants thinned to 6 inches in the rows. In November they should be lifted, the leaves trimmed off about one inch from the neck, the lower end of the tap-root shortened, if necessary, to uniform length, and the roots replanted about 2 inches apart in a trench and covered with 6 inches or 8 inches of fine, light soil. Those required for early use may be forced by covering them with a layer of fermenting manure, in successional batches, but those required later will need no manure, as the natural growth will give supplies during March and April. When growth is complete, the roots should be dug up and the blanched heads cut off at the neck.

The Dandelion also provides excellent material for salad, and is of easy culture. If grown in narrow beds and covered with rough boards and litter in autumn, the plants will yield constant supplies of leaves during the whole winter.

It will probably be a surprise to many that Claytonia perfoliata, the Winter Purslane, makes an excellent salad. The plant grows as a common weed on light soils, and its bright green, succulent leaves, which are of mild flavour and quite free from bitterness, are produced in abundance during the winter. *W. Auton, Pyrford Court Gardens, Woking.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

"The Orchard and the Garden."—The remarks by Mr. W. Roberts on p. 106, concerning *The Orchard and the Garden*, have doubtless been read with much interest by many lovers of old gardening books. The statement that the copy he refers to contains the armorial bookplate of Sir George Shuckburgh, Bart., is of special interest to me, for the same 18th century bookplate is in my copy of James Parsons' *The Microscopical Theatre of Seeds*, "being a Short View of the particular Marks, Characters, Contents, and Natural Dimensions of all the Seeds of the Shops, Flower and Kitchen-gardens, etc.," 1745. This latter work consists of 348 pages (9 by 7), with eight plates. Although stated therein that "the whole design will be comprehended in four volumes," I believe only the first was published. Perhaps someone would kindly enlighten me on this point, and the possible rarity of the book. *Gurney Wilson, Hayward's Heath.*

Bourdichon's Illustrations of Black Currants.—Mr. Brotherston is correct in his supposition as to the derivation of the names *Poivre* and *Poivrier* for the Black Currant, in use in the sixteenth century. That they were common names based upon a superficial similarity of the fruits of two very different plants is proved by the following citation from D'Alechamps' *Historia generalis plantarum*, 1587; "*Grossularia nigra, est aliis Pipirella a baccis magnitudine, coloreque piperi similibus, officinis Ribes niger, Gallis Poivrier et groselier noir dicitur.*" Or, in English, Grossularia nigra is called by others Pipirella, from its berries, similar in size and colour to Pepper; in the apothecaries' shops, Ribes niger; by the French, Poivrier and Groselier Noir. *S. Savage.*

Large versus Small Foliage on Onions.—Among the strains of Ailsa Craig Onion there are often a few plants with small foliage and quite small stems. These plants occupy less room than others and their bulbs ripen earlier—a great advantage in all seasons, but especially in a wet one. Cannot our seedsmen increase this very valuable stock or strain? I feel sure it would repay them, as, even though this small-foliaged strain may not be the best for exhibition purposes, it is far the best for utility. It was pitiful to find so many big-necked Onions last year in gardens where the small-necked ones would have been ripe and fit to harvest in early September. *J. P.*

Black Currant Bud Mite and Reversion (See p. 81).—Liming the bushes has been tried but is of little use for big bud, owing, I presume, to the impotency of the material shortly after its application. Speaking to Mr. P. C. M. Veitch, of Messrs. Veitch and Son, Exeter, at the last R.H.S. Autumn Show, he concurred with my remarks as undermentioned. The best way to check the pest, so far as both Mr. Veitch and myself had seen, was to spray the bushes just before the opening of the bud with a weak solution of a summer fruit-tree wash, and while the moisture remained give the trees a dusting of flowers of sulphur. The contention held was that the sun's rays on the sulphur releases fumes detrimental to the life of the insect, as Mr. Veitch informed me his firm had carried out this procedure for several years, and never a big bud had put in an appearance. I also have been informed that Messrs. Craven, an Evesham firm, had treated a plantation with a solution of sulphur or sulphurette, which had cleansed the bushes remarkably well. These bushes had a virulent attack of "mite," and were cut to the ground, then treated with the specific the first and second year. To-day the bushes are perfectly clean, and I trust they may remain so. Spreading slaked lime underneath the bushes does no harm and assists the plant in making vigorous growth. With regard to reversion in Black Currants, that it is due to constitutional defect of the plant may be proved by the following observations made by

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myself during the past 20 years. For years the propagation of this Currant was from cuttings formed of non-fruiting growths. No one ever encountered reversion on trees raised from cuttings taken from healthy fruiting bushes. This fact was supported, some years since, by one of the largest Black Currant growers in this country after perusing a short note I wrote in one of the London papers. Fruitless trees may be found on shallow soil, after a few years' fruiting, with the symptoms of "reversion"; this is not reversion actually, though akin to it, but is really a case of starvation, although the results are the same as with propagation from fruitless stock. The real reason of reversion is "suppressed fructification," and the only way to obviate it is by rigid selection, viz., propagation from healthy, fruiting trees. Over-manuring will also cause sterility. A friend of mine near Ledbury has over-dosed his plantation of Black Currants with heavy dressings of farmyard manure. The trees have grown so "rank" the trusses of flowers fall off before fertilisation is effected, the bushes developing shoots similar to stout Bamboo canes. I shall watch this plantation with great interest during the coming season, having advised the owner to leave it severely alone, this being, to my mind, the correct thing to do. *Pomona.*

Late Chrysanthemums (see p. 94).—Evidently *T. G.* is not up to date with his varieties of Chrysanthemums, nor does he include any of the newer varieties, which are very free flowering, for florist's work. Autocrat (syn. Enfield White) I have grown for years as bush plants for late flowering. Cheshunt White and Favourite are both good sorts. There is plenty of difference between these three varieties, both in growth and bloom. He mentions Liverpool Yellow; there is no such sort; he means Golden King, or Golden Age, both of which are grown largely in Lancashire for market, owing to the dwarf habit of the plants. He has missed three varieties that are marketed in quantities, viz., Baldock Crimson, Framfield Pink, and Thorpe's December Pink; another white variety, Blanche Poitevene, makes a fine bush plant. Teresa, terra-cotta, is excellent for supplying cut flowers for market, and it has no equal; F. Spring Watts, chestnut and gold, of dwarf habit, very free; Huntsman, rich chestnut-crimson; Sunshine, lovely golden amber; Josephine Bernier, deep rose-pink; and Pamela, bright chestnut, with gold reverse, are all excellent; Mollie Godfrey, Bronze Molly, and Susan are worth growing, to flower from December to middle of January, and their blooms sell well. Chrysanthemums do not deteriorate. I grow a large quantity for exhibition, and never have any trouble in securing good cuttings each year; nor have I any rested stock. A grower always thinks about getting his blooms to perfection, therefore he top dresses his plants several times during the growing season to encourage his stock (for cuttings), as well as help the development of flower buds. *Chrysanthemum Grower.*

Romneya Coulteri.—Sir Herbert Maxwell's poor success with Romneya Coulteri at Monreith, and its luxurious growth at Castle Kennedy, suggests that there are at least several forms of that Mexican Poppy. My own experience seems to confirm this suggestion. In a South Devon garden I had a plant that came from Messrs. Backhouse, somewhere about 20 years ago. This plant sent out suckers all round, and to some distance from the original plant; these I successfully transplanted, doing so in early April. That garden I left. Secondly, ten years ago, I got another plant for my present garden, this time from Cumberland, and this plant has never sent out a single sucker; on the contrary, it seems to grow from a short, woody stem, and it has never been so free flowering as was the Yorkshire form. Can any of your correspondents, in the trade or otherwise, state whether there is still the Yorkshire form (semi-herbaceous it seemed); or, do the nurserymen now graft Romneya on some other stock? If this is the case, or if there are two distinct forms of Romneya Coulteri, the difficulty some have in its cultivation may be accounted for. *Western Wight.*

SOCIETIES.

ELGIN HORTICULTURAL.

At the meeting of the Elgin Horticultural Society on Wednesday, the 28th ult., Mr. Peter Leslie, Lecturer on Forestry in Aberdeen University, delivered an address on "David Douglas's Work in Forestry." Although we had shown ourselves in the matter of national forestry very backward compared with the work done in France, Germany, and many other countries, Mr. Leslie said, there were two branches of the arboricultural art in which we had held more than our own. These were the exploring of new countries in search of species and the experimental work with species thought likely to be suitable to our conditions. To-day there were to be seen in Britain woods and arboretums of splendid trees which had been transferred from their native habitat to adorn our landscapes or to be planted as useful woods. In the fine work of tree discoveries the arboriculturist will find no more famous name than David Douglas, who made known to science many remarkable trees and plants hitherto unheard of, and who was responsible for the introduction of many of our most useful and ornamental species. Born at Scone, Scotland, in 1798, David Douglas was apprenticed as a gardener in the gardens of the Earl of Mansfield, Scone Palace, Perthshire. From thence he obtained an appointment in the Glasgow Botanic Gardens, where he attracted the attention of Professor Hooker, of the chair of botany in Glasgow University, who, noting Douglas's abilities, recommended him for a botanical expedition to North America. The results of Douglas's research work abroad may to-day be seen in the policies of our castles and mansion houses. The splendid specimens of Douglas Firs, Western Hemlocks (Tsugas), Western Red Cedars (Thuja), Silver Firs (Abies grandis), and A. nobilis, usually to be seen in this country were introduced by Douglas. On nearly every estate in Scotland one will now find plantations of Douglas Fir and Sitka Spruce. True, Douglas did not discover the Douglas Fir, but he was the first man to send home seed of the species. Its success led to experiments with many other American species, but although many of them had turned out suitable to our conditions, the chief interest still attached to the Douglas Fir, and to one other, the Sitka Spruce, which was not introduced till later. The great hold the Douglas Fir has taken in this country will be better understood when it is stated that the Forestry Commission are now setting out millions of these trees annually, and so with the Sitka Spruce. From the Forestry Commission's nurseries at Craibstone, Aberdeen, there are being sent out annually five to six million Douglas Fir plants, and a similar number of Sitka Spruce. These are being planted all over Scotland and England, and one has only to take a tour through the wooded districts of Scotland to note the wonderful transformation the introduction of these species has had upon the appearance of the countryside. Do they not form, too, a fitting monument to the humble discoverer, the former gardener of Scone, of 100 years ago? Unfortunately, Douglas met an untimely end in the Sandwich Islands in 1834, where he fell into a pit and was killed by an infuriated bullock.

THE NEWCASTLE AND DISTRICT HORTICULTURAL.

There was a very large attendance of members at the monthly meeting of the Newcastle Horticultural Mutual Improvement Society, on the 27th ult., when Mr. Keith, gardener to Sir G. O. Trevelyan, Bart., Wallington Hall, Cambo, Northumberland, gave a lecture on "Sweet Peas."

Mr. Keith stated that the Sweet Pea was introduced into this country in 1700, and that there were only three varieties until 1800. Very little improvement in its cultivation was made until 1870, when Mr. Henry Eckford raised some fine varieties year after year.

Dealing with the cultivation of the Sweet Pea, Mr. Keith said that basic slag and farmyard manure should be incorporated with the soil, which should be trenched three feet deep. The seed should be sown in pots in January, and when the seedlings have formed three leaves, the point of the shoot should be stopped, to produce strong side growths. The plants should be ready for planting out-of-doors in April. In his opinion the best varieties included Picture, Constance Hinton, Royal Scot, Matchless, Renown and Charity.

The special prize of the evening was won by R. Richardson, Senr., a veteran of 84, for a fine specimen of Cyclamen.

Sympathetic reference was made to the death of Mr. J. Bell, of Benton, one of the oldest members of the committee, and Major Stansfield, Whitley Bay, a Vice-President, and a generous supporter of the society in general. The Society's spring show will be held on March 24.

NEW HORTICULTURAL INVENTIONS.

Latest Patent Applications.

3014.—Brown, C. A.—Garden, etc., rollers. February 1.

2628.—Moare, R. R.—Garden rake and harrow. January 29.

3258.—Johnson, L.—Device for cutting turf, etc. February 3.

3084.—St. Barbe, S. L. F.—Machines for brushing lawns, etc. February 1.

2378.—Bailey, A. J.—Vases, etc., for plant culture. January 26.

1882.—King, F.—Shears, etc., for clipping hedges, grass, etc. January 22.

1598.—Pugh, Ltd., C. H.—Lawn mowers, etc. January 18.

3666.—Agricultural Products, Ltd.—Eradication of sucking insects, etc. February 7.

Specifications Published This Month.

172,016.—Deutche Gold und Siber-Scheide-Anstalt Vorm Roeseller.—Treatment of seeds for Agricultural purposes.

192,903.—Keighley, F.—Apparatus adapted for mixing, grinding, and distributing manures, sand, gravel, and other materials, for mixing and distributing seeds, and for mixing and spraying liquids.

192,322.—Hansen, H.—Dibble.

192,335.—Pocock, L. D.—Fertilisers.

191,775.—Kershaw, H., and Clarke, H.—Apparatus for spraying or atomising liquids

191,793.—Mai, Dr., A.—Process of making arsenical solutions and suspensions for insecticidal, fungicidal, preservative and like purposes.

171,151.—Zellstoffabrik Waldhof.—Manufacture of fertilisers.

191,646.—West, C. E.—Tool for extracting weeds from soil.

Abstract Published This Month.

Fruit Picker.—Patent No. 190,834.—A new fruit-picking device for use on trees and which enables the operator to stand on the ground, has been devised by Mr. C. H. Thomason, Glenisla, Botteville Road, Acocks Green, Birmingham. The apparatus comprises a V-shaped member fixed rigidly to a rod, carried adjustably by a long arm which carries also a rigid ring, greater in diameter than the length of the V-shaped member, to which is attached a flexible chute long enough to reach to the operator's hand.

This list is specially compiled for *The Gardeners' Chronicle* by Messrs. Rayner and Co., Registered Patent Agents, of 5, Chancery Lane, London, from whom all information relating to patents, trade marks and designs can be obtained gratuitously.

TRADE NOTE.

Mr. W. R. Allan, who had an extensive horticultural education both in England and on the Continent, son of Mr. Allan, late Gardener at Hillingdon Park, and grandson of Mr. Allan, Gunton Park, Norfolk, is now acting as Messrs. W. Wood and Son's representative for the county of Surrey.

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ANSWERS TO CORRESPONDENTS.

Cattleya Loddigesii: *T. B.* The dead flowers should be removed, and the plant kept moderately dry until new roots are seen to be developing, when, if the compost is decomposed, it should be repotted in a compost consisting of fibre and live Sphagnum moss. The reason of the leaves turning yellow is subjecting the plants to a low temperature, or affording the roots too little or too much water. This Orchid requires a temperature of about 60 degrees at all times, and resents over-potting. The pseudo-bulbs should not be cut as you suggest, but when repotting the plant, any leafless, useless pseudo-bulbs at the back of the plant should be removed. The new shoots at the base of the pseudo-bulbs that have flowered will form pseudo-bulbs and flower again in the normal season, if the plant is encouraged to make satisfactory growth.

Daphne Cneorum: *G. E. M.* Take cuttings in spring, as soon as the young growths are long enough. Insert firmly in a sandy compost, and place under a bell glass in a little heat until they are rooted. When rooted, gradually harden them off, and keep in a cold frame until the autumn. By this time they should be well rooted and ready to pot off. Another method of propagation is by means of layers. This is a better method, and may be performed also in spring; cover the layered branches with soil, after fixing them firmly, leaving only the growing points free.

Eucharis grandiflora (syn. Eucharis amazonica): *T. W. C.* The potting compost for Eucharis should consist of good, rich, fibrous loam, using two parts of this to one of flaky leaf soil, with the addition of some dried cow manure, and enough coarse, clean sand and charcoal to keep the whole open and sweet. As Eucharis enjoy ample supplies of water, ample drainage is necessary. Rather large pots are necessary; six strong bulbs should be enough for a 10-inch pot. After potting, water should be given carefully until the bulbs have made plenty of fresh roots. A temperature of 65° to 70°, rising to 80° during the summer, is necessary. It is an advantage if the pots are plunged in a bed of fibre refuse, over bottom heat, although Eucharis grow quite well stood on a stage in a stove. They also do well if planted out in a well-drained bed, over bottom heat, but too much bottom heat tends to weaken them and lay them open to attacks of bulb mite. Several crops of flowers may be obtained in one season by resting the plants for a time after they have completed their growth, but as they are evergreen plants they should not be dried off too much; in short, they should never lose any foliage in the process. If grown in pots this rest is best given by keeping them drier and in a slightly lower temperature for a few weeks after flowering. Plants with plenty of roots and in good health enjoy frequent applications of dilute liquid manure, alternated with some approved fertiliser; a good guano being safe and as good as anything. Over manuring, and attempts to get too frequent crops of flowers, nearly always result in the plants being weakened. Although not so largely grown for market at the present day, there is no reason why you should not secure a good return for the flowers, as choice white blooms are always in demand, and especially so at Easter time.

Linum narbonense: *G. E. M.* This Linum is best propagated by means of seeds, but cuttings may be used. These should be taken in the spring, as soon as the young shoots are long enough to handle. Remove them with a heel, if possible, but this is not necessary. Insert the cuttings in very sandy soil, and place them under a bell glass in a little heat. They take rather a long time to root, and should not be potted off until plenty of roots have formed.

MARKETS.

COVENT GARDEN, Tuesday, March 6, 1923.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
B.C. Apples—		
—Spitzenberg..	12 0	13 0
Californian Newtown ..	10 6	12 0
Oregon Newtown	12 0	14 6
English, per bus.		
—Bramley's Seedling ..	4 6	6 0
—Newton Wonder	4 0	6 0
Nova Scotian,		
—Baldwin ..	15 0	18 0
—Fallawater ..	14 0	18 0
—Russet	28 0	32 6
—Ben Davis ..	15 0	18 0
Bananas, singles	20 0	27 6
—doubles ..	25 0	30 0
Grapes		
—Almeria, barrel	25 0	28 0
—Gros Colmar..	2 9	4 6
—Belgian Colmar	2 6	3 6
Grape Fruit		
—Jamaican ..	35 0	37 6
Lemons—		
—Messina boxes	14 0	20 0
—Murcia	18 0	26 0
Nuts—Brazils ..	45 0	47 6
—Cob		3
Oranges,		
—Denia	12 0	30 0
—Murcia	12 0	28 0
Oranges—		
—Seville	12 0	15 0
—Bitter	7 0	9 0
—Jaffa	10 0	12 0
Pears—Winter Nelis, case ..	27 0	28 0
—Stewing, ½ bus.	2 6	3 6
Pineapples, each	1 6	5 6
Tunis Dates, doz. cartons	4 6	6 6
South African Fruit		
—Grapes		
Colmar ..	12 6	15 0
Red Hannapoot	12 0	15 0
White Hannapoot	10 0	14 0
—Hermitage ..	7 0	8 0
—Peaches, box	8 0	18 0
—Pears—		
Beurré Hardy	5 0	6 0
Clairgeau ..	3 0	3 6
Duchess ..	3 6	4 0
—William's Bon Chretien ..	2 6	4 0
—Plums, Wickson box	5 0	6 0
Kelsey	7 0	10 0
Apple Plums	7 0	8 0

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus, bundle		
—Special Devon	10 0	10 6
—French	9 0	14 0
Beans—		
—Guernsey, lb.	2 6	3 0
—Madeira basket	3 0	8 0
—Worthing ..	2 6	3 6
Belgian Chicory per lb.	– 2½	–3½
Beets, cwt. ..	3 0	5 0
Cabbage, tally ..	2 0	3 0
Carrots, cwt. ..	2 0	3 0
Cauliflowers, doz.	1 6	2 6
Celery, roll ..	1 3	2 6
—Celeriac, doz.	2 0	2 6
Cucumbers, doz.	10 0	18 0
Endive, doz.—		
—English.. ..	– —	2 0
—French	2 0	3 0
Greens, bag ..	1 6	2 0
Lettuce French	1 6	1 9
Mint, doz. ..	4 0	8 0
Mushrooms, lb.	1 3	2 6
Onions.		
—Dutch, bag ..	3 0	3 6
—English, cwt.	4 0	4 6
—Valencia, case	6 0	7 6
Parsnips, cwt. ..	2 0	3 0
Potatos,		
—Canary Island case	17 0	18 0
—Algerian ..	–	2—2½
—Guernsey, new, lb.	0 9	-0 11
—Dunbar ..	£5 10	– –
—King Edward..	£3 5	£4 0
—Others ..	£2 10	£3 5
Rhubarb, forced, doz.	2 0	2 3
—Natural ..	5 6	7 0
Radishes, doz...	1 0	2 0
Savoys, tally ..	3 0	5 6
Sea kale, punnet	1 3	1 9
Scotch Kale ..	1 0	1 6
Spinach, bushel	2 0	2 6
Tomatos		
—Canary Islands	16 0	22 6
Turnips, cwt. ..	2 0	3 0

Remarks.—The demand has responded to the improvement in weather conditions, and a better tone is noticeable. The various fruits from South Africa, such as Peaches, Plums, Pears and Grapes, have sold freely and the market is clear at the time of writing, in readiness for this week's boat, deliveries from which are a day overdue. Fairly large quantities of English Apples come to hand, and first-grade fruit is in better demand, but there is practically no market for Apples out of condition. Newtown Pippins and other dessert varieties from North America are selling better, the supplies being rather more restricted. The demand for Oranges and Lemons is slightly better, and the Banana trade is steady. Canary Island Tomatos are cheaper owing to increased arrivals. There is an easier tendency for all forced vegetables, and French Beans, Asparagus and new Potatos are selling at lower rates. Forced Rhubarb is quoted lower, larger quantities of natural growth influencing the value. Cauliflowers from France and Guernsey, as well as home-grown, are plentiful and cheap. Increased quantities of Mushrooms are available, but prices are steady. Green vegetables remain at a low level, and the Potato trade is unchanged.

Plants in Pots, etc.; Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz. ..	10 0	18 0
—elegans ..	10 0	12 0
Aralia Sieboldii..	10 0	12 0
Araucarias ..	30 0	48 0
Asparagus plumosus ..	12 0	15 0
—Sprengeri ..	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Azaleas, 48's per doz.	30 0	48 0
—60's	18 0	24 0
Cacti, per tray, 12's, 15's ..	5 0	6 0
Cinerarias 48's per doz. ..	15 0	18 0
Crotons, per doz.	30 0	42 0
Cyclamens, per doz.	24 0	30 0
Cyrtomium ..	10 0	15 0
Erica melanthera	24 0	36 0
„ 48's per doz.		
„ nivalis 48 „	24 0	30 0
„ 60 „	10 0	15 0
„ Thumbs „	6 0	8 0
Genistas 48's per doz. ..	15 0	18 0
Marguerites, per doz.	18 0	24 0
Nephrolepis, in variety ..	12 0	18 0
—32's	24 0	36 0
Palms, Kentia ..	24 0	30 0
—60's	15 0	18 0
—Cocos ..	24 0	36 0
Pteris, in variety	12 0	21 0
—large 60's ..	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's ..	3 6	4 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum, decorum, doz. bun.	12 0	15 0
—cuneatum, per doz. bun. ..	8 0	10 0
Asparagus, plumosus, per bun. long trails, 6's	4 0	5 0
med. sprays ..	2 6	3 6
short „ ..	1 0	1 6
—Sprengeri, per bun. long sprays ..	2 6	3 0
med. „ ..	1 3	1 6
short „ ..	0 9	1 0
Azalea white per doz. bun. ..	5 0	6 0
Camellias, white per box ..	2 6	3 0
Carnations, per doz. blooms ..	2 6	5 0
Croton leaves, var., per bun.	2 6	4 0
Chrysanthemum per doz. bun. —white	36 0	48 0
—per doz. blooms —white	5 0	9 0
Daffodils —Golden Spur per doz. bun.	4 0	6 0
—Victoria ..	12 0	15 0
—Emperor ..	10 0	12 0
—Henry Irving	4 0	5 0
—Princess ..	4 0	5 0
—Sir Watkin ..	9 0	12 0
—King Alfred..	18 0	24 0
—Narcissus, Paper White, per doz. bun...	5 0	6 0
—Soleil d'Or, per doz. bun. ..	3 0	5 0
—Ornatus ..	7 0	8 0
Fern, French per doz. bun. ..	1 0	1 3
Forget-me-not per doz. bun. ..	4 0	12 0
Freesia, white, per doz. bun...	3 0	6 0
French Flowers —Acacia (Mimosa) per bunch ..	1 6	2 0
—Anemone, mxd. per doz. bun...	6 0	7 0
—Lilac, white, per doz. sprays	4 0	6 0
—Marguerite, yellow, per doz. bun.	3 6	4 0
—Stock Double White per pad	6 0	8 0
—Ranunculus, Scarlet, per dz. bun.	6 0	7 0
Carmine per doz. bun. ..	8 0	9 0
Narcissus Orange, per doz. bun. ..	3 0	4 0
Scarlet, Romano large, per doz. bun.	10 0	15 0
—Violets, Parma per bun. ..	3 0	0 0
Single per doz.	2 0	2 6
Heather, white per doz. bun.	4 0	10 0
Hyacinth, white, per doz. bun...	6 0	9 0
Iris tingitana, per doz. bloom	4 0	6 0
Lilium speciosum long per doz.	6 0	0 0
short „ „ ..	3 0	4 0
Lily of the Valley, per doz. bun.	18 0	30 0
Orchids, per doz. —Cattleyas ..	18 0	30 0
—Cypripediums	3 0	4 0
Pelargonium, per doz. bunch, double scarlet	10 0	12 0
Richardias (Arums) per doz. ..	5 0	8 0
Roses, per doz. blooms— —Melody ..	10 0	15 0
—Ophelia ..	12 0	15 0
—Richmond ..	5 0	9 0
Smilax, per doz. trails	4 0	5 0
Snowdrops per doz. bun. ..	2 6	3 0
Tulips, Single— —white, per doz. bun.	10 0	12 0
—yellow, per doz. bun.	18 0	21 0
—pink, per doz. bun.	15 0	18 0
—scarlet, per doz. bun.	15 0	18 0
—terra cotta, per doz. bun. ..	12 0	15 0
—mauve, per doz bun.	24 0	30 0
—double pink per doz. bun.	18 0	24 0
—double yellow per doz. bun...	24 0	30 0
—double red per doz. bun. ..	24 0	30 0
—Darwins in variety, per doz. bun. ..	27 0	30 0

Remarks.—The supply of flowers from the Scilly Isles was restricted last week, as the inclement weather held up the boats. Guernsey flowers sold out at a fair rate as a consequence. Good Tulips were a much shorter supply this morning, as also were good Soleil d'Or Narcissi. Arums are more plentiful, but good Narcissus ornatus remain at a firm price. A few cases of white Chrysanthemum blooms arrive occasionally, but bunches of these flowers are practically finished for this season.

GARDENING APPOINTMENTS.

Mr. G. T. Burgess, previously gardener to Capt. E. H. Molyneux, Pavillon Talma, Maisons Laffitte, as Gardener to Otis Mygatt, Esq., Chalet de Buzenval, Garches, France. (Thanks for 2s. 7d. for R.G.O.F. Box.—Eds.)

Mr. A. S. Shaw, previously Foreman at Doveridge Hall, Derby, Hints Hall, Tamworth, Gledhow Hill, Leeds, and Gledhow Hall, Roundhay, Leeds, as Gardener to N. A. Gates, Esq., Kirkfield, Baildon nr. Shipley, Yorkshire. (Thanks for 2s. 6d. for R.G.O.F. Box.—Eds.)

Mr. W. G. Gristwood, for the past eight years Gardener to Sir Thomas Lennard, Henbury Hill House, nr. Bristol, as Gardener to P. Steadman, Esq., at the same place.

CATALOGUES RECEIVED.

Seeds.

George Elsom, Spalding, Lincs.

McHattie & Co., Chester.

Plants.

Allwood Bros., Wivelsfield Nurseries, Hayward's Heath, Sussex.—Carnations.

Foreign.

Cayeux and Le Clerc, 8, Quai de la Megisserie, Paris.—Seeds.

Fr. de Laet, Contich-Village-lez-Anvers, Belgium.—Cacti.

SCHEDULES RECEIVED.

Scottish National Sweet Pea, Rose and Carnation Society.—Show to be held in St. Andrew's Hall, Glasgow, on Wednesday and Thursday, July 25 and 26.—Secretary, Mr. J. Smellie, Westwood Cottage, Helensburgh.

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THE
Gardeners' Chronicle
No. 1890.—SATURDAY, MARCH 17, 1923.

CONTENTS.

Ash, canker of 146
Association of Economic Biologists 142
Balfour, the late Professor Sir I. Bayley .. 141
Books, notices of—
How to Form a Company 151
Rose Annual, 1923 .. 141
The Culture of Pot Plants 151
British Mycological Society, spring foray of the 142
Cultural memoranda—
The propagation of Himalayan Rhododendrons 146
The Propagation of Dracænas 146
Fruit garden, market .. 150
Fruit register— 150
Fungous diseases of crops 141
Gardens at Olympia .. 151
"Gardener's Chronicle" seventy-five years ago 143
Gardeners' wages .. 151
Gaston, Mrs. A. J., presentation to 142
Horticultural traders and taxation 148
Indoor plants—
Camellias 145
Kehmannia angulata 145
Ireland, notes from .. 147
Jardin des Plantes at Montpellier 146
Kew, the British Forestry Museum at .. 142
Legacies to gardeners .. 143
McBean, Mr. A. A. .. 142
Obituary—
Greening, E. Owen .. 154
Maclennan, Geo. .. 154
Plymouth, Earl of .. 154
Orchid notes and gleanings—
Miltonias 145
Potinara Lowii .. 145
Painters, early botanic 148
Plants new or noteworthy—
Rhododendron praetertum 143
Poppy, the Shirley .. 149
Rainfall, heavy 142
Rhododendrons on limestone 151
Rose garden at Bagatelle 143
Rose trial at Wisley .. 141
Societies—
Elstree and District Horticultural .. 152
Reading and District Gardeners' .. 152
Royal Horticultural 152
Usk Priory 147
Vegetable garden—
Carrots 150
Week's work, the .. 144
Wilks, the late Rev. W. 142

ILLUSTRATIONS.

Ash, canker of 146
Marguerite, a bed of the double, yellow-flowered .. 145
McBean, Mr. A. A., portrait of 142
Papaver silvestris from a painting by Jacques le Moyne de Morgues 149
Spring garden arranged by Messrs. J. Carter and Co. at Olympia 151
Trachycarpus excelsa, a fine specimen of, at Usk Priory 147

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 41.6°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, March 14, 10 a.m. Bar. 30.4; temp., 43°. Weather—Dull.

Fungous Diseases of Crops.*

The Ministry of Agriculture's Report on the occurrence of fungous, bacterial and allied diseases on crops in England and Wales for the years 1920-1921 is a work which reflects the greatest credit on Mr. A. D. Cotton and his collaborators, and it is to be regretted that the appointment of Mr. Cotton to the post of Keeper of the Herbarium at the Royal Botanic Gardens, Kew, deprives the Ministry of the services of such an able and enthusiastic mycologist. The Report for the years 1920 and 1921 contains information of much practical and scientific value. The years 1920 and 1921 were markedly different with respect to weather. The summer of 1920 was exceptionally cold and wet and that of 1921 even more exceptionally warm and dry. Hence these years provide an opportunity of observing the extent to which weather mitigates or accentuates plant diseases. They provide, moreover, a means of gaining some insight into the effect of one season's weather on the prevalence and intensity of disease in the ensuing year. Anyone who peruses the Report will be impressed with the plenteousness of the harvest of fungous pests which has been garnered in it. No fewer than three hundred and ninety-one diseases due to fungi and bacteria are recorded. Of this number, fruit crops suffer from not far short of one half, the tale of their fungous afflictions numbering one hundred and fifty. Vegetables, between them, give harbourage for eighty-two kinds of fungi and bacteria and the Potato has twenty-one of these pests all to itself. Foremost among the fungous pests of the Potato is, of course, Late Blight, due to Phytophthora infestans. In the wet year, 1920, it appeared early. It broke out in Cornwall in April, showed itself in the Channel Islands in May, and spread widely in the West of England and in Wales in June. So seriously were main-crop varieties affected in the south and west that many crops contained fifty per cent. of diseased tubers. The varieties which suffered least from blight were the wart disease immune variety, Kerr's Pink and the wart-disease non-immune varieties President and Evergood. A report by Mr. W. H. Lawrence gives valuable information on the effect of lifting or cutting down the haulm of badly-diseased Potato crops. This practice, which is often advocated, appears to be commendable if the haulms are cut and removed as soon as the disease appears, and the tubers lifted a month later; if, on the other hand, the haulms are cut later, after the disease has made headway, little or no advantage accrues, for the tubers have already become affected by the fungus. In the warm, dry year 1921, Late Blight appeared much later and spread much less widely. Nevertheless, as Mr. Whitehead notes, though the tops were clean, the tubers were often diseased. There can be little doubt but that much Late Blight disease is carried in the tubers and that the disease of the tubers in 1921 arose from this cause. An interesting case which appears to confirm this opinion came under our own notice in 1922. Seed from Scotland and own saved seed were planted; the latter had been obtained from a clean and early-lifted crop. It gave but little disease in 1922, whereas the crop from the northern seed was lost owing to Late Blight. Needless to say, this is no reflection on the general excellence and superiority of Scotch seed, but only an instance serving to show that if diseased seed, no matter of what provenance, be used, diseased crops of Potatos will result. Of other Potato diseases, it is useful to note that Corky Scab—due to Spongospora subterranea—appears to be susceptible of a large measure of control by the use of flowers of sulphur. Experiments carried out at Leeds by Mr. W. A. Mallard show that by the use of flowers of sulphur at the rate of six cwt. to the acre, the disease was reduced from fifty-four per cent. to seven and a half per cent. Generally speaking, and as would be expected, diseases flourished in the wet season of 1920 and declined in the dry season of 1921; but an exception is recorded in the Report. Scab, which is caused by Actinomyces scabies, is a disease of dry, hot seasons, and was very prevalent in 1921. Fortunately, this disease may be combated by a system of green manuring. Under field conditions, Rye or Rye and Vetches are grown and ploughed in; and under garden conditions plentiful supplies of grass cuttings or leaf mould serve to check the disease. The diseases of vegetable and fruit crops dealt with in the Report are so important that they must be dealt with separately in a later article.

* "Fungus Diseases of Crops, 1920-21." Ministry of Agriculture, *Miscellaneous Publications*, No. 38, 1922. Price 3s. net, post free.

The Late Sir Isaac Bayley-Balfour.—The valuable notice of the life and work of Sir Isaac Bayley-Balfour, which is published in the *Kew Bulletin* (No. 1, 1923), refers to two projects in the inception of which Balfour played a large part, the results of which will be looked forward to by horticulturists with much interest. One is the establishment of a "wild" alpine garden in Scotland. The idea that such a garden planned on a liberal scale should be made was first put forward by Mr. A. K. Bulley. It was received with enthusiasm by Balfour, and, thanks to his power of getting things done, it now bids fair to be realised, Lord Airlie having allowed land within the Caerlochan deer forest to be used for the purpose. The other is that of a large planting of Rhododendrons in one of the suitable forests under the control of the Forestry Commission. Balfour contemplated one on the west coast, near Ben More. It is a solace to his friends who find his loss so grievous to know that when these undertakings are accomplished there will be memorials of enduring and increasing beauty, which should keep green the memory of this great botanist.

Rose Trial at Wisley.—The Director of the Royal Horticultural Society's gardens, Wisley, asks us to remind those who intend sending Roses for the Rose trials at Wisley, that the last day on which they can be accepted is Saturday, March 31.

Ghent Quinquennial Exhibition.—British horticulturists who will be acting as judges at the great Ghent Exhibition in April, or attending the International Commercial Horticultural Conference as delegates, may look forward to a busy time, as the following is the preliminary programme of engagements and functions:—Friday, April 13: 2 p.m., meeting of the juries and commencement of judging; 5 p.m., refreshments; 8 p.m., performance at the Grand Theatre Français. Saturday, April 14: 10 a.m., opening of the Ghent Exhibition by H.M. The King of the Belgians; 2 p.m., first meeting of the International Commercial Horticultural Conference; 5 p.m., grand banquet offered to members of the juries; 8 p.m., evening entertainment and ball given by Comte de Kerchove, Governor of the Province. Sunday, April 15: 11 a.m., inauguration of the monument to the late Comte de Kerchove, formerly President of the Ghent Show; 12 noon, reception of members of the Conference and members of the juries by the Chambre Syndicale des Horticulteurs Belges; 8 p.m., official reception by the municipality of Ghent at the Town Hall. Monday, April 16: visit to the famous Winter Garden at the Chateau Royal, Laeken, near Brussels. Tuesday, April 17: 9 a.m. and 2 p.m., meetings of the International Horticultural Commercial Conference; 7 p.m., banquet offered by the Chambre Syndicale des Horticulteurs Belges to the International Delegates.

Imperial Botanical Conference, 1924.—At a representative meeting of botanists held at the Linnean Society's rooms on Friday, March 2, it was decided to hold a Conference of British and Overseas Botanists next year, about the beginning of July. An executive committee was appointed with Sir David Prain as Chairman, Mr. F. T. Brooks as Hon. Secretary, and Dr. A. B. Rendle as Treasurer.

The "Rose Annual," 1923.—The publication of the National Rose Society's *Annual* is looked forward to with great interest by lovers of Roses, as it is invariably instructive, well illustrated and an altogether useful work. The issue for 1923 is well up to the high standard maintained during recent years, and contains numerous coloured illustrations of Roses, most of which are excellent reproductions, though a few are not quite happy. Nur Mahal, Mrs. Henry Bowles and Elsie Beckwith are new varieties finely represented in colour. There are also numerous half-tone illustrations of Roses which have been honoured by the National Rose Society. The text includes an interesting and useful article on "Roses for Beginners," which shows that the society bears in mind the needs of novices in Rose culture. Charmingly written is "Fragrance in Modern Roses," by Mrs. H. R. Darlington, and its companion article, "Scented Roses," by Mr. E. J. Holland, is a transcript of the lecture Mr. Holland gave before the Royal Horticultural Society in June, 1921, and before the National Rose Society in January of the present year. Mr. Holland concludes by observing that scent is a desirable attribute, and of two Roses of equal merit in other respects preference should undoubtedly be given to the one with perfume, while the

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perfume most to be desired is the real Rose scent of the Damask and Provence section. Although not "an ancient of days," Mr. G. M. Taylor has contributed a thoughtful article on "Old-fashioned Roses" that will make a strong appeal to veteran rosarians. Mr. Courtney Page, the editor, discusses some of the newer Roses, makes reference to the possibility of a Rose-testing garden, and states that "now normal times are returning, the membership of the society is increasing at such an extraordinary rate the council have hopes that ere long the matter will take a definite form. They have definitely decided, however, that when a Rose trial garden is set up, such garden shall be run by and under the direct control of the society." Mrs. F. A. Simmonds gives useful advice on the "Indoor Arrangement of Roses," while M. Ch. Cochet-Cochet refers to the "Roses of Ancient Egypt." Reports of the spring, summer, autumn and provincial exhibitions of 1922 follow, and there is also a short article on "Roses in California." A considerable amount of space is occupied by short treatises by prominent rosarians, who, with varied experience, discuss the "Preparation of Rose-beds on Various Soils." Mr. J. Ramsbottom makes interesting reference to the "Earliest Description of a Rose Disease." Mme. Siret contributes a report on Bagatelle trials, and Mr. J. H. McFarland sends notes on "New American Roses of 1922," while Major C. C. Hurst contributes a second article on "Notes on the History of the Moss Rose." The issue concludes with an audit of Roses suitable for various purposes, and a gracious appreciation of the late Mr. Hugh Dickson.

Presentation to Mr. A. J. Gaston.—As already reported in our columns, Mr. A. J. Gaston recently retired from the post of secretary to the Brighton, Hove, and Sussex Horticultural Society, after having held the position for twelve years. To mark its appreciation of his services, the Society voted an honorarium of £20 on his retirement, but as so many horticultural friends, as well as cricket enthusiasts who admired his writings on this branch of sport, considered the moment opportune for a larger testimonial, the £20 became the foundation of a fund which reached the handsome sum of £150. This amount, in the form of a cheque, accompanied by an address, was presented to Mr. Gaston, at the Pavilion Restaurant, Brighton, on the 28th ult., in the presence of a large company of friends.

Heavy Rainfall.—The country generally has experienced very heavy rainfalls during the past week, and considerable areas of land have been flooded, rendering operations on the ground impossible. London has received its full share of the rain; between eight p.m. on Monday last and noon of the following day it is computed that the total fall in the London area amounfed to 45,000,000 tons.

The British Forestry Museum at Kew.—At a time when every civilised country is paying attention to the preservation of forests and the maintenance of a regular supply of timber, attention may very usefully be drawn to the Forestry Museum at Kew (No. 4 Museum). Formerly the residence of the late Duke of Cambridge, this museum has been arranged in order that some of the outstanding problems of home forestry may be readily examined by visitors. The building consists of six rooms open to the public, and these contain a large collection of specimens of timber grown in Britain, photographs of forest scenery and individual trees, insect pests and fungous diseases of trees, and articles such as cricket bats, tennis racquets, violins, brushes, etc., manufactured from home-grown timber. The *Official Guide*, price 1s., on sale in the museum, is not only a catalogue of the exhibits displayed, but a very valuable book of reference for those interested in forestry. It has 143 pages, with a good index at the end. The contents of Room IV., which is largely devoted to insect pests and fungous diseases of trees, should be of immense value to foresters and students of forestry. In the *Guide*, 60 pages are devoted to this most important subject, descriptive of 180 exhibits in this room. In addition to a general review of the subject, protective measures are recommended; for instance, to deal with the Pine Aphis (Chermes corticalis), which is very injurious to the Weymouth Pine, it is recommended to spray the trees with a paraffin wash every ten days in late April and May.

Mr. A. A. McBean.—It was in 1897 that the late Mr. James Ure McBean commenced business as a florist, but it was not until some fifteen years later that he commenced the cultivation of Orchids for the purpose of producing choice cut flowers. His son, the present owner of the Orchid growing and raising business at Cooksbridge, Mr. A. A. McBean, then a lad, was given a small house and told to do his best to grow Orchids. He proved to be such a successful cultivator that by the year 1902, fully half the nursery was devoted to the cultivation of Orchids. Odontoglossums were the first Orchids to be grown, and as Mr. A. A. McBean managed them so easily, many purchases were made from importations, from which fine varieties appeared occasionally. From this modest beginning of a few hundred

MR. A. A. McBEAN.

plants, the cultivation of Odontoglossums soon extended to many thousands, and once Mr. McBean began to take up the business of hybridising, the stock increased rapidly, and during the past twenty years, few firms have been so successful in producing or introducing fine varieties of Odontoglossums as Messrs. J. and A. McBean. The genus Cattleya was the next to be taken in hand, and to-day seven houses are devoted to the culture of these and nearly allied Orchids. In 1912 Cymbidiums were added, and Orchid growers are ready to acknowledge the prominent part Mr. A. A. McBean has taken in making these free-flowering Orchids so popular and beautiful. From all this it will be gathered that Mr. A. A. McBean is an Orchid grower from choice, as well as by profession, indeed, he is very much in love with his business, and has done much for the advancement of Orchid cultivation. A reference to the awards made to Orchids by the Royal Horticultural Society, shows that Messrs. J. and A. McBean have had a very large share of the First-Class Certificates and Awards of Merit, indeed, it appears that in the year 1921 they were honoured with more of these awards than any other firm in the United Kingdom. Mr. McBean has been a member of the R.H.S. Orchid Committee for over twenty years, and in 1921 he was chosen by the Horticultural Trades' Association to represent the interests of Orchid growers on the R.H.S. Exhibitions Committee.

Spring Fungus Foray of the British Mycological Society.—The British Mycological Society's Spring Foray will be held at Bristol from Friday evening, April 20, to Tuesday morning, April 23. The headquarters for the meetings will be at the Botany Department of the University, which has kindly been placed at the disposal of the Society. Hotel accommodation is available at 12s. 6d. a day inclusive, and members are requested to write as soon as possible to Professor O. V. Darbishire, Department of Botany, The University, Bristol (who has been good enough to take in hand the arrangements for the Foray), stating if a single or double room is required. Members will be informed on or about March 20 as to where rooms have been allotted. The programme is as follows: Friday, April 20, 8.30 p.m., reception at University: Saturday, April 21, start at 10.30 a.m. by charabanc for Ashton Court Park, etc., tea at Horticultural Research Station; 8.30 p.m., meeting at the University: Sunday, April 22, morning free; leave 2.30 p.m. by charabanc for wood beyond Bath, and underground Mushroom beds of Messrs. Agaric, Ltd., informal evening meeting; Monday, April 23, start at 10.30 a.m. for Leigh Woods and woods beyond, 8.30 p.m. meeting. The programme is however, subject to alteration.

The late Rev. W. Wilks.—The remains of the late Rev. W. Wilks were interred on Wednesday, the 7th inst., in the pretty churchyard attached to the Parish Church at Shirley, near Croydon, where he was vicar for over thirty years. The funeral service, conducted by the Vicar of Shirley, the Rev. George Jones, was largely attended, amongst those present being many prominent horticulturists, including Lord Lambourne, President of the Royal Horticultural Society; Mr. W. R. Dykes, secretary; Mr. C. T. Musgrave, Mr. W. A. Bilney, Dr. A. Hill, Director of Kew Gardens, Mr. W. Cuthbertson, Mr. H. B. May, and Mr. Gerald Loder, members of the Royal Horticultural Society's Council; the Vincent Square staff, including Mr. Frank Reader, Cashier; Mr. H. R. Hutchinson, Librarian; Mr. C. R. Fielder, Mr. F. Streeter, Mr. H. Coppard, and Mr. Coppin. We also noticed Mr. C. G. A. Nix, Mr. W. Poupart, Mr. G. Ingram (representing Sir Harry J. Veitch and the Gardeners' Royal Benevolent Institution), Mr. F. J. Chittenden, Director of the R.H.S. Wisley Gardens; Mr. W. G. Lobjoit, Controller of Horticulture; Mr. H. G. Cox (representing Messrs. Sutton and Sons), Mr. W. G. Gingell, Mr. G. F. Tinley (representing the *Gardeners Chronicle* and the Horticultural Club), Mr. M. Mills (representing the National Chrysanthemum Society), Mr. John Gregory, Mr. Frank Lloyd, and Mr. and Mrs. F. Jordan, late caretakers of the R.H.S. Hall, and for many years associated with the village life of Shirley. The service was fully choral, and the beautiful old Church was filled with parishioners, including children of the schools, testifying to the love and esteem in which the deceased reverend gentleman was held in the district. His remains were laid to rest near those of his old friend, Mr Arthur Lloyd, a spot he had himself selected.

Association of Economic Biologists.—A general meeting of this Association will be held at 2.30 p.m. on Friday, March 23, in the Botanical Lecture Theatre of the Imperial College of Science, Prince Consort Road, South Kensington, London, S.W.7, when Professor J. H. Priestley (Leeds University), will lecture on "The Cansol Anatomy of the Potato Tuber," and Mr. E. H. Richards (Agricultural Developments Company, Ltd.), will discuss "Cellulose Decomposition; its Control and Applications."

Local Horticultural Societies.—Windsor Rose and Horticultural Society will hold its annual exhibition on Saturday, June 30, on the slopes of Windsor Castle, by kind permission of His Majesty, the King. The schedule has been issued, and may be obtained from the Hon. Secretary, Mr. J. H. Harding, 1, Sheet Street, Windsor.—Mr. C. A. Cobb has resigned the position of Hon. Treasurer to the Lee, Blackheath, and Lewisham Horticultural Society, and the members have decided to present him

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with a testimonial, the method and manner of which have been left to the Executive Committee. The Secretary, Mr. J. Gayton, has also retired; during Mr. Gayton's term of office, the membership has increased from forty to three hundred and sixty. The annual show will be held at the Holy Trinity Hall on September 6.—Warwick Horticultural Society, which commenced the year 1922 with a credit balance of £99, has incurred a deficit of £25 on the year's working, due solely to the unfavourable weather on the occasion of the annual show on August Bank Holiday. The Mayor, Dr. H. Tibbits, has been re-elected President. It was decided to hold a show this year, subject to a guarantee fund being raised. A member has offered £5 towards an effort to raise £100.—Sevenoaks Horticultural and Floral Society is holding its annual exhibition on Wednesday, August 1, in the gardens of Knole Park, by permission of Lord Sackville. Visitors to the show will be afforded an opportunity of inspecting the many interesting rooms, and the objects of interest they contain, of this old and historical mansion.—Newcastle Gardeners' Association is holding a spring flower show on the 24th inst., to which admission will be free.

Legacies to Gardeners.—The late Colonel Henry Richard Lloyd Howard, of Wygfair, St. Asaph, and of Harvard Court, Hampstead, who died on December 22 last, left £100 to his bailiff and gardener, Mr. Owen Edwards, "as a small token of his devoted service and in remembrance of the garden we both love so well."—Mr. James Shepstone, of The Elms, Cropwell Butler, Nottinghamshire, who died on September 8 last, bequeathed the sum of £150 to his gardener, Mr. James MacGill, if still in his service.

Appointments for the Ensuing Week.—Tuesday, March 20: Winchester Horticultural Society's meeting. Wednesday, March 21: Wimbledon and District Gardeners' Society's meeting. Thursday, March 22: Royal Botanic Society's meeting; Wargrave and District Gardeners' Society's meeting. Friday, March 23: Association of Economic Biologists' meeting. Saturday, March 24: Newcastle and District Horticultural Society's show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Profitable Employment of Railway Embankments.*—Some time ago attention was drawn to the subject of planting railway embankments with Vines; but I agree with you that this scheme would not answer, our summers being too short for outdoor Grapes to ripen with any degree of certainty. To turn those now large tracts of waste land to a source of profit, and at a comparatively small expense, they should be planted with Larch. Then sleepers, of which immense numbers are wanted, could be grown by the companies themselves, and would realise a handsome profit after all expense as to labour, etc., was paid; for not only could each company grow sufficient for its consumption, but would every year be able to sell quantities for hop-poles. The number of plants required for an acre would be, say, 4,000 at 10s. per 1,000, or £2 per acre. About £2 per acre would also be expended in labour, making a total expense of about £4 per acre. I should plant a portion of line each year, and when the poles become sufficiently large, which will be in eight or nine years, in favourable situations, thin for hop-poles. In about fourteen or fifteen years from the time of planting, the remainder would be fit to cut for sleepers. I would then clear off and replant the ground in the same season, and so continue cutting, clearing, and planting a portion with young plants each year. It may be said this plan will not pay; but look at the beautiful young plantations of Larch which have sprung up in the barren wastes of Scotland, even in some places where there scarcely existed soil to plant in; yet they thrive, and where this plan is carried out, large unproductive wastes will be turned to good account in a pecuniary point of view. And had the plan been adopted on railway embankments when the lines were completed, the different companies might now have been enjoying the profits of their labours. *F. F. G., Gard. Chron., March* 11, 1848.

PLANTS NEW OR NOTEWORTHY.

RHODODENDRON PRAETERITUM.

This evergreen species is one of the numerous distinct Rhododendrons introduced in 1900 by Mr. E. H. Wilson, during his first expedition to China, when collecting on behalf of Messrs. James Veitch and Sons. One of the original seedling plants (No. 1,800 Wilson-Veitch) is now (March 8) about 8 feet high, and covered with blossoms in the Rhododendron Dell at Kew.

Upright in growth, the plant has ovate-oblong leaves up to 4 inches or 4½ inches long, and 1½ inches to 2 inches wide. The blossoms are bell-shaped, about 1½ inch wide and long, rich pink in the bud and when opening, but becoming considerably lighter with age, and having a delicate pale mauve shading. There are seven to ten flowers in a truss, forming a compact head 3½ to 4½ inches across. The corolla is five-lobed.

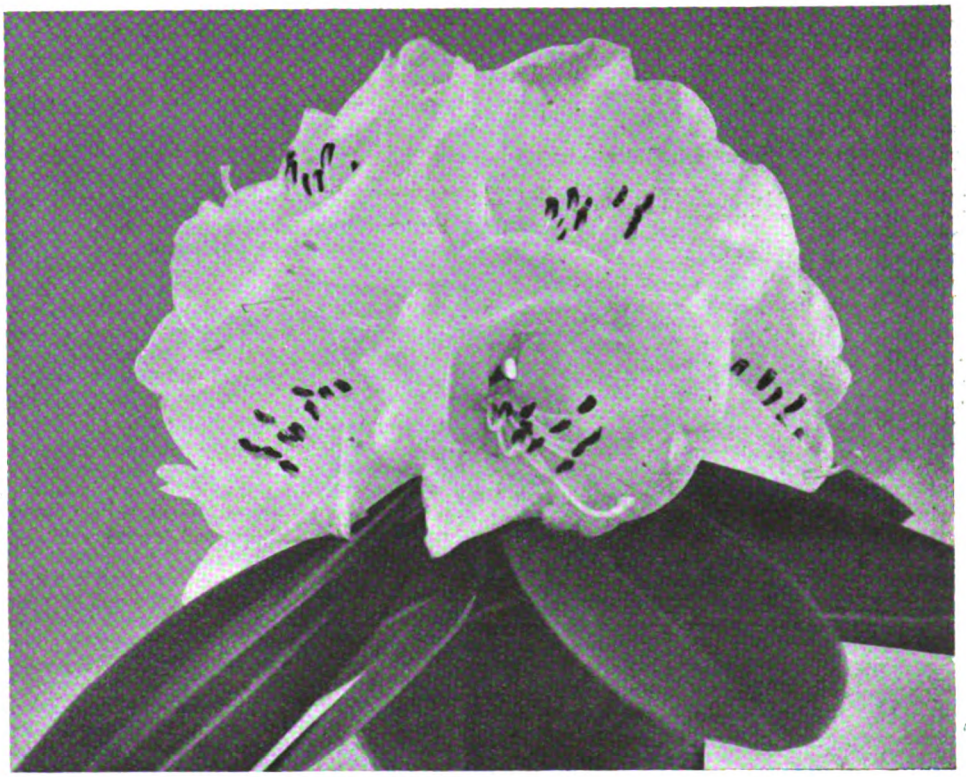

FIG. 67.—RHODODENDRON PRAETERITUM.

which readily distinguishes it from the seven-lobed bloom of R. oreodoxa. It is also a better grower, at least at Kew, almost every growth terminating in a truss of flowers. It is readily raised from seeds. The flowering season is during the second half of February and March. Other interesting species of this group include R. Davidii, R. Fargesii and R. maculiferum. *A. O.*

THE ROSE GARDEN AT BAGATELLE.

We learn from the Curator that during the past few years the flowering of the Rose trees at Bagatelle, Bois de Boulogne, Paris, has been capricious, and, at the time of the visits of the Jury for the purpose of judging the novelties, distinctly unsatisfactory.

This is probably due to several causes. In the first place, one year the flowering period was delayed by late frosts and subsequent continual rain; then, last year an early flowering season was followed by cold, rainy weather, which seriously checked the development of the plants.

It is also thought, however, that another reason for unsatisfactory growth may be the exhaustion of the soil at Bagatelle; and this year, in order to remove this disadvantage, the beds where the new varieties will be planted and will remain for two seasons have been completely re-made.

It may be of interest to Rose growers, both amateur and professional, if the procedure adopted be described.

At the beginning of the winter, the beds were dug to a depth of three feet, and the old soil carted away; new soil—known as "wheat soil"—rather rich and strong, was then substituted, to which was added a month beforehand "terreau de maraîcher," ground roasted horn, powdered "Thomas" dephosphorated slag, sulphate of potash, and sulphate of magnesia. All these materials were placed in a dry corner, and several times turned; then a small quantity of natural nitrate of potash was added.

It was not possible completely to change the soil contained in the beds where new varieties were planted last year, as they have to remain in their quarters for two seasons. The operation is therefore postponed until next year, but in the meantime the soil has been treated everywhere except just round the roots of the Roses.

The toxins resulting from the cultivation of the Roses in the same place for a considerable time were destroyed by injections of sulphide of carbon into the soil (about 200 g. to the square metre), and three weeks later the ground was turned over once or twice to aërate the soil. The carbon sulphide, while destroying the toxins, destroys also the greater number of the nitrifying bacteria, which, as is well known, are necessary to plant life. In the soil thus purified, therefore, fresh nitrifying bacteria were introduced by means of soil on which Roses had never been grown, or, in some places, in the form of a compost mixed with the soil on the occasion of the second digging.

Further, small quantities of a culture of nitrifying bacteria known as "nitragine" were incorporated with the soil, of which each cubic centimetre contains millions of pure bacteria.

It will be interesting this summer to compare the growth and flowering of the Rose novelties in the beds at Bagatelle, in the new soil, with those of last year in the old soil.

Such thorough treatment of the ground should establish among Rose growers a confidence that their plants sent for trial will receive conditions suitable for their development and flowering.

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The Week's Work.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Pruning Roses.—More or less of this work confronts every gardener yearly, and the middle of March is the time to make a beginning, unless the garden be a very cold one, when the work may be delayed for another week. Commence with the hardy hybrid perpetuals, then the hybrid teas, finishing with the tea-scented group the last week in March or the beginning of April—the variation in time being dependent on the forwardness or lateness of the season. A few reliable rules are:—(1) cut down newly-planted bushes to within 2 inches to 4 inches of where they are budded; (2) to obtain quantity of bloom lighter pruning is necessary than when show flowers are desired; (3) strong-growing varieties require less severe pruning than weak ones, immature growths being, however, in both cases pruned back to a ripened part; (4) the shoots of an average Rose bush when pruned may vary from 4 inches to 16 inches long or thereabouts, according to the vigour of the sort, pruning the side shoots in proportion. These brief hints apply to the above-mentioned dwarf Roses only—it being assumed the climbing section was thinned and pruned after flowering last autumn. China Roses and Dwarf Polyanthas that are established scarcely need more than in keeping the plants free at the centres of weakly shoots, but if fresh planted a better foundation will be secured by cutting them well back the first season. Pruning being finished, have the waste wood cleared away, and fork the beds a few inches deep, leaving the top tilth as fine as possible, in order to prevent rapid evaporation of moisture when drying winds prevail or should a period of hot sunshine set in early.

Ivy.—Where this climber is used for clothing walls or for screening buildings, it is well to clip the growths and foliage fairly closely at least once a year, not only to keep the Ivy within bounds, but to prevent an accumulation of dead leaves among the growths. This work may be done now.

The Pampas Grass.—This stately plant is the easier kept in good order by cutting it over annually with the shears. Cut away all last year's foliage that hangs loose and free around the clumps, even if such has not turned brown, but be careful not to injure the growing centres, which are now discernible. Young plants or divisions of old crowns may be planted at the end of March or in April.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

The Orchard House.—The fruits of Cherry and Plum trees that were started early to supply fruits well in advance of those out-of-doors are swelling freely. At this stage steady forcing is very necessary until the final swelling commences, when a higher temperature may be afforded with advantage. On the first signs of green-fly fumigate the house and thoroughly syringe the trees the following morning. Planted-out trees will be benefited by having a mulch placed on the borders; by this means less watering will be required, and the slight amount of ammonia given off by the dung will be beneficial to the trees. Pot trees should be stimulated by applying weak liquid manure at the roots, varied at intervals with soot water and a concentrated fertiliser. Plenty of air should be admitted during the early part of the day when the outside conditions are favourable. Use the syringe freely on bright days when closing the house early in the afternoon, and maintain a night temperature of 55°, with a rise of 10° by day, without sun-heat. All side growths not required for extension should be pinched at the fifth or sixth leaf. Certain varieties of Plums often set more fruits than the tree can develop properly, and, where choice fruits are desired, it is necessary to thin them. The thinning should not be done too drastically until it can definitely be ascertained which fruits are likely to swell satisfactorily. If the house is unheated it is advisable to allow the trees to develop slowly, admitting air freely on every favourable opportunity to prevent the temperature rising too high, and thereby hastening the trees into flower. As the blossoms develop endeavour by every possible means to promote a genial, buoyant atmosphere. Apricots, Cherries and Plums in particular will suffer badly if the atmosphere is kept close and damp. Cherries when in flower should have the pollen distributed daily by means of a soft feather brush. If the trees are planted out, Apples and Pears may be transplanted to fill vacancies right up to the time the buds are ready to burst, provided the operation is carried out carefully. The trees selected should have plenty of fibrous roots, otherwise the operation will be a failure, but with a reserve stock of trees, which have been prepared for emergencies, it will not be difficult to find suitable specimens for the purpose.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Fiske, Esq., Carlton Park, Market Harborough, Leicestershire.

The Herb Border.—The plants in the herb border should be examined when the ground is in a suitable condition, and any that are becoming congested divided and replanted in well-enriched soil. Sow the annual kinds at the same time in drills made about one foot apart. Thin the seedlings before they become drawn. A well-planted herb border is not the least attractive part of a well-ordered kitchen garden.

Tomatos.—If not already potted, autumn sown Tomatos should be placed in their fruiting pots, using a compost consisting of two parts of rough, turfy loam, one part of leaf-mould, and one part manure from an old hotbed, with the addition of wood-ash and coarse sand. Pot firmly and leave a space for top-dressing the roots at a later date. A temperature of 55° to 60° is suitable for the plants, and air should be admitted more or less according to the weather. To ensure the fruits setting, tap the plants lightly each morning to distribute the pollen. Pot on early-sown plants as they require more room, and make another sowing in six-inch pots to provide plants for successional fruiting. Best of All and Sunrise are two good varieties for spring sowing.

Turnips.—Sow a few drills of Turnips on a warm border to follow those sown in frames. Quick-growing varieties, such as Early Milan or Long Forcing, should be selected. Sow the seed thinly in shallow drills, made one foot apart, and thin the seedlings to nine inches apart when they are large enough to handle. Where birds are troublesome it will be necessary to place a fish net on stakes about a foot high over the seed bed until the young plants appear. Dust the rows with old soot during showery weather, and hoe between them to encourage the plants to make quick growth. Other sowings may be made at fortnightly intervals throughout the spring, and there is no better place for sowing than between the rows of Peas and Beans, where the slight shade will be an advantage should the weather prove hot. Snowball and Model White are two excellent varieties for spring and summer sowing.

Potatos.—Early varieties of Potatos such as Midlothian Early and May Queen may be planted on a south border in shallow trenches made two feet apart with the spade. Give the ground a dusting of wood ash. Place the tubers firmly in the ground about fifteen inches apart, and fork the ground over as the planting proceeds, taking care not to knock the shoots off in the process. Keep a watchful eye on the growths as they push through the soil; the shoots will soon appear if the weather proves mild. If there is fear of frost, draw a little soil over the growths with the hoe.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Deciduous Orchids.—Calanthes, Thunias, Cyrtopodiums, and other deciduous Orchids need attention as regards repotting. Good fibrous loam should be the chief constituent of the compost, which should be of the best, and it is essential to these heat-loving plants that it be warmed before being used. Calanthes of this section need repotting when the new growths are a few inches long, and the plants about to develop fresh roots. Previous to repotting it is advisable to examine the pseudo-bulbs closely for scale and other insect pests which may infest them. Care must be taken whilst cleansing the pseudo-bulbs not to injure the eyes or young growths at the base, as this may be the means of the growth decaying. The dead roots may be cut off to within an inch or so, to form a support that will keep the plants firm in the soil until the young roots have grown in the compost. The pseudo-bulbs may be repotted singly, or three or four large ones, or even more, may be placed together in a large pot. Perfect drainage is essential, and the compost should consist of half turfy loam, from which the earthy particles have been removed; one-fourth chopped A1 fibre; and one-fourth dry cow manure, with a moderate quantity of live Sphagnum-moss, small crocks, and coarse silver sand. The materials should be well mixed, and allowed to become warm before being used. In repotting, the compost should be made moderately firm, allowing sufficient space in the receptacle for a top-dressing at a later period, when the plants have become thoroughly established and are growing rapidly. The plants' surroundings should be kept moderately moist by damping between the pots occasionally. When the roots have a thorough hold of the compost, and the growths have made considerable progress, occasional waterings with liquid manure are beneficial. Care should be taken when repotting these plants that the material is neither too wet nor too dry.

Thunia.—When these Orchids have commenced to grow, they may be treated in much the same way as Calanthes as regards compost and other details, with the exception that they should not be potted too firmly, as their roots are not capable of penetrating a close compost. They enjoy a sunny position in the warmest house, close to the roof-glass. Water should be applied sparingly until the flower spikes appear at the apex of the newly-made pseudo-bulbs. If given water at the roots too soon there is the danger of the plant not flowering, hence the necessity of keeping them on the dry side until the flower spikes appear.

THE HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Fruit Store.—With the advent of warmer days the airing of the fruit room is an all-important factor in keeping fruit. An inrush of warm air through careless opening of doors or windows will soon have its effect on fruit kept over a long period. A fruit room should have double walls with an air chamber intervening, and inlets to the house. These may be closed at will. The entrance should have double doors, the inner door being, in part, of glass. These doors should have at least a 6-foot passage between them. It may be desirable to have the Pear room under the same roof, and, if on the side of a hill, this will be an advantage, as both rooms may be approached from the ground level. Pears should be stored in the upper room. Plans for fruit rooms should be drawn up now in order that building be completed during the coming summer. Where possible a site should be chosen on the north side of a belt of trees, this affording a cool position. In a good-sized garden, and where fairly large quantities of fruit are demanded, a house 30 feet by 20 feet would be desirable. With a 7 feet head space, 3 side stages, each 3 feet wide, and 3 central stages, 12 feet by 6 feet, may be provided, and, allowing for a packing table 6 feet by 4 feet, leave ample path space. The

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table may accommodate trays of selected fruits. Apples packed in litter of whatever material may be placed under the stage on the ground floor. If carefully graded and free from damage when packed the latest sorts should keep until Apples come in again.

Figs.—Those who are able to grow Fig trees satisfactorily out-of-doors will need to give the trees attention at this date. All thick, long-jointed and useless wood should be removed. Ample space should be afforded the shoots to allow the light and air to reach the tree freely. The principle to be aimed at is to secure firm, short-jointed wood capable of bearing plenty of fruit.

General Remarks.—Afford protection to opening blossoms should frost occur. A slight protection of fish netting will sometimes save a ground crop such as Strawberries. Boards from which protective material is suspended should be put in position on the top of walls in readiness. All arrears of pruning, spraying and planting should be completed. Watch should be kept for the eggs of the lackey moth, which encircle the younger shoots, on trees left lightly pruned or orchard trees. Shoots infested with these eggs should be cut off and burnt. Trees that have their upper roots bare of soil, and which are possibly starved, should have a layer of good loam mixed with lime rubble put over the roots.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Clivia.—As Clivias pass out of flower they should, if necessary, be repotted; if in bad condition the soil should be washed from the roots, and any of the latter that are decayed cut away. If large specimens are required the clumps may be potted on intact, only dividing them if small plants are needed. These plants require very careful repotting, necessitating shaking and working the soil very carefully amongst the roots. After repotting they require very careful watering until the roots are well established in the soil. Syringing should be done carefully for a time, or the broad leaves will convey too much of the water to the soil.

Chrysanthemum frutescens.—The common Marguerite and its double variety, Mrs. Sanders, as well as the double yellow sort introduced by Messrs. Sanders (Fig. 68), are all very useful for the decoration of the greenhouse during the autumn. If cuttings are inserted at this date they make useful plants for the plant stages. Where large specimens are required, plants saved from last year's stock should be potted on as required.

Chrysanthemum foeniculaceum.—This plant, like the former, is a native of the Canaries, and is worth growing, as its finely divided glaucous foliage is very pretty. The flowers, although smaller than those of C. frutescens, are produced very freely. The plant succeeds under similar treatment to that afforded the Marguerite.

Begonia gracilis var. grandiflora (syn. B. Martiana var. grandiflora).—This Begonia produces buds on the inflorescences; it is a very pretty and distinct species, which should not be confused with the so-called B. gracilis of Continental growers, which is really a variety of B. semperflorens. The dry tubers of B. gracilis should now be started into growth in a warm house in the same way as the ordinary tuberous-rooted varieties, and it succeeds under similar treatment, as also does B. fulgens, another beautiful species which is worthy of more general cultivation for greenhouse decoration. The last is easily raised from seed in the same way as the other tuberous-rooted varieties, but in their younger stages the plants require a little more care to obtain successful results. The hybrid B. weltonensis is an old favourite which is worthy of more extended cultivation, as it may be had in flower during autumn and early winter. Plants raised from cuttings the previous year give the best results, although good specimens may be produced from cuttings inserted at this date.

INDOOR PLANTS.

CAMELLIAS.

Camellias are very suitable subjects for the embellishment of the conservatory or greenhouse where less hardy plants might fail under similar conditions and treatment. They may be grown and trained on trellises on back walls, and if the foliage is kept clean they make a pleasing covering, apart from the wealth of flowers usually produced early in the year when other flowers are scarce.

When planted out in borders or grown in large tubs and given ample head room, they soon grow to a large size and fill bare, open spaces. Whatever system of cultivation is adopted, good drainage and careful watering are essential. A mixture of sweet, mellow, fibrous loam, grit, leaf-mould and charcoal suits these plants; some prefer to use a mixture of loam, rough peat and grit.

The pruning and thinning of the plants should be done as soon as the flowers are over; useless inner shoots are best removed entirely and such other shoots as may be necessary to obtain an evenly balanced specimen. Insect pests as a rule prove rather troublesome to Camellias, but may be kept in check by spraying at intervals well under and over the leaves, etc., with XL-All insecticide. The varieties are numerous; a large bush of C. Chandleri elegans growing in the conservatory at Wrotham Park produces an enormous quantity of flowers annually. The variety alba pleno also flowers freely here; this Camellia needs shade in summer, as the foliage soon gets damaged by the direct rays of the sun. *H. Markham, Wrotham Park Gardens, Barnet.*

REHMANNIA ANGULATA.

The variety Pink Perfection of Rehmannia angulata is a useful addition to the late winter flowering plants for cool greenhouse decoration. The plant's cultural requirements are not exacting; it is all but hardy, and is best treated as an annual, flowering in ten months from the time of seed sowing.

The flowers are produced singly in the axils of the leaves on the flower scape, which is usually about 3 ft. high. The flowers are tubular, three inches in diameter at the edge of the corolla lobes, and coloured deep pink, the throat being lighter in shade and spotted. Rehmannia angulata is a gross feeder, and for its maximum development requires to be planted in a strong, loamy compost. Plants intended for flowering in late winter will bloom in 7-inch pots; those from a later sowing intended for summer flowering may, with advantage, be grown in larger pots. *Fred W. Jeffery.*

FIG. 68.—BED OF THE DOUBLE, YELLOW-FLOWERED MARGUERITE.

ORCHID NOTES AND GLEANINGS.

POTINARA LOWII.

The multigeneric hybrid containing Brassavola, Cattleya, Laelia and Sophronitis, and named by the raisers, Messrs. Charlesworth and Co., Ltd., in honour of Monsieur Julien Potin, a leading French orchidist, commenced well with the deep violet purple Potinara Juliettae (S.-L.-C. Marathon × B.-C. Ena), which secured a First Class Certificate on February 28, 1922. Messrs. Flory and Black, Slough, followed with Potinara Gratrixiae (S.-L. Gratrixiae × B.-C. Mrs. J. Leemann), and Potinara Royal Purple (B.-L.-C. Gerald × S.-C. Westfieldensis), both good flowers. In Potinara Lowii, now flowering in Messrs. Stuart Low and Co.'s collection, the combination is secured by crossing Lowiara insignis (B.-L. Helen × S. grandiflora), itself a garden genus, with L.-C. Luminosa (C. Dowiana × L. tenebrosa), flowered by Messrs. Low in 1912. In Potinara Lowii the general characters of Lowiara predominate, but the flowers are larger. The lanceolate sepals and petals are bright vermilion with an orange shade; the lip is rose purple with thin lines from the base to the well-expanded front.

MILTONIAS.

Miltonia vexillaria, M. Charlesworthii, M. Hyeana, M. Bleuana, the rare M. Warscewiczii and the distinct M. Schroderiana, with a number of the newer hybrids, are now in full growth, and need plenty of water at the roots.

While in this condition it is advisable to examine the growths occasionally, as some of the young leaves adhere to each other so firmly that it causes them to become crumpled and deformed. When this is observed, the leaves should be liberated with the handle of a budding knife or a thin, smooth piece of wood, a method far better than attempting to separate them with the fingers, there being less likelihood of injuring the tender foliage. At the same time the plants should be examined carefully, as thrips often attack them and soon disfigure and do permanent injury to the plants. Upon the first signs of this pest dip the plants in an insecticide, afterwards laying them on their sides to drain. *B.*

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CULTURAL MEMORANDA.

THE PROPAGATION OF HIMALAYAN RHODODENDRONS.

These beautiful hardy Rhododendrons may be propagated from seeds, layers and cuttings, or by grafting and budding. Of these various systems I prefer increasing them by seeds as seedlings have a better constitution and live longer than those propagated by other means, while there is always the possibility of obtaining new and improved varieties. The seed pans or boxes should be about one foot in diameter, and they should be provided with a depth of three inches of drainage material, and the potsherds should be covered with a layer of moss or rough portions of peat, and this in turn covered with about an inch and a half of fine peat, leaf-mould, and sand. This will bring the soil to within half an inch of the top of the receptacle. The former should be pressed fairly firmly and then watered thoroughly by means of a fine rose water can and allowed to settle. When the moisture has drained sufficiently from the soil, the seeds may be sown evenly on the surface and the seed-pan covered with a sheet of glass and kept shaded; another method is to place fresh moss over the surface of the soil to keep it shaded and moist until the seeds germinate. The seed-pans should be placed in a propagating frame having a temperature of about 60° to 65°.

The seeds will germinate in from three to six weeks, and at that stage the covering should be removed gradually and the atmosphere kept moderately dry to prevent the seedlings damping off, which they are very liable to do. The plants should then be accustomed to exposure to the air in an open glass-house, and as soon as they can be handled, pricked out into other pans or boxes containing soil prepared in a similar manner to that for seed sowing. When the seedlings are well established, they may be removed to a cold frame.

The propagation of these Rhododendrons by layering is very simple, but, as all the members of this class of Rhododendron are of slow growth, sufficient roots will not have formed to give the plant an independent existence until more than a year has elapsed. R. barbatum is one of the slowest to root in this way; indeed, I have known cases where the layers have only commenced to root after a period of two years has elapsed, whilst others, including R. Roylei, and many hybrids, take twelve months to root, but even in their cases they are best left for two years before being detached from the parent.

The method of layering is very simple; a portion of the underside of the branch should be removed by means of a sharp knife, and that portion of the shoot pegged close to the soil, having previously placed a little prepared compost containing plenty of sand and peat under the place where the layer will be buried. The shoot should then be covered with more of the fine soil and made very firm in the ground.

Grafting is resorted to when it is desired to increase the stock in a short time, but the method is not a very reliable one for the Sikkim varieties, and in some cases the union is not a success. Rhododendron ponticum is generally employed as a stock, and plants for the purpose may be raised from seed. They are suitable for grafting when three years old, and should be potted in the autumn previous to grafting, and placed in cold frames. The grafting may be done as soon as the sap commences to flow. Saddle and cleft grafting are the best methods, and it is necessary to make perfectly clean cuts on both stock and scion. The grafts should be bound securely with raffia and the place of union covered with clay. The plants should be grown in a warm frame or glass-house, and kept close and well sprayed for a time. As soon as it is seen that the scion is growing actively, the plants may be afforded cooler treatment and finally placed out-of-doors.

Budding is a method of propagation which may be done all through the summer. The method is the same as in budding fruit trees, and the buds may be inserted on the stocks where the latter are growing. *W. A. Cook.*

THE PROPAGATION OF DRACAENAS.

Dracaenas are easily increased at any time by cutting the stems into portions from one to two inches in length, and laying them in a bed of fibre in a warm propagating case. The tops of the plants may also be inserted as cuttings, although the usual method is to cut the stem half-way through, just under the bottom leaves, tie a handful of moss and sand around the stem at this point, and if these are kept moist and the plant kept somewhat dry at the roots, fresh roots will soon grow into the moss, when the top may be cut off and placed in a suitably sized pot. Underground eyes from the bases of the old stems also afford a ready means of increase. *C.*

FIG. 69.—CANKER OF ASH; PRESUMABLY OF BACTERIAL ORIGIN.

CANKER OF ASH.

In some districts Canker of the common Ash (Fraxinus excelsior) is fairly common, and, as may be seen from the illustration (Fig. 69), it completely ruins the stems of the trees for commercial purposes. According to Massee (*Diseases of Cultivated Plants and Trees*, Second Edition, 1915, p. 520), "these diseased spots have been shown by Noack to be of bacterial origin. In some instances, at least, the leaves and leaf-stalks appear to be first infected, the bacteria from thence passing into the wood. On the branches small, discoloured, reddish patches of bark first indicate the presence of the disease. The bark eventually cracks at these points, and the canker gradually increases in size. Saplings up to about half a dozen years old seem to be those chiefly attacked, and nothing seems to be known as to preventive measures. *A. D. Richardson, Edinburgh.*

DEEP PLANTING.

One often learns through mistakes, though mistakes are not to be desired. Early in the war period some girls planted a quantity of Potatos at an average depth of seven inches, and though the tubers were in the ground quite three months before top growth appeared—their appearance at all had been almost despaired of—in the end they produced a fine crop. I had read of Potatos being planted so deeply and recommended to be so planted, but it was not until the crop was lifted that I learned how this "mistake" of the girls was correct. I had always planted Golden Wonder quite five inches deep, and generally for late varieties deep planting may be worth consideration. For early crops not so.

In the same way some Narcissi do better when deeply planted, *e.g.*, Double White, King Alfred and the double varieties of incomparabilis. In this case it would appear that deep planting ensures a better supply of moisture to the roots. It need not be said that if the ground has been merely dug, and not trenched, deep planting cannot be any advantage.

Many years ago the late Mr. Garret, of Whittinghame, assured me that by planting Gladioli to a depth of eight inches no disease would attack the corms. That was at a period when Gandavensis crosses alone were grown, and it was impossible to grow Gladioli for more than a year or two without replenishing the stock because of disease. Now a diseased corm is seldom seen where the stock is of hybrid origin, and therefore it may be concluded deep planting would be valueless. Yet it may not be so, for last year about 600 plants set seven inches deep proved in every way superior to those set at the usual depth. The reason is probably similar to that advanced for Narcissi—a more generous and equable supply of earth moisture to the roots. *R. P. Brotherston, Tyninghame Gardens, Prestonkirk.*

THE JARDIN DES PLANTES AT MONTPELLIER.

The Jardin des Plantes of the University of Montpellier was founded under Henri IV. There still remain from the time of the first Conservateur, Richer de Belleval, several Phillyreas and the "debris" of a Cercis Siliquastrum, which was 8 metres 85 cm. in circumference when de Candolle measured it in 1832. Among other fine trees I noted Maclura aurantiaca, a female tree planted by De Candolle in 1815 and bearing its large, yellow Orange-like fruits; Abies Pinsapo, planted shortly after its introduction in 1848; Cupressus guadalupensis, a beautiful, feathery tree, some 35 feet high; and Cedrella sinensis, planted by the Abbé David in 1880. There is also the fine and famous Ginkgo biloba, which was sent from England by Banks to Couan, then conservateur of the garden, in 1785; in 1830 Demetta grafted the female form on to the male specimen, and the tree fruited in 1835.

The work of the garden is seriously affected by climatic conditions, the water being hard and the soil limestone. No rain has fallen for six months!

The glasshouses contain a large collection of Palms, notably Madagascan species, Euphorbias, Echiums, Polygalas, Strelitzias, Cereopegias and similar plants. Phalaenopsis and Vandas do well, but other Orchids dislike the hard water. Out-of-doors the plants are still grown as arranged by de Candolle.

The collection of dried plants is one of the largest in existence, and many of the specimens date back far into the eighteenth century. Monsieur Daveau, the conservateur, is over seventy years of age but very active, and he delights to show the garden to visitors. He is the author of an important monograph of the genus Cistus.

The public gardens of Montpellier are chiefly remarkable for magnificent specimens of Magnolia grandiflora. *William Lawrence, March 5.*

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NOTES FROM IRELAND.

The New Year has not been niggardly in its rainfall, for although January, as registered at Glasnevin Gardens, gave but a total of 1.88 inch, February followed with 5.21 inches, the product of twenty-seven days on which rain was recorded.

Snow has not been seen the winter through in the Dublin district, save for an occasional but brief white capping of the distant mountain range. Glasnevin, "the gem of European botanic gardens," under Mr. J. W. Besant's charge, well maintains its interest, and is in excellent order and high keeping. The charming old Queen Anne residence, so long occupied by Sir Frederick and Lady Moore, closed since their retirement, wears rather a mournful air in its drawn blinds, but near it, as March comes in, Daffodils on the grass, in such kinds as Ard Righ, Henry Irving, obvallaris and princeps, give their gracious gleam of gold. Surely the dainty little Narcissus cyclamineus, as seen in the rock garden, is the darling of the tribe.

So far as Daffodils go, in their timing, things look propitious for the R.H.S. of Ireland spring show, fixed for April 5 and 6.

A wide spreading plant of Pyracantha crenulata yunnanense, horizontally trained on an office wall immediately outside the Glasnevin Gardens entrance, with its heavy crop of glistening crimson fruit, is the cynosure of all eyes. Away up in the charming grounds among the great and far-spreading collection of Coniferous subjects a golden-hued Scots Pine, P. sylvestris aurea, is most remarkable.

Effects of the open, snowless winter are very evident on the south side of the city, and on to Bray, where one comes under the witchery of "faire Wicklow." Prunus Pissardii seems to have been plentifully planted in Irish gardens, and by mid-February substantial bushes, some of almost timber-tree dimensions, were in profuse flower, a sequel to which was found in our city restaurants, where contributions had gone via the market, and in one instance where a whole series of tiny tables had central bouquets associated with the coppery foliage of Mahonia aquifolium, the effect, if accidental, was happy. That beautiful Chilian evergreen, Azara microphylla, in various places, notably in a road-skirting shrubbery, with its myriads of minute blossoms, was rather sensed in grateful perfume than seen.

From Kilmacurragh, away in the wilds of Wicklow, came a January note of Rhododendrons, notably nobleanum, with its two varieties, in gorgeous beauty, and by this time Eucalyptus pulverulenta is probably displaying its unique floral charms, with the glorious Magnolia Campbelli close up. Citywards, but still under what has been called a Mediterranean climate, on the steep ascent of Killiney Bay, where Mr. R. C. McM. Smyth has his residence on a rock, and his garden, too, what one may term the humbler herbs of a spring flora, having to bear the penalty of wind exposure, make a brave display. Of these he sends a lengthy list, including various Saxifragas, Hepaticas, Triteleia uniflora, white Onosma, and a certain miniature Rose—Lawrenceana—which he has had for ten years, and is but 10 inches high, which, he states, "is, as usual, in bloom."

Considerable interest is being taken locally in the new Irish seedling Potato, Mahon's Fingallian, which, having been under control culture by Messrs. Wm. Cotter, Ltd., of the Corporation Markets, Dublin, for two years, is now being distributed by the firm. As seen in company with other standard varieties, this seedling is remarkable for retaining its foliage and growing conditions quite late in the season when all others have died down. Mahon's Fingallian has proved ultra prolific, and so immune from the dreaded late blight—which, by the way, was very little in evidence last season, whether the plants were sprayed or not—as to make the heavy crops literally blightless. So much has this obsessed growers that more than one who went to the trouble and expense of spraying declare "No more spraying for me." *K., Dublin.*

USK PRIORY.

To gardeners, Usk Priory is usually associated with Orchids, for Mr. Windsor Rickards has shown these plants frequently at the Royal Horticultural Society's meetings and won many awards for especially fine types and varieties from his collection. We do not propose, however, to describe the Orchids at Usk Priory, beyond stating that the Orchid houses are models of what such houses should be, and that the cultivation is of the very best, every specimen being in the highest perfection of health, and the pots, staging, and glass-houses so scrupulously clean and tidy that one almost wonders whether the plants were ever even watered.

On entering the gardens, it is at once apparent that the owner is a great lover of nature and a keen gardener, for it is full of beautiful shrubs and trees, and choice flowering plants, many of which are seldom met with in the open in this country, for the climate is so favourable that Mr. Rickards is enabled to grow and flower a number of species which are only semi-hardy. The specimen of Trachycarpus excelsa (Fig. 70) is one of the finest examples of this Palm in the country, and, as will be seen on reference to the illustration, it is furnished with leaves almost to the ground level. Such interesting plants as Daphniphyllum glaucescens, Carpenteria californica, Plagianthus Lyallii, Arum Dracunculus, and Viburnum Carlesii seemed perfectly at home, for they grow and

FIG 70.—TRACHYCARPUS EXCELSA AT USK PRIORY, MONMOUTHSHIRE.

But this degree of orderliness was only in keeping with the rest of the place, for we have no hesitation in saying it was one of the most tidy, as well as one of the most pleasing small gardens, we have ever visited.

Like all the old monastic residences, Usk Priory is situated in a spot of great natural beauty. The Priory itself has existed over eight centuries, and is in an unobtrusive corner near the south side of the Church of St. Mary's, the church following the erection of a castle by the Normans, the church in turn being followed by the foundation of the monastery. The Priory at Usk was of the Benedictine order and in its early days was occupied by none but virgins of noble birth. Since Mr. Rickards acquired the building he has restored and beautified it, and those interested in old institutions of this kind will find a wealth of beauty in the fireplaces, panelling, roofts, etc., apart from the many treasures with which the present owner has adorned it.

flower with freedom. Large patches of Cistus seem to revel in the congenial conditions of these gardens, and other plants of special interest noted were a magnificent specimen of Daphne Cneorum, fine old trees of Arbutus Unedo, handsome specimens of Cedrus atlantica glauca, Picea pungens glauca, Thuja Lobbii, Sequoia gigantea (Wellingtonia), the dwarf Juniperus communis nana, Lonicera Ledebouri, Liquidamber styraciflua, Spiraea ariaefolia, and Forsythias in variety.

The herbaceous borders are extensive and planted with the choicest of hardy perennial flowers, whilst in other parts are flower beds, Roses and a delightful little rockery, the last approached by a flagstone path in which Oxalis, Thymus, Dianthus, Campanula and similar low-growing subjects are planted in the crevices. No prettier gardens than those of Usk Priory could be imagined, and the care and skill with which they are maintained is a credit both to the owner and his capable gardener, Mr. Luff.

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HORTICULTURAL TRADERS AND TAXATION.

NEARLY nine years have elapsed since the British Empire was suddenly called upon to enter on a struggle which threatened its very existence. Its citizens have not repented of their determination to defend themselves at all costs from a ruthless invader, who boasted of his determination to occupy this country, and to exact the uttermost farthing in the event of his success, and tax-payers have shown no signs of seeking to avoid payment of their fair share of the financial cost involved. This is not to say, however, that they are disposed to accept without demur any individual apportionment of the total burden which is not reasonably and equitably imposed.

At the best, the position of the tax-payer is difficult enough at the present time, Parliament in its wisdom having decided that in order to raise the necessary funds he must be prepared to give up one-fourth of his income. In the case of business men, this practically amounts to their taking the Tax Collector into partnership with them on the basis that he brings in no share of working capital, that he takes no active part in the earning of the profits of the business and that he bears no part of any annual loss that may be sustained; on the other hand, this official "junior partner" is entitled to a fourth share of the annual profits if the trader is fortunate enough to have made any.

In addition to this, there is, in the case of a limited company, the additional duty on profits known as the Corporation Tax, while until recently there was a further tax of 80 per cent., subsequently reduced to 60 per cent., known as "Excess Profits Duty," on any profits (made by either private firms or limited companies) in excess of those made before 1914, notwithstanding the diminished purchasing value of money since that time.

Seeing that so heavy a burden has been shouldered by the commercial community, it is clearly of the first importance that the individual trader should not be compelled to bear more than his fair share of the revenue to be raised. It is, therefore, somewhat startling to find that in the case of nurserymen and seedsmen the Inland Revenue Authorities are taking up the attitude that, in cases where the seed department shows a profit and the nursery department shows a loss, the trader must not set off one against the other, but must, during the time that the Excess Profits Duty was in force, pay such duty on the profits of the seed department, without taking into consideration the loss made by the nursery department. In other words, in assessing the tax, the question of whether or not the business has made a loss on its entire trading is not to be considered; but the Excess Profits Duty must be paid on the profit made on a single department, the losses on other departments being ignored.

Presumably the reason for putting forward this astonishing demand is that in a case decided not long ago the Courts held that a firm of manufacturing chemists was entitled to claim exemption from Excess Profits Duty in respect of that department of its business which consisted of the growing of herbs for distillation purposes, and need only pay duty on that portion of the profits which was attributable to the manufacturing part of the business. The reason for this exemption was that "husbandry" was exempted by the Finance Act, 1915, from Excess Profits Duty, and it was held that the growing of herbs for distillation purposes came within the definition in question.

It is difficult to see why the growing of vegetable seeds, for instance, is not an equally meritorious branch of "husbandry," and why the growing of seeds of any kind does not come within the definition in question. This contention is under serious consideration by the trade at the present time, and more may be heard of the matter hereafter. Quite apart, however, from any technicality of this kind, there remains the general question of whether the Government, by its agents, can claim to divide a single business into two parts, and seek to recover three-fifths of the nominally increased profits of one department, while wholly ignoring the loss on another department.

Surprising as it may seem, this is not the first occasion on which the authorities have sought to take up so illogical an attitude. Some fourteen years ago the Government of that day listened to the voice of the theorist and made its ill-starred experiment in raising revenue by what was known as the "Increment Value Duty" on land. As soon as this duty was imposed it was found that house builders were placed in the perfectly hopeless position of being liable to pay the Government a large proportion of any profits they might make in developing an estate in one neighbourhood, while, on the other hand, they were liable to bear the whole burden if a loss was made in developing at the same time another estate in a different neighbourhood. The outcry was so great that remedial legislation had to be passed in order to minimise the shortage of houses, which must be the inevitable result of such unfair and ill-considered taxation.

The present position of nurserymen and seedsmen is hardly less unfair, if the authorities are right in their construction of the Act of 1915. Such a result can scarcely have been contemplated by Parliament when the Act was framed, and it would certainly seem that in making such claims upon horticulturists the Government are acting contrary not only to the intentions of Parliament, but also to the spirit of the Act.

H. M. V.

EARLY BOTANIC PAINTERS.*

No. 3.—Jacques Le Moyne de Morgues.

The celebrated Erasmus, who died in 1536, makes reference in his *Colloquies* to the pleasure to be derived from comparing real with painted flowers, and adds that the painting holds fresh and green all the winter, when the flowers are dead and withered. Undoubtedly throughout the sixteenth century a considerable amount of botanic painting must have been done. Some of the herbal-writers employed painters to furnish the designs from which their woodcut illustrations were produced; plant-paintings are known to have passed between several early botanists, and many gardening enthusiasts relied on painters to record their most cherished flowers. One of the flower-loving Este princes, Bosso d'Este, paid Angiolo da Siena the sum of 800 lire, for which he had to present every Easter a painted flower; and Louise M. Richter, in a recent article in *The Connoisseur* (No. 247, 1922), reproduced a very fine study of an Iris by Jacopo Bellini (died c. 1471), which may have served a similar purpose. Yet, in spite of all this, with few exceptions, both the names of the painters and the paintings themselves would seem to have passed into oblivion. We have record of "le peintre de fleurs Baptiste Pelerin," who was the friend of Jacques Gohory, founder of a Paris herb-garden in 1571, but his paintings appear to have perished. It is not until well on into the seventeenth century that surviving painted Florilegia are to be found in any numbers; and the earliest preserved in the library of the Jardin des Plantes, Paris, is dated 1631. The collection of plant-paintings by Jacques Le Moyne de Morgues, now in the Victoria and Albert Museum, is, therefore, of considerable importance and interest, owing to its early date and for the associations connected with its painter, who passed the last sixteen years of his life in Blackfriars, London. A short account of this collection appeared in *The Gardeners' Chronicle* of January 28, 1922, and my present purpose is to put on record some additional information, including a list of the paintings.

The story of Le Moyne's life, as far as it is known, is redolent of the hazardous times in which he lived. Born at Dieppe at some unknown date (but perhaps about 1530), he came of a Calvinistic branch of a high family in that town. Of his early years, or of his training as an artist, there is at present no record. In 1564 he was selected to accompany Laudonnière's Florida Expedition, which was organised to relieve an earlier expedition to found a Huguenot colony in the New World, his duties being those of cartographer and artist. His own account of this ill-fated expedition, published posthumously by Théodore De Bry in the *Grands Voyages*, 1591, gives some interesting details. He tells us that the expedition was accompanied by many young noblemen "with splendid outfits," and a picked body of veteran soldiers. A certain degree of success at first attended the enterprise. A strong-point, Fort Carolina, at the mouth of what is now St. John's River, in northern Florida, was established, and friendly relations with the natives entered upon. Soon, however, the disillusion of some of the young noblemen (who had gone out filled with ideas of self-aggrandisement), and the shortage of food supplies, brought about dissensions and even mutiny, Laudonnière himself for a time being held a prisoner. Later, the English commander, Hawkins, returning home from a long voyage, came up to the fort, and supplied them with flour, beans and pease; further, for a moderate price, sold them one of his ships, receiving some brass cannon as part payment in advance. However, where the Englishman had proved a friend in need, the Spaniards, who had hitherto ignored that part of the coast, and, moreover, were then at peace with France, came in numbers and treacherously surprised Fort Carolina at night and massacred the greater part of the garrison. Le Moyne gives a graphic account of his own escape, and of how, after several days of miserable tramping through the swamps, the remnant of the expedition, including Laudonnière and himself, was able to reach the ship Hawkins had left, and, "ill-manned and ill-provisioned," put to sea, in due course reaching "that arm of the sea bordering on England which is called St. George's Channel." He returned to France, and, later, at Moulins, was commanded to lay before the young King Charles IX. an enlarged map of the new country and a certain number of his paintings of the natives, their dwellings, etc. (One of the original paintings has survived, and shows clearly how faithfully the engraver, De Bry, copied them). In 1572, he was surprised by the Massacre of St. Bartholomew's Day, and had just time to gather his papers together and escape to London, where Sir Walter Raleigh, always a friend to the Huguenots, took him into his service, and had him safely lodged in the Blackfriars. It is on record that he was of the greatest assistance to Raleigh: and he has been called one of Raleigh's Magi. Thus, after narrowly escaping violent death, both in the New and Old Worlds, he spent the remainder of his days in London, working as an artist, and the friend of learned and cultured people, such as Thomas Harriot, Sir Philip Sidney, and Hakluyt. He died in 1588, leaving a widow and at least one child. Such is the brief outline of what is known of this interesting Huguenot artist, whose account of the Laudonnière expedition (which, by the way, was translated into Latin by the botanist Clusius), so far as it reveals himself, shows him to be an honest, cultivated, and godly man.

Le Moyne's plant-paintings are undated, but the paper on which they are executed bears a known water-mark appearing on papers made at Paris and Arras in 1568. They were, there-

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fore, done at some time subsequent to his return from Florida, but whether prior or subsequent to the fatal year 1572 is uncertain. There are some points of similarity of design in about a dozen of the paintings, and the woodcuts in his *La Clef des Champs*, Blackfriars, 1586, though not very marked, as the latter are decorative outlines only, and the former finished naturalistic studies. It was, no doubt, these plant paintings, and possibly other similar ones now lost, that led to the publication of the book mentioned, which was dedicated to Lady Mary Sidney; but it is still an open question whether the paintings were done in France or in England. So far as I am aware, the flowers painted offer no clue.

There is an individuality, an honesty of vision, and an entire freedom from superficiality about Le Moyne's plant-paintings. His technique consisted of a general outlining with the lead, the straightforward painting in in water-colour of the appropriate colours, his colouring being very true to nature; and when dry these washes were carefully worked up in detail, body-colour being used where necessary. The hairs of plants were usually done in body-colour; and he showed much skill in rendering the surfaces of fruits by a carefully-managed coat of body-colour. This admirably-painted sixteenth century Florilegium faithfully carried on the tradition of painting plants "in miniature" (i.e., in detail). It is evident also that it is by a master-hand. The splendid, detailed illustrations in the *Grands Voyages* are sufficient evidence of Le Moyne's high artistic qualities, and it takes an artist of high merit to paint flowers really well.

In the following list of the paintings, the numbers refer to those written in the top corners of the pages, and contemporary inscriptions are added in parentheses:—1, Narcissus pseudo-Narcissus ("Demorogues," or perhaps "Demorgues"); 2, Viola odorata; 3, Bellis perennis, red garden var.; 4, Rosa sp.; 5, Vinca major ("Peruanche"); 6, Paeonia officinalis ("Piuoine"); 7, Iris germanica; 8, Convallaria majalis; 9, Dianthus plumarius; 10, D. Caryophyllus and Tagetes erecta; 11, Calendula officinalis; 12, Rosa canina; 13, Malva sylvestris; 14, Galanthus nivalis; 15, Anchusa officinalis; 16, Viola tricolor; 17, Papaver somniferum; 18, Vicia sativa; 19, Cyclamen europaeum; 20, Borago officinalis ("Bourrochez"); 21, Aquilegia vulgaris, double var. ("Ancolye"); 22, Matthiola incana ("Girofflee"); 23, Centaurea Cyanus ("Baptiessere, Cornille"); 24, Agrostemma Githago ("Nigella. Nielle"); 25, Digitalis purpurea ("Digitalis. Gantelet"); 26, Arum Dracunculus ("Serpentaria"); 27, Papaver Rhoeas ("Papauer silvestris. Coquelicoc"); 28 Delphinium Ajacis ("Pied Dulcuette"—? a corrupt form of the name, Pied d'alouette); 29, Setaria italica ("Millet"); 30, Trapa natans ("Tribulus. Cornuelles") [careful study of the whole plant, with its peculiar fruit; said to have been introduced into English gardens by Solander in 1781 (*Hort. Kew.* ed. I., i., 164), but was known to Lyte, also to Johnson, who in the 2nd ed. of Gerard's *Herbal*, 1633, gives Durford Abbey and "about London and elsewhere" as localities]; 31, Amygdalus communis; 32, A. Persica; 33-34, Prunus Cerasus, white and red vars.; 35, P. domestica, var., the Damson; 36, ? Cynara Scolymus; 37, Mespilus germanica; 38, Ficus Carica [a ripe Fig, delicately coloured, is shown separately]; 39, Citrus Limonum and C. Aurantium; 40, Morus nigra; 41, Pyrus communis, var.; 42, Vitis vinifera, both white and black vars.; 43, Cydonia vulgaris; 44, Pyrus Malus, var.; 45, Punica Granatum; 46, Pyrus domestica, var., the Greengage; 47, Cucumis Melo; 48, C. sativus; 49, Fragaria vesca; 50, Juglans regia; 51, Corylus Avellana; 52, Nigella damascena; 53, Melampyrum arvense, Purple Cow-Wheat; 54, Delphinium Staphisagria, Palmated Larkspur or Stavesacre; 55, Lavendula Spica; 56, Ruta graveolens ("Rue"); 57, Matricaria Chamomilla ("Camomille"); 58, Trifolium pratense ("Trifolium, Triollet, Treffle"); 59, Scabiosa arvensis.

In conclusion, it is necessary to state that the painting reproduced here has been selected from the available photographs, not as representative of the more delicate studies, but as the one most suitable for a half-tone illustration (Fig. 71). The size of the original is about 10¾ inches by 7½ inches. It is reproduced by kind permission of the Director of the Victoria and Albert Museum. *S. Savage.*

FIG. 71.—PAPAVER SILVESTRIS, FROM A PAINTING BY JACQUES LE MOYNE DE MORGUES.

THE SHIRLEY POPPY.

It may be appropriate at this date to place on record the late Rev. W. Wilks' own account of the raising of the Shirley Poppy, which is as follows:—"In 1880 I noticed in a waste corner of my garden abutting on the fields, a patch of the common wild Poppy, one solitary flower of which had a very narrow white edging to the petals. This one flower I marked and saved the seed of it alone. Next year, out of perhaps 200 plants, I had four or five on which all the flowers were white-edged. The best of these were marked and the seed saved, and so on for several years, the flowers all the while getting a larger infusion of white to tone down the red until they arrived at quite a pale pink, and I obtained one plant that was absolutely pure white in the petals. I then set myself to change the black central portions of the flowers, the anthers, stigmatic surface, and pollen, from black to yellow or white, and succeeded at last in obtaining a strain with petals varying from the brightest scarlet to pure white with all shades of pink in between, and with all possible varieties of flakes and edged flowers, and having golden or white stamens, anthers, stigmatic surface, and pollen, and a white base to each petal."

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VEGETABLE GARDEN.

CARROTS.

The Carrot is one of the most valuable root vegetables, and in demand over the whole of the year.

Carrots are of three types, Shorthorn, Intermediate and Long, and all are useful for different purposes. One of the most important factors in the successful cultivation of Carrots is the type of soil, which should be moderately light in texture and deep. A liberal supply of plant food should be present in the soil, preferably as a result of high manuring for some previous crop. Ground which has been cropped previously with Celery, Peas or Beans is very suitable for growing Carrots. The practice of adding manure to the land immediately before sowing the seed is to be condemned, because it induces the roots to fork and causes them to become rusty.

The seed may be sown thinly in drills made one and a half inch deep, early in March, or as the ground is in suitable condition for working. The distance apart at which to sow depends on the section. The rows for Shorthorn varieties may be spaced nine inches asunder; those for the Intermediate type fifteen inches, whilst Long Carrots need eighteen inches between the drills.

As soon as the seedlings can be handled they should be thinned, and it may be necessary to thin on a second occasion, when, if the plants are of a sufficient size, they may be utilised for eating, as small Carrots are very delicious.

The three sections enumerated require thinning to six inches, one foot and fifteen inches apart respectively. When the plants are half grown it is beneficial to stimulate them by the application of sulphate of potash every week, at the rate of one ounce per lineal yard of drill. The roots will mature in autumn, when they should be lifted from the ground and stored in sand in a dry, frost-proof place.

The Carrot Fly is a great pest of this crop. It is essential that growers should realise the utter impossibility of attempting to cure a badly infested plot of Carrots. The pest is then too deep-seated to yield to remedial measures. The only hope of immunity lies in the application of some preventive. For this purpose I know of nothing superior to MacDougall's Sheep Wash. One ounce of the compound should be added to one gallon of water and be applied to the crop every fortnight from the seedling stage, until the period of danger is passed. Useful varieties of Carrots in each section are Early Horn, James's Intermediate and Altrincham (Long). *Geo. H. Copley, N.D.H.*

FRUIT REGISTER.

MELON DICKSON'S ACQUISITION

This variety of Melon has a sturdy, robust habit of growth and sets plenty of fruits. The individual Melons grow to a good size, are beautifully netted, have a thin rind and scarlet flesh, which is deep and luscious. I consider it one of the very best flavoured Melons I have ever grown. Exquisite, a green-fleshed variety, I grew for many years and considered it excellent in every respect, while Hero of Lockinge I consider one of the best of the white-fleshed type.

To obtain the best results with Melons the plants should not be crowded, nor cropped too heavily.

The soil best suitable for the plants is a mellow loam mixed with a little old mortar; if the loam is of somewhat poor quality, a moderate amount of well-decayed manure will greatly assist the plants in every respect. Melons need a rather firm rooting medium, therefore the compost should be made firm, more or less, according to the nature of the soil. Plenty of sunshine is needed to ripen the fruits and develop the best flavour. *H. Markham, Wrotham Park Gardens, Barnet.*

MARKET FRUIT GARDEN.

February was a very trying month for fruit growers in the south of England. The weather was so mild that vegetation became unseasonably forward; yet, at the same time, work was continually hindered by rain. We have not experienced such a wet February in my district since 1916, the total rainfall amounting to 4.18 in. There were only six days entirely without rain. However, there is compensation in the thought that fruit trees and bushes will probably benefit from the moisture. Only now, for the first time since the drought of 1921, has the ground become thoroughly saturated, as shown by the filling of wells and ponds and the running of field drains. There is no doubt that a good store of water in the soil during the winter is a great help to fruit trees.

This is a forward season, and it seems all the more so in contrast with the late spring of last year. At the end of February some varieties of Plums and Pears were just breaking into the closed cluster stage, and the leaf-curling Plum aphis had already started to breed. However, according to my records, it does not appear to be an earlier spring than that of 1921, and not so forward as that of 1920. It is early enough, though, to cause anxiety as to the fate of the fruit bloom, which promises to make a good show on Apples, Plums and Pears in my orchards

Winter Spraying.

February is the best month for winter spraying in a forward season, but rain and wind allowed hardly any opportunity for the work in the past month. Now the buds of Plums are really too forward. I am using nothing more drastic than copper sulphate this year, but even that scorches slightly the ends of the fruit buds. However, I have decided that this scorching is not enough to matter seriously, and I shall go on with the spraying, which is intended to prevent brown rot, and particularly that destructive form of it known as blossom wilt. The later the spraying, of course, the better the prospect of preventing disease; but there is certainly a risk of injury to the buds if it is delayed too long. Apples can safely be sprayed in March.

A Home-Made Spreader.

For the first time I have used a casein spreader in the wash, and there is no doubt that it does add greatly to its wetting and spreading powers. A plain solution of copper sulphate does not wet well where the bark is at all mossy, but tends to run into drops. The addition of a spreader overcomes this. It has also enabled me to add nicotine to kill leaf-curling Plum aphis at the same time.

The casein spreaders on the market are, for the most part, calcium caseinate, a mixture of casein and slaked lime. As the lime would react with copper sulphate I could not use one of these ready-made spreaders, so I had to find some other solvent for the casein, which cannot be dissolved in water by itself. There are several of these solvents, but borax was chosen as probably least likely to react on copper sulphate. The result is quite satisfactory; and I shall continue to make my own spreader for use with all washes throughout the season

The recipe is as follows: Finely powdered casein 20 oz.; borax, 3 oz.; water, to 2½ gallons. Mix the casein with about four pints of water, added gradually and well stirred. Make a separate solution of the borax in about a pint of water, and add to the casein. The result is a rather stiff cream. Heat gently and stir till the mixture thins down and all the casein dissolves, making a smooth solution. This is soon done, as the casein dissolves easily at 110° to 120°. Make up to 2½ gallons with water, and use 2 pints per 100 gallons of wash. It is important to dilute the spreader, say, in a pail of water, before adding it to a copper sulphate solution, or it will curdle.

I expect much improved results in spraying this season, especially with Bordeaux mixture and arsenate of lead, from the addition of the spreader. The cost of materials is only about 2d. per 100 gallons of wash.

Stored Apples.

The market for stored Apples did not show any sign of improvement until quite the end of February. Bramley's Seedling then made 1s. a bushel more than they were making in the autumn; not enough to compensate for the labour and waste. I had to sell the Bramley's Seedling from my fruit room, which has an earth floor and is dark, because the fruits were beginning to go spotty. Newton Wonder is still keeping well.

A few years ago, in a leading article in this journal, the question was raised whether well-coloured Apples kept better than green ones of the same variety. I started an experiment at the time to test this, but it got upset. This year, however, it is very obvious that the coloured Bramley's Seedling have kept best. Large, green Apples have been the first to show rot spots. I have often noticed that the smaller specimens keep better than big ones; and I would give preference to small or moderate-sized, highly coloured Apples from trees on grass, which are always firmer in texture than the larger fruit from trees on cultivated ground. However, I am not enthusiastic about storing from a commercial point of view. Growers are often censured because they do not keep a lot of Apples through the winter; but I believe that, taking one year with another, they are money in pocket if they clear out their stock in the autumn.

Apples in Clamps.

I have still some Bramley's Seedling in a big clamp, which was opened at the end of February. They were clamped just like Potatos, heaped on short grass, and covered with a layer of straw and then soil. They have certainly kept quite plump and in fresher condition than those in the fruit room. There are some rotten ones, but very few of the rest have gone spotty. I am bound to admit that these Apples, clamped just as they came from the trees, have kept better than the carefully selected fruit put into the fruit room and given every care. But they suffer from one serious fault: skin markings from the pressure caused by heaping up and covering. They cannot be worth much in the market. This puts clamping out of court for Apples that are to be sold. It is evident, however, that conditions in a clamp suit the fruit; and it might be good policy to imitate those conditions in a fruit store. The chief difference is that the clamp is much damper than any store-room, unless it be a cellar Every Apple is quite wet. It might be a good plan, even where the fruit room has an earth floor, to sprinkle water about occasionally, or even spray it over the fruit.

Feeding Fruit Trees.

Several times in these notes I have complained that we are working in the dark when we manure fruit trees. Hardly any experimental work on this subject has been done in this country. In America, however, much more has been done. I have been reading an American book which presents in one volume the fundamental facts about fruit growing which have been learned from hundreds of experiments carried out by different research stations in that country. The section dealing with manuring seems to me to be particularly valuable. In this country many of our advisers seem to have contracted a habit of recommending the application of phosphatic fertilisers and lime, and they are given to cautioning us against the over-use of nitrogen manures. American investigations indicate that phosphates, though necessary to fruit trees, are hardly even a limiting factor in either growth or cropping, because the tree, with its great root range, can nearly always find what it requires in the way of phosphates. Much the same remarks apply to potash. In the case of lime, there is apparently even less chance of benefit from its application, and even some risk of doing harm. Fruit trees, like forest trees, are remarkably tolerant of a tendency to acidity in the soil; and if we make the soil too alkaline we may prevent the trees

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from obtaining iron, which they need. The fact is that we give fruit trees, with their deep root range, the same treatment as we give to shallow-rooting crops, which utilise only the top few inches of soil. The natural home of a fruit tree is a wood where the soil is very rich in nitrogenous organic matter. Little wonder, then, that nitrogen is most often the limiting factor in the growth and cropping of fruit trees, and that plenty of organic matter in the soil is important. The old practical growers who give their orchards heavy dressings of farmyard manure, shoddy, horn meal, and other bulky organic nitrogenous materials, are probably right. There have been cases in which phosphatic manure and potash have done good, but nitrogen and organic matter are most often needed.—*Market Grower.*

NOTICES OF BOOKS.

How to Form a Company.*

This little book, which has already been of service to many hundreds of business people who have turned a private concern into a limited liability company, will continue its career of usefulness in its present form, brought up to date and in other ways improved. It is written in very clear language, and should be easily understood, even by those not accustomed to the language of company law.

By way of criticism, it might be said that insufficient space is given to the subject of Extraordinary Special Resolutions, which are alluded to in a couple of short paragraphs, but not explained; and perhaps a brief summary of the chief clauses of "Table A" would be more useful than the chapter entitled "Curiosities in Company Registrations," which, however interesting, is a little redundant in a very small book making an attempt to cover a very big subject. However, on the whole the book is excellent, and can heartily be commended to any of our readers desirous of converting their business into a limited liability company with a minimum of expense.

The Culture of Pot Plants.†

The author in this book of 154 pages, including a good index, has set himself a rather big task for the space available, leaving insufficient room for giving the cultural details for which the amateur looks. When the latter gets a greenhouse, or even a cold frame, the plants are more or less entirely in his own hands. He gets fogged in the matter of watering, ventilation and stoking, all of which are very obscure things to the beginner, as his failures tell him. The cultivation of room plants and their care are dealt with in general terms in one chapter. Annuals, herbaceous perennials, hardy and tender shrubs, scented and bulbous plants, etc., have chapters to themselves, while each chapter contains plants of the most diverse habit. This would necessarily imply a good deal of detail in order to give the beginner some idea of when to plant and sow to get the plants in bloom by a given time. In a chapter on pot plants, grown for their ornamental fruits, he gives instructions for potting Symphoricarpus racemosus any time in winter, with as many underground stems as possible. The plant is to be cut down to the soil in spring, and many dwarf shoots will arise in summer and fruit in autumn. This should be a novelty for those having unheated greenhouses. In most cases the author uses the botanical names for alphabetical arrangement, giving the common name, if there be one, in brackets. He is generally quite up to date in the use of botanical names, giving synonyms where well known, but a few slips occur. Osmanthus fragrans is illustrated by a line drawing of Jasminum officinale, Sumpervivum californicum is an old garden name for S. calcareum, Cyperus alternanthifolius is also a misspelling.

* *How to Form a Company*, by Herbert W. Jordan. London, Jordan & Sons, Ltd. Price 1s. 6d. net.

† *The Culture of Pot Plants in Rooms, Greenhouses and Frames.* By Hugh C. Davidson. London: Crosby, Lockwood and Son, 7, Stationers' Hall Court, E.C.4. Price 5s. net

HOME CORRESPONDENCE.

Gardens at Olympia.—After reading your note on "Gardens at Olympia," p. 128, I visited the Ideal Home Exhibition, and was interested in how well your observations coincided with my idea of the garden attractions. To my mind the most natural garden, with everything in keeping with springtime, was the one planted by Messrs. J. Carter and Co. (Fig. 72), with Daffodils, Crocuses, Prunus triloba and Rhododendron praecox, associated with grass and water, against a background of Conifers. Taking the garden section as a whole, there is more to be learned from the designs and architectural features than from the methods of planting, but of course one must make due allowance for the difficulties natural to such an early date; what would not be tolerated at Chelsea or Holland Park is overlooked at Olympia. I confess to admiration for Messrs. Winder and Thomson's model garden—house, tennis lawn, Rose garden, pergola, herbaceous borders, fruit and vegetable garden, fruit trees on walls, and tea house—all complete on the space about the size of an ordinary dining-table. The Cypress hedges were of real material, but all else was artificial, and yet so well done as to entirely redeem the model from that Noah's Ark style all too common in such efforts. I consider a word of praise is due to the artist who arrayed the scenic background for the exhibits next the wall. *C. B.*

FIG. 72.—MESSRS. J. CARTER AND CO.'S SPRING GARDEN AT OLYMPIA.

Gardeners' Wages.—Under "Answers to Correspondents," in your issue of February 17, appeared a reply to *J. Med*, in which it is stated that 50s. to 55s. per week, with cottage, etc., is a fair wage for a gardener (head and experienced, I take it?). Do you, in all seriousness, think any head gardener with a position to uphold can live on such a low wage at present, considering the price of living? In spite of what we read about the cost of living coming down, most gardeners living far from shops still have to pay high prices for all commodities which tradesmen deliver. I do not know who is responsible for the answer referred to, but evidently the writer has never lived on a large country estate. One has only to glance down the list of pensioners of the Gardeners' Royal Benevolent Institution to discover what a poorly paid profession gardening is, and even this list only gives a few names of men who have formerly held positions under wealthy people. It is a pity their former employers do nothing for them in their old age and failed to pay a fair wage during the time they were having the best out of them. For *The Gardeners' Chronicle* to state that 50s. to 55s., etc., is a fair wage is a surprise, as I have always looked to this journal to champion the cause of the "blue-aproned" fraternity. It is a fact that some men taking a small pension from the army are accepting situations at a lower wage than usual, but this is no reason why those who carried on during the war should work at starvation rates. *G. W. K.*

[For the "Answer" to which our correspondent takes exception we were indebted to a well-known gardener, who has had experience in many parts of the country, is a frequent contributor to these columns, and in active employment. We submitted *G. W. K.*'s observations to him, and he replies as follows:—"I have entire sympathy with all *G. W. K.* has written regarding the position a gardener has to maintain on a small salary, but this does not alter the fact that the wage quoted for a medium-sized establishment is all that can be obtained. Employers will not pay more, and gardeners are not combined or in a position to demand more, and the unfortunate part of it is they do not ask for more. The chief offenders are ex-service men receiving pensions and gardeners out of employment owing to the reduction of establishments, all of whom are willing to accept almost any wage. I am afraid no better conditions can be obtained until gardeners combine in sufficient numbers to demand more."—Eds.]

Rhododendrons on Limestone.—On page 107 Mr. Kingdon Ward mentions "red earth" in the first paragraph of his notes. From this I conclude the limestone is "mountain limestone," as the soil on this is distinctly red and of a warm and porous nature—as compared to the lias limestone, the soil on which is of a light grey colour, cold and retentive of moisture. So we are one step nearer the solution of this interesting problem. *J. P.*

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SOCIETIES.

ELSTREE AND DISTRICT HORTICULTURAL.

Under the auspices of the above Society a lecture, entitled "Greater Food Production," was given at Letchmore Heath, on Thursday, the 1st inst., by Mr. R. A. Ayre, farmer and market grower, who has a close practical and scientific knowledge of his calling. The chair was taken by the Rev. E. Stogdon, supported by Mr. E. Beckett, V.M.H.

Mr. Ayre divided his lecture under six headings, (1) Manures, (2) Seeds, (3) Cultivation, (4) Profitable Gardening, (5) Healthy Gardening, and (6) Aesthetic Gardening, and devoted the principal part of his remarks to dealing with chemical manures, which he stated would prove of greater importance as years went on in both gardening and farming, owing to the growing scarcity and increased value of farmyard manure, and the heavy cost of transport for what is generally known as "London dung." He placed farmyard manure first on the list in value, closely followed by a compound or complete chemical fertiliser. Dealing with what he described as unbalanced fertilisers, such as basic slag, guano and chemical guano, sulphate of ammonia, etc., he described their values and actions, and drew therefrom the inference of the necessity of compounding the various chemicals for the purpose. Lime he described as another most valuable manure, particularly necessary on heavy, cold soils. The speaker, in emphasising the value of manures, related that he spent annually well over a thousand pounds on manures for his farm and garden.

Seeds, he urged, should be the best procurable always, and dealing with the Potato, pointed to the necessity of obtaining "sets" for planting from grounds further north than one's own, and spoke of the necessity of properly sprouting them before placing them in the soil. He also stated his opinion that the seed sets should be bedded in farmyard manure, with a sprinkling of complete chemical manure at the same time.

He stated that gardening as well as farming could be made profitable if proper methods were practised, and he gave examples of experimental and practical working to this end, detailing processes in which various manures had been employed, and cases when two and three crops had been obtained from one area in twelve months.

Many questions were put to Mr. Ayre by his large audience, which he dealt with quickly and concisely, and after these had finished, Mr. Beckett, in moving a vote of thanks for such an instructive lecture, referred to having witnessed and taken the keenest interest in Mr. Ayre's highly successful methods of farming over a period exceeding 30 years, and in support of the lecturer's contention that soil inversion was essential, referred to his experience at Aldenham, where the kitchen garden, which had formerly been scratched over for more than a century, was pointed out to him on his first arrival as worked out. However, by trenching the ground 3 feet 6 inches deep and bringing up the sub-soil to the surface, he had disproved this statement, and the very first season gathered excellent crops from the condemned ground.

READING AND DISTRICT GARDENERS'.

The annual social gathering of the Reading Gardeners' Association was held in the Abbey Hall on the 28th ult., when two hundred and fifty members and friends spent an interesting and enjoyable evening. The hall was decorated with a large number of Cinerarias, Daffodils, Irises and Palms from Messrs. Sutton's trial grounds, and Daffodils, Tulips and Primulas from the Vice-President's gardens, Hillside. The President, Mr. Councillor Frank E. Moring, presided, and he was supported by Mr. Councillor T. Haldron (Honorary Member) and the Social Sub-committee. The proceedings included a musical entertainment and a burlesque play. During the interval refreshments were provided by the President.

ROYAL HORTICULTURAL.

March 13 and 14.—The cold and stormy weather experienced on March 13 did not affect the exhibition at the Royal Horticultural Hall, nor did it appear to reduce the number of visitors. The exhibition was a fine one, and consisted chiefly of Orchids, Carnations, Daffodils, Hyacinths, early spring flowers, and Rhododendrons, but the two outstanding exhibits were those of gorgeous Clivias shown by Sir George Holford, and of Hyacinths arrayed in a huge formal bed on the floor, by Messrs. Sutton and Sons.

Her Majesty the Queen paid a visit to the hall on the first day, and came unannounced. Sir George Holford and Mr. W. R. Dykes acted as escort, and Her Majesty stayed quite a long time, inspecting every exhibit, and in several cases chatting and shaking hands with the exhibitor. Needless to state, this gracious Royal patronage of the first two-day show of the season was very greatly appreciated.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson (assistant secretary), A. McBean, W. H. White, Arthur Dye, J. T. Barker, H. T. Pitt, H. G. Alexander, Henry H. Smith, W. J. Kaye, Frederick J. Hanbury, J. Wilson Potter, C. J. Lucas, R. Brooman White, Stuart H. Low, Fred. K. Sander and Chas. H. Curtis.

First-Class Certificates.

Cymbidium Merlin, Westonbirt var. (*Dryad* × *Alexanderi*), from Lt.-Col. Sir Geo. L. Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander). A model flower of the largest size among the many favourite crosses with C. Alexanderi, at Westonbirt. The broad segments of wax-like substance were Tea-rose blush, the lip being freckled and spotted with ruby red in front, and the upper side of the column dark claret; the plant bore six flowers.

Odontoglossum Llewellyn (*amabile* × *Georgius Rex*), from H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood). The plant shown was the original type raised by Messrs. Charlesworth, and for which a Preliminary Commendation had been given in its seedling stage. The plant, as now shown, had a very strong spike of large and perfectly formed flowers of an intense ruby-claret colour, with white front to the lip and some slight white markings on the margin.

Awards of Merit.

Odontonia Dora (*Miltonia Bleuana* × *Odm. Dora*), from Messrs. Charlesworth and Co., Ltd., Hayward's Heath. One of the most refined of the Odontonias raised by the firm; the large flowers were intermediate in form between the parents, the Miltonia showing more strongly in the front. The broad sepals and petals are heavily blotched with rosy mauve on the inner two-thirds, the outer being blush white; the broad lip had ruby markings in front of the crest and rose-pink interior lobe, with some rose lines.

Cymbidium insigne rhodochilum, from Messrs. Sanders, St. Albans. Two superb varieties of their original C. insigne Sanderi type were shown, both being of great beauty and exhibiting the rich crimson purple lip not yet produced in any of the hybrids. The flowers of the variety rhodochilum bore two spikes of large blush white flowers, the broad, well expanded lip being ruby-red in varying shades.

Cymbidium insigne St. Andre, from Messrs. Sanders. A large and finely formed flower, white with slight pink lines over the veining, and rich purple lip.

Groups.

Messrs. Sanders were awarded a Gold Medal for a large and well-arranged group containing a large selection of fine hybrids and species for the season, and all exceedingly well grown. The fine Cymbidiums were an outstanding feature, the new C. Adonis (Pauwelsii × Coningsbyanum) being one of the best and distinct in size and shape. At the back were showy Dendrobiums, all well grown and freely bloomed. Odontoglossums and Odontiodas were well shown, the scarlet of the latter giving good effect. Among the Cattleyas, C. Tityus var. Dreadnought, an enormous deep rose flower, with very broad crimson-purple lip, and a fine, large white C. Suzanne Hye de Crom, still a leading form, were noted. Laelio-Cattleyas were well represented, and a very large number of old, but now rare species, including the true Laelia Jongheana, the little orange L. harpophylla, the yellow Laelia flava, Masdevallia civilis, the rare M. xipheres, M. simula, Xylobium leontoglossum, the charming carmine Cochlioda rosea, Bulbophyllum tremulum, and other Bulbophyllums, the little blue Vanda coerulescens, an interesting selection of Coelogynes, and good Oncidium Cavendishianum.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), was awarded a Silver Banksian Medal for a good group specially well furnished with Odontoglossums and Odontiodas. Among the former, his fine, white forms of Odm. crispum, including Zenobia, were remarkable and arranged well with the many richly coloured Odontiodas, the best being Oda. Cardinal, which has not yet been surpassed. At the back of the group were three fine specimens of the rare Neo-Moorea irrorata, with species of Odontoglossums and Oncidiums.

Messrs. Stuart Low and Co., Jarvisbrook, Sussex, were awarded a Silver Flora Medal for a showy group of Odontiodas, Odontoglossums and Sophro-Cattleyas. The centre of the group was of white Cattleyas, and the rich red Oncidioda Stuart Low, with its twining sprays of showy flowers arranged well with them and the brightly coloured Sophro-Laelio-Cattleya Marathon and other Sophronitis crosses; Laelia Jongheana, L. flava, L. harpophylla, fine specimens of Dendrobium Brymerianum and other Dendrobiums, both hybrids and species were also shown.

Other Exhibits.

Lt.-Col. Sir Geo. L. Holford, K.C.V.O., showed Cymbidium Kittiwake, Westonbirt variety, with eleven milk-white flowers, rose-mottled on the lip; and C. President Wilson, Westonbirt var. (Lowianum × Alexanderi), a very showy hybrid with strong features of the best C. Lowianum, but much improved.

The Duke of Marlborough, Blenheim (gr. Mr. J. T. Barker), showed Brasso-Cattleya Peace (B.-C. Digbyano-Mendelii Fortunei × C. Dusseldorfei Undine), a very fine white form, and Cypripedium Moonstar (Boltonii × niveum), a good white with minute purple dots.

Pantia Ralli, Esq., Ashtead Park, Surrey (Orchid grower, Mr. Farnes), sent Brasso-Cattleya Albion, a good, pure white of model form.

Messrs. Charlesworth showed Odontonia Sheila (Miltonia Bleuana × Odm. Lambeanianum), with five handsome flowers.

Floral Committee.

Present: Messrs. H. B. May (in the chair), D. B. Crane, Chas. E. Pearson, G. W. Leak, W. P Thomson, John Heal, C. Williams, W. Howe, Chas. E. Shea, W. B. Gingell, C. R. Fielder, J. B. Riding, J. F. McLeod, H. J. Jones, G. Reuthe, Clarence Elliott, W. Cuthbertson, W. J. Bean, Reginald Cory, Jas. Hudson, R. W. Wallace, R. C. Notcutt, W. B. Cranfield, Hugh Dickson, and W. G. Baker.

On opening the business of the committee, Mr. May said: "It is with unfeigned regret I refer to the great loss horticulture has sustained by the death of Mr. Wilks. By that sad event the R.H.S. is bereft of its greatest secretary, for it is not too much to say that the status of this great Society as we know it to-day is mainly due to his untiring energy, his great industry and sagacity. A man of many parts, his predominant characteristic was, I think, his capacity for work. Labour was to him an absorbing pleasure; letter writing a delightful pastime. Of his critics few could resist the lure of his magnetic personality and his charm as a conversationalist His great but laudable ambition was to make the Society he loved so well the greatest of its kind in the world—who shall say he failed? A great figure has gone from

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our midst. May he rest in peace." All the members present joined with the chairman in this expression of appreciation, sympathy and loss.

Awards of Merit.

Saxifraga Valerie Keevil. A pretty encrusted Saxifrage, with very small, narrow leaves, making a wee little plant rising about three-fourths of an inch high. It sends up three-inch stems on which are carried one or two rounded flowers of a deep purplish rose colour, with purplish maroon centre. Shown by Messrs. M. Prichard and Sons.

Clivia Westonbirt Perfection. A grand variety, of splendid form, its big flowers combining to make an enormous truss. The colour is deep orange, shaded with scarlet and with a soft yellow throat.

Clivia Lady Holford. In this variety the colouring is very soft and beautiful—pale apricot with soft yellow throat. The flowers are of excellent form and carried in a huge truss.

Clivia Field Marshal. In point of colour this variety is intermediate between the two others named. It may be best described as soft orange with a pleasing shade of yellow in the throat. In form of flower and size of truss this is as fine as the other varieties deservedly honoured.

The three foregoing varieties of Clivia were exhibited by Sir George Holford (gr. Mr. Clark), Westonbirt, Tetbury, Gloucestershire.

Groups.

The magnificent collection of Clivias from Lt.-Col. Sir Geo. Holford, C.V.O. (gr., Mr. F. R. J. Clark), Westonbirt, Tetbury, created almost an *impasse* in the hall. The splendidly grown plants, each bearing several magnificent trusses of bloom, made a memorable show, and it may be confidently stated that their equals have never before been seen at any exhibition. The three new varieties were prominently placed, and were shown in quantity. Although they suffered somewhat in comparison with the stately Clivias, the marginal groups of Lachenalias were of great excellence, and if shown alone would have won even more admiration than was the case (Gold Medal).

Of quite distinct character, yet replete in attraction, was the Gold Medal exhibit of Hyacinths superbly arranged by Messrs. Sutton and Sons. These were displayed on a large oval floor space in the body of the hall. The firm wisely resisted what might have been a temptation to relieve the regularity of the flower spikes with some other species, but Messrs. Sutton and Sons contented themselves with a small central grouping of Pyrus Malus varieties in full bloom. The very many Hyacinths were set out in colour blocks radiating from this centrepiece, and the effect was magnificent. Large numbers of pot plants in many varieties were employed, and of these such sorts as King of the Blues, the darker blue Menelik, Queen of the Pinks, La Victoire, Dr. Lieber, and Enchantress compelled unstinted admiration (Gold Medal).

On a table space Messrs. R. and G. Cuthbert displayed many well-grown Hyacinths in such sorts as City of Haarlem, Queen of the Blues, Lady Derby and Ivanhoe (Silver Banksian Medal).

Hyacinths were the chief feature of the attractive exhibit arranged by Messrs. J. Carter and Co. These included such sorts as Corregio, Duke of Westminster, Marconi, and Orange Above; the last, of uncommon name, is a shade of orange. In the centre there was an imposing group of King Alfred Daffodil. Tulips were also shown, and the many plants were pleasantly interspersed with Maidenhair Ferns (Silver-gilt Flora Medal).

Polyanthuses of a particularly good strain were again shown by Mr. G. W. Miller, who included several particularly well laced flowers. Their excellent True Blue Primroses were shown by the Chalk Hill Nursery Company in greater quantity and in even better colour than at the previous meeting. They also included a very fine vase of Crown Imperials. In an interesting collection of spring flowers Mr. F. G. Wood arranged several batches of very floriferous double Primroses.

There were many exhibits of Alpine flowers. Mr. Clarence Elliott made a pleasing little rockery, and furnished it with appropriate plants, amongst which Saxifragas predominated, and of these S. Greisbachii and S. apiculata alba were very interesting. He had a bush of Thymus vulgaris argenteus of very good type (Silver Banksian Medal). Associated with Alpines in the exhibit of Mr. G. Reuthe was a small collection of Rhododendrons and sprays of Prunus Pissardii (Silver Banksian Medal).

Adjoining a good group of Azaleas of all types Messrs. W. Cutbush and Son displayed a well-conceived alpine garden. Messrs. R. Tucker and Sons included several plants of Saxifraga Sundermanii (of Kew), a free flowering white species, S. Sartori, S. dalmatica, and Draba aizoides. Mr. Maurice Prichard had a goodly batch of Primula capitata; while Messrs. Carter, Page and Co. included attractive groups of Anemone Pulsatilla. In an exhibit by Mr. W. Wells, junr., there were Primula marginata and Pulmonarias of good quality. Messrs. Waterer, Son and Crisp included Anemones and Azalea Hinomanyo in their exhibit of spring flowers. Messrs. Baker's, Ltd., had a fascinating model of a rock garden and pool.

Roses were well shown by several exhibitors. Mr. Elisha Hicks staged Columbia, Padre, Premier, La Fayette, and an attractive vase of Coral Cluster (Silver Banksian Medal). An arch of Fortune's Yellow in the collection of Mr. G. Prince attracted a great deal of admiration, as also did the vase of the new Allan Chandler, a rich crimson bloom that is very shapely in the bud state.

Carnations of considerable merit were shown by Messrs. Stuart Low and Co., who gave prominence to Red Ensign, Mrs. T. Ives, Arnos Grove, Hon. Nita Weir and Violet Mond. Adjoining these they had well-flowered Mimosas, Cyclamen, Epacris and other greenhouse plants (Silver Flora Medal). Messrs. Allwood Bros. had many splendid Carnations, including Edward Allwood, Wivelsfield Apricot, Mary Allwood and Wivelsfield Beauty. Varieties largely grown for market purposes were shown by Mr. C. Engelmann, who included Topsy, Jazz, Bona, Circe and Benora.

Messrs. W. Artindale and Sons staged an excellent collection of Primula obconica, illustrating a good strain of this useful decorative plant. Such Clematis as Miss Bateman, Sir Garnet Wolesley, with Camellias, Wistarias, and Jasminum primulinum were shown by Messrs. L. R. Russell, Ltd. (Silver Banksian Medal).

A very attractive display of forced shrubs was made by Messrs. R. Wallace and Co., who used Laburnums, Wistarias, Viburnum Carlesii, Azalea malvatica, and Brooms to grand effect (Silver Banksian Medal). Andromeda floribunda figured largely in a collection by Messrs. J. Cheal and Sons, who also showed several species of Helleborus. Messrs. J. Piper and Sons had a good plant of Veronica Hulkeana in their exhibit.

A very showy collection of Rhododendrons from out-of-doors was staged by Messrs. R. Gill and Sons. The varieties Bernard Gill and Beauty of Cornwall were especially attractive. They also showed their giant strain of Anemones, and very many spathes of Richardia, apparently from the open. On the "New Plant" space Mr. Lionel de Rothschild showed a magnificent truss of Rhododendron Lord Milner, of bright crimson colouring, and one of the fine R. calophytum; while Mr. M. E. Stevens showed R. Louise Stephens and R. Coverwood, two good deep crimson sorts.

Narcissus Committee.

Present: Messrs. R. Wallace (in the chair), J. W. Pearson, W. Poupart, F. H. Chapman, H. G. Hawker, Herbert Smith, W. B. Cranfield, Reginald Cory, G. Churcher, J. W. Jones, G. W. Leak, G. Reuthe, and Charles H. Curtis (hon. sec.).

The Chairman made reference to the loss the Society had sustained by the death of the Rev. W. Wilks, and it was agreed that an expression of the committee's appreciation of Mr. Wilks' services to horticulture be placed on the minutes, and also sent to the Council.

Awards of Merit.

Narcissus Great Dane.—Although exhibited as a show flower, this fine trumpet Daffodil promises to be useful for garden decoration as it appears to have good constitution. The big, bold handsome flowers are held in good position by the stout stems, and though the broad, soft yellow perianth segments leave something to be desired in respect of form, the trumpet is particularly attractive, being rich yellow, with a broad, recurving, frilled mouth. Shown by Messrs. Barr and Sons.

Narcissus Golden Empress.—This is a showy trumpet variety raised in Holland by Messrs. de Graaff. The flowers are bold, and carried on stout stems; in form they are shapely and well proportioned. The colour is rich golden yellow, and the trumpet is prettily frilled. Shown by Messrs. Barr and Sons.

Narcissus Golden Herald.—We regret that in our issue of March 3, p. 125, Narcissus Golden Herald was inadvertently named King Herald.

Preliminary Commendation.

Narcissus Fortune. — A beautiful incomparabilis variety of perfect form; the spreading, rounded perianth segments are deep yellow, and the wide, frilled crown is rich orange yellow. Flowers of this variety are, we believe, already being sent to market. Shown by Messrs. Herbert Chapman, Ltd., Rye.

Groups.

Large-flowered trumpet varieties were again very prominent in a collection of Narcissi, well arranged by Messrs. Barr and Sons. Besides such named sorts as Shylock, King Harold, Silvanite, Vivian Gosnell, Gwendolin and General French, there were many splendid seedlings. Sea Nymph, a small bloom, with an apricot-coloured tube, attracted a deal of admiration, while the vivid corollas of Lucifer, Sunrise and Lady Bird made them very attractive. The incomparabilis variety Mermaid was also of much more than average merit. Adjoining the Daffodils Messrs. Barr showed alpines and Fritillarias (Silver-gilt Flora Medal).

The collection of Narcissus blooms from "home-grown bulbs," arranged by Messrs. J. R. Pearson and Sons, was exceedingly creditable and the arrangement was distinctly good. The chief varieties were Firebrand, Vega, Mrs. R. Sydenham, Gipsy Queen, Florence Pearson, Brilliancy, Phantasy and February Gold, the last-named being a small Trumpet variety, of rich yellow colour, and cut from the open ground (Silver-gilt Banksian Medal).

Massed varieties were displayed by the Donard Nursery Company, who used such sorts as Southern Gem, Quicksilver, and a good seedling of the Leedsii type, and Gog and Magnificence of the deep yellow trumpet varieties (Silver Flora Medal). Had the weather been more kindly so that the Darwin Tulips had opened a little more, the collection of bulbs in fibre, so well arranged by Messrs. R. H. Bath, Ltd., would have gained in attraction, though such sorts as Bleu Aimable, Prof. Michael Foster, and Flamingo well illustrated their value. At one end there was a generous quantity of cut spikes of Chionodoxa Luciliae, which was greatly admired by many of the visitors (Silver Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (chairman), J. Cheal, H. S. Rivers, P. C. M. Veitch, W. Poupart, W. G. Lobjoit, S. B. Dicks, Geo. F. Tinley, Owen Thomas, Ed. Beckett, H. Markham, F. Jordan, G. Reynolds, Geo. Kelf, G. Weston, G. Woodward, W. Bates, W. H. Divers, J. Basham, H. V. Taylor, and N. Rawes.

The Chairman referred to the great loss the Society and the Fruit and Vegetable Committee have sustained in the death of Mr. Wilks. He stated that it needed no words of his to prove the important part Mr. Wilks played in British horticulture, for the present position of the Royal Horticultural Society was almost solely due to his efforts. The members of the committee would miss his cheery presence and valuable advice in their deliberations. It was resolved to send a letter of condolence from the

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committee to the relatives of the deceased reverend gentleman.

Mr. P. C. M. VEITCH showed from the Royal Nurseries, Exeter, some splendid fruits of Apple Lord Hindlip, which received a First Class Certificate on February 8, 1898.

Messrs. SUTTON AND SONS were awarded a Silver Knightian Medal for a collection of vegetables, comprising splendid heads of Snow White, Easterside and Reading Giant Cauliflowers; Excellent A1 and Improved Reading Onions; very large new Red Intermediate and matchless Scarlet Carrots; Sutton's Black Beet; fine tubers of Majestic and other Potatos; also Leeks, Scorzonera, Salsafy, Witloof Chicory, Perpetual Spinach, Stachys tuberosa, Black Spanish Radishes and Kales, ornamental leaved sorts of the last being utilised as a centre-piece.

Obituary.

George Maclennan.—A greatly esteemed and highly accomplished gardener, Mr. George Maclennan, died on Thursday, the 8th inst., at the ripe old age of 80 years. Born in Stonehaven, the county town of Kincardineshire, he entered as a young man the gardens at Fetteresso, near Stonehaven, the property of the Duffs of that ilk. Here he had charge for nearly fifty years, his service extending in all to nearly sixty years. In his heyday, Mr. Maclennan had some fine work to his credit, and for many years his name as a prize-winner was very prominent at leading horticultural exhibitions. He also did capital work as a judge, and his knowlege and kindly advice were ever at the command of those in difficulty or doubt. Mr. Maclennan retired a few years ago to live with a married daughter in Aberdeen. A few weeks ago he went on a visit to another married daughter in Torquay, Devonshire, where he was overtaken by the serious illness which ended fatally. He was predeceased by his wife, and is survived by one son and two daughters.

Edward Owen Greening.—The world has lost a man of striking personality by the death, on the 5th inst., of Mr. Edward Owen Greening. The deceased gentleman was in his 87th year. Born at Warrington, he remembered the difficult times of his earlier years, and doubtless his early experiences led him to see the advantages of co-operation, for in the great co-operative movement he was one of the pioneers; Bright, Cobden, Hughes and Ruskin were his friends. So far as horticulture is concerned, Mr. Greening will be remembered as the organiser of the great Co-operative Flower Shows held annually at the Crystal Palace in pre-war days; and as managing director of the One and All Horticultural and Agricultural Association, and of One and All Seeds. For fifteen years he was chairman of the Co-operative Festival, of which the flower shows already noted were a part. He was a man of unflagging energy, fine appearance, and boundless optimism; a capital speaker and genial companion. At one period of his life he was responsible for the publication of a large number of booklets dealing in homely fashion with popular flowers.

The Earl of Plymouth.—The late Earl of Plymouth, who died on Wednesday last, was a keen horticulturist, and the gardens at both St. Fagans Castle and Hewell Grange are amongst the most important in the country. St. Fagans is a very beautiful estate, and the gardens are of great extent, containing many fine horticultural features, the situation and natural scenery lending themselves admirably for the making of a first-class garden. Hewell Grange is celebrated for the fine examples of topiary work which the gardens include. Both these gardens are maintained in a high state of excellence, the former under the skilful care of Mr. Hugh Pettigrew, and the latter formerly under the care of his brother Andrew, who is now superintendent of the public parks and gardens of Cardiff; the gardens at Hewell Grange are now under the care of Mr. F. Molyneaux. The late Earl of Plymouth was a very busy man, but in spite of the many calls on his time he had consented to preside at the annual festival dinner of the Gardeners' Royal Benevolent Institution in July next, and the announcement of this fact was made in our last issue, on the eve of our going to press, just before his sudden decease.

The death of The Right Hon. The Earl of Plymouth removes from amongst us one of the finest types of English nobleman it has been my good fortune to meet. During the seven years I was gardener at Hewell Grange, I came in contact with him a good deal, and a walk round the gardens with him was always a pleasure and a joy, as well as educative. The charm of Hewell lies in its sense of restfulness; somehow it breathes the spirit of peace, a refreshment to mind and body. The late Earl loved to spend his week-ends in its finely wooded grounds with its varied bird life, a veritable bird sanctuary. During his convalescence after a long, trying illness, he made rapid progress once he was able to be taken to inspect the trees and flowers he knew so well. He had his likes and dislikes; a Rose without scent was anathema to him, yet all sweet-scented flowers were a delight, and he was fond of picking these for his study table. The following incident will suffice to show the great man he was. In the early spring of 1917, when it became evident that there was a serious shortage of Potatos, he gave me instructions not to send any more for the use of the household, but to reserve them for the less well-to-do who could not afford to buy substitutes; how grateful these people were is known only to myself. When I decided to leave private for public service, I left Hewell with a heavy heart knowing that in leaving Lord and Lady Plymouth I was parting with employers much above the average in their consideration for others, and shall always regard as a signal honour his travelling from London to be present at my presentation on leaving. How memorable are his words that night: "Whatever changes may come to us in life, they can never take from us the happy memories of the past." I have only such of Lord Plymouth. On the bowling green he was just one of ourselves; he simply could not tolerate the sycophant, and had the happy knack of putting everyone at their ease. A man of few words, yet he was always unstinted in his appreciation of work that met with his approval. "I shall not look upon his like again." *James J. Graham, Heaton Park, Manchester.*

TRADE NOTES.

Messrs. CHARLES H. PUGH, LTD., of Whitworth Works, Birmingham, have, in addition to their useful and reliable lawn mowers, a mechanical edge trimmer, by means of which margins of lawns and turf around flower beds may be kept perfectly true to line, and cut far more accurately and with greater speed than is possible with an ordinary edge-cutting tool. The same firm has also a device which may be attached to an Atco lawn mower. This is known as the Atco Turf Cultivator, and it bears spikes at quarter-inch intervals, which, when revolving at considerable speed, while the mowing machine is in use, act as a cultivator of the turf, while the inventors claim for it that it also serves to destroy Plantains, Daisies and other fleshy-leaved weeds, loosen mossy growth and encourage the growth of the finer grasses.

DEALERS in implements and horticultural and agricultural sundries, who may wish to exhibit at the exhibition the Royal Dutch Agricultural and Horticultural Society will hold in Amsterdam in September, should communicate with Messrs. Gebruederes Lukeij, 81, Haarlemmerstraat, Amsterdam, who are the concessionaires of the available space.

As a result of the Chamber of Horticulture's recent deputation to the Ministry of Agriculture, and the supporters of the new Merchandise Marks Bill, a special clause has been inserted in the Bill, ordered by the House of Commons, on February 16, 1923, to be printed. This clause relates to the prohibition of the importation of raw fruit or vegetables or fruit pulp unless such produce either is contained in a package on which there is conspicuously branded or stamped the name of the country in which the same was produced, or the word "imported," or, in the case of any article which may be exempted from such requirement by a regulation made by the Ministry of Agriculture, is contained in a package to which is attached a label bearing such name or word. This Bill will come up for the second reading in the House of Commons on March 16 next, and will then be referred to Committee.

Arrangements in connection with the Ghent International Exhibition are proceeding favourably, but it is hoped that additional offers to participate in the collective British exhibit will be received during the present month. The exhibition takes place on April 14-22, and the importance of making the British section worthy of the great traditions of British horticulture cannot be emphasised too strongly. Firms able to help in the floral displays are earnestly asked to communicate with the Secretary of the Chamber of Horticulture, 18, Bedford Square, W.C.1, from whom particulars can be obtained. All transport arrangements are being made, exhibitors only having to forward exhibits to London. Continental countries are making a great effort at this quinquennial exhibition, and it is to be hoped that the British display will not only equal that of other countries, but excel, as at Antwerp in 1920.

ANSWERS TO CORRESPONDENTS.

BLEACHED LEAVES OF RAPHIS FLABELLIFORMIS AND DRACAENA: *E. S.* No signs of fungous disease could be found in the Palm or Dracaena leaves submitted, but they were badly infested with scale insects. The leaves should be carefully sponged with a soapy insecticide, and a piece of bluntly-pointed stick may be used to remove the scales which adhere closely to the prominent veins on the underside of the leaves, but this should not be used in such a way as to damage the epidermis of the leaf. The bases of the leaf stems should also be carefully examined, as they may contain some of the scale insects.

DIANTHUS CAESIUS: *G. E. M.* There should be no difficulty in propagating this Pink if the cuttings are taken in June, inserted in sandy soil, and kept in a close frame until they are rooted. Do not pot them off until the autumn, but grow them in a cold frame in the cutting pots. This Dianthus may also be increased by means of layers, like the Carnation. Stopping should not be done at the same time as potting; it is best to defer this until the roots are again active.

PROPAGATING JAPANESE ACERS: *Mrs. J.* Cuttings of Japanese Maples may be rooted under similar conditions to those suggested for Viburnum Carlesi. The usual method, however, of propagating Acers is by grafting in early spring and budding in summer, using one of the common Maples as a stock.

BROWNED FERN FRONDS: *D. C.* The young Maidenhair Fern fronds have evidently been allowed to remain moist for a lengthy period, and the pinnules have adhered. A poor circulation of air, coupled with low temperature, may have added to the trouble. If the plants had been allowed to become dry at the roots, the fronds would have shrivelled.

NAMES OF FRUIT: *G. H. F.* 1, Court of Wick; 2, Grange's Pearmain. *A. B.* Winter Ribston. *W. H. W.* An Apple known in Kent as Bastard Blenheim.—*J. G. and Co.* Knight's Monarch.—*F. D.* 1, Dean's Codlin; 2, Round Winter Nonesuch; 3, Tower of Glammis; 4, Baumann's Winter Reinette; 5, Lord Burghley.

NAME OF PLANT: *T. O. C.* Antirrhinum Asarina.

Communications Received.—G. P.—J. S.—E. S.—L. G. B.—W. B. C.—E. B.—O. T.—E. K.—J. G.—W. E. T.—E. H. F.

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THE
Gardeners' Chronicle
No. 1891.—SATURDAY, MARCH 24, 1923.

CONTENTS.

Alpine garden, the—
Ranunculus glacialis 157
Vinca herbacea .. 157
Amsterdam, International Horticultural Congress at 155
Asparagus 165
Bedford, Mr. A. .. 156
Bog garden—
Lychnitum camtschaticense .. 157
Books, notices of— 160
Chrysanthemums, late flowering 165
Foreign correspondence—
Cultivation of Asparagus 165
Forrest, Mr. G., and Mr. F. Kingdon Ward, return of .. 156
Fruit register— 165
Garden Notes from S.W. Scotland .. 162
"Gardeners' Chronicle" Seventy-five years' ago 157
Gardeners' wages .. 166
Ghent Show, British and Irish members of the International Jury at 156
Gladioli, origin and evolution of summer-flowering 164
Hardy flower border— 159
Journal, a new horticultural 155
Law notes 167
Maiden, Mr. J. H., honour for 155
Ministry of Agriculture, Intelligence Department of 155
Montbretias, the culture of 166
National Institute of Agricultural Botany 156
Obituary— 167
Olympia, gardens at .. 166
Orchid notes and gleanings— 160
Plants, new or noteworthy— 159
Plants, the naturalisation of 164
Potato, degeneration of the 157
Primulas for home decoration 166
Robinia Pseudacacia, poisonous pods of .. 166
Romneya Coulteri .. 166
Rue 161
Salads, winter .. 166
Societies—
Leeds and District Market Gardeners' 167
Reading and District Gardeners' .. 167
Royal Caledonian Horticultural .. 167
United Horticultural Benefit & Provident 167
Trees and shrubs— 161
Ward's, Mr. Kingdon, seventh expedition in Asia 162
Week's work, the .. 158
Wilks, the late Rev. W. 155
Wisley, notes from .. 163

ILLUSTRATIONS.

Apple Lord Hindlip 165
Bedford, Mr. A., portrait of 156
Chivas, Sir George Holford's Gold Medal Exhibit of 163
Deutzia Fargesii, fruits of 161
Ranunculus glacialis 157
Rhododendron praevernum 159

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 42.1°.

Actual Temperature:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, March 21, 10 a.m. Bar. 30.1; temp. 48°. Weather—showery.

The Intelligence Department: Ministry of Agriculture.

Horticulturists who read the *Report* (1919-1921) of the Intelligence Department of the Ministry of Agriculture, will be gratified with the evidences which it provides that the Ministry is combining to display generous solicitude for the progress of "small" as well as that of "large" cultivation. The Horticultural Division at the Ministry, established some years ago, has been maintained, and although it may not possess the large measure of independence enjoyed by other Divisions, it would seem to have ample scope for the exercise of initiative. Among the duties which fall to the Division are those concerned with the development of allotments. At the present time the allotments of England and Wales number 1,330,000, and are estimated as being capable of supplying two million people with Potatos and vegetables throughout the year. There would seem to be no insuperable reason why this number should not be increased. There was naturally a fall in the number of allotments after the war, but that was due to the fact that much of the land set apart for them could not be devoted in perpetuity to allotment use. With the growth of towns the need for allotments and the difficulty of obtaining them increase, and it is therefore important that the Ministry should devote all its energies to stimulating municipal activity in the provision of increased facilities for allotment holders. Another subject, in which the Ministry of Agriculture cannot fail to be interested, is that of the provision of small gardens attached to the houses which, it is to be hoped, will be erected shortly. The need for economy and the cost of building are undoubtedly serious facts, which have to be faced, but at the same time the provision of garden space in all districts where space is to be had is a need which neither administrators nor statesmen ought to ignore. In addition to work in connection with allotments the Horticultural Division has the carrying out of measures destined to promote fruit growing. Generous provision has been made by the Ministry for research in this important branch of horticulture at the fruit stations at Long Ashton and East Malling, and at the Experimental Station at Waltham Cross. There is need, however, for a station for research in vegetable crops, and although it would be inopportune to press for its establishment now, the need for such a research station should be kept in mind both by the Ministry and by growers, so that it may be established as soon as financial conditions permit the necessary expenditure. The decision of the Ministry to do all in its power to ensure the sale of clean nursery stock has, we are convinced, the support of cultivators generally, and particularly that part of the decision which insists that imported fruit stocks shall be free from disease. The work of the Ministry in connection with Wart disease continues to engage and deserve much attention; the experimental part of this work is now carried out by the National Institute of Agricultural Botany at its farm at Ormskirk, where immunity trials are conducted. In the Advisory Council, horticulturists have the means of communicating officially with the Ministry, so the representation of any needs felt by the community is assured. It is a pleasure to record that the large and well-considered scheme for county horticultural education is making progress. Already twelve counties have appointed horticultural superintendents, thirty-five counties whole-time horticultural instructors, and forty-two part-time instructors. As part of the work of education, the Ministry has encouraged the formation of demonstration plots in the counties, and at the present time there are fifty-six fruit plots, twenty vegetable plots, three hundred and ninety Potato, and one hundred and nine demonstration allotment plots. It would be difficult to exaggerate the value which, with good organisation and correlation, is to be derived from the setting up of these little stations, each of which should be a centre for demonstrating what is best and how best to cultivate it.

Royal Horticultural Society.—The next meeting of the Committees will be held on Tuesday, the 27th inst. The exhibition will be held on two days—Tuesday and Wednesday. At 4 p.m. on the first day Dr. A. B. Rendle, F.R.S., V.M.H., Keeper of the Department of Botany in the British Museum, will give the first of the two annual Masters Memorial Lectures on "Plants and their Environment." The lecture will be illustrated by lantern slides.

The late Rev. W. Wilks.—The following communication has been sent us by the Secretary of the Royal Horticultural Society:—"At the meeting of the Council of the Royal Horticultural Society on Tuesday, March 13, Lord Lambourne spoke of the loss which the Society and the Council had incurred through the death of the Rev. W. Wilks. He said that they were meeting under the shadow of a great sorrow, for Mr. Wilks had meant much to the well-being of the Society. His great personality and his intense activity in the stormy days of the Society's early life had been of the greatest value. His ripe judgment and experience had always been at the call of anyone who wished to avail himself of them, and, though he was very determined in his opinions, he never hurt anyone's feelings, and his good temper and tact, even in the most difficult positions, had been of the greatest possible use. Lord Lambourne then moved the following resolution, which was adopted in silence:—'The Council has heard with the deepest regret of the death of Mr. Wilks, for thirty-two years Secretary of the Society. It wishes to place on record its appreciation of the great work which he did for the Society and of the untiring energy with which he was always ready to further its best interests. Its members feel that they have lost a good friend, and beg to offer their deep sympathy to his relations.'"

Honour for Mr. J. H. Maiden.—We are glad to learn that Mr. J. H. Maiden, Director of the Botanic Gardens, Sydney, and Government Botanist, has been awarded the Mueller Medal and Fund, in recognition of his botanical work. This medal was founded in memory of the late Baron von Mueller, Government Botanist of Victoria, and is awarded at each meeting of the Australasian Association for the Advancement of Science, which this year met at Wellington, New Zealand. It has been awarded for botany, zoology, geology and ethnology in the past.

Return of Mr. G. Forrest and Mr. F. Kingdon Ward.—After spending a lengthy period in the far East, on plant collecting expeditions in different districts, Mr. Forrest and Mr. Kingdon Ward made the journey to England on the same boat, and arrived safely at Southampton on March 10. Mr. Forrest at once proceeded to Edinburgh. Mr. Kingdon Ward remains in London for a while, and proposes to remain in England for a year before starting on his next expedition; he is engaged to lecture to the Royal Geographical Society in May or June, and it is hoped that he will give a lecture on the occasion of the annual meeting of the Horticultural Club, in May.

A New Horticultural Journal.—The latest country to establish a national horticultural society is Roumania, and the Society has started a journal (the first number of which has just reached us) called the *Revista Horticola*, or Horticultural Review. The paper, which is of small format, is neatly got up, and though printed in the main in the Roumanian tongue, has a few pages in French and German, so as to enable it to make the widest possible appeal in a multi-lingual country. The efforts of the Society to develop a love of horticulture in all its branches throughout Roumania are exceedingly praiseworthy, and will excite the sympathy and good wishes of all interested in gardening.

International Horticultural Congress at Amsterdam.—The Netherlands Horticultural and Botanic Society celebrates its jubilee in the coming autumn, and will take advantage of that auspicious event to hold an International Horticultural Congress at Amsterdam on September 17-23. At the same time, a great horticultural exhibition will be arranged by the Amsterdam section of the Society, from September 14-23, while the Netherlands Dahlia Society will add a special Dahlia show for the occasion. From the preliminary programme of the congress, we gather that there will be a reception and reunion on September 17, while the Congress will be opened on the morning of Tuesday, September 18, in the Great Hall of the University of Amsterdam, by Jonkheer G. F. van Tets, hon. President of the Netherlands Society. Immediately following the opening ceremony, Prof. Dr. Johanna Westerdyk, of Baarn, will give a lecture on Horticulture and Plant diseases, while Mr. Ernst H. Krelage, of Haarlem, will read a paper on the History of the Dahlia, and Mr. K. C. van Nes, of Apeldoorn, will open a discussion on the Care of the Beauties of Nature and Improvement of the Landscape Scenery in Connection with Town Planning. The afternoon session will be devoted to a discussion on the Problems of Stock and Scion, which will be opened by Prof. L. Daniel, of Rennes, Mr. R. G. Hatton, of East Malling, and Mr. O. Schindler, of Dresden-Pillnitz. This will be followed by a

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visit to the horticultural exhibition, and in the evening a reception will be given by the Burgomaster of the Town Council of Amsterdam. On Wednesday, September 19, visits will be paid to the nurseries at Aalsmeer and Haarlem. The Congress will meet again on Thursday morning, when Mr. F. J. Chittenden, Director of the Wisley Gardens, will give an account of the researches made in the Royal Horticultural Society's Gardens. Mr. E. Lierke, of Berlin, will discuss the Influence of Manuring on Fruits and Vegetables, while Prof. R. C. Punnett, of Cambridge, will discourse on the Hybridisation of the Sweet Pea, and Prof. Tschermak, Vienna, will deal with Primula Hybrids. After lunch, Mr. E. Furedi, Budapest, will discuss Horticultural Education in Hungary and the International Exchange of Pupils, while Mr. K. Dilling, Zutphen, will give a lecture on School Gardens, and Dr. F. Oledwelt, of Amsterdam, will speak on Allotment Gardens. In the evening, members of the Congress will be entertained at a dinner offered by the Netherlands Horticultural and Botanic Society. On Friday, September 21, there will be a trip from Amsterdam to Gouda, and thence by steamer to Boskoop, where the party will be received by members of the Boskoop section of the Society, and visit many of the nurseries at that famous town. The journey will then be continued to the Hague, where the members of the Congress will be received by the Minister of Home Affairs and Agriculture. For Saturday morning, September 22, arrangements have been made for an excursion to the harbour of Rotterdam in a steamer kindly placed at the disposal of the Congress by the Municipality of Rotterdam. In the afternoon the members will be welcomed at Westland by the Westland Association of Auction Societies, and will have an opportunity of inspecting a number of market gardens, where Grapes and vegetables are grown. On Sunday, September 23, members of the Congress will journey from the Hague to Utrecht and be conveyed by motor-cars to Zeist, where the Hon. President, Jonkheer G. F. van Tets, will entertain them at luncheon at his own home. After lunch the journey will be continued to Roosendaal, near Arnhem, where the Hon. Vice-President, Baron van Pallandt van Roosendaal, will receive the party. All these excursions, together with a dinner on September 20, will be offered to the foreign members of the Congress. Dr. M. J. Sirks, 62, Bergweg, Wageningen, Holland, Hon. Secretary of the Organising Committee, will supply a programme of the Congress to anyone applying for it. We understand that Her Majesty Queen Wilhelmina has graciously promised to be a patron of the International Horticultural Congress, and proposes to receive the members of the Congress at her palace at the Hague.

Trials of Flowers at Wisley.—The Royal Horticultural Society will carry out a trial of summer-flowering (outdoor) Chrysanthemums during the ensuing season. Three plants of each variety for trial should be sent so as to reach the gardens by April 30. The Society is also conducting trials of Wallflowers and Sweet Williams, and one packet of seed of each variety for trial should be sent in time to reach the gardens by April 30, and addressed to The Director, R.H.S. Gardens, Wisley, Ripley, Surrey.

British and Irish Members of the International Jury at Ghent Show.—Members of the International Jury to judge at the Ghent Quinquennial Exhibition, on April 13, have been chosen from Belgium, France, Denmark, Egypt, United States of America, Great Britain, Ireland, Holland, Italy, Luxembourg, Norway, Sweden and Switzerland. The British and Irish representatives who have accepted invitations include: The Right Hon. Lord Lambourne, Sir Jeremiah Colman, Sir George Holford, Sir F. W. Keeble, Sir F. W. Moore, Sir W. Thiselton Dyer, Rev. J. Crumbleholme, Prof. J. B. Farmer, Messrs. H. G. Alexander, G. Arluison, W. G. Baker, W. Barron, J. M. Bridgeford, J. S. Brunton, E. A. Bunyard, J. Cairns, J. Collier, Chas. H. Curtis, G. Cuthbert, C. Du Cann, W. R. Dykes, C. Englemann, R. F. Felton, A. Hill, J. H. Jolis, H. J. Jones, D. King, G. W. Leak, W. G. Lobjoit, Stuart H. Low, J. W. McHattie, C. M. Matthews, E. A. Merryweather, George Monro, W. R. Oldham, R. H. Page, W. H. Page, C. Harman Payne, Chas. E. Pearson, H. J. Pitt, L. R. Russell, F. K. Sander, J. E. Shill, J. Smith, A. Turner, P. C. M. Veitch, R. W. Wallace, W. E. Wallace, W. Watson, J. Weathers, Alfred W. White, R. White, J. Whitton and J. Gurney Wilson.

Mr. Arthur Bedford.—Mr. Arthur Bedford, gardener to Lionel de Rothschild, Esq., at Gunnersbury House, Acton, had the early advantage of a training under his father, Mr. F. Bedford, who for many years had charge of the famous and beautiful gardens at Straffan House, Kildare, where hardy plants were a special feature. Daffodils were naturalised on a large scale, vegetables and fruits admirably grown, and there were collections of Orchids, Ferns, stove and greenhouse plants, and trees and shrubs. After a thorough training at Straffan, Mr. A. Bedford went to Trinity College Botanic Gardens, where he served for four years under the late Mr. F. W. Burbidge,

MR. ARTHUR BEDFORD.

a gentleman to whom he readily acknowledges a great indebtedness. While at Trinity College Gardens he took advantage of his opportunities to visit the Glasnevin Botanic Gardens, where he became acquainted with a wide range of plants, and skilful methods of cultivation. Coming to England, he became a journeyman in the Duke of Northumberland's Gardens, at Syon House, Brentford, where he also remained for about four years, under the late Mr. George Wythes. He became greatly interested in the splendid collection of trees and shrubs at Syon House, and also extended his knowledge by means of frequent visits to Kew, which is across the river. From Syon House, Mr. Bedford entered service at Gunnersbury House as journeyman under Mr. James Hudson, of whose capabilities our readers are fully aware. Eventually, Mr. Bedford became foreman, and on the retirement of Mr. Hudson succeeded to the charge of gardens which were made famous by the late Mr. Leopold de Rothschild, and have become increasingly popular as a consequence of the interest which Mr. Lionel de Rothschild has taken in them. Mr. Bedford has shown in many ways that he is a clever gardener, and his long experience has been taken full advantage of by his generous employer in connection with his new and extensive garden at Exbury, near Southampton, where Rhododendrons are a special feature. Mr. Bedford served his fellow gardeners for many years as a member of the Committee of the United Horticultural Benefit and Provident Society, and on the occasion of the recent annual meeting of that body he was unanimously elected treasurer in succession to the late Mr. T. Winter. The high esteem in which he is held has also been further acknowledged by his election to a seat on the Committee of the Gardeners' Royal Benevolent Institution.

National Institute of Agricultural Botany.—Farmers' Clubs, Chambers of Agriculture and other bodies, or individuals interested in agriculture, are invited to visit the headquarters of the National Institute of Agricultural Botany, Huntingdon-road, Cambridge, during the coming summer. They will be able to see trials of new varieties of Wheat and Barley, in progress, on the trial ground, and a collection of different varieties of the various farm crops growing in the field. This includes a very large number of the cereals generally grown in Northern Europe. The buildings of the Institute will also be open to inspection; these include the Official Seed Testing Station for England and Wales, where testing of seeds for germination and purity is always being carried out. It is hoped that all who wish to take advantage of this invitation will communicate with the Director of the Institute, Mr. Wilfred H. Parker, in order that suitable dates may be arranged. The most interesting period for inspecting the Institute is from June to August, but visitors will be welcomed at any time.

Legacy to a Gardener.—Miss Jane Caroline Akinson, of Wylam, Northumberland, who died on December 18 last, bequeathed £100 to her gardener, Mr. T. Richardson.

A Nonagenarian Gardener.—The *North Western Daily Mail* publishes a portrait and particulars of Mr. William Shackley, gardener in the employ of Sir Joseph Hutchinson, at Ravenglass, Cumberland. Mr. Shackley, although nearly 92 years of age, is still hale and hearty, and pursues his daily avocation. He was born at Moorside, Gosforth, on September 18, 1831. Mr. Shackley has completed forty years' continuous service at Newtown, the residence of Sir Joseph Hutchinson. According to the *North Western Daily Mail*, Mr. Shackley is a man of fine physique, wonderfully upright and active. He is the father of seven children, of whom five are alive.

Partial Sterilisation of Soil.—According to Messrs. Rivière and Pichard*, arsenate of soda applied to the soil in minute quantities—about 1/3rd oz. to ten square yards—favourably affects soil fertility, increasing yields of crops in some cases by so much as fifty per cent.

Local Horticultural Societies.—Lewisham and District Horticultural Society commenced last year with a balance in hand of £54, and closed the year with a surplus of £93. The Society has a membership of 991, most of whom are allotment holders cultivating some 57½ acres of land in the borough. Mr. T. W. Sanders has been re-elected President, and Mr. J. R. Heathfield re-appointed Secretary.—Chalfont St. Peter and Gerrards Cross Horticultural Association, has decided to hold a show either in the third week in August or the first week in September; a sum of £50 is necessary for prize money, and the Society desires to raise this amount before embarking on the show.—Southend Horticultural Society had a successful year in 1922, and finished with a small balance in hand. The exhibition was one of the best in Essex, and it has been decided to hold a show this year on the first Saturday in September.—Lichfield Floral and Horticultural Society, which claims to be the second oldest society of its kind in England, having been established in 1816, has decided not to hold its annual exhibition this year.—As a result of losses incurred in three successive years, Walsall Flower Show is to be discontinued, unless a guarantee fund sufficient to meet present and prospective liabilities can be raised. The loss on last year's show was over £189, and wiped out completely a

* *Comptes rendus d. séances de l'Académie des Sciences*, CLXXIV., 7, February, 1922.

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balance in hand which the Society previously possessed.—Bury and West Suffolk Horticultural Society is reviving its annual show, which will be held on Thursday, July 12, in the Corn Exchange, Bury-St.-Edmunds.—Rutland Horticultural Society, which not only covers the whole of the county of Rutland, but also nine parishes in Leicestershire that fall within the postal district of Oakham, is holding an exhibition on Monday, August 6. At last year's exhibition there were 1,100 entries, and the schedule this year contains two new open classes for Roses. These shows are held on August Bank Holiday, and apart from the garden exhibits, include a band, concert, and other entertainments, so that the exhibition is always a great event locally.—Highgate Horticultural Society had a successful year in 1922, the membership showing an increase, and the adverse balance of 1921 has been reduced to £3 15s. 6d. Sir Robert W. Cohen has been re-elected President, Mr. G. Saunders, Hon. Treasurer, and Mr. E. H. Chitty, Secretary. The date of the annual show has been provisionally fixed for July 21.

Appointment.—Mr. Geo. H. Copley, formerly Horticultural Instructor, Leeds University, has been appointed Horticultural Superintendent to the Glamorgan County Council.

Degeneration of the Potato.—Professor M. Ducomet, of Grignon, as his conclusion from a long study of Leaf Curl of Potato, is opposed to the universally common practice of changing the seed. He states that Mons. Ch. Rivière has grown the same varieties of Potatos in the Jura for over twenty-five years, without renewing the seed, and the only result was a pathological deterioration varying with the season, but no physiological deterioration. To prove that degeneration in the exact sense of the word does not take place, it is advanced by Professor Ducomet that when the Potato is planted further north, it immediately regains its normal character. This is proved from the fact that when Potatos are grown in North Africa as an early crop, the seed Potatos from that crop degenerate and can no longer be used after the third year. The same is the case in the Canary Islands, where seed Potatos are imported from England.

Appointments for the Ensuing Week.—Monday, March 26.—Reading and District Gardeners' Mutual Improvement Association's lecture on "Weather Reports and Forecasts." Tuesday, March 27.—Royal Horticultural Society's Committees meet (2 days). Wednesday, March 28.—Mitcham, Tooting and District Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Plants in Stays.* If garden staymaking were discouraged garden skill would be promoted. It would in fact become indispensable. Hyacinths and Pelargoniums in a forcing house, unskilfully heated and constructed as such places usually are, become so feeble as to be incapable of bearing their own weight; the remedy for this is better houses or better cultivation, not a pair of stays. In the open ground the Hyacinth and Pelargonium want nothing of the sort: they are short, stiff and sturdy, and defy the storm which rushes over them. Be it observed, however, that gardeners are not necessarily blameable for the bad condition of their greenhouse plants; the blame may, and very often does, lie with those who construct and heat their forcing houses; in the eyes of whom it is only necessary to coddle a plant in order to keep it in condition. The Scythians are said to have plunged their new-born children in the icy waters of their rivers, in order to harden them. The example might be followed with advantage in gardening, where, as we have formerly stated, the fire-king does much more injury than the ice-king. Were this but done the office of the staymaker would certainly become a sinecure in gardens. Stays are used because plants are weakly; render plants robust, which is the great object of a gardener, and stays become needless. This requires no further argument. *Gard. Chron.*, March 18, 1848.

THE ALPINE GARDEN.

RANUNCULUS GLACIALIS.

The Glacier Crowfoot (Ranunculus glacialis) (see Fig. 73) is one of the most widely spread species in the genus. In addition to the Alps of Europe, it is found distributed over the whole of the Arctic regions of Asia and North America. Seldom found growing lower than 6,500 feet elevation, it is, on the contrary, more usually found near the higher summits, reaching altitudes of over 13,000 feet in the Bernese Alps. The plants are usually found growing in rough, stony ground, often in the neighbourhood of glaciers and in the crevices of rocks, where they receive an abundance of moisture.

R. glacialis is not a lime-loving plant, but is usually found upon the silica or micaceous schist in the Alps. It has been recorded as growing on calcareous rocks, but probably the closely allied R. Seguieri has been mistaken for it. The latter is found on the limestone Alps, and is more easy to grow than the plant here illustrated. With such a wide range it is natural that R. glacialis should vary to a great extent. In the typical plant the lobes of the leaves are broad when fully developed, while in the extreme form, var. crithmifolius, the lobes are almost linear. The flowers also vary much in colour, from pure white to cream and rose suffused, especially on the underside of the petals, with purple. In an early stage some forms, like var. holosericeus are thickly covered with silky hairs, but these disappear to a great extent as the plant develops.

On the Gruben Alps, in the Valais, at an elevation of 9,000 feet, I remember seeing it some years ago growing in rough, stony ground. There, where the water from the melting snow was percolating through the loose, rocky debris, might be seen large quantities of this lovely plant in all stages of growth. In height the plants vary from 3 inches to 6 inches or more, for the flowers expand soon after they appear above the ground. The roots, stem and leaves are fleshy and succulent, while the leaves are deeply three-lobed with trifid segments. Of large size and full round form, the beautiful flowers are borne singly on long pedicels.

In this country it is difficult to accommodate and grow the plant successfully for any length of time. Moraine conditions suit it best, with a rough, stony compost, and with plenty of moisture during the time that it is growing. *W. I.*

FIG. 73.—RANUNCULUS GLACIALIS.

VINCA HERBACEA.

This is one of the most distinct members of the genus, in that it is entirely herbaceous, the plant dying back to the base in autumn. Like the majority of the family, V. herbacea is a trailer, and it is even more prostrate than most. In spring it sends up slender shoots, which creep over soil or rock, putting forth, rather sparingly, pairs of fine, pointed leaves. These are followed by star-shaped, clear blue flowers, a succession of which is maintained throughout the greater part of summer.

This species appears to thrive in any position or soil enjoyed by others of its tribe, and, though it is said to root at the tips of its trailing branches, I have not yet been able to induce it to do so. As a small, single plant, V. herbacea may be disappointing, but, when allowed to cover several square feet of good, free soil, not too poor and dry, its mass of flowers will produce a remarkably attractive effect. The plant appears to be quite hardy, but where there is any doubt as to this a covering of ashes in winter should render it safe from frost. *A. T. J.*

THE BOG GARDEN.

LYSICHITUM CAMTSCHATCENSE.

Lysichitum camtschatcense is an Aroid sufficiently hardy for open-ground treatment in any garden.

It is a native of the northerly Pacific slope of America, and I have seen great patches of it in swampy ground in British Columbia, where, also, the less beautiful and unsavoury Symplocarpus, or Skunk Cabbage, flourishes abundantly.

L. camtschatcense is an herbaceous bog-plant, throwing up in the early spring large, fleshy, Arum-like leaves of a peculiar glaucous green to the height of about 1 foot. These are soon followed by the flowers, each of which gradually unfolds into a great cup-like spathe, which, though pale green at first, passes to a rich butter-yellow colour. Though best treated as a bog plant, this Arum will grow in a moist, rich border soil, provided plenty of water is supplied the roots during the season of active growth. There is said to be a white Japanese form which is similar in every other respect to the yellow type. *J.*

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The Week's Work.

THE ORCHID HOUSES.

By G. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Cyrtopodium.—The Cyrtopodiums are strong-growing plants which succeed in similar conditions, as regards heat and moisture, to those afforded Calanthes and Thunias, and a compost in which good fibrous loam is the principal material. When well-rooted and growing strongly they require frequent waterings with liquid manure. After making their growth they should be rested for a long period, giving them only sufficient water to prevent the plants shrivelling. These Orchids may be grown in an ordinary plant stove, in which they often give the best results, and when in flower they will contribute bright colour to the house.

Phaius.—When the members of this genus of Orchids have finished flowering, and their young growths are growing freely, any necessary repotting should be undertaken. They require a compost in which, provided it is porous, fibrous loam is the predominant material. Water should be applied with the greatest care to all Orchids grown in a retentive material.

Coelogyne.—It is not advisable to disturb Coelogynes unless they have outgrown their receptacles, or the compost has become sour and decomposed. In repotting them, the old soil and dead roots should be carefully removed, and the old, leafless, back pseudo-bulbs, excepting three or four behind each growing point, cut away. Pans are preferable to pots for these shallow rooting Orchids, and the receptacles should be well drained, as when well rooted and in full growth the plants require liberal supplies of water. A suitable compost consists of equal parts of Osmunda fibre, peat and Sphagnum moss, with a small quantity of good fibrous loam added. Unless the last is of the finest quality it is best left out, as it has a tendency to cause decay in the compost and make it sour. Some care is necessary in re-making the plants into specimens; the leads or growing points should be evenly arranged over the whole surface in such a manner that when the plant blooms again it is completely covered with its handsome white flowers. It may be necessary to use short pegs to hold the pseudo-bulbs in position until the plants are re-established in the compost. The flowering season of the various members extends over several weeks, and few plants make a more delightful show.

THE HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Grafting.—The operation of grafting may still be performed. Whichever method is used, clean cuts and perfect union should be effected. If clay is used for covering the grafted part, it should be watched constantly. To prevent it drying out, cover it with moss, which may be damped as occasion demands; the damp moss will also prevent the clay from cracking.

Strawberries.—The planting of young Strawberry plants that may have been deferred owing to rainy weather should now be completed without further delay. All unmulched plantations will need hoeing before the usual dry weather of spring sets in; all ground of a heavy nature will set very hard should drying winds follow the prolonged rains, and hoeing to keep the surface soil loose will be of the utmost importance in the fruit and kitchen garden. Ex-service men who were in Germany will remember the care taken by the Germans to have all their tools sharp, especially hoes and spades, a practice too often overlooked in English gardens. After hoeing, proceed with the mulching of the plants as manure becomes available.

Repairs to Walls.—From year to year the action of weather and constant nailing causes walls to become pitted with holes and sometimes in an unsafe condition. This state adds greatly to the gardener's troubles, in affording a congenial breeding ground for insect pests. Opportunities may still offer themselves to get a certain amount of wall space repointed, and old trees replaced by young and smaller ones. The blossom of certain fruit trees is developing fast, and every care must be taken against damage to the flowers by frosts. The use of smoke, or smudge fires as practised in America, to counteract frosts, does not find much favour in this country. The chief principle in their use is to delay the destructive action of the sun. The advent of morning fogs means salvation in this respect. In the use of protective material care must be taken that growing shoots do not become too tender by using an undue thickness of it.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Capsicums.—The many varieties of Capsicum are very useful for providing colour in the greenhouse during the autumn. The seed should be sown some time this month or the beginning of April, and germinated in a temperature of 55° to 60°. The plants are impatient of a check of any kind, and should not be allowed to become pot bound and starved in their earlier stages, but grown steadily on in a rich compost. As the plants are very subject to attacks of red spider, they require careful attention as regards watering and syringing at all times; they also suffer from attacks of Begonia mite and white fly, both of which must be guarded against.

Cyclamen.—Young plants of Cyclamen raised from seed sown last August that have passed the winter in thumb pots are growing freely and require shifting into sixty-sized pots. The compost should consist of rich mellow loam, to which may be added one-third its bulk of flaky leaf mould, with enough sand, or, better still, some old mortar rubble to render the whole porous. Lime in some form is essential for Cyclamen. The plants should be very carefully watered until the roots are well established in the new compost; for some time to come they should be kept fairly close and warm, with plenty of atmospheric moisture. As the season advances they should be grown in cooler conditions, with more air, until, later on, when they are in their flowering pots they may be stood in cold frames. At that stage the lights should be removed from the frames at nights in order that they may receive the benefit of dews, replacing the lights during the day, and shading the plants during bright weather. Cyclamen sometimes suffer from attacks of Begonia mite, which cripples the young leaves and also the flower buds.

Begonia Evansiana (syn. discolor).—This very old and nearly hardy Begonia is a useful subject for the greenhouse during late summer and autumn. Plants that have been stored in dry conditions during the winter should be started into growth, first shaking them out and potting them into 48-sized pots. As they need generous treatment, their final shift should be into 7-in. pots. When the plants are growing freely the roots need copious supplies of water; the plants should be afforded perfectly cool treatment at all times. This Begonia is easily increased by means of the buds it produces on the inflorescences at the end of the season.

Pandanus.—Pandanus Veitchii and P. Sanderi make fine large specimen plants for the stove; but small plants are most useful for decorative purposes generally. The plants may be readily increased at this season by means of the small side shoots, which should be inserted singly in small pots and plunged in a warm propagating case. Other species of Pandanus that are useful as small plants for decorative purposes are P. utilis, P. graminifolius, and P. Baptistii; the last is a very graceful plant with spineless leaves.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Cauliflowers.—Seedling Cauliflowers may now be pricked out into cold frames, placing them sufficiently far apart to enable them to be lifted with good balls of soil at the roots. Water them copiously after planting them, and, after a day or so, admit air freely, removing the lights entirely on warm days. Make another sowing, and again in a fortnight, to provide plants for a succession. Magnum Bonum and Purity are two excellent varieties for early sowing, whilst Early Giant and Mammoth are suitable sorts for successional cropping. Autumn-sown plants growing in frames should be fully exposed to the weather when it is not too boisterous and cold.

Celery.—The earliest Celery seedlings are ready for pricking out, about 2 inches apart, in boxes filled with sifted loam and leaf-mould in equal proportions. Make the soil fairly firm in the boxes to favour sturdy growth. The plants, after transplanting, should be grown in a warm house or frame. Water the plants with a fine rose can and damp them overhead daily. Although Celery should never be allowed to become dry at the roots, at the same time it should not be overwatered, especially when in a young state. Remove the plants to a cold frame as the weather becomes more genial. Two more sowings should be made during March to provide plants for a succession. The seedlings should be raised in warmth and then hardened gradually. When large enough, prick the seedlings off into cold frames in rich soil, in which they will make finer plants than in boxes at that time of the year. Shade and keep them close for a day or so if the weather is warm and bright, but afterwards admit as much air as possible. The trenches may be made before there is a stress of other spring work, allowing a width of 4 feet between each double row, and 3 feet between each single row. Make the trenches 21 inches wide for the double rows and 15 inches wide for the single. Take the soil out a good spit deep, forking up the ground between the rows before placing the excavated soil on it. Take out the crumbs, and then put a good quantity of well-rotted manure in the bottom, and fork this in, afterwards placing the soil from the banks back again, almost to the level of the trench. By the time the ground has settled it will be quite deep enough; indeed, there is no advantage in planting Celery too deeply. When the work is finished, lightly fork the banks over again, as these may be utilised for the growing of Lettuces and other small crops.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Vines.—In the earliest house, where the grapes were thinned some weeks since, the berries are swelling rapidly, and in many cases are at the stoning stage. Liberal applications of liquid-manure, varied with a suitable artificial manure, will be needed. When the berries are over the stoning period an application of soot, which should be well raked into the border and then watered in, will favourably influence the colouring of the berries and the general well-being of the Vine. The Vines having reached their full leaf development, all unnecessary growth should be suppressed. An equable atmospheric moisture should be maintained by damping the bare surfaces in the house more or less according to the weather. Ventilate the Vinery carefully, and do not allow the sun to raise the temperature too high before admitting a little air. No hard-and-fast rule can be laid down as to time of opening or closing the ventilators, as much depends on the aspect of the house and whether it is a lean-to or span-roofed structure. The temperature at night should range from 60° to 65°; on very cold nights it is not advisable to use an excessive amount of fire-heat, but rather allow the temperature to drop a little. Shallow borders, which require watering frequently, should be mulched; in other cases this is not so necessary.

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Thinning the Bunches.—Early and daily attention should be given to the thinning of the berries of later Grapes. To obtain shapely and symmetrical bunches suspend the top shoulders of the bunch to the wires, or to small nails in the sash bars, by means of thin strands of raffia—by thus opening out the bunch it is not necessary to thin the berries too freely on the shoulders. If any signs of red spider are noted, sponge the affected leaves carefully with weak soapy water. Houses containing Vines at the flowering stage may be ventilated slightly, both day and night—unless the weather is very severe—until the setting of the berries is completed. The flowers should be carefully pollinated by sharply tapping the rods two or three times daily. The capsules that adhere to the stigmas of Muscat grapes should be removed by lightly drawing the hand down the bunch, or by using a feather brush.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Hardy Ferns.—Ferns are excellent subjects for planting in wet nooks, shady places and under trees where the boughs are not too low spreading. Before planting dig the soil deeply, and if it is poor in quality or heavy in texture add plenty of leaf-mould and common peat, if available, while old decayed manure would be a further help. Though most Ferns prefer more or less shade Lastreas and Polypodiums will withstand a moderate amount of sunshine, while Osmunda regalis and Onoclea sensibilis delight in moist places. The smooth, green foliage of Scolopendrium vulgare has not this winter suffered in any respect from the weather, and is fresh and attractive. Established Fern groups should be lightly forked over after being cleared of weeds and decaying foliage. A mulch of leaf-mould will be cooling to the roots and provide them with nourishment.

Hardy Annuals.—Just when hardy annuals should be sown depends largely on two circumstances—the state of the soil, which varies greatly in different localities, and the purpose of growing the plants. As a general rule, the best time is from the third or fourth week in March to the first week of June, after which date, especially in cold districts, quick growing kinds of annuals only should be sown, otherwise they may not arrive at the flowering stage. Where these flowers are intended to form part of the floral display for the summer, early sowing is advisable in order that the plants may become quickly established and commence to bloom at an early date. They may be sown in rows, in circles or broadcast, as may be favoured or thought convenient. The first method is the easiest for keeping the rows clear of weeds, while the formal outline of a straight row disappears as soon as the seedlings develop into bushy specimens. Experience has taught me that the finest results with hardy annuals are from those sown at the end of the summer or in early autumn and allowed to stand the winter. Not only do these plants grow bigger and stronger, but they flower much sooner. This system of sowing is, however, seldom possible, as it would mean lifting out other plants before their display was over. To obviate this difficulty the autumn sowing should be made elsewhere and the seedlings transplanted early in the spring. If required for supplying cut blooms, the plants should be grown in special beds to obviate depleting the beds or borders arranged for effect.

Evergreens.—With most of the winter now behind us, the pruning and planting of evergreens may receive attention. Yew and Holly should be pruned or planted last on account of their commencing to grow late; the planting of these two evergreens should be deferred for another week or so. Some growers wait until the beginning of May to plant Holly; it may, however, be successfully planted earlier. In pruning ordinary shrubs do not shear them closely; close shearing should be only practised when a hedge is intended to form a flat background, or to preserve a straight line.

PLANTS NEW OR NOTEWORTHY.

RHODODENDRON PRAEVERNUM.

The name of this species, which means "before spring," has been aptly given by Mr. J. Hutchinson to one of the best early-flowering Rhododendrons of recent introduction from China. The plant is found in the same localities of Western Hupeh as R. sutchuenense, the seedlings of No. 1232 Wilson-Veitch (1900) and No. 509 Wilson-Sargeant including both species.

Compared with R. sutchuenense, R. praevernum is more compact in habit, the typical form being low and spreading, at least for some years. The oblanceolate leaves are 4 to 7 inches long, 1 to 2 inches wide, gradually tapering at the base, quite smooth beneath. The flowers are bell-shaped, 2 inches long and wide, white or pink tinted with a distinct wine-red blotch.

FIG. 74.—RHODODENDRON PRAEVERNUM.

While as garden plants the two are widely different, Mr. Wilson has maintained from the first that they are simply extreme forms of one species, his opinion being supported by numerous enthusiastic Rhododendron cultivators. Now that each year more of the seedling plants are flowering, forms intermediate between the two are constantly cropping up. A plant with the habit of R. sutchuenense, but with the blotch of R. praevernum, which first attracted attention in Mr. Gerald Loder's garden, has been given the distinguishing name of R. sutchuenense var. Geraldii. Another distinct form has the upright habit of R. sutchuenense with R. praevernum leaves, while another has all the characters of R. sutchuenense except the base of the leaf, which is acutely tapering as in R. praevernum

We have not far to seek for a similar wide variation in a species of Rhododendron, the many forms of the Himalayan R. arboreum being even more distinct. The development of the plants raised from home-ripened seeds will be watched with more than average interest. *A. Osborn, Kew.*

HARDY FLOWER BORDER.

LINUM NARBONENSE SIX HILLS VARIETY.

Some few years ago a friend sent me from the West of Ireland a plant of Linum narbonense of a very special form which he called Peto's variety. He told me that it was a particularly fine thing, and as I knew him to be a good judge of hardy plants who knew what he was talking about, I made no little fuss of my new acquisition and planted it out on a sunny trial bed of good loam. The plant grew vigorously and soon made a fine bush eighteen inches high and a couple of feet across. It formed a dense forest of strong, wiry, erect stems, branched and clothed with Heath-like leaves, and in due course it covered itself with a cloud of splendid blue flowers. I had long grown ordinary Linum narbonense, and greatly admired it as the handsomest and most reliable blue Flax of my acquaintance, but Peto's variety quite put me out of conceit with the ordinary form. The plant was very much more vigorous, and its flowers much larger; great funnel-shaped trumpets of thick satin texture and deepest, richest sapphire-blue. The plant increased with delightful freedom, and stood out all the winter in the flower-border with imperturbable hardihood.

Then a curious thing happened. A Mr. Peto came to me at a Chelsea Show and asked me why I called this Linum "Peto's Variety." He knew nothing about it and had nothing to do with its origin. I changed the name from "Peto's Variety" to "Six Hills Variety." And now, having re-baptised the plant, it occurs to me that perhaps I really have done a worse thing. May there not after all be some other Mr. Peto after whom it had been rightfully named? If I have done an injustice I am truly sorry. I have never been able to trace the origin of my plant beyond its Irish source, and if anyone can enlighten me I shall be very pleased. *Clarence Elliott, Stevenage.*

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ORCHID NOTES AND GLEANINGS.

ODONTIODA WALDA.

R. Gerrish, Esq., Milford Manor, Salisbury (gr. Mr. W. Sorrell), sends a flower of this superb cross between Odontioda Coronation and Odm. Louise. It equals in size and shape the best form of Odontoglossum crispum, but the flower is ruby purple with an underlying shade of orange and with a slight white tracery of the spotting in Oda. Coronation. The broad lip is light violet with ruby spotting around the prominent yellow crest.

Odontioda Marietta (Oda. Madeline × Odm. Dusky Monarch) is also sent by Mr. Gerrish. The colour is reddish Tyrian purple, the margins having thin, white markings and the tips of the petals and front and edges of the side lobes of the lip are also tipped with blush white. The crest of the lip is very strongly developed and coloured bright yellow. It is interesting to note that in this and some other Odontioda crosses the crest of raised lines at the base of the lip is more prominent than in any of the species from which they have originated.

LAELIO-CATTLEYA SAFFRON.

A brightly coloured, two-flowered inflorescence of this showy new cross between L.-C. Cupid (C. Mossiae × L. Latona) and L.-C. Smilax (C. Enid × L.-C. Charlesworthii) is sent by Pantia Ralli, Esq., Ashstead Park (Orchid-grower, Mr. Farnes). In colour and general features the variety adheres to Messrs. Charlesworth's favourite L.-C. Charlesworthii of 1900, of which it may be said to be an improvement. The species used in the basal ancestors were Laelia cinnabarina twice, Laelia purpurata and Cattleya Dowiana. At every step of the development L. cinnabarina has asserted itself in colour and form, although in the present instance the flowers more nearly approach the Cattleyas. The sepals and petals are light chrome yellow with a saffron yellow shade, the petals being the darker in tint. The lip, which is crimped at the edge, is ruby red, the base being yellow with orange-coloured lines.

NEW HYBRIDS

(*Continued from February 3, 1923, page 62*).

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Hannibal var. Helen	B.-C. Digbyano-Warneri × C. Fabia	G. W. Bird, Esq.
Brasso-Cattleya H. Hunter	B.-C. Digbyano-Mossiae Queen Alexandra × C. Suzanne H. de Crom	Sanders and Stuart Low.
Brasso-Cattleya Primrose Queen ...	B.-C. Mrs. J. Leemann × C. Mag. Raphael alba	Sanders.
Brasso-Laelio-Cattleya Asmodia ...	B.-L.-C. Agamedes × B.-C. Mrs. J. Leemann...	Charlesworth.
Brasso-Laelio-Cattleya Aurifera ...	L.-C. Creusa × B.-C. Mrs. J. Leemann	Charlesworth.
Brasso-Laelio-Cattleya Mossmaniana	B.-C. Mrs. J. Leemann × L.-C. Firminii ...	J. P. Mossman, Esq., U.S.A.
Brasso-Laelio-Cattleya Salmono ...	B.-C. Mrs. J. Leemann × L.-C. warnhamensis	J. P. Mossman, Esq., U.S.A.
Brasso-Laelio-Cattleya Sunset ...	B.-C. Thorntonii × L.-C. Luminosa	Sanders.
Brasso-Laelio-Cattleya Thais... ..	C. Trianae × B.-L.-C. Joan	McBean.
Cattleya Delphin	Tityus × Empress Frederick	McBean.
Cattleya Mossmaniana	Trianae atro-purpurea × Alfred Dimmock ...	J. P. Mossman, Esq., U.S.A.
Cattleya Oratani	Princess Royal × Enid	Clement Moore, Esq., U.S.A.
Cattleya Phœbe Snow	Luddemanniana × Cappei alba	Clement Moore, Esq., U.S.A.
Cattleya Titrianae	Trianae × Tityus	McBean.
Cymbidium Adonis	Coningsbyanum × Pauwelsii	Sanders.
Cymbidium Auriga	Alexanderi × Excelsior	McBean.
Cymbidium Bittern	Gottianum × Lowio-grandiflorum	Sir Geo. Holford.
Cymbidium Bunting	insigne × Garnet	Sir Geo. Holford.
Cymbidium Bustard	Garnet × Lowio-grandiflorum	Sir Geo. Holford.
Cymbidium Cetus...	Alexanderi roseum × Parishii Sanderae ...	McBean.
Cymbidium Goldflake var. Arthur	J. Davis var. glebelandense × rosefieldense	Hon. R. James.
Cymbidium Kingfisher	Gottianum × Butterfly	Sir Geo. Holford.
Cymbidium Lapwing	Butterfly × Miranda...	Sir Geo. Holford.
Cymbidium Muriel	giganteum × Alexanderi	Cowan.
Cymbidium Radiant	l'Ansoni Craveniaum × erythrostylum ...	Armstrong & Brown.
Cypripedium Admiral	G. F. Moore × Beryl...	S. Gratrix, Esq.
Cypripedium Bolaeus	Actaeus × Boltonii	P. Smith, Esq.
Cypripedium Chloris	Mrs. Jenkins × Lord Wolmer	Flory & Black.
Cypripedium General Degoutte ...	Earl Tankerville × Mrs. F. W. Ashton ...	A. Hanmer, Esq.
Cypripedium Horus	insigne Harefield Hall × Memoria Jerningham iae.	
Cypripedium Hypericum	Glorita × Majesticum	Flory & Black.
Cypripedium Moonstar	Boltonii × niveum	Duke of Marlborough.
Cypripedium Mrs. Giles	Lady Dillon × aureum	A. Hanmer, Esq.
Cypripedium Nesta II.	Eurybiades × Lord Wolmer	E. D. Bostock, Esq.
Cypripedium Phantasy	Glorita × Actaeus Bianca	Flory & Black.
Cypripedium Pioneer var. Alpha ..	Zoe × Desdemona	P. Smith Esq.
Cypripedium Rowland	Vandyke hybrid × Peter	H. T. Pitt, Esq.
Cypripedium Scarab	Thompsonii × Mrs. Carey Batten	Mrs. Bruce and Miss Wrigley
Cypripedium Seagull	Gulliver × Earl Tankerville	Sir Geo. Holford.
Cypripedium Senator	Gladiator × Lord Wolmer var. Duke of Marlborough	Flory & Black.
Cypripedium Trentino	Cavalier × Leeanum	B. J. Becton, Esq.
Cypripedium Zoot	Waterloo × Earl Tankerville	Mrs. Bruce and Miss Wrigley
Laelia Coral	De Geestiana × pumila alba	McBean.
Laelio-Cattleya Aethiopian	bletchleyensis × Aphrodite	Sanders.
Laelio-Cattleya Luman	L.-C. Luminosa × L. anceps Schröderana .	McBean.
Laelio-Cattleya Lumissima	L.-C. Luminosa × C. Luddemanniana	J. P. Mossman, Esq., U.S.A.
Laelio-Cattleya Minima...	C. Mendelii × L.-C. Ophir...	Mrs. Bruce and Miss Wrigley
Laelio-Cattleya Mossmaniana ...	L.-C. Orion × C. Dowiana	J. P. Mossman, Esq., U.S.A.
Laelio-Cattleya Raven	Dominiana × Black Prince	Sanders.
Laelio-Cattleya Rubella...	Nella × St. Gothard	Stuart Low.
Laelio-Cattleya Saffron	L.-C. Smilax × L.-C. Cupid	Pantia Ralli, Esq.
Laelio-Cattleya Triaureole	L.-C. Aureole × C. Trianae alba...	J. P. Mossman, Esq., U.S.A.
Laelio-Cattleya Yellow Dwarf... ...	L.-C. Oriens × L. Cowanii	Mrs. Bruce and Miss Wrigley
Odontioda Adela	Odm. percultum × Oda. Meteor...	Charlesworth.
Odontioda Angelo	Odm. Fascinator × Oda. Queen Mary	C. J. Lucas, Esq.
Odontioda Beta	Odm. Midnight × Oda. Joan	McBean.
Odontioda Cordor	Oda. Coronation × Odm. Doris	S. Gratrix, Esq. (Armstrong, 1922.)
Odontioda Cornelia	Oda. Diana × Oda. Madeline	Charlesworth.
Odontioda Delta	Oda. Brunette × Odm. Lawrenceanum ...	McBean.
Odontioda Marietta	Oda. Madeline × Odm. Dusky Monarch ...	R. Gerrish, Esq.
Odontioda Naomi...	Oda. Vuylstekeae × Odm. Nathaniel	Charlesworth.
Odontioda Red Dragon	Oda. Mars × Odm. Clovis	C. J. Lucas, Esq.
Odontioda Vedas...	Oda. Bradshawiae × Oda. Felicia	Charlesworth.
Odontioda Walda	Oda. Coronation × Odm. Louise...	R. Gerrish, Esq.
Odontioda Zygus	Oda. Zephyr × Odm. ardentissimum ...	C. J. Lucas, Esq.
Odontoglossum Aquila	ardentissimum × L'Empereur	McBean.
Odontoglossum Strathmore	Apollo × Hylandianum	Armstrong & Brown
Odontonia Baroness Schröder ...	M. Bleuana × Odm. The Czar	Charlesworth.
Potinara Lowii	Lowiara insignis × L.-C. Luminosa	Stuart Low.
Sophro-Cattleya Jean	C. Iris × S.-C. Thwaitesii	R. G. Thwaites, Esq.
Sophro-Cattleya Octavia	C. Octave Doin × S.-C. Doris	Mrs. Bruce and Miss Wrigley
Sophro-Cattleya Rupert	C. Maggie Raphael × S.-C. Roupelliana ...	R. G. Thwaites, Esq.
Sophro-Laelio-Cattleya Flammea ..	S.-L.-C. Eros × C. Lawrenceana	Flory & Black.
Vuylstekeara Fascination	Oda. Feronia × M. Bleuana	Charlesworth.
Vuylstekeara Rutherford's Sylvia ...	M. Bleuana × Oda. Joan	Sir J. Rutherford.
Wilsonara Wendy	Odm. Lambeauianum × Oncidioda Cooksoniae	Charlesworth.

NOTICES OF BOOKS.

Influence of Electricity on Mutation in Plants.

A new and wide field of experiment and study is opened up by the publication of a work* by Mr. Alberto Pirovano, of Vaprio d'Adda, Milan, Italy. The author is well known in Italy as a skilful raiser of new varieties of Grapevines.

The book includes a long series of experiments proving, evidently, that it is possible to obtain important mutations in plants, and also to alter the laws of heredity by means of gonolysis of the pollen. The author calls gonolysis the result of the minute alterations of the genital plasma produced when it is exposed to variations of the magnetic field. As agents of gonolysis he has made use of electro-magnetism, X rays, radio-active emanations, and ultra violet rays.

The author has made experiments only on the pollen, which is easier to handle than the ovule; but it is probable that not less important results will be obtained by experiments on the latter.

To give an idea of the importance of the mutations produced by this means, it may be cited that dioecism and hermaphroditism are induced in the small Gourd of Italy (Cucurbita Pepo cucurbotelle).

The author has opened up a new branch of genetical science; the electro-genetic. *Dr. Attilio Ragioneri, Castello, Italy.*

Seed Raising.

The third edition of Mr. Ernest Benary's handbook† on the raising of garden plants from seed bears evidence of full and careful revision, and provides the gardener who reads German with a valuable and concise summary of the treatment which must be accorded to garden seeds in order to assure good growth of the seedlings. The introductory chapters deal with the choice of soil for seed raising, the making of hot-beds, the treatment and transplantation of seedlings. In the main body of the book are described briefly, yet with sufficient detail, the best modes of sowing vegetable seeds, flower seeds, both for cultivation in the open ground and in pots, and tree seeds. For vegetables, useful tables are provided, giving number of seeds per gram weight, time of germination, and length of time during which seeds remain viable (p. 133), and for each kind of flower the important points to be observed in its cultivation are not only stated in the text, but also summarised in convenient tables.

Against each plant listed in the table is recorded by convenient conventional signs its duration, whether bulbous, rhyzomatous or tuberous; if it be a climber or a shrubby plant, whether its flowers are sought by bees, the time for seed sowing in the open or in cold frame or hot-bed; period of germination, time of flowering, and how best used, whether in beds or groups, singly against walls, in pots, etc. Hence by consulting these tables the reader may find quickly just that sort of information which he may require when sowing seeds of varieties, the habits of which he ignores.

Guide to Cambridge Botanic Garden.

An interesting guide to the University Botanic Garden of Cambridge has been compiled by the director of the garden, Mr. Humphrey Gilbert-Carter.‡ The work contains a diagrammatic plan of the garden, while the text comprises lists of plants grown in the gardens, classified in their Natural Orders. Several of the subjects mentioned are illustrated in black and white, and the illustrations, as well as the letterpress, are printed excellently well. The Botanic Garden at Cambridge dates from 1761, when Dr. Walker, Vice-Master of Trinity College, gave the estate of the Monastery of the Austin Friars of the Parish of St. Edward's for the purpose.

* *La mutazione elettrica delle specie botaniche e la disciplina della credita nella ibridazione*, by Mr. A. Pirovano.—U. Hoepli, ed., Milano, 1923.

† *Die Anzucht der Pflanzen aus Samen in Garten-bau*, by Ernest Benary. Paul Parey, Berlin, 1923. 24,000 marks.

‡ *Guide to the University Botanic Garden, Cambridge*. By Humphrey Gilbert-Carter. Cambridge: University Press. Price 3s. 6d. net.

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RUE.

Rue is a plant for which few people have any affection. The greenish yellow flowers do not appeal to everybody, and the odour, sanative as it was supposed to be in bygone times, is repulsive to most. Yet it has its good points. There is even a beauty in its flowers, and those who have watched them on a sunny forenoon have not only found beauty but fascination. What a wonderful adaptation is that which induces one stamen after another to rise from its flat position and, ascending gracefully in a perfect curve, place its anther on a special stigma? Add to this its blue-green foliage, and I am sure a case would be made out for giving it a place in the hardy border. I have always raised Rue by means of seed, but we are assured by old writers that the plant would not thrive unless it were filched from the garden of a neighbour, and then it would refuse to grow unless planted in the proximity of a Fig tree, and even then, were a member of the female sex allowed to approach it when in flower, it would forthwith decay! Evidently Rue has lost these fitful idiosyncrasies, and now will thrive anywhere, merely requiring an annual trimming in spring to keep it shapely.

Though Rue is a very old name for this plant, in early books of all kinds it is almost always called Herb Grace, Herb of Grace, Gracious Herb, with other equivalents. Various reasons have been advanced to show how it came by these names, the one which seems to be most appropriate being that it was employed in exorcising evil spirits. An old French writer in this connection remarks: "*La semence de rue est faicte comme une croix, et c'est paraventure la cause qu'elle a tant de vertu contre les possédés et que l'Eglise s'en sert en les exorcisant.*" Another reason proposed was its supposed power of bestowing grace on those who partook of it. An old English humorous verselet refers to this:—

"If a man have light fingers that he cannot charme,
Which will pick men's pockets and do such-like harme,
He must be let blood, in a scarfe wear his arme,
And drink the herbe grace in a posset luke warme."

Many were the diseases Rue was supposed to cure, in this being like other herbs nauseous to the taste; epidemics of a deadly nature, such as the plague and jail fevers, being especially noted. A very remarkable way of using it in these circumstances was to stuff the nostrils with leafy sprigs which it would appear were sentinels that allowed no infection to pass; this external application was supplemented by drinking plague water, of which Rue was a chief ingredient. Rue was also strewed about apartments, and we read of Rue-water being sprinkled at the back doors of London houses while that City was visited by the plague. It was usual also to strew court rooms with the herb at all times, jail fever never being absent from among prisoners.

Milton's oft-quoted lines have led to the assumption that Rue and Eyebright were used as remedies for myopia, but a reference to ancient medical prescriptions shows that Fennel was the usual herb that was conjoined with Rue in the composition of eye-salves. Rue alone, as Thomas Hill assures his sixteenth century readers, was of itself a sufficient remedy in impaired vision. He remarks how "Herbe Grace is a peculiar triacle for the poore," and that "curious painters and graners doe often eate of this herbe with their meate for the clearing and amending of their sight." A sinister use of Rue in sickness was its assumed property of discovering whether or no the sick would recover. For this purpose a plaister of the herb was applied "somewhat thicke to the crowne of the head (when), if thou sneezest within sixe houres after thou shalt escape, or else not." So much depended on a sneeze!

Mrs. Bardfield, in her book on herbs, tells how Rue is still used in rural medicine, and is even eaten sandwich-wise, like mustard and cress. *R. P. Brotherston.*

TREES AND SHRUBS.

DECAISNEA FARGESII.

This interesting shrub from Western China is a handsome garden plant by reason of its large, pinnate leaves, often 2 ft. to 3 ft. long. Although it suffers from late spring frosts in all except the most favoured gardens and districts, Decaisnea Fargesii is hardy, and, when established, usually flowers annually, the long, loose, drooping panicles of yellow-green flowers appearing at the end of the young growths. In addition to its fine foliage, interesting flowers and purplish brown stems Decaisnea Fargesii possesses a further attraction in its fruits (Fig. 75). These are blue pods, torulose, sometimes slightly curved; and when laid on their sides they resemble big, fat, blue caterpillars. At the Royal Horticultural Society's exhibition at Holland Park Hall in the autumn of 1922, Mr. G. Reuthe exhibited several clusters of these attractive blue fruits.

FIG. 75.—FRUITS OF DECAISNEA FARGESII.

THE KENTUCKY COFFEE TREE.

When the male tree of this plant flowered at Kayhough, Kew, last year, as recorded in the *Gard. Chron.*, Vol. LXXII., third series, p. 49, I wondered whether the tree had ever fruited in this country. Loudon does not say it has, so far as I can see. In his day the tree was generally propagated by imported seeds, as it is at the present time. He states, however, that it would grow freely from cuttings of the roots, if care were taken to keep the proper end upright. I find it recorded in the *Journal* of the Royal Horticultural Society that Mr. James Vert sent from Saffron Walden Gardens fruits of this tree to a meeting of the Fruit and Vegetable Committee, on October 25, 1693. "They were like rough-skinned Walnuts to look at, and to smell, and the juice stained in a similar way." The tree is certainly one of strange contrasts, with its tall trunk, stout twigs, large pods and seeds, and small, regular, inconspicuous flowers. Some imported seeds I have are globular, slightly compressed, black, and measure 13-20 millimetres in diameter. *J. F.*

ELAEAGNUS ARGENTEA.

A native of the Canadian prairies and the central States of North America, this attractive little shrub is commonly known as the Silver Berry or Wolf Willow. It is one of the most silvery shrubs known to our gardens, for not only are the rather narrow, pointed leaves nearly as silvery as a sheet of aluminium, but the berries which follow the sweetly-scented, Daphne-like flowers are covered with a grey-white meal. Plants recently sent over from Saskatchewan are even more silvery than those obtained from an Irish nursery, which show a trace of the brown tomentum common to so many members of the genus Elaeagnus. The height of the shrub varies a good deal, the more northerly forms not usually rising up to more than about 4 ft. In its native soil E. argentea spreads a good deal by suckers, but it seems to lose this habit almost entirely in cultivation. *A. T. J.*

RHODORA CANADENSIS.

This is such an easily grown, charming little shrub that one wonders why it is not more often seen. It is adaptable for the rock garden (being no more than 2 ft. to 4 ft. in height), the front of the border or open woodland, and all it asks is any cool loam that does not dry out too quickly in summer. Peat and leaf-mould it enjoys, but these are not always essential. We have grown R. canadensis for many years and not once has it failed to produce a mass of blossom in early spring. It generally flowers just as Rhododendron praecox, R. ciliatum, and other early kinds are going off and, being deciduous, the leaves do not appear until the blossoming is over. The flowers, which are borne in clusters at the tips of the twigs, are a vivid rose-purple with long, silvery stamens which protrude with an upward tilt like those of a Honeysuckle. Another name for Rhodora canadensis is Rhododendron canadensis. *A. T. J.*

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EDITORIAL NOTICE.

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. XI.—The Kari River.

ALONG descent by a peculiarly vile path (which for some distance was simply the bed of the torrent) brought us at dark to a wretched village; but not before a thunderstorm had burst over us.

Next morning, continuing the descent, we reached the Kari river, where it turns east to join the Yangtze, which is quite close.

The Kari river is a fairly big and powerful stream, flowing more or less south, parallel to the Yangtze. Nearly all its water is derived from the Mekong divide, to the west; and during the four days' march we followed it up, we crossed a number of big tributaries which enter the right bank. At first we found ourselves in a very dry region, with little vegetation on the rocks. Conspicuous were a Pedicularis, with spikes of crimson-pink flowers; an erect Androsace, with small white flowers; and a Saxifraga bearing a large candelabra of speckled yellow flowers. The rosette foliage of the two last and the fleshy foliage of some yellow and red Sedums indicated that we were approaching the arid gorges of the great rivers; indeed, all of the above are found on the upper Mekong. Other rosette plants were Didissandra lanuginosa and Selaginella sp. There were also scrubby bushes of Bauhinia, Sophora, Desmodium, Indigofera, Buddleia, Wikstroemia, Jasminum, Cotoneaster, Ceratostigma, etc., scattered over the stony slopes. Higher up were Pine trees.

On August 2 we passed through a series of limestone gorges, where trees descended to the water's edge. A splendid Euonymus, laden with pink capsules dangling on long stalks, was common here. Here and there the tawny, black-spotted Lily, already referred to, was seen; also a big, clumsy-looking, pink-flowered Androsace, which was not A. spinulifera, though not very dissimilar to it in habit. In a bog I noticed Loosestrife and a tall Hypericum; and on the cliffs species of Arisaema. One could not wax very enthusiastic over this sort of thing, and I turned my attention to a caterpillar. This proved far more amusing. He was feeding on a large, coarse-leafed plant, with fat spikes of pink flowers, and, later, Blackberry-like fruits, common round villages in Yunnan—I do not know its name. There were many of them (the caterpillars), white in colour, a nasty corpse-like white, and thus very conspicuous on the dark green leaves; for they took no trouble to conceal themselves. No bird in the neighbourhood could fail to see such an object, especially if he were hungry. How, then, did the larva continue to exist, in the face of the enemy, so to speak? I investigated, and found the answer in chemical warfare. Along the back of the caterpillar were arranged two rows of blunt papillae, like the tentacles of a starfish. On picking up the creature drops of fluid of a pure golden colour began to exude, not from the papillae, but from a row of tiny portholes along either side. The papillae were merely the triggers which fired the broadside. You pressed the button, the caterpillar did the rest. If the pressure was kept up, the creature rapidly became beaded all over with golden drops, which swelled and coalesced until he was enveloped in a bath of golden syrup. This liquid had a slightly disagreeable smell, but faintly perceptible by the human, with his inadequate olfactory outfit; but a drop placed on the tongue gave a burning sensation something like Pepper, and left a bitter taste behind.

Now it is easy to state that no sensible bird, however hungry, would eat a nasty morsel like that. But he must be trained first, or clearly warned, that it *is* nasty. If the caterpillar does not begin to throw acids about till he is touched; and if the first thing that touches him is a large and horny beak, it is certain that he will be hurt before the bird, surprised with a drop of vitriol in its eye, can release him. Once a bird has been caught by such a trick he will, no doubt, be wiser in future; but unless he can convey a warning to his friends, other birds will be caught napping in the same way to the discomfiture of both bird and larva—especially larva. It would be poor consolation to the latter to reflect from solitary confinement in the bird's crop that the bird was going to be sick.

I therefore performed other experiments to see whether the caterpillar could be induced to give an exhibition in chemistry without contact—to exude warning drops on the approach of an enemy. The result was what I had anticipated. On blowing at the caterpillar, and still more on stimulating him with a burning glass, he squirted jets of pungent golden fluid to a distance of as much as 6 inches!

Now it requires no deep mensuration to calculate that any finch, wren, tit, flycatcher, robin—almost any bird, in fact, with a beak shorter than a toucan or a pelican (neither of which is found in Yunnan, by the way)—might receive a contribution in the eye. True, the caterpillar's aim is erratic; but with the entire battery in action, the chances of a "bird's-eye" are considerable. The mere stimulus provided by the flutter of a bird's wing may set gigantic chemical reactions in motion. The merest touch is sufficient—and the caterpillar was unable to distinguish between my finger and a twig. So much for sighting shots, as a warning to keep off. But the caterpillar is clever too. He must be able to distinguish stimuli to some extent; otherwise any chance breeze, any contact, as shown by the above experiments, might open the valves and flood the creature with vitriol, thus exhausting supplies unnecessarily.

The Darwinian school will have some difficulty in accounting for a performance such as this on any theory of natural selection. For any variety of caterpillar, which, to begin with, gave rise to an infinitesimal quantity of acid would have no more chance of survival than one which produced none at all. But we may go further than that. A caterpillar which produces even a drop of complex acid—probably a waste product in the first instance—differs fundamentally from one which produces none at all. An elaborate chemical reaction takes place, or it does not. It is impossible to pass from nothing to the manufacture of complex molecules by infinitesimal gradations. The step is a mutation, a leap of some sort.

We must now try to visualise the steps from a simple harmless caterpillar to a belligerent larva such as I have described. The golden syrup is at first no doubt a waste product. It disagrees with birds who eat the caterpillar; and the caterpillar ruefully reflects, just before he dies, that the bird may wish it had not eaten him. It is not sufficient to be objectionable; you must circulate the knowledge that you *are* objectionable. The next step, therefore, was to utilise this waste product in such a way that the bird might know it was there before any damage was done, and learn to let the caterpillar alone. In other words, the waste product must be visibly exuded, which implies storage and release at the right moment. We now find our larva beaded with acid in order to prevent attack, rather than perish while making the enemy sick. Another little jump takes us to a stage where so much liquid is produced and stored that it can be squirted out of ducts provided for the purpose with considerable violence. And, finally, hair triggers are added to fire the broadside at the moment of danger.

This sketch may be slightly fanciful, and we do not know *how* the leaps are taken; but it would appear that the course of events is not altogether unlike that suggested.

On August 4 we left the Kari River to cross the Kari Pass, turning up a wide, stony valley; the Kari River was still a big stream flowing from the north. The weather turned very wet, and the steep mountain proved difficult. On the south side of the pass—which is about 13,000 or 14,000 feet—we soon found ourselves in mixed forest, consisting largely of Fir (Picea) and Rhododendron. Here and there were small patches of rank meadow filled with tall Umbelliferae, Labiatae, and Compositae—Salvia, Polygonum, Pedicularis, Iris, etc., with scattered Primulas by the streams. A Denticulata Primula, probably P. pseudo-capitata, was not yet in bloom even, but the others were over. At the top of the pass, on the earthy slopes, were alpines, such as Cyananthus sp. and Polygonum Forrestii.

Immediately the pass was crossed the Rhododendrons again changed completely. I was astonished to find at the summit a dwarf form with snowy, Plum-purple flowers in full bloom, carpeting the sheltered alpine slopes. However, no sooner did we begin to descend than we came into solid Rhododendron forest, all the species, as usual, having hairy leaves. On the south side of the pass I found two species, on the north side, three. Taking them all together, those found on the Rou-sha Pass included, the south-facing flank yielded six glabrous-leafed species (one of them has slightly hairy leaves, and another only found as undergrowth, where it forms dense thickets, has a slight tomentum); the north-facing flank yielded eight species, all of them having a woolly covering on the leaves, or in the case of dwarf species a thick coat of scales. The inference is that the Rhododendrons are very sensitive to frost, snow, and sunshine, but particularly to snow in spring.

Descending from the pass I found the curious form of Primula Poissonii, already referred to as growing near Yung-ning. At dusk we reached a small village, and on the following day, August 5, the monastery of Tung-chu-ling on the main road to A-tun-tzu. As we had now been travelling for thirteen days without a halt, we rested a day before starting on the long climb over Pai-ma-shan. *F. Kingdon Ward.*

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17, July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, and March 10, 1923.

GARDEN NOTES FROM S.W. SCOTLAND.

Several years ago I received from a friend a small plant of a Barberry, under the name of Berberis cretica—a Mediterranean species of lowly stature. It was a decided misnomer, for the plant, now nine feet high, has proved to be merely a variety of the Chilean B. buxifolia, from which it is botanically indistinguishable. But it is a very desirable variety, as vigorous as the type and flowering a full month earlier. This year, for instance, it began to flower in the last week of February, and myriads of unopened buds, hanging like little golden globes, were almost as attractive as the full-blown blossoms. One appreciates its precocious bloom all the more, because it has not to compete, as has the common form flowering in April, with such gaudy rivals as B. Darwinii and B. stenophylla. B. buxifolia is the only one of the genus known to me, whereof the berries are palatable without cooking. It produces them in profusion; but the birds consume nearly all before they are properly ripe.

The predominance of yellow in the blossom of spring-flowering plants has been emphasised in British gardens by the popularity of the genus Narcissus, by the profusion with which many species flower and become naturalised, and by the fact that, with few exceptions, the livery of the family is yellow. Outside the garden, the far-flung radiance of Gorse blossom has confirmed the belief, which I have sometimes heard confidently expressed, that yellow prevails more among spring flowers than among those of any other season. I do not think that this is in accordance with fact. Granted that among spring-flowering plants of the northern temperate zone, the number of species bearing yellow flowers is greater than that of species bearing flowers of any other colour, in like manner yellow is the dominant note among flowers of the other seasons also. This phenomenon has been explained by Grant Allen as the result of petals being expanded stamens, not, as has been held by many botanists, altered leaves; and whereas it is the exception for stamens, anthers and

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pollen to be of any other colour than yellow, that hue was the primitive, and remains the most frequent colour in the blossoms of all seasons. According to Grant Allen, the next colour to be developed, as plants became more highly organised, was red, then purple, and lastly blue, which is the least frequent hue among flowers. But I have not been able to understand how he accounted for white, which is nearly as common as yellow in the petals of flowers.

Among hardy spring-flowering plants usually grown in British gardens there is no lack of colouring other than yellow. Indian and Chinese Rhododendrons furnish every hue from blood-red to flesh colour; Anemone fulgens flaunts intense scarlet;

"Mid the sharp, short, emerald Wheat, scarce risen three fingers well,
The wild Tulip, at end of its tube, blows out its great red bell
Like a thin clear bubble of blood, for the children to pick and sell."

The flowers of Hazel and Parrotia persica have no petals, but kindle bright sparks of crimson—the former with the stigmata of the female flowers—the latter with its clustered anthers. Then there is a wide range of reds in the varieties of the Japanese Quince. Violets, Crocus, Anemone coronaria and Iris reticulata may be relied on for purple; many species and varieties of Primula have red and purple flowers, and there is no lack of blue among Gentians, Squills, Chionodoxa, Grape Hyacinths, Anemone apennina, Myosotis, Omphalodes verna and Periwinkle.

The mutation from yellow to blue, through red, is displayed in miniature by the little British annual, Myosotis versicolor, whereof the flowers open yellow, turn pink and finish blue. The right conclusion seems to be that there is not a larger proportion of species bearing yellow flowers in spring than there is at other seasons.

No border plant known to me responds more suddenly and swiftly to the stir of spring than does the Crown Imperial. Long before we mortals are sensible of any mitigation of winter chill and gloom—nay, sometimes, as in the present season, when the chill and gloom are at their worst—this gallant plant thrusts fat, ruddy noses through the soil, which rush with amazing rapidity into shining green columns. Lilies and other things are pushing up, but always with a measure of deliberation; but the growth of the Crown Imperial is headlong. No February would I deem to have played its part in the calendar if it did not ensure this cheerful phenomenon. What a fuss we should be making about the Crown Imperial if it had just been sent here by Mr. Wilson, Mr. Forrest, or some other intrepid collector! Yet in comparatively few gardens is a place given to this jocund herb. *Herbert Maxwell, Monreith.*

FIG. 76.—SIR GEORGE HOLFORD'S GOLD MEDAL EXHIBIT OF CLIVIAS AT THE ROYAL HORTICULTURAL HALL (SEE PAGE 153).

NOTES FROM WISLEY.

The theory has often been put forward that the more primitive and simple types of flowers bloom earlier than the more highly specialised, and that accordingly at the beginning of the year there is a predominance of simple colouring, which gives place to deeper and more complex colouring as the year advances and the sun's rays become more powerful. The idea can be supported, to some extent, by making judicious omissions from the ranks of our early wild plants, for large numbers of these flowers are white or yellow, such as Snowdrops, Anemones, Primroses, Buttercups, Kingcups, etc. Brighter coloured flowers come later—Meadow Crane's Bill, Monkshood, Poppies, Gentian, Pimpernel and many others that might be named. In the garden of to-day, however, this theory has been upset badly so far as colour is concerned, since selection and hybridisation have provided a great variety of spring flowers of brilliant hue. The banks in the wild garden at Wisley are now covered with them.

At the present time the predominant colour is bright blue, owing to the masses of Chionodoxas and Scillas in flower. The species of Chionodoxa which has spread most luxuriantly is C. Luciliae, with clear blue petals turning to white at the base. A completely white variety occurs, also some giant forms which lack the bright colour of the type. C. sardensis is also flowering in large numbers; this beautiful little plant differs in many ways from C. Luciliae. The flowers are smaller and less pendulous, and are of an intense Gentian blue colour, except for the stamens, which form a white cone in the centre.

Scilla bifolia and Hyacinthus azureus are also responsible for the predominance of blue, but they are tempered with coloured Primroses, Erythroniums and orange, purple and white Crocuses, the whole producing a delightful effect on a great bed of moss of vivid green. Among the Crocuses the beautiful C. Kathleen Parlow is to be seen in flower. This variety is pure white, except for its feathery, orange styles, and bears no trace of the customary purple veining in the perianth. An early flowering Umbellifer suitable for the wild garden is our native Myrrhis odorata (Sweet Cicely). The flowers are white and rather insignificant, but the leaves are handsome and Fernlike, and when bruised emit a pungent odour resembling that of liquorice.

In the Alpine house most of the early Saxifrages are over and have given place to such plants as Epigaea repens, Sanguinaria canadensis, and Primula viscosa. Saxifraga burseriana minor is flowering, however, being a little later than its relations; also the large, white-flowered S. Obristii.

At the foot of the rock garden is a large rock bed which is completely covered with flowers of Viola odorata, and helps to link up the rock garden with the wild garden.

Higher up some species of Pulmonaria (P. Mawsonii and P. saccharata), are beginning to flower. In common with many other members of the Borage family, the flowers of the Lungworts usually open pink (sometimes purple, or even salmon), and change to bright blue.

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Rhododendron intricatum and R. racemosum are now in full bloom. The latter varies considerably in the time of opening and in the colour of its flowers, which in bud are usually bright pink, paling on expanding, but in some plants the fully expanded flowers are quite colourless except for their pink filaments.

Among the Carnations undergoing trial few seem to possess much scent at the present time. An exception is the Perpetual Malmaison variety Mrs. Myles Kennedy, which gives out a powerful and delicious perfume. In the perpetual-flowering group Elsenham Beauty has been doing well. *J. E. G. White.*

ORIGIN AND EVOLUTION OF SUMMER FLOWERING GLADIOLI.*

As in the case of the greater number of genera of plants which have been brought to a high degree of horticultural perfection, one finds at the origin, that is to say, at the point where the improvements begin one, or more often several species which, by means of crosses, have mingled their characteristics and combined them in intermediate forms or colours, thus producing a race of hybrids capable of progressive improvement.

In the case of Gladioli, the first hybrids were the Gandavensis Gladioli, produced about the middle of the last century, which are still the most remarkable, and, horticulturally speaking, the most important, by reason of the high degree of perfection obtained in them by certain French specialists. Later, the introduction into cultivation of certain South African species, bringing new characteristics which were soon absorbed by hybridisation, was the means of creating new races, now very popular, such as the large-blotched Gladioli, and the Nancy hybrids to which is attached the name of their creator, M. Lemoine. More recently there have appeared the hybrids of G. primulinus, resulting, like the preceding experiments, in a new race richly endowed with good points.

Before studying these races in greater detail, it will perhaps be as well, the better to understand the extent and diversity of the genus, to make here a few remarks on the specific representatives of the genus. Of the hundred or so species which exist, about fifteen only are European or Asiatic, and only four or five are indigenous in France, notably G. segetum—common in the cultivated districts in the south—and G. communis, found in the fields of Montpellier, Toulon, etc. All the rest are South African. It is a remarkable fact that the European species have not given rise to a single noteworthy race or variety, except that they have supplied some variations in colour, white among others. Our horticultural Gladioli are essentially of foreign origin.

The first hybrids in point of date were the Gandavensis Gladioli, raised in Belgium in 1840 by M. Bedinghaus, gardener to the Duc d'Arenberg, by crossing G. psittacinus with G. cardinalis or G. oppositiflorus†. Doubts have arisen as to the utilisation of the first-named which have never been completely settled. The G. gandavensis type still exists in cultivation, and so does G. brenchleyensis‡, which was raised about 1680 by Mr. Hooker, who lived at the village of Brenchley, in Kent. This old variety, still frequently cultivated in gardens, and for cut blooms, on account of its bright red flowers and stems of a remarkable length for the period, is also valued for the regular shape of the flowers, and for their habit of coming out in large numbers all together. Gladiolus Surprise, for long cultivated and prized by florists, was a French variety, raised by M. Malet some time before 1863. Lastly, G. Couranti fulgens, which was also cultivated for many years on account of its merits, yielded in nothing to modern varieties until after the beginning of the present century. These old varieties can still be found in some collections, notably that of MM. Vilmorin, Andrieux et Cie, at Verrieres.

Among the first of the raisers who took a considerable part in the improvement of the Gandavensis Gladioli were M. Truffaut, of Versailles; M. Courant, of Poissy; MM. Verdier, father and son, of Ivry; and more particularly M. Souchet, then superintendent of the Park at Fontainebleau, who early distinguished himself by the production of large-flowered varieties, which gained for him almost immediately a world-wide reputation. He began his experiments directly after the appearance of G. gandavensis, and at the same time made use of G. cardinalis and G. blandus*.

His contemporaries, MM. Souillard and Brunelot, who afterwards succeeded him, went so far in their improvement of the Gandavensis hybrids that their work has never been appreciably surpassed. At the present time, M. Brunelot the younger still continues his work in the same direction, and the varieties shown by MM. Vilmorin, Andrieux et Cie (in which firm he is employed as propagator) demonstrate that he still manages to produce new qualities, in the size of the flowers, the length of the stems, and most of all in the colours—the blotched slates and ash-greys which are the chief charm of the Lemoinei hybrids.

M. Brunelot deserves to be congratulated on the work which he and his predecessors have accomplished, and which he still continues, in the improvement of the Gandavensis Gladioli, which it would be more logical to call Fontainebleau Gladioli. I should like also to associate, in this tribute of praise, the Lemoines, father and son, for the magnificent races of Gladiolus which they have produced, as well as the various growers and amateurs who have contributed at one time and another to the improvement of this beautiful genus. Permit me also to dwell upon the pride which must be felt by French horticulturists in general, and by the members of the Société National d'Horticulture de France in particular, to see in this case (as in the case of the Iris, and of many other groups of useful and ornamental plants) that their own countrymen are in the forefront of the work of development.

Although in Germany, in England, and in Holland—where, during the past few years, especially fine, large-flowered varieties have been produced—and in America, where the Gladiolus has a vogue only equalled by that of the Iris, some remarkable varieties have emerged which may appear even superior to those of French origin, still, it is only just to recall that the very improvements obtained in these countries are due to the work of the early French raisers.

When seed is sown of plants which have arrived at the degree of perfection now presented, which are hybrids of hybrids, very highly multiplied, and therefore particularly liable to variation, it is easy, for anyone at all familiar with the workings of heredity in plants, to understand that it is hardly possible to avoid producing at least some plants equally remarkable for the size of the flowers or the length of the stems, and variously coloured.

For a long while the Gandavensis Gladioli were the only race to be cultivated, but in 1870-1871 Gladiolus purpureo-auratus and G. Saundersii were introduced from South Africa, and these species gave rise to the two races of which I am about to speak. In expert hands such as those of M. Lemoine, who fully comprehended the great part which these two Gladioli could be made to play, they soon yielded the G. Lemoine type which resulted from a cross between G. gandavensis and G. purpureo-auratus. From this first cross there soon arose, by means of sowings of seed and new crosses, the race of large-blotched Gladioli which is known by the name of their raiser, and which soon gained recognition and appreciation for the distinctive, curved flowers, and for the large blotches of deep colour with which the petals are ornamented.

(To be concluded.)

* A paper read by M. Mottet at the conference held by the Société Nationale d'Horticulture de France on August 10, 1922, on the occasion of the Gladiolus competition; translated from the Society's *Journal*.

†See *Flores des Serres*, 1846, March, t. 1.

‡See *Gardeners' Chronicle*, 1910, Part II., p. 83.

* Ex. Baker, *Handbook of Irideaea*, p. 228.

THE NATURALISATION OF PLANTS.

The naturalisation of spring-flowering plants is worthy of much wider expansion than is commonly practised. Many of the hardy bulbs produce gorgeous effects in the conventional flower-garden where they serve a useful purpose, but for real garden adornment the most effective of all modes of arranging is to naturalise them in grass. In such situations, when once carefully planted, they provide an annual source of beauty and give no further trouble.

In many country places wide belts of bare grass lie between shrubberies and walks, which frequently never provide bright colouring, but only exist to be roughly mown about twice a year. The charming effects which may be produced on these sites by the planting of spring-flowering bulbs surpass in beauty any formal spring garden, however gay. In their natural bed of grass the bulbous flowers look far better than they do with the brown earth of a border beneath them.

Where space permits a long season of colour display may be obtained by planting irregular groups of bulbs to follow each other in season, beginning as early as January with the Winter Aconite, and continuing in February with Snowdrops, Snowflakes and Chionodoxas. During March a wide choice of material is available which gives the intelligent planter much scope for beautiful colour effects, such as Crocuses in variety, Scillas, Anemone apennina, Grape Hyacinths, and the early flowering Narcissi.

The later flowering Narcissi will provide ample material for extending the season through April and May, supplemented by such beautiful plants as the Dog-tooth Violet and several species of Fritillarias and Ornithogalums, all of which succeed and grow freely in grass. Tulips are seldom seen growing in grass, yet where the soil suits them, and there is no danger of the broad, fleshy leaves becoming injured by overhead traffic, both the species and many of the florists' varieties do wonderfully well in such places, and greatly assist in maintaining colour and variety in the display.

Naturally the prettiest results are only obtainable when the grass need not be mown until hay-time. The leaves of the earlier flowering plants will then have completely died down, and those of the later flowering ones will have entered the ripening stage, so that the plant will suffer little from the loss of foliage.

Some of these plants and many others also lend themselves admirably to naturalisation in our woodlands. The Winter Aconite is particularly suitable for planting under the branches of trees, where it flowers even earlier than in grass, and develops its foliage while the trees are still naked, covering the ground with a pretty, soft green carpet. When this fades the trees put forth their foliage, and hide the ground until autumn. Crocuses and some of the Anemones are also very suitable for this purpose, and once established they take care of themselves.

Two members of the Borage family, Omphalodes verna and Lithospermum prostratum are ideal subjects for naturalising, and can hardly be surpassed for the depth and beauty of the blue of their flowers. Omphalodes verna spreads itself quite freely in the more open glades of the woodland, and whereas in the garden border it becomes unattractive when its spring flowers have passed, in the wild garden the low plants serve as a carpet to the soil. Lithospermum prostratum is particularly suitable for planting on dry, open, sandy banks. In such a position its delightful, Gentian-blue flowers often commence to open as early as February.

There are many plants which do much better in the shelter of a woodland garden than in the open border. The various Christmas Roses flourish in sheltered nooks, and their flowers are much less liable to become weather-stained.

The beautiful North American Trillium grandiflorum loves shade and a moist, free soil in the low-lying parts of the wild garden. These few suggestions refer mainly to spring flowers in the undressed portions of the pleasure garden, which may also be planted with subjects that will bloom through the summer and autumn and a few even in winter. *W. Auton.*

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FOREIGN CORRESPONDENCE.

CULTIVATION OF ASPARAGUS.

I read with great interest the articles on the cultivation of Asparagus in the issues of February 10 and March 3 by *W. F. R.* and Mr. Dykes respectively. I may refer to another system of culture by which those large, long, white heads of Asparagus which Mr. Dykes longs for are produced.

Instead of the three-row system I prefer one row. The ground is measured and poles are driven in at each end of the plot; the beds are then marked out four feet wide with a pole at the end of each. A trench is made as for Celery, a good quantity of well-decayed manure being placed in the bottom and dug in. A layer four inches deep of the upper soil is placed on the top to form a small ridge, and the plants are set on this ridge in the bottom of the trench one foot or fifteen inches apart. The Asparagus will spread very quickly and in a few years fill the trench each way. To ensure a quick and strong growth, attention should be given to watering and manuring; a mixture of leaf mould, sand, decayed vegetable compost and night soil provides a very good manure to use once in every two or three years, substituting artificial manures in the other years, with an occasional application of agricultural salt. The third year after planting the stems may be cut. To prepare for the bleaching of the thick sticks, dig up the soil at each side of the bed and work it to a fine condition with the fork. Place the soil over the bed to a depth of eight or ten inches, and thus form a bed three feet wide at the bottom and a little narrower at the top, somewhat resembling an earthed Celery trench.

In cutting the Asparagus use a long knife, pushing it down as deeply as necessary to secure heads eight or ten inches long. The heads should be cut at least twice daily in order to prevent the tops becoming purple to any great extent. By adopting this method of planting, earthing and cutting as soon as the heads break through the soil the result will be large white sticks such as Mr. Dykes wishes to have, and they are edible nearly to the part where they are cut. After the cutting is finished and the plants are growing freely the soil should be drawn from them and placed in the alleys between the beds to allow air and moisture to reach the roots more readily. For the first two years the spaces between the rows may be utilised for the growing of Cauliflower, Leeks, etc. *James Page, Sweden.*

FRUIT REGISTER.

APPLE LORD HINDLIP.

It is somewhat singular that many excellent varieties of fruits appear to be so little known or generally cultivated. Apple Lord Hindlip, although introduced by Messrs. Watkins, of Hereford, so long ago as 1896, is not often met with in gardens, yet it is one of the best late Apples in season up to April. Fruits of this variety were brought to the notice of the Royal Horticultural Society's Fruit and Vegetable Committee at the last meeting by Mr. P. C. M. Veitch, and the members were so impressed with the merits of this fine sort that many regarded it as worthy of a First Class Certificate, but on reference to the Award Book, it was found that this Apple had already received the highest award. It was first shown by Messrs. Watkins on January 4, 1896, when an Award of Merit was granted the variety, and on the same date the little-known culinary variety, Royal Late Cooking, received a similar award when shown by Mr. Owen Thomas.

The variety Lord Hindlip is of conical shape, and has a dull yellow skin striped on the sunny side with patches of crimson. The apex is uneven; the eye closed and set in a somewhat shallow basin. The stalk end is russety-green, and the stalk itself, about half an inch long, is inserted in a regular, conical cavity. The flesh is white, juicy, and of very agreeable flavour. Mr. Bunyard, in *A Handbook of Fruits*, recommends the variety as a likely candidate for "the desired late market Apple," for which reason it is worthy of inclusion in the trial of commercial varieties of Apples at the Wisley Gardens. The tree is said to be a good cropper, of somewhat slender growth and spreading habit. A specimen before us is in splendid condition, and has every appearance of remaining in good condition for considerably longer than April. Mr. P. C. M. Veitch, of the Royal Nurseries, Exeter, is to be congratulated on again bringing this fine, late, dessert Apple to the notice of growers.

APPLE CHERRY PEARMAIN.

This very old Herefordshire cider Apple, of unknown history, is to my mind a very useful sort to plant as a dessert variety, as the fruits are of good quality in mid-December. It is very good eaten from the tree, also cooks well, and the flesh is of a rich pink tint, not unlike that of Hawkes' Champagne Rhubarb. The fruits are of medium size, very handsome in colour, and roundish oblong in shape. The skin is yellow, covered with streaks of crimson; eye small and closed, set in a narrow cavity; stalk half an inch long. The flesh is soft and reddish pink in patches beneath the skin, and outside the core fibres; sweet and pleasant to the taste; juice plentiful, rich and of a rich pink colour.

The tree is a bounteous cropper and as ornamental as useful. Half standards or bushes planted in shrubberies would not only show to fine effect, but prove of great utility. A fruit-growing friend of mine near Malvern has obtained more money in the fruit market for Cherry Pearmain during the past season than for Newton Wonder, Warner's King or Bramley's Seedling. For its colour and flavour, in its season, it finds a ready sale. I have never taken notice of its qualities until recently, as the variety is generally recognised as a cider Apple. *Pomona.*

RED CURRANT LAXTON'S PERFECTION.

Those who are planting fruit bushes this spring should not overlook the merits of Messrs. Laxton's Red Currant, Perfection. The special merit of this new variety is its long bunch of large berries, and the bunches are produced with great freedom in big clusters. The berries on the racemes sometimes number as many as twenty-five, and, in addition to size of bunch, the variety possesses other merits, including a robust and vigorous habit. It has, however, one defect, and that is the vigorous branches of the current year are liable to tear out at their base, but by shortening them at summer pruning, this trouble may be largely overcome. When the plant is pruned of its young wood closely plenty of fruit buds will form on the old wood, and give a bountiful crop. *T.*

HOME CORRESPONDENCE.

Asparagus.—The article on "Asparagus," by Mr. W. R. Dykes, in your issue of March 3, proved very interesting to me. While gardener to a very estimable gentleman in Bedfordshire, each year when it came to cutting down the Asparagus he specially instructed me to "sow all the berries." As this was contrary to my experience I explained that it was a great mistake. However, he would always end up with, "At my old home there were Asparagus beds over 100 years old, and my father always sowed the berries and I always had them sown, and we always had plenty of Asparagus." On inquiry I found that he certainly had plenty of Asparagus, but it was always very thin. As he was an elderly gentleman, and never interfered with any other branch of gardening, I used to carry out his pet idea with regard to Asparagus, and leave a liberal sprinkling of berries on the beds, with the result that they became crowded with seedlings. I mention this because I believe it to be by no means an isolated case. I have often seen Asparagus beds crowded with weak growths, the result of sowing the berries. If the facts mentioned by Mr. Dykes were more generally known, especially the rigorous selection of male plants, we should see much better results. More than once I have heard country people say, "You must be sure and sow the berries," and these old-fashioned notions die hard. *R. Gardner, Northbrook Gardens, Godalming.*

FIG. 77.—APPLE LORD HINDLIP.

Failures with Plants.—A small printer's error in my note on "Failures with Plants," on p. 123 of the March 3 number, rather spoils my argument in reference to Gentiana verna. The first word in the ninth line from the bottom of the page should have been "turf," not "tuft." Possibly Gentianas would succeed here if planted amongst grass, but on their native Alps they grow and flower before the taller grasses, etc., have run up high enough to smother them, whilst here I fear that the grass would grow before the Gentians had opened their blooms, and they would fail accordingly. *Calbran J. Wainwright.*

Late-flowering Chrysanthemums.—In a reference to my notes in the issue of February 17, *Chrysanthemum Grower* is very dogmatic in his assertions. But let us see what they amount to. He states he has grown Autocrat for years. I stated in my article that this, Enfield White, and Cheshunt White are synonyms, a fact which he evidently overlooked. As for the variety Liverpool, your correspondent makes a statement which he cannot substantiate; it is neither Golden King nor Golden Age, for 2½ ft.

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would have to be added to the height of these varieties, and they would have to be vastly superior in the mode and size of flowering to come up to the one sent me. As to not being up to date, I assumed readers of the *Gardeners' Chronicle* know all about Framfield Pink, Baldock Crimson, etc., for I was attending to the first named fourteen years ago, and well remember a controversy carried on in these columns concerning it about ten years since. Huntsman, Sunshine and Bronze Molly, I only class as November varieties. True, they were in bloom in December last year, but we all know the reason. Lastly, *Chrysanthemum Grower* considers Chrysanthemums do not deteriorate; I am very glad to hear it, for it must be pleasant to have a collection of exhibition sorts which the young men of the present day never saw. *Y. G.*

——*Chrysanthemum Grower's* criticism of *Y. G.'s* notes will cause some readers to smile. There is, however, a question of fact. Autocrat is the registered name of a Chrysanthemum raised by Mr. J. W. Scott, of Messrs. Lowe and Shawyer, so that Cheshunt White and Empire White are spurious names for that variety, and I venture to suggest that these names were given to the variety (for trade purposes) by those who knew the variety's proper name. There is no difference in the bloom of the plants bearing the three names, except such as may arise as the result of differences in cultivation, dates at which the buds are taken, etc. Your correspondent also states there is no such variety as Liverpool Yellow. There is. Although I know that Liverpool Yellow has been once or twice re-christened I was not aware that it bore the name of either Golden King or Golden Age. Golden Age I do not know, but Golden King is a variety sent out by the late Mr. W. Wills some ten or twelve years ago. I do not know the habit of growth of these two varieties, but I do know that Liverpool Yellow is a good, clean grower, and averages a full 6 feet in height when well grown; it is well described on page 94. To put the facts clearly, Liverpool Yellow is also a variety raised by Mr. Scott, but in the early stages it did not do particularly well in its original home; a few plants were sent for trial to one of the best growers near Liverpool, where it did quite well, and although up to that time it was grown under a number, it was at once named Liverpool Yellow. I may add that it is now one of the standard varieties on the London market. Possibly outside the market it is known as Golden Glory by the majority of growers. I was quite interested in *Y. G.'s* notes on page 94; they are much to the point, and although I have not the pleasure of knowing the writer under his *nom de plume*, I trust he will pardon me taking up the cudgels on his behalf; but as I happen to know the facts it is just as well to state them. *Another Grower.*

——As a 36 years reader of your paper, and for thirty years a grower of late Chrysanthemums, I was highly amused at *Chrysanthemum Grower's* "correction" of *Y. G.*, as the would-be corrector is further from the truth than the corrected. Any market grower of standing knows that Autocrat, Enfield White and Cheshunt White are one and the same thing. *Chrysanthemum Grower* tells us there is no such variety as Liverpool Yellow—but there is! Under that name, however, it is one of the registered varieties, and it has only found its way on to the open market within the last year or two, under the name of Golden Glory. How is it both of these correspondents have missed that best of all recent introductions among late yellows, namely, Framfield Glory? This is a variety destined to rival in popularity the W. H. Lincoln of years ago. *E. C.*

Winter Salads.—In the last paragraph of the article under this heading of "Winter Salads," on page 138, Mr. W. Auton states: "It will probably be a surprise to many that Claytonia perfoliata, the Winter Purslane, makes an excellent salad." It is certainly a surprise to me, and that for three reasons: (1) I was not aware that C. perfoliata was ever known as Winter Purslane; (2) I cannot find that there is such a plant as Winter Purslane; (3) Claytonia perfoliata being an annual is not found in the winter; at least my experience is that it entirely disappears long before winter, and reappears from seed in the spring. It is possible, however, that on light soils it may germinate in the autumn, persist through the winter, and flower and fruit in the next year. I would ask, therefore: "Is Mr. Auton sure of his species? Or is he really thinking of some other plant, and if so, what? *C. Nicholson.*

The Culture of Montbretias.—The advice given on page 105 by *C. T.*, under "Cultural Memorandum" for Montbretias, does not agree with our practice. He suggests that Montbretias stored in cold frames should be separated and planted out in their flowering quarters. Our method is to replant in the frames or boxes after separation, and plant out at the end of April or the beginning of May. We grow tens of thousands annually and we find Montbretias are not very hardy. Our practice is to separate the clumps and keep only the stolons or young growths which are given off from last year's flowering corms. These give far better results, as the flowers are larger and of better colour. As for the method of growing non-flowering corms for another season, it is not worth the trouble. We have found the flowers from old corms much inferior to those produced by growing on the young stolons. We also find that Montbretias are not satisfactory when grown in full shade. *J. E. Fitt, Earlham Hall Gardens.*

Primulas for Home Decoration.—I was deeply interested in your notes on "Greenhouse Plants at Reading" (p. 91, February 17), especially regarding the greenhouse Primulas. I have this season grown a good batch of Primulas, both sinensis and stellata varieties in 5-inch pots, and some in 2½-inch pots for decorating the corners of the dining-room table, and found them very useful and pleasing. They were grown under exactly the same conditions as Cinerarias. They have been supplied with many applications of liquid cow manure, but no lime was added to the potting compost. I enclose two photographs [not suitable for reproduction—Eds.], one of P. sinensis, the other of P. stellata. Last year I discovered that over-potting was very disagreeable to Primulas. *Geo. Winter, Pickhurst Manor Gardens, Hayes, Kent.*

Romneya Coulteri (see pp. 36, 139).—*Western Wight* is mistaken in suggesting that there are several forms of the Mexican Poppy. There are, as Sir Herbert Maxwell probably knows, two distinct species which, though quite similar in flower, are very different in appearance and habit. We have both here growing together, and it is easily seen in what respects they differ. R. Coulteri likes to have its roots rambling among stones in rich loam and free drainage. Under such conditions it will become a rampant grower, sending up suckers several feet from the main stock, and giving growths five to six feet high, but though the previous year's stems will survive a mild winter, they never flower here. R. trichocalyx never spreads in this manner, and always flowers from its old growths, but, of course, the dense coat of bristles on the flower buds constitute the characteristic difference from R. Coulteri, which also has larger and less glaucous foliage. *R. Windsor Rickards, Usk Priory, Monmouthshire.*

Gardens at Olympia.—I was glad to read the timely note in your issue of March 10, on the floral exhibits at Olympia. Having read in the daily Press that there was "all the wistful charm of spring and all the golden glory of summer to be found in these wonderful gardens," I paid a visit to Olympia and found the gardens even more wonderful than I had been led to believe. For I found spring and summer flowers, and natives of different climates blossoming side by side, closely packed together, just as one might see them offered for sale at some West End florists' shop. The association of such flowers as blue and violet Cinerarias with Hyacinths in another tone of blue, and indoor Azaleas with Crocuses of another tone of orange, was at once a discord and an anachronism. One well constructed rocky stream was rendered unnatural by the introduction of electric lights behind a cascade. Rich purple Crocuses killed the tones of the so-called "blue" Primroses, and beds of closely massed Darwin Tulips in scarlet and mauve shades, which flower naturally two or three months later, were introduced in close proximity to bright yellow masses of Daffodils—strong meat for the formal garden and quite out of place in any representation of a wild one! In another exhibit, a long water-tank contained Iris tingitana, where they could not possibly have lived for any length of time, and were close to white Arums, which enjoy a different climate. The fountains shown were of the primitive type, consisting of a single jet. One certainly fell into a metal basin, but the jet was so large that the splashing was anything but restful or artistic. It is much to be regretted that such abominations should be perpetrated by professional gardeners, and sincerely to be hoped that they will not be imitated by the public, or many true garden-lovers will feel they have to some extent spent their lives for naught. *H. H. W., Hertford.*

Poisonous Pods of Robinia Pseudacacia.—It is not generally known that this handsome tree possesses a poisonous principle called robine, which is fatal to some aniamls. Sir Harry J. Veitch tells me that three of his sheep died in the lambing season through eating the pods that had fallen on the ground from the trees, as the remains of the pods were found, as well as the seeds, in the stomach of the sheep. It is, according to Dr. G. D. Lander, the author of *Veterinary Toxicology*, 1912, the first case on record of sheep being killed by these pods; all three sheep were dead within three days. The tree is often grown in gardens, and has flowers resembling those of Laburnum, but white, and somewhat fragrant, instead of yellow, and leaves with numerous leaflets. It is commonly known as Acacia, Bastard Acacia, False Acacia, or Common Locust Tree. When growing in garden hedges so as to overhang pasture land, it should be destroyed, and planted only where the pods cannot drop, or where the foliage cannot be reached by stock, to which it is a serious danger. It is well known that pregnant animals will often browse on any plant that they would not touch at other times, while any animal will try all sorts of greenstuff when there is a shortage of grass or other familiar herbage. It is as a rule only under such conditions that they will eat Yew, which only proves fatal as a rule when eaten on an empty stomach. *E. M. Holmes.*

Gardeners' Wages (see p. 151).—In reading the article by *G. W. K.*, with reference to wages, it occurs to me that had he been placed as so many ex-service men were, he would have been more kindly in his judgment. Many ex-service men of the "blue aproned fraternity" had experience something similar to mine when demobilised. I was demobilised in August, 1919, after four years' service, only to find that my pre-war position as gardener, in a medium sized place, was non-existent, the gardens having been closed owing to the death of my employer, and the cottage was required for another man. Having just returned from the Far East, I was not fully aware of the wages head gardeners were receiving, but making application for a post, I asked 100 per cent. above pre-war rates, many of my applications were returned marked "wages too high." I began to get weary of writing, and of existing on the dole, plus drawing on my savings, but at last came an offer of a situation in a medium sized place, but with a low wage. Realising that a low wage was better than the dole, and employment better than unemployment, the offer was accepted, and gratefully. Three years have passed, and I am still in the same position, and during that period the low wage has been increased three times, and now amounts to a fair sum. I am afraid that if the head gardeners who, during the war, kept their positions and received high wages, had lost their berths and had to live as many ex-service men have done, they would not be so free with their criticism. *W. M.*

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SOCIETIES.

READING AND DISTRICT GARDENERS'.

One hundred and twenty members were present at the meeting of this Association on the 6th inst, when Mr. F. Townsend delivered a lecture on "Annuals for Exhibition and Garden Use." The lecturer is well known as a most successful grower of these popular flowers, both under glass and in the open air, and his remarks on the details of culture and on the most popular sorts and varieties were followed with the keenest interest. He laid particular stress on the value of Larkspurs, Godetias, Clarkias, Salpiglossis, Coreopsis, Lavatera, Nigella, Asters and Stocks. The lecture was made particularly interesting by a series of auto-chrome and other lantern slides.

In the competition for six blooms of Richardias (Arum Lilies) many splendid spathes were shown, and the judges' awards were: 1st, Mr. A. H. Sopp, The Lodge, St. Peter's Hill, Caversham; 2nd Mr. J. Wynn, The Gardens, Hammonds, Checkendon; 3rd, Mr. W. Gower, The Gardens, Calcot Grange. Mr. W. Broomfield, The Gardens, Clyffe House, Mapledurham, showed blooms of a seedling Carnation, with remarkable foliage; from each joint, in conjunction with the ordinary leaf, it produced a bunch of crested foliage.

ROYAL CALEDONIAN HORTICULTURAL.

March 6.—The ordinary monthly meeting of this Society was held at 5, St. Andrew's Square, Edinburgh, on this date, Mr. J. W. M'Hattie, president, in the chair.

A lecture, illustrated by lantern slides, was delivered by Dr. R. J. D. Graham, Royal Botanic Garden, Edinburgh, on "The Flora and Gardens of Mesopotamia." Lower Mesopotamia, he said, was a country of light rainfall—about 10 inches—and this was augmented by irrigation. The chief agricultural crop was Dates, which before the war were exported to the value of £1,500,000. This region rivalled Egypt in area as a Cotton-growing country, and also in the yield and quality of the crop. Upper Mesopotamia had a heavier rainfall than Lower Mesopotamia, and was the centre of the cereal cultivation. In 1912 over £1,000,000 worth of Barley was exported from Bursa, much of which came to Edinburgh.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The annual general meeting of this useful Horticultural Benefit Society was held at the Royal Horticultural Hall, Vincent Square, Westminster, on Monday, the 12th inst., at 7.30 p.m. There was a large attendance of members, and Mr. C. H. Curtis presided. Following the usual custom, at the conclusion of the opening proceedings, all present stood in silence in memory of the large number of members who fell in the great war.

The annual report and accounts presented by the Committee show that no fewer than 120 new adult members were elected during 1922, while 34 members lapsed and 14 died, leaving the total effective membership at 1,709, as compared with 1,636 at the end of 1921, or a net gain of 73. The sum of £10 now granted to the nominees of deceased members has proved to be of great benefit in many homes where long illness preceded the death of a member. As every member must leave £10 standing to his own individual account, this allows £20 to be paid out after his death. Funeral benefits amounted to £140 during the year under consideration, and this sum was met by deduction of 1s. 9d. from each member's account. The attendances at committee meetings show that the members of the committee take a very keen interest in their duties, and thoroughly justify their selection on the Board of management. The committee considered that advertising in the Horticultural Press during the past year was thoroughly justified, and we are glad to learn that a very high percentage of inquiries were received as a consequence of the advertisements in the *Gard. Chron.* Special reference was made in the report to the annual dinner held at the Imperial Hotel, Russell Square, on October 4, 1922, over which Mr. Leonard Sutton presided. On this occasion the members of the Society made a presentation to Mr. C. H. Curtis, in recognition of his services as chairman of committee continuously for twenty-one years. During the past year the Society has paid £789 13s. 3d. in sick pay; £186 13s. 8d. in grants from the Distress Fund; £691 10s. 7d. as withdrawals from their deposit accounts by members over seventy years of age; £479 6s. 4d. to nominees of deceased members; and £24 3s. 4d. to lapsed members. The total expenditure for the year amounted to £5,214 13s. 9d., and the total income, including £2,281 11s. 8d. as dividends on investments, was £6,187 9s. 5d.; the expenditure included the purchase of £2,000 3 per cent. London and South Western Railway stock and £1,500 of 4½ per cent. Indian Loan. The invested funds amount to over £64,000.

In moving the adoption of the report and accounts, the chairman made reference to the special items therein, and thanked the members for their generous gift to him in the autumn of 1922. The motion was seconded by Mr. R. A. Edwards, and adopted unanimously.

Mr. A. Bedford was elected hon. treasurer in succession to the late Mr. Thomas Winter, and the meeting agreed to vote the sum of £25 to Mrs. Winter in return for services rendered to the Society in 1922 by her late husband.

All the old members of committee were re-elected, and Mr. R. A. Edwards, of Messrs. Cooper, Taber and Co., was appointed to a vacancy, as representing the seed trade. Votes of thanks were accorded the trustees, the committee and officers, the Horticultural Press, and the auditors. The latter, Messrs. Gunner and Puzey, were re-elected. The chairman mentioned that Mr. Gunner had been one of the auditors for a period of thirty-six years. Mr. C. H. Curtis was re-elected chairman of committee, and Mr. T. R. Butler, vice-chairman.

The meeting adopted the suggestion of the committee that a sum not exceeding £100 should be spent on advertising the Society during 1923 as the committee saw fit.

The report and audited accounts of the State section for the year 1921 were presented and adopted, and it was pointed out that the accounts for 1922 were made up and in order, but the Government auditors had not yet attended the office to deal with them.

A vote of thanks to the chairman concluded the proceedings.

LEEDS AND DISTRICT MARKET GARDENERS'.

The tenth annual Rhubarb show and dinner of the Leeds and District Market Gardeners' Association was held at Leeds on the 24th ult. The number of entries for the Rhubarb competitions constituted a record, and the quality of the produce was of a very high standard.

Mr. A. Worth, of Farnly, near Leeds, showed the best six sticks of Prince Albert or Linnaeus variety; Messrs. Whitwell and Briggs, Bramley, the best six sticks of Victoria or any other variety, over 5 lb.; Mr. E. Worth, the best six sticks of Victoria or any other variety, under 5 lb. weight; Mr. J. R. Groundwell, Buslingthorpe, the best six sticks of Dawe's Champion variety, for which a silver cup valued at thirty guineas was offered; Mr. A. Cowling, near Wakefield, the best three marketable bunches of the variety Victoria not to exceed ¾ lb. in weight each, for which Messrs. Garcia, Jacobs and Co. offered a silver cup valued ten guineas; and Mr. T. D. Watson, Morley, the best three marketable bunches of Dawe's Champion variety not to exceed ¾ lb. in weight each, for which Messrs. Pask, Cornish and Smart, Covent Garden Market, offered a gold medal.

Mr. J. R. Groundwell having won the silver cup and vase in class 4 for the best six sticks of Dawe's Champion Rhubarb three times in succession, these awards become his property; Mr. A. J. Cowling has also won outright the cup offered by Messrs. Garcia, Jacobs and Co., Covent Garden, London.

Obituary.

Mrs. Gilbert.—We learn that Mrs. Gilbert, widow of the late Mr. Richard Gilbert, for many years head gardener to the Marquis of Exeter, at Burghley, near Stamford, died on March 8, at the residence of her daughter, Mrs. Divers, Westdean, Hook, near Surbiton, after a long illness, aged 91 years.

David Charles Powell.—There passed away on February 23, 1923, at Pietermaritzburg, Natal, David Charles Powell, who was born at Highnam, Gloucester, seventy-four years ago. The late Mr. Powell was for some years in the gardens at Higham Court, the residence of the late Sir Hubert Parry; from there he went to Messrs. J. Veitch and Sons, Chelsea, and after valuable experience gained at that famous nursery, he took up responsible posts in various gardens of the English nobility. For about ten years he was in charge of the numerous greenhouses at Moor Park, Hertfordshire, then the residence of the late Lord Ebury. Relinquishing this post he went to Powderham Castle, near Exeter, the residence of the Earl of Devon, and for a period of thirty years had entire charge of the beautiful gardens there; his work was much appreciated, and he was held in high estimation by the Earl of Devon. For a number of years he was engaged by the Devon County Council, as lecturer in horticulture, and his lectures were delivered after working hours in districts adjacent to Exeter. In 1905 Mr. Powell went to South Africa, with his wife, and two daughters, leaving one son in England. His death will be deeply mourned by all who knew him; as he was a general favourite, and very highly esteemed among horticulturists. No doubt there are many of Mr. Powell's gardening friends who will remember him and his work, especially in the West of England. He leaves a widow, two daughters, and one son to mourn his loss.

LAW NOTES.

FAILURE OF A MARKET SALESMAN.

At Bankruptcy Buildings, Carey-street, W.C., on the 9th inst., the first meeting of the creditors was held of Frank Edward Davis, Jubilee Market, Covent Garden, W.C., residing at 135a, Main Road, Sidcup, and late of White House, Swanley, fruit and Potato salesman, against whom a Receiving Order was made on February 21, 1923. About 1918 or 1919, debtor went to Hextable, Swanley, to manage a haulage company, which was a co-operative company formed to take market produce to London. He held that position for about a year, leaving in March, 1920, to take a stand in the Jubilee Market, Covent Garden, and started selling vegetables in the market. He continued that business until the date of the Receiving Order, but through various bad deals, chiefly in Apples, he lost money, and the general condition of the trade during the last year or two had contributed to his present position. He estimated his liabilities at £1,700, and his assets were estimated to produce £222.

Bad condition of trade during the past 18 months; having bought Apples and Potatos which he re-sold at a heavy loss; and loss caused through "empties" not being returned, were the causes of his failure.

The estate was left in the hands of the Official Receiver.

The Official Receiver for the Wandsworth District has now issued his report in the liquidation of Toopes, Ltd., The Bridge Riverside Works, Kew. The statement of affairs shows as regards creditors, liabilities expected to rank for dividend £3,583 6s., and net assets £492 15s. 6d. As regards contributories, the paid up capital was £2,110, and the total deficiency amounted to £5,200 10s. 6d. The failure of the Company was attributed to two years' unprecedented slump in trade, depreciation in stock, bad debts, high cost of labour in regard to production, and law costs.

The Winding-up Order was made on October

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31, 1922, on a creditor's petition. The Company was incorporated on March 19, 1920, as a private company, to carry on business as greenhouse heaters, makers of poultry houses, incubators, etc. The promoter was Mr. William Carter Slaughter. In the terms of an agreement made on March 22, 1920, the Company agreed to purchase, and Wm. Carter Slaughter, as vendor, agreed to sell, the goodwill of the business of greenhouse heaters, makers of poultry houses, incubators, etc., carried on by him at the Bridge Riverside Works, Kew, in the names of "Charles Toope and Son," and "Robert Toope and Co.," together with the lease, book debts, business furniture, plant, machinery, stock, etc., and the benefit of all pending contracts for a consideration of (a) £1,400 to be satisfied by the allotment to the vendor of 1,400 fully paid £1 shares of the Company, and (b) the payment of the trade liabilities.

For the period March 19 to December 31, 1920, a net profit of £91 17s. 3d. was shown. For the period January 1, 1920, to August 12, 1922, there was a loss on trading of £4,178 11s. 6d. The business began to decline at the end of 1920, and gradually became worse owing to the general slump in trade. The unsecured indebtedness included £2,260 for timber.

A NURSERYMAN'S FAILURE.

The public examination of Mr. A. D. Thompson, 11, Adam-street, Adelphi, nurseryman, lately residing at Hill Crest, Merry Hill Road, Bushey, Herts, against whom a Receiving Order was made on December 31, 1922, on a creditor's petition, has been concluded. The statement of affairs showed liabilities expected to rank for dividend £3,015 18s. 8d., and net assets £333 11s.

Prior to 1911 debtor was in employment as a horticulturist. In or about the spring of 1911 he and another person started to trade together in partnership as landscape contractors and nurserymen under the style of Thompson and Charman, at 11, Adam Street, Strand, W.C., and at "The Nurseries," Bushey. His partner resigned about the end of 1915, and debtor then continued the business on his own account. In July, 1916, he assigned his estate to a trustee for the benefit of his creditors generally. His unsecured liabilities amounted to £1,457 and dividends were paid thereon amounting to 1s. 2½d. in the £.

From 1916 to 1918 he was engaged in improving his own invention for a non-leakable petrol tank for the use of aircraft. In consequence he was exempted from military service. The war ceased soon after he perfected the invention, and he then allowed the patent to lapse. In November, 1918, he commenced to trade as a consulting horticulturist under his own name at 11, Adam Street, Strand, W.C., and he continued this business to the date of the Receiving Order.

About the beginning of 1921 he commenced experiments for the manufacture of a patent green hard tennis court. He entered into contracts to lay several courts, but they did not prove satisfactory, and in October last he ceased to manufacture the court.

He attributed his failure and insolvency to the non-success of the patent tennis court, to having under-estimated the cost of laying these courts, and to trade depression.

INQUIRY.

I should be grateful for advice as to spraying fruit trees. It is my practice to spray in winter with lime-sulphur, and to spray again with lead arsenate when the blossoms are showing. This year, owing to continuous wet weather, it has not been possible to get on the land, and hence the spraying with lime-sulphur has not been carried out. What I desire to know, is whether I can combine the two spray fluids in one operation to be performed just before the blossoms appear, and whether this may be done with safety, not only in the case of Apples and Pears, but also in that of Plums and small fruit (Gooseberries), or whether it will be best in the case of the last-named to use a nicotine spray. *F.*

THE WEATHER.

WEATHER IN FEBRUARY.

The final month of winter was characterised by an exceedingly low mean air pressure, an unusual run of south-easterly winds, and abnormally humid and rainy weather, only one definitely wetter February having occurred during the fifty-two years of Southport observations. For the most part it was also a very mild month, the chief exception consisting of four or five wintry days, which commenced on the 18th and were of a raw and trying description. The mean temperature of the complete month was 42°, or 2½° above the average for fifty years. There were 53 hours of sunshine, or a deficiency of 15 hours. So much as 3.88 inches of rain was measured at Hesketh Park, the normal being exceeded by 1.79 inch. Days with rain numbered 24, or nine more than the average. Humidity also was very high. No gales occurred, nor was there any thunder. Ground-frosts were limited to seven nights, and only on three dates did any frost invade the shade. Fog and hail were each reported once only. Snow fell twice, but never lay to a depth of quite two inches, and on both occasions it melted away the same day it fell. *Joseph Baxendell, The Fernley Observatory, Southport.*

THE WEATHER IN SCOTLAND.

What is known in Meteorology as a "rain spell" is fourteen successive days on each of which a measurable quantity of rain is collected. While such rain spells are of infrequent occurrence in this district, the casual observer of weather might be pardoned for concluding that the month under review, with its 25 rainy days, provided one, yet it did not, for the rainless days came at such intervals as to break the "spell." Although February as a whole was a disagreeable month, there were some pleasant parts; thus on three days, at the time of observation "clear sky" was recorded, while the 4th and 9th registered each approximately 7½ hours of sunshine. The mean temperature was relatively high, the first few days being very mild, with a cold spell from the 17th to 21st. The total rainfall was 4.89 inches for 25 days, against a normal of 1.88 inch for 14 days, the wettest day being the 27th with a fall of 0.60 inch; snow fell on 3 days. There were 21 sunless days in the month, the remaining 7 days yielding an aggregate of 30.5 hours, a daily average for the month of 1.1 hour and a percentage of 11. The mean temperature was 39.3°, being almost 2° above the normal, with a mean maximum of 42.7° and a mean minimum of 36°. The highest maximum of 54° was registered for the 1st, and the lowest minimum of 30° for the 21st. On three nights the temperature fell below the freezing point. The mean minimum on the grass was 34°, with a lowest of 28° on the 23rd; there were seven nights of ground frost. At 1 foot deep the soil temperature showed considerable fluctuations, rising to 42° on the 3rd and falling to 38°. Strong winds were frequent, chiefly from the east and south. *John Davidson, Meteorological Station, St. Andrew's Provincial Committe, Training College Gardens, Mayfield, Dundee.*

ANSWERS TO CORRESPONDENTS.

Arundina chinensis: *S. J. B.* Arundina chinensis, a native of China and the Himalaya region, has been known for nearly a century; it has been cultivated in small quantity for the greater part of that period, and is now occasionally met with in gardens. In November, 1895, Sir Trevor Lawrence obtained a Botanical Certificate for the plant from the Royal Horticultural Society, when showing it under its synonym, A. Philippi, Reich. f. The species varies in both plant and flowers in different localities, but all the forms have the same general characters. A. chinensis, A. bambusaefolia, and other allied species are terrestrial plants of tufted habit, bearing slender reed-like stems 2 to 3 feet high, with lanceolate leaves 4 to 6 inches in length, and arranged regularly on each side of the stem. The few-flowered inflorescence is terminal, and practically a continuation of the upper part of the stem. The flowers are from 1 inch to 2 inches across, and coloured rose or light rosy-mauve. The plants should be potted in a mixture of fibrous peat and yellow loam fibre, with a sprinkling of Sphagnum-moss, the crowns of the plant being kept above the surface of the material. A. chinensis and its allies grow well in an intermediate Orchid house, plant stove or heated conservatory. A liberal supply of water should be given until the growths are completed and flowering commenced, after which a restricted supply and cooler temperature should be provided until growth begins again. To raise the seeds, sow a portion on the surface of the compost of any suitable Orchid plant you may have to set aside in a moist, shady place, where it will not be disturbed, but can be carefully watched; or make up two or three seed pans with finely-sifted Orchid peat and Sphagnum-moss, or Orchid compost, which you can purchase. Soak these well before sowing, and in two or three days sow the seeds on the surface, and place the pans on inverted pots in a warm, seed-raising case or propagating frame. If the seeds are to be imported they should be dispatched in sealed tubes.

Designing Town Gardens: *S. S.* The appropriate charge for furnishing a design for a town garden and for supervising its carrying out would, naturally, vary considerably according to the size of the garden and the amount of work entailed in drawing the plan. But, as a basis, we would suggest that the charge for a plan for the average villa garden should be two to three guineas. Supervision by good architects is usually based on the total cost of the work, and seems to range from 7 per cent. upwards to so much, in cases where considerable time is required, as 40 per cent

Establishing Blackberries: *J. W. W.* Blackberries root very freely from the tips of the branches, forming stolons, as in the case of Loganberries. If you search the hedgerows of districts where Blackberries are plentiful you should be able to obtain a supply of young plants rooted in this way, and they would be much easier to obtain than by rooting cuttings in flower pots. If the bush you refer to is near at hand bend some of the shoots down and peg the tips in the ground; you will find they will root with freedom.

Gardening Society Committee: *D. F. H.* The chairman of your committee would be entitled to vote in the ordinary way, and, in the case of the number of votes being equal on both sides, to give a casting vote. The general secretary, unless he is a paid officer, is usually entitled to vote on a committee.

Landscape Architect: *A. H.* Your experience as foreman of a farm would be scarcely likely to fit you for the work of designing gardens, unless you have a natural ability for such work. You would scarcely be likely to become proficient by studying books on the subject, and your best plan would be to secure employment in a firm which specialises in garden architecture.

Names of Fruit: *T. G. B., Leicester.* Pear Uvedale's St. Germain.

Names of Plants: *G. P.* 1 and 6, Cupressus Lawsoniana; 2 and 5, Thuya dolabrata; 3, Cupressus macrocarpa; 4, Cupressus nootkatensis; 7 and 9, Thuya plicata; 8, Cupressus pisifera var. plumosa; 10, Cupressus Lawsoniana var. lutea; 11, Juniperus chinensis var. aurea; 12, Cupressus pisifera var. plumosa aurea; 13, Drimys Winteri.—*E. S.* 1, 2 and 3, Saxifraga apiculata; 4 and 6, S. Elizabethae; 5, S. sancta; 7, S. Paulinae; 8, specimen too scrappy to identify; 9, S. burseriana; 10, S. ligulata—*H. W.* Narcissus Beauty.—*L. S. A.* Tussilago Farfara.

Propagation of Viburnum Carlesi: *Mrs. J.* Cuttings of this Viburnum root readily during July in a propagating frame with a little bottom heat. The new growths of the year are by this time moderately firm on plants outside. By growing a plant or two under glass, as is often done with this fragrant Viburnum, the cuttings are ready to insert earlier, and a larger percentage of plants is obtained from indoor than from outdoor cuttings. Most of the plants propagated on the Continent are grafted on Viburnum Lantana or V. Opulus.

Pronunciation of Plant Names: *Student.* *The Pronunciation of Plant Names*, published by the *Gardeners' Chronicle*, is out of print, but you might be able to obtain a copy from a second-hand bookseller. We know of no other work of this nature, but there is a pronouncing dictionary in *Nicholson's Dictionary of Gardening.*

Communications Received.—A. L.—H. A. J.—E. G. S.—J. P. C.—J. S.—A. L.—A. O'L.—Cloe—F. E.—J. C. W.—G.—A. T. S.—G. H. C.—W. L.—C. F. C.—A. B. S.—W. C.—C. E.—A. A.—F. R.—W. W. C.

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THE
Gardeners' Chronicle
No. 1892.—SATURDAY, MARCH 31, 1923.

CONTENTS.

Alpine garden, the—
Primula denticulata . 173
Bulb garden, the—
Crocus Tommasinianus 175
White Crocuses .. 175
Dewar, Mr. Alexander, presentation to .. 169
Foreign correspondence—
Compost soil 176
"Gardeners' Chronicle" seventy-five years ago 170
Ghent Exhibition, British section of the .. 170
Gladioli, origin and evolution of summer-flowering 177
Grevillea asplenifolia .. 178
Hardy flower border—
Geranium anemonaefolium 173
Lupins 173
Indoor plants—
Cannas 171
Kew gardener, sad death of a former 170
Kewites and the International Congress at Amsterdam 170
Landscape gardening for women, American school of 169
"Le Chrysanthème" .. 169
Obituary—
T. J. Grey 180
Odell, Mr. J. W. .. 170
Orchid notes and gleanings—
Laelio-Cattleya Beauty 171
Plants new or noteworthy—
Rhododendron sutchuenense 171
Pollen, ... 169
Potato flowers degeneration in and causes of sterility, ... 176
Scholarships for rural works, agricultural .. 169
Shrubs, some Californian 174
Societies—
Manchester and N. of England 180
Newcastle and Dis. Hort. 180
Royal Horticultural . 180
"The Microscopical Theatre of Seeds" 178
Trees and shrubs—
Berberis vulgaris .. 177
Fendlera rupicola .. 177
Magnolias 177
Trees, buttressed and stilt-rooted 174
Vegetable garden—
Peas 176
Week's work, the .. 172

ILLUSTRATIONS.

Fendlera rupicola, flowering shoot of 177
Odell, Mr. J. W., portrait of 170
Primula denticulata in the rock garden 173
Rhododendron sutchuenense; foliage and inflorescence of 171
Trees: a buttressed tropical, broken by a storm, 175; a typical swamp-forest, stilt-rooted 174

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 44.1°.

Actual Temperature:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Tuesday, March 27, 10 a.m. Bar. 30.2; temp. 63°. Weather—Sunny.

On Pollen. All new knowledge on the subject of pollen is likely to be of interest not only to the plant physiologist, but also to the plant breeder. For example, it happens not infrequently that promising crosses between different plants cannot be made because of inability to secure the ripe and viable pollen of one species at the time when the stigmas of the other are ready for pollination. Hence it becomes important for the hybridist to know how best pollen may be stored and how to test stored pollen to ascertain whether it has retained its powers of germination. Recent experimental studies* of pollen by Mr. H. E. Knowlton, which have been directed to these ends throw new light on the conditions which serve to preserve the life of pollen and on the reasons for the often rapid mortality of pollen. The plants used for experiments were Antirrhinum—which has a relatively long-lived pollen, and Maize—the pollen of which lives for an exceedingly brief time. Apple pollen was also tested. The author points out that although it is often easy to cause pollen to grow on artificial media, none of the media yet discovered is altogether satisfactory. A sugar solution is usually employed for artificial germination, and it is interesting to observe that the pollen of some species is so "hardy," that it will grow in sugar solution of very varied concentration or even in water alone. In more difficult cases the addition of a little gelatine or agar appears to assist pollen-germination. Some species are on the contrary very sensitive, and only germinate when the sugar solution is of a definite concentration. The pollen of Gramineae belongs to this category, and in the case of Maize, will only germinate in a ten per cent. solution of cane sugar, to which 0.7 per cent. agar has been added. In some cases germination in artificial media only takes place if a portion of the stigma of the flower is added to it. Although the length of life of pollen grains is often to be measured by days, the pollen of the Date Palm almost deserves the designation of "perennial," for the Arabs make a practice of keeping branches of staminate flowers in paper bags in dry, cool places for use in pollinating the female flowers in the following year. It has, indeed, been averred that Date pollen retains its viability for fifteen years. At the other extreme is Oxalis Acetosella, the pollen of which is ephemeral—enduring but for one day. Between these extremes stand Antirrhinum majus, with pollen which lasts for forty-three days, and Picea excelsa, whose pollen may be kept for eighty days. Apple pollen is long-lived; stored in a dry place it may be still capable of germinating at the end of six months. The moisture content of the atmosphere in which pollen is stored has a marked effect on its viability. Generally speaking thirty per cent. humidity or a quite dry atmosphere is best. When conditions are suitable germination, that is the throwing out of the pollen tube from the grain, may take place with astonishing rapidity; for example, in the case of Antirrhinum majus, within two or three minutes of immersion of pollen in a sugar solution of appropriate strength. Of accommodating pollens that of the Apple is remarkable. It may show slight germination, one per cent. in a 2.5 per cent. solution, and the percentage of germination goes on rising with increasing concentration until the medium contains seventeen per cent. of sugar, and even in thirty per cent. twenty-five out of every hundred pollen grains grow. No less remarkable than the long life of certain kinds of pollen is the length of the period during which stigmas may remain receptive. Thus, in Antirrhinum, a stigma may retain some of its power for three weeks. Of the conditions which are favourable to pollen viability, low temperature appears to be of importance with decreasing storage temperature; there is at all events with Antirrhinum pollen an increase in longevity. Stored at — 18° C. to — 30° C. pollen of this plant remained capable of fertilisation for one hundred and sixty-one days, whereas at 0° C. the viability of the pollen only lasted a month. A high percentage of carbon-dioxide in the air is said also to preserve pollen. In pure carbon-dioxide Antirrhinum pollen remains viable for a month. Why pollen generally should die so soon remains still a mystery. It does not die of desiccation nor of exhaustion; apparently, as with seeds, a slow change in its proteins goes on—the end term of which is incompatible with life. This is a subject for the biochemist: the gardener who practises plant breeding is more concerned in knowing how pollen may best be kept alive.

* "Studies in Pollen, with Special Reference to Longevity." Cornell University Agricultural Experiment Station, *Memoir 52*. January, 1922. Ithaca, New York. Published by the University.

Presentation to Mr. Alexander Dewar.—On the occasion of his retirement from the position of gardener at Dankeith, Kilmarnock, a number of friends joined to make Mr. Alexander Dewar a handsome presentation in recognition of the many services he has rendered to local horticulture, particularly in connection with the flower shows in the Kilmarnock district. In the unavoidable absence of Mr. Priest, of Edlington Gardens, Mr. Muir, of Troon, presided, and the presentation was made by Mr. Melville, Cambusdoon. This consisted of a wallet of Treasury notes, together with several articles in silver presented to Mrs. Dewar. Both Mr. Muir and Mr. Melville gave expression to the very high esteem in which Mr. and Mrs. Dewar are held in the district, and the hope was expressed that they would be spared to each other for many years to enjoy a well-earned retirement. After Mr. Dewar had suitably acknowledged the gifts and indulged in a number of interesting reminiscences, Mr. and Mrs. Dewar entertained the friends who made the presentation.

"Le Chrysanthème."—The issue of this publication for December-January has been delayed by a printers' strike at Lyons. The contents are unusually interesting to members and others who take pleasure in the cultivation of the Chrysanthemum. Over eighty new members have been added to the list since the last issue, and there is a special list of members added to this number by which it appears that the Society now has over 900 members, inclusive of affiliated societies, each of which is counted as a member. Reports of committee meetings and of the Congress held in Paris last October are given, and the text of various speeches and papers made or read in connection with that gathering will be perused with interest. They were by M. Viger, M. Blot, M. Chantrier, Dr. Chifflot and others. There are also reports of local Chrysanthemum shows, viz., La Rochelle, Angoulême and Anzin. The rules of the Society and Floral Committee regulations are added together with the final instalment of the History and Work of the Society since its formation twenty-seven years ago. There are several illustrations—one, a general view of the show in the Palmarium at Paris last October, is quite typical and better printed than is usually the case. It has been decided that this year's Congress of the French Chrysanthemum Society shall be held at Limoges.

American School of Landscape Gardening for Women.—The Lowthorpe School, at Groton, Massachusetts, situated in a lovely village thirty-six miles from Boston, has been established for the purpose of training women in the art and practice of landscape gardening. A staff of very able instructors has been provided, and includes Messrs. F. S. Kingsbury, H. H. Blossom and R. S. Sturtevant, of Harvard. A new and novel departure is the institution of a special course of lectures designed to meet the needs of lady amateur gardeners, and this is planned to cover subjects of special interest to such students; it suggests a line of study which might prove popular and useful in this country. The American course commences on April 3, and continues to May 17; arrangements have been made to accommodate students in the village, close to this school of landscape gardening.

Agricultural Scholarships for Rural Workers.—The Ministry of Agriculture and Fisheries announces that a number of scholarships under the scheme approved last year for establishing scholarships and maintenance grants for the sons and daughters of agricultural workmen and others are offered for award for the session commencing in October next. The scholarships are provided out of the special fund for agricultural development voted by Parliament under the Corn Production Acts (Repeal) Act, 1921, and are limited to the following:—(a) Sons or daughters of agricultural workmen; (b) sons or daughters of other rural workers, including bailiffs and smallholders, whose financial circumstances are comparable with those of agricultural workmen; (c) *bona fide* workers in agriculture, whose financial circumstances and those of their parents or guardians are comparable with those of agricultural workmen. The scholarships are of three kinds, and are briefly described below. The maximum number which will be awarded in each grade, if sufficient suitable applicants are forthcoming, is also given:—(1) Ten Class I. scholarships for three years, with the probability of extension for a fourth year in suitable cases, tenable at Oxford,

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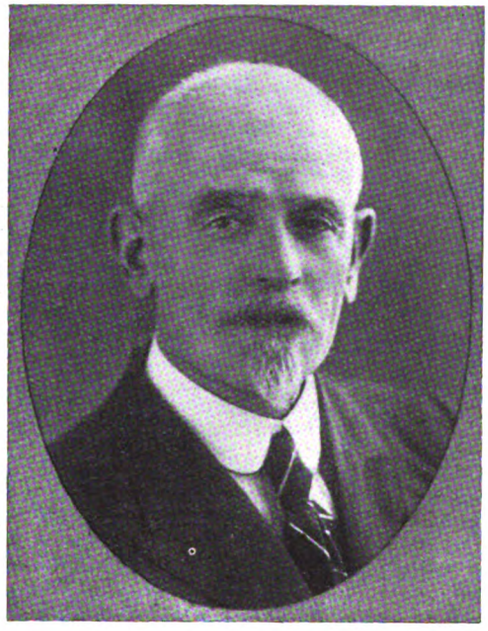
Cambridge, or other Universities, enabling students to attend degree courses in agriculture; (2) 10 Class II. scholarships for two years tenable at certain University Departments of Agriculture and agricultural colleges; (3) a number of Class III. scholarships, probably not exceeding 150, tenable at farm institutes and similar institutions for courses of one year's duration or less, in agriculture (or horticulture, or dairying, or poultry keeping). Candidates for Class I. and Class II. scholarships must be at least 17 years of age on June 30, 1923, and must satisfy the Selection Committee that they have reached a sufficiently high standard of education to derive educational benefit from the courses of instruction. In the case of Class I. scholarships, preference will be given to applicants who have passed an examination which entitles them to enter a University. The standard of general education required for Class III. scholarships is not so high as that for Class I. or Class II., but candidates will be required to furnish evidence of their acquaintance with practical agriculture (or horticulture, dairying, poultry keeping, etc.), and should normally have been engaged for at least a year in all in such practical work. Candidates for this class of scholarship must be at least 16 years of age on June 30, 1923. Applications should be lodged with the Secretary, Ministry of Agriculture and Fisheries, 10, Whitehall Place, London, S.W. 1, not later than May 14.

Kewites at the International Congress at Amsterdam.—Mr. Th. J. Dinn, 22, Madoerastraat, The Hague, will be pleased to hear from Kewites who propose to visit Amsterdam on the occasion of the Horticultural Congress, September 17-23, 1923, so that, if possible, a reunion may be arranged.

Retirement of Mr. J. W. M'Hattie.—In the ordinary course of events, Mr. J. W. M'Hattie, Superintendent of the Edinburgh Parks, is due to retire on December 12, this year, but the Parks Committee of the Edinburgh Council recommends that his retirement shall not take effect until six months later, and that, meanwhile, steps be taken to fill the position, the person appointed to act as assistant to Mr. M'Hattie for a few months previous to taking full charge. The salary recommended for the new appointment is £500 per year.

British Section of the Ghent Quinquennial Exhibition.—As a result of efforts made by the Exhibition Committee of the Chamber of Horticulture, a successful British Section at the Ghent Exhibition in April is now assured, indeed, it is anticipated that the combined British display will be as interesting and effective as the one contributed to the Antwerp exhibition in 1921. The area to be occupied by the British section will be rather larger than that of the Royal Horticultural Hall, and the principal subjects will be Carnations, Roses, Heaths, Hydrangeas, Narcissi, Tulips, Sweet Peas, Clematis, and alpine gardens, together with paintings and coloured illustrations of flowers. Orchids will be accommodated in a warmer structure. It is estimated that the cost of conveying and arranging the British display will be about £250, and towards this sum the Royal Horticultural Society has promised £50, with a guarantee of an additional £50 if needed. Mr. Geo. Monro, 4, Tavistock Street, Covent Garden, W.C.2, is the hon. treasurer for the exhibition fund. The exhibitors who have promised their support to date are:—Messrs. W. Artindale and Son, Sheffield, Primulas; Messrs. Allwood Bros., Haywards Heath, Carnations; Messrs. R. H. Bath, Ltd., Wisbech, Narcissi; Mr. Wm. Bunn, Malvern, Pelargoniums; The Chalk Hill Nurseries, Reading, Pansies; Messrs. Charlesworth and Co., Haywards Heath, Orchids; Mr. G. Clarke, Leighton Buzzard, Carnations; Sir Jeremiah Colman, Orchids; Mr. C. Englemann, Saffron Walden, Carnations; *The Gardeners' Chronicle*, Ltd., Tavistock Street, W.C., coloured and half-tone illustrations and books; Messrs. T. R. Hayes and Son, Keswick, rock garden; Mr. Walter Hemus, Hampton, Carnations; Mr. E. J. Hicks, Twyford, Roses; Mr. Milton Hutchings, Hillingdon, Heaths; Mr. H. J. Jones, Lewisham, Hydrangeas; Mr. F. Ladds, Swanley, plants; Mr. J. MacDonald, Harpenden, dried Grasses; Mr. H. F. Mason, Hampton, Carnations; Messrs. Geo. Monro, Ltd., Tavistock Street, W.C., flowers and fruit; Mr. W. H. Page, Hampton, Carnations; Mr. L. R. Russell, Richmond, Clematis; Mr. W. Sherwood, Hampton, Carnations; Mr. T. J. Shorthouse, Hampton, Carnations; Messrs. Stuart Low Co., Enfield, Carnations and Orchids; Miss Walker, London, floral paintings; Mr. W. E. Wallace, Eaton Bray, Carnations; Messrs. Watkins and Simpson, London, Stocks; Messrs. Watson and Son, Dublin, Genistas; Messrs. White and Son, Spalding, Narcissi; Messrs. G. G. Whitelegg and Co., Chislehurst, rock garden; and Mr. T. H. Windle, Covent Garden, Sweet Peas.

Mr. John W. Odell.—A man of wide experience and great capability, Mr. J. W. Odell is nevertheless an extremely modest and retiring gentleman and during recent years has not come so prominently before the horticultural world as was the case before the war. He served his apprenticeship as a gardener with Mr. George Stanton at Park Place Gardens,



MR. JOHN W. ODELL.

Henley-on-Thames, and he could scarcely have had a better training than Mr. Stanton gave to his young men. From 1880 to 1889 he acted as assistant to his father on the Barrow Point Estates at Pinner, and had special charge of the gardens. In 1883 he visited Georgia, U.S.A., for a period of about seven months, to superintend the planting of fruit trees. In 1889 he was appointed steward to Mrs. Brightwen, of The Grove, Stanmore, whose gardens were for a long period noted for their interesting collections of plants, and notably those of a botanical character. In 1906, Col. Wilfrid Ashley, M.P., bought The Grove after the death of Mrs. Brightwen, and Mr. Odell acted as steward for him, and also engaged in extensive forestry work on his behalf on the Broadlands Estate, Romsey, and carried out these onerous duties for a period of seven years. In 1913 he was appointed by the late Rt. Hon. Sir Ernest Cassel to supervise his English estates, a post Mr. Odell continues to hold under the Trustees of the Cassel estate. Mr. Odell is a fully qualified teacher under the Science and Art Department, now the Imperial College of Science, and was for some time lecturer in agriculture, botany and horticulture to the Educational Committee of the Hertfordshire County Council. For twenty years he has been a member of the Scientific Committee of the Royal Horticultural Society, and for several years was examiner for the Society in connection with the Parks and Open Spaces and the School Teachers' examinations: he has also lectured on several occasions before the R.H.S. During the war period he was chairman of the North West Middlesex Agricultural War Committee. It is a matter for regret that Mr. Odell's onerous duties now allow him but little time to take part in the botanical and horticultural work he loves so greatly.

Sad Death of a Former Kew Gardener.—We deeply regret to learn from the *Kew Bulletin* of the sad death of Mr. Richard Arnold Dummer, as a result of a motor accident in Uganda. The late Mr. Dummer was a student gardener at Kew from May, 1910 to June 1911, having previously worked in the Municipal Gardens, Cape Town. Mr. Dummer, besides being a capable gardener, was a clever botanist and assisted in the preparation of *Trees of Great Britain*, and he published several papers in the *Journal of Botany*. Since 1914 he had been engaged with a rubber company at Uganda.

Local Horticultural Societies.—The Hull and East Riding Chrysanthemum Society is reviving its annual exhibition, and has arranged for a two-days' Chrysanthemum show in the local City Hall, on November 21 and 22. The problem of making the show a successful one is receiving the close attention of the Committee, for it is the desire of the Society to attract leading growers from all parts of the country in the open classes. The Right Hon. T. R. Ferens, P.C., J.P., has been elected President of the Society; Alderman W. Hakes, chairman of the Executive Committee; Messrs. J. Milner and T. Fawley Judge, Hon. Treasurers; and Messrs. H. Harland and J. White, Hon. Secretaries.—Southgate Rose Society will hold its annual exhibition on June 23 in the hall attached to the Congregational Church, Fox Lane.

Appointments for the Ensuing Week.—Sunday, April 1.—Wakefield Tulip Society's meeting. Monday, April 2.—Sholing Daffodil and Spring Flower Show. Tuesday, April 3.—Sevenoaks Gardeners' Chrysanthemum Society's meeting; Royal Caledonian Horticultural Society's meeting. Wednesday, April 4.—Wimbledon and District Gardeners' Society's meetings; Lewes and District Horticultural Society's meeting. Thursday, April 5.—Huntingdon Daffodil and Spring Flower Show; Manchester and North of England Orchid Society's meeting; Royal Horticultural and Arboricultural Society of Ireland Spring Show (two days); Jersey Gardeners' Society's Spring Show. Saturday, April 7.—Blackburn and District Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Beech-mast as Fuel.* I have been using Beech-mast as a substitute for coal in the forcing houses during the present season, preferring it to wood, as there is no labour in cutting it up ready for use as in the case of wood; and in a part of the country where coal is 30s. per ton, it is desirable to turn to the best account anything which can be used as fuel. I have hitherto used no coal whatever; but I, however, consider that a mixture of Beech-mast and coal would make a good and economical fuel in places at a distance from either coal or railway as a means of conveyance. I also find I have a large heap of good ashes from burning Beech-mast, which will be an excellent manure, much superior to coal and not inferior to wood-ashes. Employment is, in consequence, found for women and boys in sweeping up the mast during a season when there is little out-door work for this class of labourers; and when it is considered that, for the sake of neatness in places which are in sight, the mast should be swept up, even if taken to the rubbish-heap, I think that for these reasons the subject is worthy of consideration and trial, on account of its economy, as well as being the means of employing labourers during winter, to say nothing of the neatness produced by keeping the Grass and walks clean. *J. H., March* 21, *Gard. Chron., March* 25, 1848.

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INDOOR PLANTS.

CANNAS.

The great improvement effected in these beautiful flowers during the past decade has raised them to a prominent position amongst the best ornamental indoor plants. Many of the varieties have flowers rivalling those of the Gladiolus in size and brilliancy of colouring, whilst the foliage is so elegant the plants would be well worth growing for their leaves alone, and for which reason they are extensively employed in bedding schemes.

Cannas are amongst the most useful plants for the decoration of the conservatory or greenhouse, and are invaluable for grouping in plant houses. They are also well adapted for subtropical bedding in the open during the summer. The varieties embrace many rich and striking colours, ranging from deep golden yellow, rose, white, scarlet, to crimson. They are plants of easy culture and entail no trouble or expense all through the winter. After flowering they should be allowed to go gradually to rest, and when dormant may be placed under the plant stage or in any dry situation secure from frost until the spring, when they should have all the soil shaken from them and be divided. One strong "eye" should be potted in a 4-inch pot, and placed in a warm house. As soon as the plants begin to grow they should be syringed two or three times daily, but the roots should be watered sparingly until the pots are fairly well filled with them, when they should be shifted into 6-inch pots in which they will flower.

Remove any shoots that develop from the root stock in order to throw all the energies of the plant into the flower spike. If large specimens are required shift three or four plants from 4-inch pots into a 10-inch or 12-inch pot, and in this case any shoots that come up from the root stock may be allowed to remain to give a succession of flowers.

The soil should consist of a mixture of good, turfy loam, a little leaf-mould and decayed cow manure, the whole lightened with silver sand. Provide good drainage, for during the growing season and when the plants are well rooted they need liberal supplies of water; when the flower spikes appear the plants may be watered with liquid manure on alternate occasions.

Cannas may also be raised from seed sown in a warm temperature and moist atmosphere. The seed, commonly known as Indian Shot, is exceedingly hard, and should be soaked in tepid water for thirty or forty hours before it is sown. The seed is from four to five weeks in germinating. Many fine varieties may be raised from seed with very little trouble or expense. The species C. indica was introduced to this country in the latter part of the fifteenth century. Very little was done in raising new varieties by hybridisation until the beginning of the eighteenth century; after that period several enthusiasts on the Continent commenced to take an interest in these plants, and raised many new forms. All the cultivated species resemble one another closely in habit, foliage and structure of the flower, but the great improvement made by hybridisation has almost entirely resulted in the species having dropped out of cultivation. Very little has been done in this country in raising new sorts; the principal new varieties of late years have been raised and put into commerce by M. Crozy, of Lyons, and M. Lemoine, of Nancy. The Conard and Jones Co., nurserymen, West Grove, U.S.A., have also raised and sent out many beautiful varieties with brilliant colours and fine foliage.

The following set of handsome Cannas, classed under two groups, is highly recommended: (1) Green leaved varieties—Austria, flowers canary yellow suffused with white and sparingly spotted with brown; Italia, brilliant scarlet with broad yellow margin; Rosa gigantea, deep rich rose; Jules Chretien, rich crimson carmine; Konigen Charlotte, bright red, edged with gold; Madame Crozy, orange red, sparingly speckled with golden yellow; Ottawa, deep rose cerise; Mont Blanc, pure white, and West Grove, coral pink. (2) Dark-leaved varieties—King Humbert, bright orange scarlet, streaked with crimson; William Saunders, extra large flowers of bright scarlet colour; President Carnot, cinnabar red, lightly spotted with carmine; King of Blacks, deep red; Black Warrior, dark maroon; Edouard André, rich orange scarlet, shaded with purple; Duke Ernst, reddish scarlet; Paul Bert, amber yellow, and George Washington, rich velvety crimson. *John Heal, V.M.H.*

PLANTS NEW OR NOTEWORTHY.

RHODODENDRON SUTCHUENENSE.

The opening of another flowering season among the evergreen Rhododendrons adds still more to the interest and value of the beautiful R. sutchuenense first introduced from China in 1900 by Mr. E. H. Wilson when collecting on behalf of Messrs. James Veitch and Sons, Ltd., in Western Hupeh. It is No. 1232 Wilson, of that expedition, and is figured in the *Bot. Mag.* tab. 8362 (1911). In Mr. Wilson's notes he describes R. sutchuenense (Fig. 78) as a common species in the north-western part of the province where it grows to a greater size and has larger leaves than any other species in the district. The plant forms robust bushes up to some 18 to 20 feet high, and 12 feet or more through. The oblanceolate-oblong leaves are 7 to 10 inches long, 1½ to 2½ inches wide, and downy on the mid-rib beneath. The rosy-lilac flowers are open campanulate, 3 in. across, with purple spots on the upper side.

Reverting to my observations on p. 159 with reference to R. praevernum and its likeness to R. sutchuenense, it may be of some value to tabulate the most distinct points of difference between the extreme forms as illustrated in Fig. 74, p. 159, and Fig. 78.

	R. SUTCHUENENSE	R. PRAEVERNUM.
Bush.	Robust, open-branched; only produces few trusses at present.	Flat, close habit; free-flowering.
Leaf.	Rounded at base; 6-10 inches long; mid-rib downy beneath.	Tapering to base, 4 to 7 inches long; glabrous.
Flowers.	Rosy-lilac, purple spots.	White or pink tinted, with prominent wine-red blotch.
	Three inches wide and long, open, campanulate; full, upright truss.	Two inches wide and long; bell-shaped; closer and more flatly arranged.

A. Osborne, Kew.

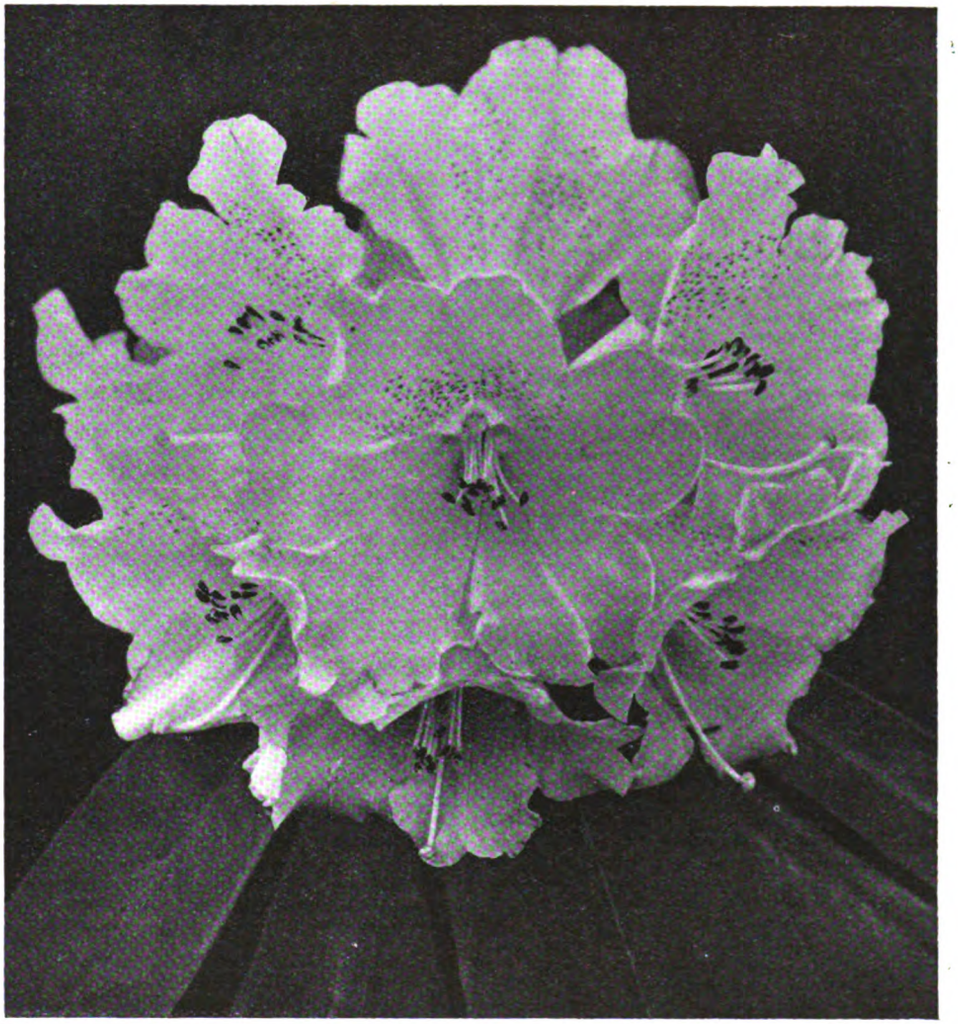

FIG. 78.—RHODODENDRON SUTCHUENENSE.

ORCHID NOTES AND GLEANINGS.

LAELIO-CATTLEYA BEAUTY.

A pretty and interesting cross between the natural hybrid Cattleya Whitei (Schilleriana × Warneri) and their white form of Laelio-Cattleya Britannia alba (C. Warscewiczii × L.-C. Canhamiana) now flowering with the raisers, Messrs. Sanders, St. Albans and Bruges, well demonstrates the influence which well-defined species as primary ancestors have in the progeny of succeeding crosses. In L.-C. Beauty the blush-white sepals and petals partake most of the Laelia purpurata in L.-C. Canhamiana, although they are broader and more flatly displayed. The labellum, also, in the basal part is influenced by L. purpurata, but the prettily arranged front lobe is expanded on each side, the margins being crimped and the violet colour showing distinctly the dark purple veining of the lip of the C. Schilleriana in C. Whitei.

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARBER, Gadener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Dendrobium.—Many Dendrobiums are in a sufficiently advanced state of growth for repotting. It is not desirable to repot the plants just as they come to hand, but to attend first to those that are about to develop new roots from the bases of the young growths. Some of the stronger growths will attain considerable height before producing roots, and until then the grower should be content to wait, especially if the plant has just passed out of bloom. The plants should be allowed to recuperate, and when new roots are about to develop they should be repotted. Where seedling Dendrobiums are raised, it is advisable to attend to them first, and then follow with the larger and stronger plants which have produced flowers. If done prematurely, there is always a danger of the young growths rotting off just before they develop roots, hence the necessity of careful watering at this stage. A suitable compost consists of equal parts of Osmunda fibre, A1 fibre, and Sphagnum moss, thoroughly cleaned of all earthy particles, and well mixed. Ordinary flower-pots provide suitable receptacles, which should be well drained with either broken crocks or chopped rhizomes.

The Potting of Young Dendrobium Plants.—Vigorous young plants that only need potting on to allow of their further development, and not because the compost is in an exhausted and sour state, should be potted without much disturbance at the roots beyond the removal of a little of the surface compost and the liberating of a few roots around the sides, in order that they may enter the new material quickly. This also applies to larger plants that are in good robust health, providing the compost is in good condition. The most difficult problem is to know what is best to do with plants that show a gradual deterioration. If they are rare or choice varieties and it is desirable to retain them, they are best pulled to pieces; remove all the leafless back pseudo-bulbs, leaving not more than two or three behind the leading one, and then pot them singly in as small pots as possible. The potting should be done rather firmly, keeping the base of the new lead just a little below the rim of the pot. After potting is the most critical time in the whole year, and every inducement should be given the plants to enable them to become re-established quickly; by spraying on all favourable occasions, and making their conditions conducive to speedy growth. Sufficient water should be given to prevent the pseudo-bulbs from shrivelling, but no more, until the roots have well extended and entered the new material. As the season advances and the roots take hold of the compost, gradually increase the supply of water as the days lengthen, and the power of the sun strengthens; during the hottest season of the year never allow them to become quite dry. Choice varieties and rare species may easily be propagated by cutting up the old pseudo-bulbs and dibbling the portions into pans of silver sand, placing them in a hot, moist house. It is advisable to propagate a few plants each year in order that there will be always a stock of young, robust plants to take the place of those that have exhausted themselves by excessive flowering.

THE HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Plum Crop Prospects.—The recent cold snap may check the development of outdoor vegetation, and it is much to be hoped that the promise of a bountiful Plum crop may materialise. Many imagine that the present spring is a very forward one, but those who keep records know that it is not so forward as those of recent years. The ground, however, is not very cold, and the sap being well up, vegetation will develop rapidly with warmer days. The clearance of prunings, the digging or ploughing of large orchards, held up by exceptional wet weather, should be completed.

Rejuvenation of Trees.—Too often trees become exhausted through succeeding years of overcropping, and especially Pears. Now is the time to prevent what may prove a promising crop from dropping. The securing of a healthy, well nourished tree will also ward off attacks of insect pests. To this end a dressing of 2 oz. to 4 oz. of superphosphate per square yard of ground surface, or some other suitable fertiliser, should be applied to the older trees or bushes. The material applied should be hoed in. Sulphate of ammonia may also be mixed with the other fertiliser used, and applied at the rate of 1 oz. to 2 oz. per square yard of surface. Some growers prefer to use this fertiliser in the same way as nitrate of soda, after the fruit has commenced swelling.

Spraying.—Those who desire to experiment in exterminating the Black Currant mite, should now deal with the pest. Paraffin emulsion may be used at full strength, or lime sulphur may be applied. These specifics should be suitable as a combined mixture, and serve as a fungicide also. These mixtures should also be used to combat caterpillar on Gooseberries, and insect and fungous pests on all fruit trees. The Plum aphis will be found to have developed with the opening blossom. Shot-hole fungus on the foliage, and leaf curl of Peach trees may be dealt with at an early stage with lime sulphur. Abol is a good proprietary specific, and timely spraying with it will save endless trouble later. The tips of the branches affected by Apple mildew, and which spraying perhaps has not reached, should be cut off and burned, otherwise this disease will soon spread, and cause wholesale dropping of leaves and fruit. For large trees spraying machines are more suitable than knapsack sprayers. One defect makers of spraying machines overlook, is that the leg on which the tank rests is often so placed as to be in the way of the operator moving the machine; the handles are often made too short.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Pavetta caffra.—This South African shrub, with white, Ixora-like flowers, is very useful for the decoration of the greenhouse, and may be readily propagated at this season by means of the shorted, twiggy shoots, rooted in a close case provided with slight bottom heat. During the growing season this plant enjoys an intermediate temperature, but when in flower grows quite well in a cool greenhouse, where it lasts in flower over a long period.

Paullinia thalictrifolia.—This plant has beautiful Fern-like foliage, and is a fine stove climber of moderate growth, the cut sprays being useful for decorative purposes. The plant is seen at its best when trained up a pillar or over a trellis. It may be propagated at present by means of half-ripened shoots inserted in pots of sandy soil and stood in a warm propagating case.

Daphne odora.—This is a very popular plant on account of the fragrance of its flowers, but it is by no means an easy subject to cultivate successfully for any considerable length of time. It is usually grafted on roots of stronger growing species, although this is by no means necessary, as cuttings are not difficult to root now in a close case provided with slight bottom heat. The potting compost should consist of good medium loam, with the addition of fibrous peat and clean, coarse sand. The pots should be well drained, and watering should be carefully done at all times. This small shrub is seen at its best when planted out in a well drained border in a cool conservatory or greenhouse. It is nearly hardy, and in the south-western counties fine specimens are sometimes seen out of doors trained against the warm wall of a plant house.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Winter Onions.—Seedling Onions that have remained in the open through the winter should be planted on well-manured ground at a distance of fifteen inches from row to row and ten inches apart in the rows. Make the plants firm, and do not plant them too deeply. Hoe the ground frequently to keep it clean. These Onions will prove most useful in the autumn.

Seakale.—Cuttings of Seakale made from the old roots may now be planted in rows about 4 feet apart and 2 feet between each clump, which should consist of three plants placed about 6 inches or 8 inches apart in a triangular position. Deeply dug, well manured ground is essential if fine crowns are desired, and the cuttings should be planted firmly with the top just level with the surface. When the planting is finished, place some sifted cinders around each clump. Keep the bed hoed, and should the weather turn hot and dry mulch the soil with stable litter.

Vegetable Marrows.—Sow two or three seeds of Vegetable Marrows in a 3-inch pot, placing them edgeways in the soil. Raise the seedlings in a warm house, and as soon as they appear remove them to cooler quarters, and place a stake to each plant.

Tomatos.—Autumn-raised plants should be placed in the pots in which they are to be fruited, if this has not been done already. Use a good porous compost. Keep the growth tied to the stakes or trellis as the case may be, and pollinate the flowers by hand. Grow the plants in a fairly warm house, but admit air on all bright days. Feed the roots liberally when the pots become filled with them, but not before. Plants raised from seeds sown last month or early in March should be transferred singly to small pots, and placed on a shelf close to the roof-glass.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Peaches and Nectarines.—Trees of these fruits which are in flower should have daily attention in regard to the setting of the flowers with a soft feather brush, and on sunny days the ventilators may be left open for an hour or two longer than in other houses in which the trees have set their fruit. At this particular season the wind is often very cold, although the sun may be shining; it is therefore advisable to allow the temperature of the house to rise somewhat higher than usual to prevent, so far as is possible, cold draughts blowing directly on to the trees. Late houses should be kept open day and night whenever the weather permits. In all cases these later trees should not be allowed to suffer for the want of water at the roots. Just before the flowers commence to open fumigate the house.

Pot Figs.—Those pot Fig trees which are carrying heavy crops of fruit require plenty of water and stimulants. Being gross feeders, the latter should be given liberally at frequent intervals, and, if used occasionally, clear soot water forms an excellent stimulant, but for general use nothing is better than liquid manure from the farmyard tank. An occasional application of Peruvian guano is also beneficial. Where artificial manure is used, it should be of a soluble nature and quick in its action. If the bottom heat is supplied by fermenting material only, it will be necessary to replenish the hot-bed with fresh material at intervals to keep up the required temperature. Where the bottom heat is chiefly supplied by means of hot-water pipes, it is much easier to regulate the temperature, and there is no need to disturb the trees. During the time of flowering it is advisable to withhold the use of the syringe, and it requires a keen eye to note when this occurs. The best indication is a slight opening at

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the apex of the fruit, with a few anthers protruding slightly. When the fruits approach the ripening stage, a drier atmosphere should be maintained, and, for the time being, syringing the trees should be discontinued. Air should be admitted freely whenever the weather is favourable. A sudden rise in the temperature of the house, combined with excessive atmospheric moisture, will cause the ripening fruits to split. The balance of growth should be maintained by stopping or removing rank-growing shoots. Suckers arising from the base of the tree should be removed, unless they are required to furnish bare spaces. Where the fruits are well advanced, a second crop of fruit will be showing; these should be thinned in good time. The night temperature should be about 65°, with 10° rise by day without sun heat. Successional pot trees which are commencing to make active growth should be grown in a night temperature of 55° to 60°, and 10° higher by day. Make the best use of the sun's heat by closing the house early, and, when this is done, syringe the trees thoroughly with tepid water. All superfluous side-shoots should be removed to prevent crowding. The roots of these later trees should also be freely supplied with stimulants.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Gladiolus.—The corms of this beautiful bulbous flower should now be planted. In order to obtain the best results the ground should be tilled deeply, and made fairly rich with well decayed animal manure. Place the corms from nine inches to twelve inches apart, according to their vigour, and set them about five inches deep on light soil, and a little less deeply on heavy ground. In the latter case, it will be time well repaid to put some sand around each corm as it is inserted. Mixing of colours is often resorted to when planting Gladioli, and the plants are very attractive when grown in this way, but groups or beds of one colour give the best effect. In small gardens clumps varying, say, from three to a dozen plants will be ample. In addition to being arranged as above, Gladioli may be grown to advantage among dwarf shrubs, such as Ghent Azaleas or Kalmias, also when associated with Galtonia candicans, and for adding beauty to the Paeony bed when the Paeony plants are not in flower, provided the latter plants are not situated in dense shade. Another planting made in three weeks time will prolong the season of flowering to the autumn. In making a choice of varieties from the several sections, some of the hybrids of G. primulinus should be included; their flowers are very lovely, and the growth rather less vigorous than that of the other types.

Primula vulgaris.—By the time these notes appear, an acre or so of the pleasure grounds here will be thickly studded with these "earliest nurslings of the year," common Primroses—and no floral arrangement by man can, in my opinion, excel such a picture of this modest flower. What is more, the initial expense of roots and seeds is very small, for after the first planting—done now or in early autumn—Nature may be left to continue the work of increase and arrangement. During the past three years, we have allowed such increase to take place here in more than one otherwise bare place, with pleasurable results, and doubtless there are many similar sites which could be furnished with Primroses in this way.

Care of Seedlings.—Directly seedlings are through the soil, they should be gradually accustomed to more light, air and sunshine, and when strong enough to handle—which is usually when two or three leaves have developed extra to the seed leaves—they should be pricked out before they get drawn and spindly. Antirrhinums sown and treated as previously advised have recovered from their removal to other boxes, and will be given cooler treatment. Seedlings of Sweet Peas should be planted out permanently when the condition of the soil will permit.

THE ALPINE GARDEN.

PRIMULA DENTICULATA.

This popular hardy Primula has been in cultivation well over half a century, and is still a great favourite on account of its easy cultivation and early flowering properties. At the beginning of March its globose heads of pale lilac flowers were pushing up, and promised soon to be fully out in bloom. A native of the Himalayas, whence it was first introduced into cultivation in this country, it is also found in Western Yunnan, in China. Forrest met with it in abundance on most of the mountains in that country, in almost every variety of situation from the wettest to the driest, and most barren places. The variation in form and colour is very great, but lilac in various shades

Fig. 79.—Primula denticulata in the rock garden.

is the dominant one. There is a beautiful pure white variety (var. alba), with large flowers, that comes fairly true from seeds if kept away from the lilac one when in flower. One of the best is var. pulcherrima, with good-sized heads of deep purple flowers. The Chinese form, with rosy-lilac flowers, was figured in the *Gard. Chron.* of April 26, 1913, p. 264, under the name of P. pseudo-denticulata. Its chief distinction is that the upper part of the flower scape is thickly coated with a white farina.

P. cashmiriana is a form of P. denticulata, differing only in its more compact heads of smaller flowers, while the under sides of the leaves are covered with a golden meal. Both these Primulas grow well in a moist, shady border, in good loamy soil. In such situations they will establish themselves, for self-sown seedlings come up freely round about the old plants. For planting in the Fern border, open woodland or on the margins of streams, both will be found useful. As with other Primulas, the seeds, if allowed to become too dry, take same time to germinate; fresh seeds, however, germinate freely and seedlings may be raised in a cold frame, or in a little heat. *W. Irving.*

HARDY FLOWER BORDER.

LUPINS.

Lupinus polyphyllus, the old garden Lupin, may now be obtained in many shades as a result of selection and hybridisation; varieties in pink, rose, white, and other colours are almost endless.

The plant is a perennial, and grows about 18 inches high. The seed may be sown during the next few weeks, and the seedlings will flower next year, but a few will possibly bloom in the year of sowing. They will not come entirely true from seed, but all will be found interesting and many exceptionally beautiful. Moerheimii is a very pretty variety of a rose shade.

The Tree Lupin, Lupinus arboreus, is, to my mind, much to be preferred to the herbaceous type. Its growth is much taller and the flowers are held more loosely together. This is likewise a perennial, and in a mild season will retain its foliage and remain green throughout the winter. It may be had in beautiful cream and yellow shades, and the flowers are very fragrant.

Lupinus arboreus is a valuable bee plant. It forms a bush 2 feet or 3 feet high, and does best in a well-drained, sandy soil. There is no difficulty in raising a stock from seed, and, given one plant, many more will later on be found around it from self-sown seedlings. Snow Queen, white, and Somerset, yellow, are two good named sorts.

Seed of the annual Lupins sown now will furnish flowering plants by the summer, and these will be much appreciated. *T. D. T.*

GERANIUM ANEMONAEFOLIUM.

Though a native of the Canary Islands, Geranium anemonaefolium is apparently sufficiently hardy to withstand our winters in all but the bleakest localities. This is the more remarkable since G. anemonaefolium, unlike so many members of the genus in cultivation, is not only evergreen, but produces its leaves between autumn and spring. These leaves are large, deeply-cut and glossy green, and they rise on stiff, straight stems from a short foot-stalk, giving the plant some resemblance to a small fan-leaved Palm. The flowering shoots appear from the central foot-stalk in the early summer, and, standing rigid and clear of the foliage to the height of about 2 ft. or more, bear at the tips of their many short branches very beautiful flowers in pairs. These are rather more than 1 inch in diameter and of a lovely satiny rose-colour, which darkens to a deep crimson eye. The stamens are a vivid crimson, and the whole of each flowering stem is thickly covered with silky hairs which glisten with iridescent hues. The blooming season extends to the late summer, and the plants set seed freely.

Seedlings of G. anemonaefolium frequently appear around the parent plant in certain gardens, and they need about three years to come to maturity. This species should not be confused (as it has been in some quarters) with G. Lowii, nor can it be described as other than a true perennial.

So far as my experience goes, Geranium anemonaefolium will thrive in any average garden soil that is well drained. A little shade from the full noonday sun is desirable, and extremes of drought and moisture should be avoided. Geranium anemonaefolium is illustrated in *Bot. Mag.*, tab. 206, where it is stated the species was introduced in 1778. Its distinctiveness, unquestionable merit and easy culture should ensure a wider popularity for this fine species than it now enjoys. *J.*

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BUTTRESSED AND STILT-ROOTED TREES.

A FEATURE of high forest trees in Africa is the greatly strengthened base they develop. It might appear at first that where the growth is so dense, there is little danger of storms uprooting a tree. A first experience of an African wind storm, particularly if one is in the forest at the time, will soon dispel this idea. Indeed, I know of no more terrifying experience than a bad storm in the night whilst camped in a forest. The great trees rise branchless, for 100 ft., and a rocking of the crown at that height will exert an enormous leverage on the roots. During such a storm, the whole forest canopy will sway until it seems as though everything will be flattened like corn before rain. Tropical trees rarely drop limbs as do our Elms or Beeches, but a breakage means a snap of the trunk above the buttresses, never near the crown.

The buttresses are developed on most trees in dry forest (Fig. 81). A forest giant may have as many as six, and these may extend to ten feet from the trunk, tapering away at ten feet up from the base. A buttress may be one foot thick at its thinnest part. Smaller trees will have buttresses of less strength, but even trees of only one foot diameter will have some such provision. The result is that it is extremely rare to see a tree blown out by the roots. It is, nevertheless, common enough to come across a large tree broken above the buttresses. It is clear, however, that a wind strong enough to break a tree at 15 ft. from the ground would much more easily uproot a similar tree, unless it were specially adapted to withstand the storm.

The buttress is, as I have stated above, a development of dry-forest trees, but in swamp forest quite a different adaptation is evolved. Here we find the stilt-rooted trees. The trunk is seen supported by a large number of "stilts" (Fig. 80) which branch and thicken with age. In soft ground these give a much greater support than would a solid buttress, of which they are a modification. Nature here confirms the practice of engineers in driving piles into soft earth to secure a foundation. Such a tree appears as if the soil had been removed from its roots, or the whole tree lifted bodily up and placed on the surface of the ground.

I do not, of course, contend that the same species of tree will develop either buttress or stilt-roots, according to the position in which it finds itself. The same species of tree will never be found in the different types of forest, but, as practically every species growing in dry forest is buttressed, so most species of the swamp forest will be found to be stilt-rooted. All agree in being supported in one way or the other. *E. Brown, F.L.S.*

SOME CALIFORNIAN SHRUBS.

SINCE many, perhaps most, Californian shrubs known to us are natives of hills where

FIG. 80—A TYPICAL SWAMP-FOREST, STILT-ROOTED TREE.

occasional frost is not unknown, they are admirably adapted for cultivation in the milder parts of this country. One of the most notable of these is the Tree Poppy, Dendromecon rigidum, which will send up to the height of 6 feet to 8 feet, in a single season, elegantly tapered, arching wands sparsely furnished with grey-green, Willow-like leaves. The flowers, which are fragrant and about 2 inches across, are a rich golden yellow, with a conspicuous tuft of orange stamens in the centre. This handsome plant has withstood hard frost here without injury, but it succumbed to the very severe and prolonged frost early in 1917, when over 20° were registered for several days. It is probable, however, that with good root protection D. rigidum might be grown in many places usually considered too bleak for it, since it springs up with remarkably rapidity if cut back to the base in spring. If some of the old wood is left, this shrub will bloom here from spring to late autumn. It is grown in rather poor, stony soil, in full exposure. In California I have seen it flourishing in the crevices of rocks.

Fremontia californica also succeeds in thin, shaly soil in this garden, a specimen of 7 feet in height being about as many years old. The dull, green, leathery leaves, 1 inch across and lobed like those of the Fig, are, in common with the young wood, clothed with a rusty tomentum. They are retained throughout the winter, and at almost every leaf axil is produced, about midsummer, a large, deep yellow, bowl-shaped flower which contains innumerable stamens. These blossoms remain on the branch for a long while, and, more often than not, there is a small second crop of blooms in the autumn. What appears to be a form of this species, with flowers of a deeper, more bronzy gold, has lately been introduced under the name of F. mexicana.

Many of the Californian Lilacs (Ceanothus) are first-rate subjects for grouping on a sunny bank in light or rocky soil where the climate is not too severe, and, grown in this way, they appear to much better effect than when against a wall

Setting aside the whole of the C. azureus section, which is of Mexican origin, I think the two best species for the purpose indicated are C. thyrsiflorus, with deep but clear blue flowers in clusters, and C. divaricatus, which has flowers of a smoke-blue or cool lavender shade. But it is difficult to make a selection from a number of species, each of which has its own peculiar beauty. So abundantly do the Ceanothuses grow in some parts of California that the mountain slopes are enveloped in early summer with a blue so pure and unbroken that it might rival that of their own cloudless skies.

Carpentaria californica, though not infrequently seen in westerly gardens, where it proves quite hardy without protection, does not always succeed satisfactorily. It apparently likes lime, since it flourishes abundantly in soil of that character. But, do what we will, it cannot be induced to blossom in this garden, where most plants which delight in a free, warm loam do remarkably well, notably the Philadelphus, to which this shrub is allied. However, some fresh plants raised from seed may give us the Anemone-like flowers which look so handsome against the dark green leafage.

Diplacus glutinosus is a most useful and attractive shrub about 4 feet high, with flowers of various shades, from creamy-white to golden buff and rich coppery brown or burnt orange. The most northerly type, and therefore the hardiest, which I came across in California, was the ordinary D. glutinosus of our gardens and cold houses, with cream, buff, or salmon-buff blossoms. This is as hardy here as any of the so-called hardy Fuchsias, and we have some plants which have been out for years without winter protection. The frost may nip them, and frequently does, but as they are better for cutting back to the base every spring, that matters little. Few dwarf shrubs are so floriferous as D. glutinosus, and the uncommon colour and peculiar elegance of growth are always a distinct acquisition to the wild garden. This Diplacus is a good subject for stony, hot soils.

The deep ruddy brown form of the above is not quite so free with us, and the bright red D. puniceus we have as yet been unable to obtain. This appears to be a distinct species, and is considered so in America. Since it comes from much farther south than the common D. glutinosus—*i.e.*, from San Diego County, on the Mexican border—it is probable that it is very much more tender. The "Sticky Monkey Flowers," as the Diplacuses are called, are among the easiest of plants to propagate by cuttings; they should be inserted in the late summer, and the young plants will flower in their second year in the open.

Æsculus californica, the Californian Buckeye, which often attains the stature of a tree in its native country, is generally seen here as a shrub of some 8 feet. This tree has large, handsome palmate leaves, and erect clusters of pink and white, very fragrant flowers. It is one of the few deciduous species in California, yet it is not deciduous as we understand the term. That is to say, Æ. californica adapts itself to circumstances when growing in very hot, arid land, by shedding its leaves in July and reappearing in a spring green dress in September.

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Sambucus glauca, the blue-berried Elder, a bush of 5 to 8 feet over the greater part of its range, is truly deciduous, but it breaks into leaf very early in the year. Fraxinus dipelta is a shrubby flowering Ash of the Sierra Nevadas; it is of graceful habit and bears sweet-scented, white flowers in large panicles somewhat after the manner of F. Ornus. This is a very desirable shrub, and, though I do not remember having seen it in this country, it would probably be quite hardy in the more westerly counties.

The Pacific Slope of North America has not given us many Azaleas, but A. occidentalis (syn. Rhododendron occidentale) should not be overlooked, inasmuch as it is one of the latest of all to blossom and has imparted its late-flowering to a number of useful hybrids. The type species grows to about shoulder height in the thin woodland of valley bottoms in the more northerly parts of California. It is a thin-habited, deciduous bush, bearing terminal clusters of white, or blush-white, sweet-scented flowers, usually in July. A. occidentalis is of easy culture, and does remarkably well in the free loam of our woodland garden. The occidentale hybrids are not less amenable to such treatment, and some of them are very attractive little shrubs. Rhododendron californicum we have not yet grown in this garden, nor did I come across it in its native land. It is evergreen, has a good name for hardiness, and produces rose-purple flowers in compact heads about midsummer.

Umbellularia, the Californian Laurel, is, like many of its companions, a most variable genus, attaining the dignity of a timber tree of no small value in some places, and remaining a low, dense shrub in others. In the latter form it is a most conspicuous feature on many of the hills about San Francisco, its dark, Holly-green crowns standing out in strong contrast against the tawny, sun-burned grass of summer.

Umbellularia (syn. Oreodaphne) californica is hardy enough for general outdoor treatment in our milder localities, and has no little resemblance to the common Bay. Like the latter, the wood as well as the leaves is aromatic, and, though the flowers are insignificant, the large, Plum-coloured drupes which follow them are distinctly attractive. This is a good shrub for dry banks, and it has proved an effective wind resister in seaside gardens.

I cannot omit from these notes a reference to Ribes speciosum (syn fuchsioides), the Fuchsia Currant of California, which, despite its popular name, is much more like a Gooseberry in foliage, habit, and the spininess of its twigs than a Fuchsia. It is one of the hardiest of these Pacific Coast shrubs, most floriferous, and one that will succeed in any light, warm soil in full sun or partial shade. The deep red flowers, with long protruding stamens, hang from the leaf axils in the greatest profusion, and last in fresh condition for several weeks. To enjoy the full beauty of this shrub it is best grown almost on a level with the eye. There are other members of this genus indigenous to California, but I consider R. speciosum the most worthy of inclusion in gardens. In bleak districts it does well as a wall shrub, and as such will attain a height of 6 feet to 8 feet.

California has a number of Ericaceous shrubs, some of which are among the choicest subjects of their kind in our West Coast gardens. Perhaps the most notable is Arctostaphylos Manzanita, an evergreen with leathery, rather grey-green leaves and panicles of large, urn-shaped, blush-white blossoms, which open in the early year. There are some good specimens of this species at Kew, and it is one well worthy of a place among kindred shrubs in any light, lime-free loam where the climate is suitable. Although this "Manzanita," as the genus is popularly called in California, may sometimes be found growing up to 20 feet in height, it more often makes a good-sized bush, with the dimensions and habit of a well-grown Escallonia macrantha.

A. T. Johnson, Ro Wen, Talycafn, North Wales.

THE BULB GARDEN.

WHITE CROCUSES.

Every year when Crocus time comes, I reach out and take down *My Garden in Spring*, by Mr. E. A. Bowles, and read faithfully the chapter on "Spring Crocuses." It runs to 32 pages. One does not require to agree entirely with Mr. Bowles to enjoy everything he writes. For example, I would question some of the following opinions: "The fat, prosperous, gone into trade and done well with it, garden forms of *Crocus vernus* are best used for colour masses. The individual blooms strike me as coarse after the refined true species. But used as I like the Dutch Yellow, they look well. . . . I do not care so much for large clumps of any white form. At the back of the borders they look too cold, and suggest unmelted snowpats.

For some years I have observed rather carefully the white Crocuses, and this spring they have been particularly fine in my garden. The following six are placed in my opinion in their order of merit:—

Kathleen Parlow, a most refined flower of the purest white, with no trace of blue colour on the outside of the flower or flower stalk, but there is frequently the faintest pale lilac thread down the centre of the inside segments. I cannot conceive of anything more beautiful in the March sunshine than this same Crocus, whether in clumps or lines (I have it both ways) when it opens as it did this afternoon. The open flowers were about two inches in diameter, the points of the segments slightly incurved, and the rich, orange-coloured stigmata nestling in the centre, formed a picture of bewitching beauty.

Tilly Koenen.—Large, white, with deep purple colouring from the base of the flower to 1½ inch down the stalk (this colour is on each of the six segments). Only the faintest line of purple is seen inside the three inner segments. This variety is a strong grower.

King of the Whites.—Large, fine white, with narrow, purple line at base of flower, and four very faint purple lines inside of most inner segments; the outside segments are clean on the inner surface.

Snow White.—Like Kathleen Parlow, but distinctly lined outside at the base of the segments with blue, and with the inside of the inner segments faintly lined with blue.

Mont Blanc.—Medium sized, white, lined outside with purple, which extends a good way up the flower, especially on the inner segments.

Caroline Chisholm.—Medium sized, white, marked with blue at the base, and distinctly lined with blue on the inside of the inner segments, and faintly on the inside of the outer segments.

I grow a fairly representative collection of the Dutch Crocuses, and have only a few of the true species. I find in our northern climate, C. Sieberi, C. versicolor, C. Imperati, C. biflorus, and C. Tommasinianus, have a rough time out of doors; a cloche raised on small blocks of wood placed over a clump gives the necessary protection, and brings out the flowers in all their pristine beauty. A thousand people must grow the ordinary Crocuses for one person who grows the species, and I would suggest clumps of a dozen bulbs along a grass verge, or even in front of an ordinary garden border; alternately, Kathleen Parlow and purpurea grandiflora, or Kathleen Parlow and Mikado, if a softer effect is wanted. Mikado is a white variety with pale purple base, beautifully and distinctly pencilled all the way up the segments with heliotrope; it is a most distinct Crocus. *W. Cuthbertson, Duddingston, N.B., March* 18, 1923.

Fig. 81.—A buttressed tropical tree broken by a storm. (See page 174.)

CROCUS TOMMASINIANUS.

Crocus Tommasinianus is one of the best species for naturalising in grass and open woodland. It is a native of Dalmatia and Serbia, and closely allied to the well-known C. vernus, but differs in having a glabrous throat, and in other small characters.

During the early days of February a colony of this plant in full flower is a welcome sight, and as it increases readily it soon spreads into large groups, producing a succession of bloom over a long period. The colour of the flowers varies from a pale to a rich bright lilac, less variable than many other species. In the rock garden it is apt to become too encroaching, and once established is difficult to eradicate owing to the freedom with which seeds are produced and scattered. This self-seeding is, however, an advantage where the plant is naturalised. *W. I.*

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DEGENERATION IN POTATO FLOWERS AND CAUSES OF STERILITY.*

At the meeting of the British Association held in Edinburgh I gave a paper on "Degeneration in Anthers of Potato," dealing with the subject chiefly from a morphological point of view. I also suggested a scheme of work for the further investigation of the problem, and I now give the results I have obtained up to the present.

The great difficulty of obtaining satisfactory Potato hybrids is well known. The sterility of the flowers of many of the best-known economic varieties makes it well-nigh impossible to use them as parents. The inquiry into the causes of this widespread sterility constitutes, therefore, a very practical form of research.

As Potato pollen, even when morphologically sound, presents certain variations, I have found it necessary to make a fairly exhaustive study of Solanaceous pollen as a whole. The somewhat prevalent idea that all Potato pollen is uniformly oval in shape and that any deviation from the oval type is a sign of abortion I find to be erroneous.

The Solanaceous pollen that I have examined falls into three main groups which I have called (1) triagonal long grains, (2) pentagonal long grains, (3) pentagonal short grains. In the triagonal pollen the grain is pointed at each end and has three curved sides. Halfway down the grain at the juncture of the sides are three germ spores. Examples of this type are to be found in Petunia varieties and Hyocyamus niger.

In the pentagonal pollen each grain has a pentagonal face at its upper and lower ends, and five curved sides having five germ spores at the juncture of the sides. In this group the dry grain is twice as long as it is broad. I have found several members of the Solanaceae having this type of grain—*e.g.*, Nicotiana Sanderae, Schizanthus retusus, Solanum tuberosum variety Myatt's Ashleaf, Solanum dulcamara, and Solanum niger.

The short type of pentagonal pollen differs from the above description in that each grain is as long as it is broad, and the upper and lower pentagonal faces are much more conspicuous. Examples of this type are Solanum tuberosum varieties Leinster Wonder, Kerr's Pink, Majestic, Great Scot, etc., Nicandra, also Salpiglossis, in which last example the grains are always in clusters of four.

It is now necessary to consider the Potato pollen in particular, and it will be seen from the above descriptions that it falls into two groups—Myatt's Ashleaf having long pentagonal grains and many other economic varieties having short pentagonal grains.

I consider this appearance of long and short pollen in different varieties of Potatos to be a matter of great interest and importance. Repeated observations of my breeding results of the past five years indicate that amongst varieties susceptible to Wart disease long pollen is coupled with a much higher degree of susceptibility to the disease than is short pollen. I hope to obtain further information on this point.

Another matter of interest in connection with Potato pollen is that among the short pentagonal grains are to be found also compound grains. I have traced the origin of these compound grains to irregularities in the formation of tetrads, cell walls being formed round two or even three of the four nuclei in the pollen in mother cells. These compound grains appear to be sound morphologically, and I have observed the germination from them of normal pollen tubes. Again, in rapidly degenerating pollen, such as is found in Great Scot, these grains are among the last to survive. What sort of genetic composition is possessed by hybrids resulting from pollination by compound grains is a point of very interesting conjecture.

I will now give some of the results of my investigations on the causes of degeneration in the anthers and to a lesser degree in the ovules of the flower of the economic varieties. I am writing a separate paper on my investigation into the various examples of ovule sterility found in Solanaceae, including abnormal embryo development, so that I shall here touch on ovule degeneration only in so far as it affords an example of one or other of the types of anther degeneration.

A type of anther degeneration very widespread, not only amongst Potatos, but also in a large percentage of our cultivated flowers, is exhibited by the presence of shrunken or abortive pollen grains in the anthers.

I have examined some two hundred different plants, including Monocotyledons and Dicotyledons, having shrunken grains, and in every case the method of degeneration appears to be the same. It does not start until after the formation of the tetrads, and in many cases I have observed two marked periods of rapid degeneration, the first being directly after the young pollen grains have assumed their characteristic form, and then again just before the dehiscence of the anther. The nucleus first degenerates and finally disappears, followed by the cytoplasmic contents, leaving the grain an empty skin. It would appear that the healthy grains are parasitic on their fellows, robbing them of every vestige of protoplasmic contents. The cause or causes of this degeneration are not fully known. It has been suggested that the cause may frequently be physiological and due to insufficient nourishment brought up through the anther filament. My own observations point to irregular heterotypic divisions as responsible for, at any rate, some of the abortive grains. The anthers of Great Scot Potato afford an excellent example for the study of the shrivelled grains. The second example of anther degeneration I will call the Up-to-Date type, since it has been from my cytological investigation of the past four years on Up-to-Date flowers that has brought to light this unique form of degeneration. It must not be thought, however, that this type is confined to the Up-to-Date variety of Potato. A large number of some of our best-known varieties exhibit this same characteristic form of anther disorganisation.

I studied cytological material from buds of all ages, with the following results:—The development of the anther is perfectly normal up to the pollen mother cell stage. From this stage on disorganisation is very rapid. No chromosomes are formed, and hence no reduction division has been observed. Although I have examined the anthers from some hundreds of Up-to-Date flowers from various places in England and Scotland, I have never found any pollen. In Epicure, the anther disorganisation is not so complete.

On examination of sections of very young buds at the pollen mother cell stage, I found numerous small amoebae. Along the outside of the bud I observed breaks in the plant tissue where disorganisation had begun. At these breaks the amoebae appear to enter, and their invasion is characterised by a steady breakdown of plant tissue, always preceded by degeneration of the plant cell nucleus. The amoebae at this stage are very minute, and can be observed satisfactorily only under a magnification of 1,000. They are oval or round in shape, having a well-marked nucleus and finely granulated protoplasm. They appear to cling to plant tissue by the assistance of minute pseudopodia. At this stage they may be seen, also, in the anther cavity, either in the pollen mother cell nucleus or attached to its outside. The inference is that these amoebae cause the initial stages of anther degeneration. They are also probably entirely responsible for the male sterility in Up-to-Date and in other varieties of Potato showing similar anther conditions, since the degeneration of the pollen mother cells is coincident with the invasion of the amoebae. The nucleolus of the pollen mother cell becomes slightly distorted in shape, and the nuclear thread contracts and gradually disappears.

(*To be continued.*)

* A paper, illustrated by lantern slides, read before the Agricultural Section of the British Association for the Advancement of Science, by M. S. G. Breeze, B.Sc.

VEGETABLE GARDEN.

PEAS.

Peas give the best results when grown in rich soil of a medium texture. It is worth while to make trenches for the accommodation of the roots, and they should be two feet in depth and one foot in width. At the bottom of the trenches place a six inch layer of rich farmyard manure, afterwards filling in with soil to which farmyard manure has been added at the rate of one cwt. to every twelve feet of trench.

The seed of early varieties of Peas may be sown in the latter half of March. To maintain a succession it is essential to make sowings every fortnight until the last week in May. Second early and main crop varieties may be sown from mid-April onwards. It is in the interest of the crop to sow every seed two inches from its neighbours on all sides. In most districts the seedlings will require protection from birds; wire guards are undoubtedly the best measure of protection, but black cotton stretched on short sticks pushed in the row will serve the purpose quite well.

Varieties that grow taller than two feet require supports, and Hazel branches are very suitable as Pea sticks. Every year, however, increases the difficulty of meeting with suitable natural supporting material, and gardeners have to depend on artificial measures. Fish-netting and wire-meshed netting attached to stout stakes may be used with success. The support should be placed in position as soon as the plants commence to form tendrils, or the haulm will become misshapen. The weight and quality of the produce is improved by judicious feeding; superphosphate of lime is a suitable fertiliser to employ, and it may be used weekly, after the flowers have fallen, and until the pods are nearly filled.

Of the many excellent varieties in cultivation I recommend the following as being suitable for general use: Early, English Wonder (1½ foot). Peter Pan (1½ foot); Second Early, Stratagem (2 feet), Prince of Wales (3 feet); Maincrop. Alderman (5 feet) and Sharpe's Liberty (4 feet). *G. H. Copley, N.D.H.*

FOREIGN CORRESPONDENCE.

COMPOST SOIL.

Mr. Auton's method (p. 302, Vol. LXX.) of allowing all garden refuse to rot and not burning it, for use as compost, is very interesting from an economic standpoint. From a fair-sized garden it is possible to have a good heap of rich material suitable for potting and for mixing with other soils, by saving all the refuse from the greenhouses, kitchen gardens and park, also grass cuttings from lawns, and placing the whole in one large heap to rot for a couple of years. I have a heap from last year of at least one hundred loads, which we are just turning. This will remain until next year before it is used. If the heap is turned properly and laid up, say, two yards high and four or five yards wide, it will not be unsightly. In the second year it will be fit for use, and we employ it for mixing with other soils for growing vegetables in frames, for potting plants and for use in the kitchen garden, on lawns, etc. I consider it is worth, at a low estimate, four or five shillings per load when ready for use. It is a good plan to mix a little lime with the material when turning it. Care should be taken not to take up too much gravel when sweeping the paths, or this will cause much inconvenience when using the compost. I have heard some gardeners say that their garden fire was never extinguished, and whilst a good heap of wood ash is not to be despised in a garden, the difference in the size of the heap of the cremated rubbish and that of the rotted heap of soil bears no comparison. I grow Vegetable Marrows and Ridge Cucumbers on the heaps after turning them. This is economic and helps to keep weeds down, although the risk from weeds is reduced to a minimum by the heating of the rubbish, through fermentation, the first year. *James Page, Sweden.*

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TREES AND SHRUBS.

FENDLERA RUPICOLA

Fendlera rupicola is a beautiful deciduous shrub that deserves to be better known, for few plants are more effective, and at the same time more easily grown if given a sunny, warm position. This interesting member of Saxifragaceae is closely allied to Philadelphus, but differs from that genus by reason of its eight stamens and superior ovary. The beautiful white or faintly rose-tinged flowers, which individually somewhat resemble a Maltese cross, are from 1 to 1½ inch across and usually borne solitarily, but sometimes in threes on short twigs on the previous year's growth; the petals are rhombic-ovate and contracted at the base into a distinct claw, while the cluster of bright yellow stamens stands up erect on petaloid filaments and adds to the beauty of the flower.

The almost sessile leaves are rigidly coriaceous, lanceolate on the sterile branches, about one inch long and ½ inch wide, prominently three-nerved, revolute at the margin, with short, stiff bristles above and greyish tomentum beneath, while the leaves on the flowering shoots are much smaller, being linear and clustered on short twigs.

This sturdy, rigidly-branched, deciduous shrub is a native of the South-Western United States, and is found growing on the sunburnt slopes in Texas, New Mexico, Arizona and Utah. It is considered to be one of the most beautiful plants of its own region, where its profusion of white, or rose-coloured flowers is said to give it the appearance of a small Peach tree. It was first introduced into Europe about 1879, and into this country three years later, although the date of its introduction in European gardens is sometimes given as 1888. The illustration (Fig. 82) shows a spray from a fine specimen 8 ft high, growing against the Cactus House in the Botanic Garden, Cambridge. In the less favourable parts of the country it is essential to plant Fendlera rupicola in a warm, sunny position. It is not particular as to soil and is readily raised from seed, or from cuttings of rather soft wood placed in gentle heat. *F. G. Preston, Botanic Garden, Cambridge.*

MAGNOLIAS.

Magnolia conspicua and M. c. Soulangeana are two very attractive and useful trees to plant, provided the situation is somewhat sheltered from north and east winds. The plants will grow freely and produce large quantities of blooms early in the year, and at a time when flowers are none too plentiful. The first named produces white blooms slightly suffused with purple, and sweetly scented. The latter bears larger and deeper-coloured flowers.

These two Magnolias are beautiful objects in any garden, and thrive well in a moderately light, turfy loam, mixed with decayed leaf mould, and a little animal manure. Some gardeners mix a little fibrous peat with the loam, but that is not necessary if the latter is sweet and fibrous. Magnolia stellata forms a pretty object, and should be given a well-sheltered position. The blooms are freely produced, sweetly scented and expand before the leaves fully develop. *H. Markham, Wrotham Park Gardens, Barnet.*

BERBERIS VULGARIS.

A good deal has been justly written on behalf of the comparatively new species of Berberis from China, most of which have been introduced during the present century. While giving all these newer species their due measure of praise, the merits of the common Berberis vulgaris must on no account be passed over, for, taken altogether, it is, at least from my point of view, second to none. With space for its development it forms an exceedingly graceful deciduous shrub, which is in May laden with pendulous racemes of yellow blossoms. It is, however, in the autumn when the berries are ripe that its most conspicuous phase of beauty is seen. Then the berries acquire a bright scarlet colour, and their weight imparts to the young shoots an even more pendulous character than at other seasons. *T.*

ORIGIN AND EVOLUTION OF SUMMER-FLOWERING GLADIOLI.*

(*Concluded from page* 164.)

The bluish-violet colour in G. Lemoinei was a surprise, resulting from a genetic combination difficult to explain, which was, however, rapidly transmitted to a number of very fine varieties, and is still particularly popular. I should like to add that the hardiness which is a characteristic of G. purpureo-auratus, and which enables it to pass mild winters in the open, encouraged the hope that the race which is derived from this species would be equally hardy, or nearly so. Unluckily, this hope has not been realised.

It was a little later, about 1890, that M. Lemoine placed in commerce his first Nanceianus hybrids. They were the results of crosses between blotched Gladioli and G. Saundersii. This new race at once attracted attention by the very large size of the flowers, no longer round and curved like those of the blotched hybrids, but large and wide open, with the lateral divisions extended in the form of wings, with dainty blotches of a clear ground colour, finely spotted with red or purplish-brown.† Large numbers of the remarkable varieties which he originated are still in cultivation, and take rank with the best in size and in richness of colour.

Here, then, we have three races of Gladioli, perfectly distinct from the primitive types, as well in their origin as in their characteristics. On account of their frequent crossing and of their tendency to hybridise spontaneously, seedlings show a great diversity of form and colour. It would seem that raisers have attached less importance to the fixing of racial characteristics than to the size of the flowers, the richness or novelty of the colouring, hardiness, or easy propagation. It is for this reason that so many varieties appear, beautiful indeed, but intermediate in character, and tending to combine all the precedent races, though these were originally quite distinct. This fault is found in many foreign varieties.

I admit that it is difficult to resist the desire to choose from among seedlings the plants whose only fault is that of mixed breed, that is to say, an impure gandavensis, Lemoinei or Nanceianus, impossible properly to class. But it does seem to me that the horticultural trade will lose more than it will gain if these distinct races are allowed to merge into one. For my own part, I have always steadfastly set my face against it, and have frequently pointed out the danger.

I now come to the most recent race in point of date, and perhaps the most distinct, with its slender stems, and flowers of warm, pale colours. I allude to the Gladiclus primulinus hybrids which have become familiar to us in the last decade or so. I cannot very well praise these Gladioli too fulsomely on account of the part I have myself taken in their raising.

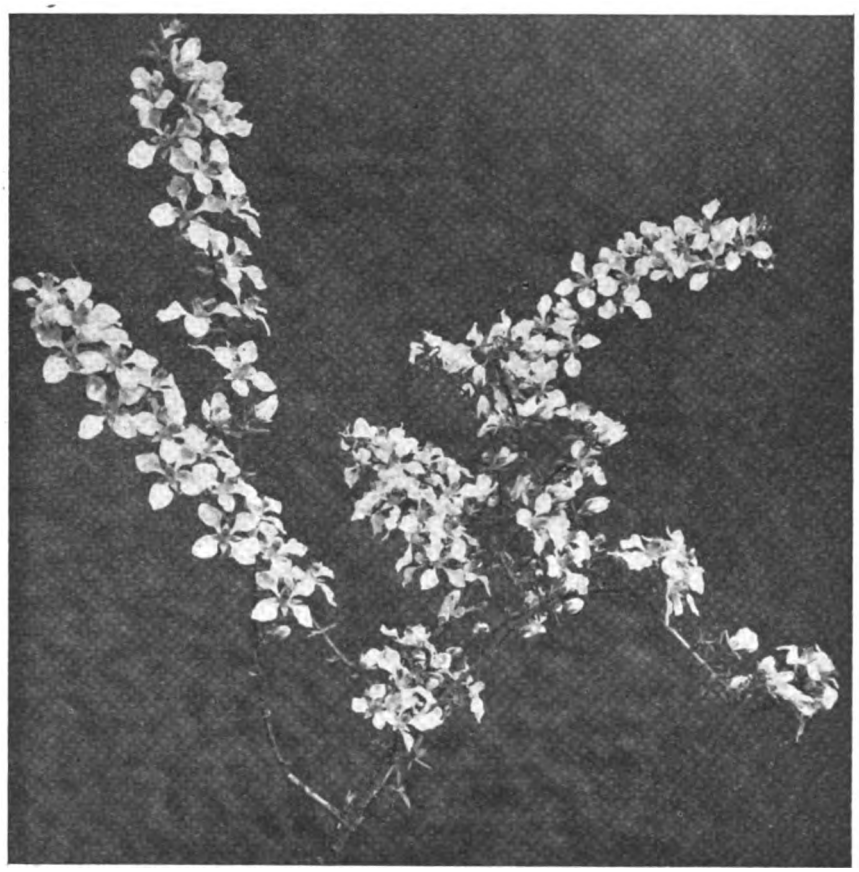

Fig. 82.—Fendlera rupicola.

Gladiolus primulinus (type)* has been known since 1890, and was reintroduced in 1904. The slenderness of the stems, the crested form of the small flowers, and their pure Primrose-yellow colour are the chief characteristics of this species, which was immediately used for hybridisation in the hope of obtaining Gladioli with pure yellow flowers.

Results were not long in coming. In 1908, M. Lemoine placed in commerce G. primulinus major, and MM. Cayeux and Le Clerc showed in the same year, in this very place, their first hybrids, of a yellow colour, very remarkable for the time.† In this connection, I should like to express my thanks to M. Cayeux for the generosity with which he sent me some stamens of the G. primulinus type, which he was showing at the same time as his first hybrids. The pollen was sufficient to make

* A paper read by M. Mottet at the conference held by the Société Nationale d'Horticulture de France on August 10, 1922, on the occasion of the Gladiolus competition; translated from the Society's *Journal*.

† See *Le Jardin*, 1900, p. 348, pl. in colour.

* See *Revue Horticole*, 1908, p. 8, fig. 1.

† See *Journ. de la Soc. Nat. Hort. France*, 1908, p. 466.

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several crosses, and thus originated the primulinus hybrids raised by MM. Vilmorin at Verrières. Worked with the various cultivated races—gandavensis, Lemoinei, and Nanceianus—tried with Colvilei, and used by all the various specialists, both French and foreign, G. primulinus has very rapidly given rise to a race of Gladoli remarkable for warm, brilliant colours, in which orange or apricot tones—produced by the mingling of yellow and red—are predominant, and make these flowers invaluable for decorative purposes.*

This is not all; for these Gladioli, which might possibly be thought inferior to the previous varieties if attention were paid only to their spikes and the number of flowers open at the same time, have preserved—or at any rate their raisers have made it their object to preserve—the special form of the type in which the upper division is strongly developed and arched in front, while the lower ones are very short and recurved. In the hybrids, however, this form is modified; the upper division, always the larger, becomes horizontal, the laterals spread out like wings as in the Nanceianus hybrids, and the lower petals increase in size, being also adorned with blotches, some of which are quite large, of a colour in which yellow predominates. It is to these characteristics, and also to the slenderness of the stems, that these hybrids owe their great value as cut flowers. This decorative value becomes ever greater as larger and larger flowers are produced with firm stems; no better demonstration of this progressive improvement could be found than the series of the most recent seedlings, still unnamed, shown by MM. Vilmorin, when compared with the varieties raised before, or at the beginning of, the war. These new French varieties yield in nothing to those raised abroad. It was thought, in the early days of Gladiolus raising, that the hooded form was a fault, which would be cured by further hybridisation; I have always opposed this opinion, and, so far as I am concerned, I have always tried to preserve it, at the same time endeavouring to eliminate the deep colours, which have a tendency to reddish-brown, dark lilac, and violet, and I believe that this view on the subject of G. primulinus hybrids generally prevails among raisers.

These Gladioli are chiefly useful, not so much for the ornamentation of large gardens, as for planting in small beds and borders near the house, and, above all, for use as cut flowers in small vases and jardinières. Arranged with a little light foliage, they produce a most charming effect. Particularly in artificial light, their clear yellowish or orange tones are seen at their best; while the red, lilac, and violet tints of their congeners are more or less extinguished.

It may be added that the G. primulinus hybrids are very easily propagated—nearly all the corms flower in their second year; they are cheap to buy; and by arranging the corms in different ages and sizes, it is easy to get a succession of flowers from the end of July until the first frosts. As in the case of the other races, the corms flower early in proportion to their size, and the larger ones of the previous year will flower, at least some of them, in the autumn. Sometimes a few flowers remain right up to All Saints' Day.

Many other races have been produced in the course of the evolution of the garden Gladioli, which, after existing a certain time, have disappeared for want of any outstanding merits. Among others may be mentioned the Childsii hybrids (G. turicensis, raised by Max Leichtlin about 1860, and renamed in America) which were not able to hold their own against G. Nanceianus; the dracocephalus hybrids of M. Lemoine; the round-spiked Gladiolus which has several times been upheld as useful for the centres of bouquets; the massiliensis Gladioli of M. Deleuil; the vitriacensis hybrids of M. Caveux, etc. To conclude, I will mention G. princeps,† which was thought to be destined to give rise to a brilliant progeny. Not only were its descendants completely uninteresting, but it rapidly lost its power of propagation, and became so difficult to obtain that nurserymen sometimes substituted for it a Gandavensis hybrid of the same red.

To make the list complete, I would remind you of the Gladioli which develop in the winter and flower in the spring, of which there are several species; notably G. Colvilei, or dwarf Gladioli. These Gladioli are not hardy in our climate, and are therefore but little cultivated here.

* See *Le Jardin*, 1911, p. 40, pl. in colour; *Revue Horticole*, 1913, p. 578, pl. in colour.

† See *Revue Horticole*, 1904, p. 208, pl. in colour.

HOME CORRESPONDENCE.

Grevillea asplenifolia.—At one time more than 150 species of Grevillea were grown at Kew, and a large number of them in private gardens. At present I can only see four species offered by nurserymen, and two or three of them are sufficiently hardy to be grown against a warm wall outdors. For some years past a Grevillea has been sold in florists' shops during February and March, but no one seems to know what it is. I have a record of the plant being sold in Bournemouth in 1919; and recently saw it at a meeting of the Royal Horticultural Society. A specimen was sent the other day by a correspondent in Hertfordshire, and I have determined it to be G. asplenifolia, from New South Wales. It is figured in the *Bot. Mag.*, t. 7070. It makes a tree 12-15 ft. high in its native country, and bears linear-lanceolate, entire, toothed or pinnatifid leaves. Those grown formerly in this country and those now coming into this country from the shores of the Mediterranean all agree in having toothed or occasionally entire leaves, with triangular, acute teeth. The leaves are silky and white, or slightly fulvous on the under surface, while those grown in their native country are mostly of a deep fulvous hue, with a metallic sheen. As these leaves vary from four to ten inches in length they are very handsome and useful for decorations. The short racemes of flowers are fulvous red in bud, opening to pink with streaks of red. In all probability this plant would require to be grown in a greenhouse from which frost is excluded in this country. Hence I presume that the cut branches being sold come from the South of France. *J. F.*

Sisyrinchium filifolium.—It is to be hoped that this species has now come to stay, because of its large and showy flowers. It is most nearly related to S. grandiflorum, having smaller, but erect flowers of a different colour. The plants, from which the figure in the *Bot Mag.*, t. 6829, was drawn, were sent by the late F. W. Burbidge in 1885, so that he was probably the first to flower the species, and certainly the first to bring it to public notice. It would be interesting to know how it came to be lost to cultivation, seeing that Mr. Clarence Elliott (page 129) assures us of its perfect hardiness. I can speak of the hardiness of its near relative, S. grandiflorum, which comes from Vancouver Island and California eastwards to the Rocky Mountains. My first experience of it was in the lower part of a garden where the temperature must frequently have been down to zero when the ground in winter was not covered with snow. It was grown in the herbaceous border without special treatment, and bloomed beautifully in April, whereas S. filifolium does not reach this stage until May and June. *F. L. S.*

"The Microscopical Theatre of Seeds, etc.," 1745.—Mr. Gurney Wilson is, no doubt, aware that he will find James Parsons's book bearing the above title in *Pritzel*. The entry there is meagre compared with that of the same work in the *Library Catalogue* of the Massachusetts Horticultural Society, where the title occupies five lines. To that information is added "V.I. 4°, pp. [2], 348, pl. 8. London, 1745," and cataloguer's note, "No more published." The book is probably a rarity, for I do not find that any copy has been offered for sale by leading second-hand booksellers in recent years. *C. H. P.*

SOCIETIES.

ROYAL HORTICULTURAL.

March 27 and 28.—The gloriously warm and bright spring weather on March 27 brought out large numbers of Fellows and visitors to see the beautiful display provided at the Royal Horticultural Hall by numerous exhibitors. The golden colouring of the numerous Daffodils reflected the sunshine, and gave the hall a gay appearance. Carnations, Rhododendrons, Anemones, Alpine flowers, early flowering shrubs, Freesias, Roses and Tulips were extensively displayed, and there were many interesting novelties.

Orchid Committee.

Present: C. J. Lucas, Esq. (in the chair), Messrs. J. O'Brien (hon. secretary), Gurney Wilson (assistant secretary), Frederick J. Hanbury, E. R. Ashton, Richard G. Thwaites, J. E. Shill, T. Armstrong, Chas. H. Curtis, S. W. Flory, H. T. Pitt, Henry H. Smith, A. McBean, W. J. Kave, H. G. Alexander, Arthur Dye, Fred. Sander and the Hon. Henry D. McLaren.

Award of Merit.

Odontoglossum Aurora var. Rajah (*Rossii* × *Lambeauianum*), from Messrs. Sanders, St. Albans. A charming cross, quite distinct from the forms previously shown. Sepals and petals claret-red, with distinct white margin, the fine, broadly ovate lip being pure white with a few small purple lines in front of the yellow crest. The spike bore four fully expanded flowers

Laelio-Cattleya Nora (*C. Nortia* × *L.-C. Dominiana*), from Messrs. Cowan and Co., Ltd., Southgate. A grand flower of the L.-C. St. Gothard class. The sepals and very broad petals are rosy-mauve, the broad, crimped lip crimson purple with thin gold lines from the base.

Cattleya Suavior, Low's variety (*Mendelii* × *intermedia Aquinii*), from Messrs. Stuart Low and Co., Jarvisbrook. A showy flower and an interesting example of the power of abnormal forms to transmit their characters, the petals in this case being inherited from the peloric C. intermedia Aquinii. The sepals and petals are blush-white, the petals having broad violet-crimson bands. The front of the lip is also crimson-purple.

Groups.

Messrs. Sanders, St. Albans, were awarded a Silver Flora Medal for an effective group in which fine specimens of their bright yellow form of Dendrobium Wiganiae, with good examples of D. nobile hybrids, D. Cybele and the rare D. atroviolaceum, were arranged with Cymbidiums, white and coloured Cattleyas and Laelio-Cattleyas, and a very interesting selection of Masdevallias. Specially fine things noted were Laelio-Cattleya Rheims var. Illustrious (Canhamiana × Aphrodite) with a two-flowered inflorescence of large and richly coloured flowers; and Cattleya Dawn (Mendelii Mrs. F. Sander × intertexta alba), a clear white flower, with an oblong rose flush on the lip.

Messrs. Cowan and Co., Ltd., Southgate, were awarded a Silver Flora Medal for an effective group of Cymbidiums, including splendid examples of C. Dryad, a selection of C. Alexanderi, with white and rose flowers; C. Shillianum, large and well displayed; C. Pauwelsii in variety; a light form of C. President Wilson with less C. Lowianum in it than in those previously shown, and a good dark Odontoglossum Harold.

Messrs. Flory and Black, Slough, were awarded a Silver Banksian medal for a neat group in which were white Cattleyas, including three examples of C. The Bride, several of C. Trentino alba, and two of C. Megali Sander. The novelties in the group were Cattleya G. P. Walker, var. Distinction (Mendelii × Tityus), a large, light, lavender-pink flower with finely displayed Tyrian purple lip; and Brasso-Laelio-Cattleya Boadicea, blush-white, with large purple lip with yellow disc, the last being especially good.

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Other Exhibits.

General Sir Arthur Paget, Warren House, Kingston Hill (gr. Mr. W. Penton) showed Cymbidium Lady R. Paget (insigne × Butterfly), with a strong spike of good, pale yellow flowers with red markings inside the front of the lip.

Sir G. H. Kendrick, Whetstone, Birmingham, showed a well-flowered and brightly-coloured form of Dendrobium Niobe (nobile × tortile), the type of which was shown by Messrs. J. Veitch and Sons in 1893. The present variety was near to a good D. nobile, but with the D. tortile twist in the petals.

Lady Aberconway, Bodnant, N. Wales (gr. Mr. F. Puddle), brought Cypripedium Psyche, Bodnant variety (niveum Goliath × bellatulum), a fine white flower with small purple markings. The flower unfortunately was damaged in transit.

H. T. Pitt, Esq., Rosslyn, Stamford Hill, brought a leaf and spike of one of the three grand plants of Neo-moorea irriorata, shown in his group at the last meeting and which were blackened and otherwise damaged by the cold in the imperfectly heated hall, and about which many exhibitors complained. We understand that the attention of the Council has been called to the matter .

Floral Committee.

Present: Messrs. H. B. May (in the chair), J. W. Barr, W. J. Bean, C. Williams, J. F. McLeod, J. Jennings, D. B. Crane, J. B. Riding, Hugh Dickson, John Heal, George Harrow, W. Howe, H. J. Jones, C. R. Fielder, Donald Allen, W. B. Cranfield, Clarence Elliott, R. C. Notcutt, James Hudson, Reginald Cory, Arthur Turner.

First-Class Certificates.

Pieris taiwanensis.—This superb new shrub figured and described in *Gard. Chron.* February 3, 1923, p. 63, was shown in splendid condition on this occasion, the three plants exhibited being smothered with their clusters of Lily-of-the-Valley-like flowers. An Award of Merit was granted on March 14, 1922, and the higher award was well deserved on Tuesday last. Shown by the Marquis of Headfort, Kells, Co. Meath.

Prunus Blirieana fl. pl.—A lovely early flowering small tree, and bearing in great profusion semi-double flowers of a lively pink colour. This handsome plant is closely allied to Prunus Pissardi. Shown by Mr. R. C. Notcutt.

Award of Merit.

Saxifraga Griesbachii, Wisley var.—This differs from the type in having more highly coloured bracts on stout flower stems. Shown by Mr. Clarence Elliott.

Rhododendron rhododactylum.—A dainty species, with clusters of six small pale pink flowers of campanulate form. The ovate-lanceolate, sharply pointed leaves are shining deep green above and rusty below. Shown by Lady Aberconway and Hon. H. McLaren (gr. Mr. Puddle), Bodnant.

Berberis replicata.—A distinct, but not very effective Barberry, with clusters of roundish pale yellow flowers, depending so as to hang below the arching growths. The linear leaves are dark dull green above and grey beneath. This species has the merit of flowering very early. Shown from the Royal Horticultural Society's Gardens, Wisley.

Groups.

On a considerable floor-space, just inside the entrance, Messrs. L. R. Russell, Ltd., had a highly decorative group of forced shrubs, which included very floriferous Azaleas of various types, quaintly-shaped Wistarias, many Clematis, and Rhododendron Pink Pearl. A small plant of Franciscea calycina major, bearing its uncommon velvety-blue flowers, attracted a deal of attention (Silver Flora Medal).

Near by, Messrs. R. W. Wallace and Co. also had a beautiful group of flowering shrubs. Named varieties of Azalea mollis and of great excellence predominated, but the large group also contained many Wistarias, Laburnums, Deutzia gracilis and a few Alpines such as Anemone Pulsatilla (Silver Banksian Medal).

Well-flowered little bushes of Pieris (Andromeda) floribunda were prominent in an exhibit by Messrs. Bakers, Ltd. Viburnum Carlesii, Azalea indica and Daphne Cneorum major, in considerable quantity were well shown by Messrs. J. Piper and Sons (Silver Banksian Medal), while Messrs. Wm. Cutbush and Sons had many attractive plants of the best Azalea indica varieties, and a neat rockery in which they displayed various Alpines and a group of the glowing Scarlet Tulipa Eichleri (Silver Flora Medal).

Rhododendrons formed a considerable part of the tree and shrub exhibits. Beneath the gallery Messrs. R. Gill & Son had a number of beautiful trusses of bloom. A large quantity of Rhododendron Cornish Red, an old arboreum variety which in favoured places grows to considerable size, surmounted vases of Ernest Gill, Beauty of Cornwall, Zelanicum, an uncommon species which produces a long, compact truss of rich crimson flowers, and R. ciliicalyx. Besides the Rhododendrons, they showed large numbers of excellent Anemones, Erica codonodes, and Richardia spathes (Silver Banksian Medal). Mrs. Haywood Johnstone, Bigley Park, Pulborough, sent a collection of arboreum varieties of Rhododendron.

An interesting collection of Rhododendrons was shown by C. E. Heath, Esq., Anstie Grange, Holmwood. This included good trusses of sutchuenense, Spilsonii, arboreum, superbum calophytum, nobleanum and ciliatum.

In a miscellaneous collection, Mr. G. Reuthe had various Rhododendrons, including a good plant of R. calophytum, and trusses of R. niveum (Silver Flora Medal). Messrs. J. Cheal and Sons showed a well-flowered specimen of R. racemosum, with various alpines and other hardy flowers. Ericas Veitchii and Darleyensis were exhibited by Messrs. W. H. Rogers and Son.

Various Primulas, including the rare P. Allionii and Saxifrages were shown by Mr. Clarence Elliott. The Chalk Hills Nursery Co. had a large quantity of the old favourite double mauve Primrose, with Crown Fritillarias, and a well-coloured form of Thymus citriodorus aureus.

In a corner space, Messrs. Blackmore and Langdon set out many Polyanthuses of an excellent strain (Silver Banksian Medal). Messrs. Maxwell and Beale included pretty plants of Soldanella montana in a collection of alpines. Mr. G. G. Whitelegg showed many plants of Cheiranthus Allionii, and unusually good rosettes of Saxifraga carniolica and S. longifolia, with a number of conifers suitable for rock gardens.

The beautiful blue Pulmonaria azurea was prominent in a collection by Mr. F. G. Wood, whose exhibit also included many other interesting hardy plants (Silver Banksian Medal).

Messrs. Carter, Page and Co. had some early Violas, Primula frondosa, Narcissus calathinus in their exhibit (Silver Banksian Medal). Mr. G. W. Miller showed a wide range of Polyanthuses (Bronze Flora Medal); and Messrs. Reamsbottom and Co. staged many of their St. Brigid Anemones (Bronze Flora Medal).

Carnations were shown in great quantity by Messrs. Allwood Bros., who had good vases of Wivelsfield Pink, Wivelsfield Beauty, Chintz, and Edward Allwood (Silver Flora Medal). Mr. C. Engelmann showed Aviator, Rani, Benora, Circe and others (Silver Banksian Medal).

Such sorts as Peerless, Carola, Cupid and Amitus were prominent in an exhibit by Messrs. Keith, Luxford and Co.; while Messrs. Stuart Low and Co. gave prominence to Eileen Low, Hon. Charlotte Knollys, Red Ensign, and Hon. Nita Weir, and also showed Acacias, Cyclamen and Hippeastrums (Silver Flora Medal).

Messrs. Sutton and Sons had the earliest coloured Freesias, showing Merry Widow, Treasure, Robinetta and Mouette, with a few Cinerarias. Violets were staged by Mr. R. Pinney.

Messrs. Moyes, Stevens and Co. had some excellent Roses, Hyacinths and Narcissi (Silver Banksian Medal); and Messrs. Barr and Sons showed Irises, Fritillarias, hardy Cyclamen and Primulas.

Roses were shown in increased numbers and considerable beauty. In his collection of such sorts as the new Allan Chandler, Florence H. Veitch, and Padre, of glorious colouring, Mr. George Prince had sprays of the uncommon species, Rosa hemispherica, bearing several double yellow flowers. Mr. Elisha J. Hicks had goodly vases of Premier, Columbia, Climbing Lady Hillingdon, and Coral Cluster (Silver Banksian Medal); while Messrs. F. Cant and Co. showed Lady Pirrie, Primrose Pirrie and Covent Garden. There were beautiful vases of Padre, Sovereign, Covent Garden, Phoebe, and Golden Ophelia, in an exhibit of Roses by Messrs. B. R. Cant and Sons (Silver Banksian Medal).

Narcissus and Tulip Committee.

Present:—Rev. G. H. Engleheart (in the chair), and Messrs. J. D. Pearson, Peter R. Barr, E. A. Bowles, J. W. Jones, H. V. Warrender, F. Barchard, George Monro, Rollo Meyer, Reginald Cory, Herbert Smith, W. B. Cranfield, F. Herbert Chapman, W. Poupart, and Chas. H. Curtis (hon. secretary).

Awards of Merit.

Narcissus Provost.—A magnificent golden trumpet Daffodil, of large size and wonderful substance. The bold frilled trumpet and the slight twist in the perianth segments at once suggest that this newcomer is a maximus cross. It is a giant, and of splendid colour. Shown by Rev. G. H. Engleheart.

Narcissus Callirrhoe.—A trumpet Daffodil of large size and good form; the trumpet is sulphur-coloured and the perianth white, broad and of fine substance. Shown by Mr. F. Herbert Chapman.

Narcissus Glorious.—A large-flowered Poetaz variety, twin-flowered, with large white blooms and a flat orange-coloured disc. The award was granted for the value of the variety for garden and cutting. Shown by Mr. J. L. Richardson, Waterford.

Narcissus Prince Umbria.—This is a beautiful incomparabilis variety, with white, overlapping perianth segments and a frilled-edged, primrose-yellow crown. Shown by Messrs. Barr and Sons.

Narcissus Golden Sunrise.—Another rich golden yellow trumpet Daffodil, with slightly incurving, broad perianth segments and a finely frilled trumpet. Exhibited for garden and cutting purposes. Shown by Messrs. R. H. Bath, Ltd.

Groups.

Messrs. Barr and Sons staged a great quantity of high-class blooms in very many varieties. The large Trumpets predominated, and these included Fantin Latour, Proserpo, Latona, Chloria, Alexas, and Carminata. Amongst the Incomparabilis varieties Apricot Queen, which has a long, pale apricot-coloured tube, attracted a deal of attention. Of this type Belarius and Proteus were also noteworthy, as also were Jaspar and Tamora of those with brightly coloured coronas. Besides the hundreds of named blooms, there were many seedlings of several types and of great excellence (Silver-Gilt Flora Medal).

Large Trumpet Daffodils were also prominent in the collection of Mr. J. Lionel Richardson, who showed such sorts as Comeragh, Cleopatra, Van Waveren's Giant and his new Tazetta variety Glorious, and the last drew attention to the more chaste attractions of Empire and King Cup of the same type. The Leedsii White Queen was well shown (Silver-Gilt Banksian Medal).

King Alfred was represented by splendid blooms in the exhibit of Messrs. R. H. Bath, Ltd. Other meritorious large Trumpet varieties were Golden Sunshine and the President. The smaller March White and Alice Knights were also very decorative. Feu de Joie, a good double-flowered variety, and the pale corona of Mace Bearer were both very distinctive. On a floor space Messrs. Bath displayed many Tulips growing in bowls of fibre (Silver-Gilt Banksian Medal).

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A smaller collection shown by Messrs. F. H. Chapman, Ltd., included in Fortune a splendid Incomparabilis variety. The long, orange-coloured corona contrasted well with the paler yellow perianth. There were also some particularly good unnamed seedlings and, amongst the large Trumpet varieties Pampant, Bob Major, Stalwart and Eminent were excellent (Silver Flora Medal).

Such Barri varieties as Red Beacon, Sunrise and Lucifer compelled admiration in the exhibit by Messrs. J. R. Pearson and Sons, who also included Comus and J. W. Masefield, of the Poeticus section, and Fairy, Weardale Perfection and Florence Pearson, of the large Trumpet Daffodils (Silver Banksian Medal).

A decorative display was made by Messrs. J. Carter and Co., who filled large ornamental baskets with generous quantities of King Alfred Daffodil and King Harold, Feu Brilliance, and Sweet Lavender Tulips (Silver Floral Medal).

Under the influence of the bright sunshine the large collection of Dutch Tulips arranged by Messrs. R. and G. Cuthbert opened widely and made a most attractive display. The principal varieties were La Remarquable, Prince of Austria, Coleur Cardinal, Potter, King of the Yellows, and La Réve (Silver-Gilt Banksian Medal).

An artistic display was made by the Maytham Gardens, Rolvenden, with such Tulips as La Merveille, Louise de la Valliere, Gold Finch, and La Tulipe Noir (Bronze Banksian Medal).

Fruit and Vegetable Committee.

Present:—Messrs. C. G. A. Nix (in the chair), J. Cheal, H. S. Rivers, W. Lobjoit, S. B. Dicks, W. J. Jefferies, Geo. F. Tinley, Ed. Beckett, Geo. Reynolds, A. Metcalfe, A. Bullock, E. A. Merryweather, P. C. M. Veitch, W. H. Divers, H. V. Taylor, W. F. Giles, W. Poupart, and A. N. Rawes.

The only exhibit before this committee was a dish of Apple Lord Burghley, shown by Mr. P. C. M. Veitch, of Exeter. This excellent late dessert Apple was awarded a First Class Certificate on March 21, 1865.

NEWCASTLE AND DISTRICT HORTICULTURAL.

The first spring show of the Newcastle and District Horticultural Mutual Improvement Society was held on the 24th inst. Model rock gardens exhibited combined originality of design with beauty of floral setting, making pleasing effects. Equal first prizes for these rock gardens were awarded to Mr. J. Kirkbride, gardener to Mr. Brough, Ashfield Tower, Gosforth, and Mr. C. Dillon, gardener to Miss D Scott, Fenham, Newcastle; third, Miss E. Ormiston, Jesmond.

The floral exhibits were of good quality, Hyacinths, Tulips, Narcissi, Cinerarias, and Richardias (Callas) being especially good.

Mr. R. E. Richardson, chairman of the Society, staged a very fine collection of vegetables.

Another interesting feature of the show was a trade exhibit of Narcissi by the Donard Nursery Co., Ireland, which included choice specimens of the varieties Comely, Crocus, Crystal, Dingo, Festive, Gog, Magnificence, and others.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Thursday, March 1.—Committee present: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, J. Cypher, J. Evans, J. Howes, J. Jackson, W. M. Jackson, A. Keeling, J. Lupton, D. McLeod, E. W. Thompson, J. Thrower, J. Whitham, and H. Arthur (secretary).

First Class Certificates.

Cypripedium Senator (*Gladiator* × *Duke of Marlborough*).—A large flower, the beautifully spotted dorsal having a broad white margin.

Odontoglossum promerens var. Prince Henry (*eximium* × *Leonard Perfect*).—A variety with very large, reddish blotches on a white ground; *Lycaste Skinneri Virgin Queen*, one of the best white forms, with a lemon-yellow throat. From S. Gratrix, Esq.

Awards of Merit.

Cypripedium Memoria F. M. Ogilvie vars. The Chancellor and Leopardinum, from S. Gratrix, Esq.

Dendrobium Bancroftianum, and *Cypripedium Cardemona* (*Carola* × *Desdemona*), from P. Smith, Esq.

Groups.

S. Gratrix, Esq., West Point (gr., Mr. J. Howes), was awarded a large Silver-gilt Medal for a group.

Messrs. J. Cypher and Sons, Cheltenham, staged a group for which a large Silver Medal was awarded.

Jas. Whitham, Esq., Crompton Hall (gr., Mr. E. Greaves), staged a group of Cypripediums and Cymbidiums for which a Silver Medal was awarded.

Obituary.

Thomas J. Grey.—The American horticultural papers record the death of Mr. T. J. Grey, seedsman, of Boston, trading under the firm name of Gilbride and Grey. Mr. Grey was a native of Ireland and emigrated to America when a young man. He was 78 years old when he died, and a sad fact in connection with his death is that his wife succumbed to pneumonia just one week previously. He was a former president of the Gardeners' and Florists' Club of Boston, and a prominent member of the Massachusetts Horticultural Society.

TRADE NOTE.

We learn that owing to the retirement from business of Mr. E. H. Krelage, the complete collection of his Daffodil seedlings will be sold by public auction at Sassenheim, Holland, during the latter part of April. The collection contains unbroken stocks of nearly four hundred distinct seedling Daffodils, including a number of varieties which have gained awards at Haarlem, London and Birmingham. In addition, sixty-seven beds of seedlings obtained from one hundred and twenty-five different crosses will be offered for sale. The plants will be open to inspection during the flowering season, which will probably commence about April 9. Catalogues of the sale may be obtained on application to Messrs. E. H. Krelage and Son, Haarlem.

ANSWERS TO CORRESPONDENTS.

Abnormal Arum: *H. A. J.* The development of a second spathe in Richardia (Arum Lily) is not uncommon; we have sent to us frequently specimens similar to yours, in which the leaf just below the inflorescence is converted into a secondary spathe.

Broccoli Failing to Form Good Heads: *A. O'L.* We do not think the soil is at fault, but suspect that you allowed the seedlings to remain too long in the seed bed before transplanting them. If the seedling plants became stunted and received a check before they were set in the rows, this would suffice to account for the heads growing so small.

Camellia Unhealthy: *A. O'L.* The Camellia leaf is covered with a sooty deposit, pointing to an infestation of mealy bug, and not due to drip from the roof glass as you imagine. The tree should be sponged with soapy water, an operation that will provide labour for the staff when work in the open is impossible.

Celery: *A. S. S.* If your Celery was properly grown, healthy and planted to time, as you state, then the fact that it was "tasteless, pithy, without good hearts, and later in the season rotted in the centre," points to the strain being an inferior one. Obtain seed of the best varieties only from a reliable firm. Select a fresh site for your Celery beds this season.

Failure of Herbaceous Paeonies: *J. C. W.* From your letter we suspect the plants have been starved, evidently in consequence of insufficient trenching of the soil and the poor quality of the latter. To obtain good results with Paeonies, stiff soil should be trenched about 3 feet deep and enriched with well-decayed manure—cow manure for preference. It is not necessary to trench so deeply on light, calcareous soils, but leaf-mould should be added to such ground in order that it may help to conserve the soil moisture in summer. An annual top dressing of decayed animal manure and leaf-mould should be applied and lightly forked in the soil any time from September to November, as these plants usually remain undisturbed for three or more years. A mulch applied in spring is also useful, as this tends to retain moisture during very hot weather. Paeonies in pots should be grown in a rich, loamy soil, mixed with a liberal quantity of leaf-mould and a sprinkling of sand. Ample drainage is necessary. Give the roots periodical supplies of manure water. These pot plants should be grown out-of-doors until the flowers are in the bud stage, to develop their blooms.

Onosmodium Thurberi: *Mrs. M. G.* This plant does not appear to be in cultivation at the present time. Some years ago seeds of it were supplied by Mr. D. M. Andrews, Boulder, Colorado. There are six species, all natives of the United States and Mexico. The only way to obtain seeds would be to write to some one in those countries.

Names of Plants: *H. J. A.* 1, Cupressus Lawsoniana var. lutea; 2, Cryptomeria japonica; 3, Pinus excelsa; 4, Taxus baccata var. aurea; 5, Thuya occidentalis var. lutea. —*F. E.* 1, Olearia Haastii; 2, Choisya ternata; 3, Lonicera nitida; 4, Camellia japonica; 5, Berberis Darwinii; 6, Cupressus macrocarpa; 7, Quercus Ilex; 8, Cistus laurifolius; 9, Thuya plicata var. zebrina; 10, Missing; 11, Fabiana imbricata.—*A. W. F.* 1, Saxifraga Burseriana; 2, S. Paulinae; 3, S. Elizabethae; 4, S. apiculata.—*E. G. S.* Rhododendron praecox.

Pelargonium Leaves Spotted: *G.* The spotting of Pelargonium leaves, such as yours, is not usually attributed to fungous attack, but to sour soil, in which the plants are growing. Plants similar to yours have recovered after the old soil has been removed from the roots and the latter repotted in fresh, sweet compost.

Value of Old "British Flora": *L. E. B.* If your copy of *The British Flora or genera and species of British plants*, arranged after the reformed Sexual System, etc., by Robert John Thornton, M.D., 2 vols. in one, 1812, as quoted by you, consists of only two volumes in one, then it is imperfect and probably of very little market value. This work was published in London, in 1812, in 5 vols., 8vo., and contained numerous plates. Most copies appear to be defective in this respect, for we have seen copies recorded as having 355 plates and 342 plates. A well known West End second-hand bookseller quoted this work in 5 vols. (not complete) at half a guinea. Another firm offered the first three volumes only, at 8s. 6d. These are both moderately recent quotations and will help you to form an approximate idea of the value of your two volumes.

Tomato Seedlings: *G.* There is no indication, from the specimens you send, that your seedling Tomato plants are blind, but they are very enfeebled and stunted. Their condition, and especially the purplish colour of the stems, points to their having been grown in insufficient warmth.

Communications Received.—W. M. B.—H. P. T.—H. B. S.—R. S. S.—J. S., Henley—R.—J. M.

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THE

Gardeners' Chronicle

No. 1893.—SATURDAY, APRIL 7, 1923.

CONTENTS.

Alpine garden, the :—
Achillea argentea .. 183
Arenaria verna .. 183
Œnothera taraxicifolia 183
Apples, the winter pruning of.. 181
Azaleas, Kurume .. 182
Bamboo, a new genus of 181
Books, old botanical and gardening 188
Bulb garden, the :—
The Gladiolus .. 183
Carnations, rust on .. 191
Easter in Covent Garden 186
Foreign correspondence :—
Sempervivum .. 189
Fruit register :—
Hardy Grapes .. 190
"Gardeners' Chronicle" seventy-five years ago 182
Gardeners' Royal Benevolent Institution's festival dinner 182
Ghent Quinquennial Exhibition 182
Gill, Mr. Richard .. 182
Glasgow flower shows.. 181
"Index Kewensis" .. 182
Indoor plants :—
Javanico - jasminiflorum Rhododendrons 189
Olympia, gardens at .. 191
Orchid notes and gleanings :—
Laelio-Cattleya Nancie Gamble 187
Odontioda Daffodil Montague Mackenzie 187
Odontoglossum Orosum 187
Three Madagascar Cymbidiums .. 187
Parks and open spaces, public.. 185
Plums, approximate order of blossoming of 190
Potato flowers, degeneration in, and causes of sterility 188
Potatos, wart disease of, on allotments .. 182
Sandy flower show .. 182
Societies :—
Manchester and North of England Orchid 191
"The Orchard and Garden" 191
Trees and shrubs :—
Prunus cerasifera and varieties 185
Pyrus Scheideckeri.. 185
Vegetable garden :—
Bulbous Chervil .. 190
The Hardy Yams .. 190
Winter Purslane .. 190
Ward's, Mr. Kingdon, seventh expedition in Asia 186
Week's work, the .. 184

ILLUSTRATIONS.

Achillea argentea 183
Eucalyptus haemastoma 187
Gill, Mr. Richard, portrait of 182
Narcissus Prince Umbria 189
Pyrus Scheideckeri 185

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 46.1°.

Actual Temperature :—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, April 4, 10 a.m. Bar. 29.9; temp., 57°. Weather—Sunny.

The Winter Pruning of Apples.

Anyone of observant mind who undertakes the pruning of a mixed plantation of Apples cannot fail to discover that no rule-of-thumb method can possibly apply to all the different varieties. But although the pruner may readily convince himself that this is so, it is not easy for him to discover how to adjust pruning methods to the varying habits of the Apples which he grows. Nor can it be asserted that knowledge based on experiment is yet sufficient to provide the fruit grower with a sure guide to the methods of pruning applicable to strong growing, to weak growing, and medium growing varieties, and to trees of erect and of spreading habit. Nevertheless, the very thorough experiments which are in progress at the East Malling Experiment Station are already beginning to throw light on the effects of different systems of pruning on different varieties, and when in course of time these experiments are completed, it should be possible to prescribe the manner of pruning suitable to each of the commonly grown varieties. The experiments, the results of which are summarised in a lecture* by Mr. N. H. Grubb, M.Sc., of the East Malling Station, were made on maiden trees planted in 1913 and 1914. For the first three years from planting they were all treated alike, but subsequently were treated differently with respect to pruning. The varieties on which the experiment was made included strong growing kinds—Newton Wonder, Beauty of Bath, Lord Derby, Norfolk Beauty, Annie Elizabeth; medium growers—Worcester Pearmain, Allington Pippin, Gladstone, James Grieve, Rival, Cox's Orange Pippin and Grenadier (on Crab stock); and weak growers—Lane's Prince Albert, Grenadier (on Paradise stock), Early Victoria and Bismarck. The methods of treatment to which specimens of each of these varieties are being subjected are 1, not pruned; 2, open-centre pruned; 3, tipped and long-spur pruned; 4, tipped and short-spur pruned—all of which methods are in current practice, one by one set of growers, another by another set. It should be remarked that in open-centre pruning the object is, as the term implies, to keep the tree basin or bush shaped, and pruning consists in removing inward-growing main branches and (since 1920) in spur-pruning superfluous shoots. In the tipped and long-spur pruned method the leaders are shortened, strong growers by one third of their length and medium and weak growers by half their length, and all laterals not needed for branches spurred to three prominent buds. In the tipped and short spur-pruning the treatment is the same, except that the spurring is more severe—to one prominent bud. Needless to say, in the year after spurring, the treatment varies with the result of the operation—if a fruit bud forms on the spur shoot, the latter is cut back to it; if one has not formed, the original lateral is shortened to about three-quarters of an inch. Comparison of the results obtained by these diverse methods is most interesting. In practically all cases, tipping and spurring reduces in the early years of life of the tree the amount of blossom, and although a higher percentage of the blossoms set on the tipped and spurred trees than on the unpruned trees, the weight of fruit is less on the former than on the latter. So far it might seem as though the advocates of no pruning were justified by these results, but further study of the subject does not support this view. For, in the first place, the size of the fruit—an important factor in determining value—is greater in the case of tipped and spurred than in that of unpruned trees. It would appear, moreover, that the checking of exuberance of blossoming in the early years is of subsequent advantage to the grower, for among other things this method of pruning tends to check the habit of bearing in alternate years (biennial bearing) which is often so disadvantageous to the grower. Indeed, Mr. Grubb is of opinion that an adjustment of the method of pruning so as to reduce the amount of blossom carried in the "fat" year may cure trees of this bad biennial habit. He suggests that to secure this object trees should be pruned hard and their spurs severely shortened in the winter following a lean year, and that after a heavy crop only very light pruning should be practised. The advantage of pruning over non-pruning is, however, most clearly shown by the much lighter nature of the attack by disease on the tipped and spurred trees. For example, scabbed fruit occurred in 1919 to the extent of forty-five per cent on unpruned trees, whereas it amounted only to ten per cent. on long-spur pruned trees of corresponding varieties. Mildew, again, was thrice as plentiful on unpruned as on pruned trees, and canker also attacked unpruned trees more frequently than pruned. A comparison of the results obtained by the several methods of pruning is perhaps premature, and will at all events be more convincing when the experiment has run for a longer period. Generally speaking, the results obtained by open-centre pruning stand midway between those produced by long-spur pruning and not pruning at all. With short-spur pruning, blossom reduction is generally greater than with long-spur pruning. In certain varieties, e.g., Cox's Orange Pippin and Lane's Prince Albert, it has the ill-effect that many of the severely-pruned laterals fail to develop and die back, other varieties, e.g., Lord Derby and Gladstone, do not show this effect. Tipping seems to be specially beneficial in the case of those varieties which do not hold themselves up too well, but get weighted down by a crop, e.g., Allington Pippin, Lane's Prince Albert, Cox's Orange Pippin, and to a lesser extent, Lord Derby and Grenadier. Nevertheless, of these varieties, Allington has shown itself to require very careful treatment. For some years after planting it should be tipped to keep the branches off the ground, but as it comes into bearing—say in the sixth or seventh year—tipping should cease almost entirely, as otherwise the tree grows like a hedge. Tipping also causes certain varieties to furnish their branches with spurs. This applies to Bismarck, Worcester Pearmain and Newton Wonder. It should be noted, however, that certain varieties will spur their branches as they get older and require no tipping to help them do it. Bramley's Seedling is an example, and so is Norfolk Beauty. All who take an intelligent interest in one of the most interesting operations of the garden should study Mr. Grubb's article with attention, as a valuable contribution to a subject which has hitherto been apt to be treated in a far too rule-of-thumb manner.

* *Journal of the Royal Horticultural Society*, 1922.

Appointments.—We learn from the *Kew Bulletin* that Capt. W. B. Dowson, B.Sc., has been appointed Superintendent, Agricultural Department, Nigeria; Mr. H. Nicholas, Assistant Superintendent, Agricultural Department, Gold Coast; and Mr. F. S. Lyne, late Superintendent of the Accra Sisal Plantation, Gold Coast, as Director of Agriculture, Seychelles.

Glasgow Flower Shows.—A flower show will be held in the Kelvin Hall, Glasgow, for four days, commencing on September 5. The show is promoted by the Glasgow Corporation in conjunction with the Glasgow and West of Scotland Horticultural Society. The schedule includes nearly 400 classes, and a sum of £1,500 is offered in prizes. Among the special awards are a challenge cup of the value of £50, offered by the Corporation; *The Glasgow Herald* Challenge Cup, of the value of £40, and several other cups and trophies. The Secretary is Mr. J. Carrick Kerr, 38, Bath Street, Glasgow.—The Scottish National Sweet Pea, Rose, and Carnation Society will hold its annual show in St. Andrew's Hall, Glasgow, on Wednesday and Thursday, July 25 and 26. In addition to a large number of money prizes there will be offered for competition the Burpee Cup, for Sweet Pea exhibits, three cups, a bowl, and a gold medal for Roses; the Irvine Valley Cup for border Carnations, and a number of medals and other special awards. The show is confined to Sweet Peas, Roses, and border Carnations The honorary secretary of the society is Mr. John Smellie, Helensburgh.

A New Genus of Bamboo.—Mr. J. S. Gamble, in *Kew Bulletin*, No. 2, 1923, refers to a new genus of Bamboo published by Mlle. A. Camus, in the *Bulletin of the Musée National d'Histoire Naturelle*. The genus is close to Schizostachyum; the only apparent difference, according to Mr. Gamble, is that the stamens are monadelphous instead of free. The new genus is named Neohouzeaua. Mlle. Camus has described two species, N. mekongensis, and N. Dullooa, which had been previously placed by Mr. Gamble in the genus Teinostachyum, and a third species, N. tavoyana, Gamble, is stated to be intermediate in the size of the spikelet.

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and also in the size of the leaves, between N. Dulloca and N. Helferi (syn. Teinostachyum Helferi).

Wart Disease of Potatos on Allotments.—Many allotment holders on whose land Wart disease of Potatos has occurred in past years appear to be under the impression that, provided no trace of the disease has been seen for two or three years, they are at liberty to plant varieties which are susceptible to the disease. This is not the case. The Wart disease of Potatos Orders require that on land on which Wart disease has been known to appear at any time, only approved, immune varieties of Potatos from stocks officially certified to be true to type and reasonably free from rogues, may be planted. The only exception to this regulation is that immune varieties saved by the plot-holder from last season's crop may be planted. It is most important that occupiers of infected land, whether allotments, gardens or fields, should remember and act upon this regulation, for not only does the planting of susceptible varieties in infected soil render the offender liable to a penalty of £10, but it is practically certain to ensure the reappearance of the disease which, in its turn, means a serious loss to the grower.

"Index Kewensis."—The compilers of the quinquennial supplements of this erudite work appeal to authors to indicate the first time a new group or combination is used by adding the sign *n. sp.* or *comb. nov.*, and also to cite the synonyms on which they are based. Much labour in searching will also be obviated if reference is given to the work in which the original combination occurred or an indication that the combination is being used for the first time.

Kurume Azaleas.—Mr. Pericat, of Collingdale, Pa., U.S.A., has, according to the *Florists' Exchange*, a stock of over 50,000 Kurume Azaleas, and he is of the opinion that if plants could be established for a few years, they should prove to be hardy. They have an advantage over the Indian Azaleas, in that they do not need grafting, but may be propagated freely from cuttings. The American growers are turning their attention to these Azaleas for forcing as a substitute for the Azaleas formerly received in large numbers from Continental growers.

Legacies to Gardeners.—The late Mr. Edward Pilkington, of Norwood, Alderley Edge, Cheshire, left a life annuity of £104 to his gardener, Mr. Ebenezer Turner, if in his service and not under notice or in receipt of a pension or superannuation allowance, and, should his wife survive him, she is to receive for the remainder of her life an annuity of £78. The late Hon. Arthur Ralph Douglas Elliot, of Dunbloa, Freshwater Bay, Isle of Wight, left £50 to his gardener, Mr. William Newnham.

Garden Firm's Contribution to the Middlesex Hospital.—Messrs. Pulham and Son have forwarded a cheque for £28 2s. 9d. to the Governor of the Middlesex Hospital, being the proceeds of the sale of post-cards illustrating the firm's exhibit (Princess Mary's Garden) at the recent Ideal Home Exhibition, at Olympia.

London Gardens Guild.—The London Gardens Guild embraces twenty-nine branches and affiliated societies, and has for its object the promoting of planting and tending of gardens in the industrial districts of London, and the initiation and encouragement of garden competitions and flower shows. The ninth annual report of the Executive Committee shows that the movement is growing, and that the flower shows held by branches and local societies during the past year were, for the most part, very successful. Prizes are offered during the forthcoming season for the best cultivated back, front, and window gardens, and medals will also be awarded for the best gardens in all London. The Guild has its headquarters at 124, Walworth Road, near to the tube station, and is therefore much more accessible than hitherto. The forecourt of 124, Walworth Road—a main street—will be laid out by the Guild during the coming summer as a model garden.

Mr. Richard Gill.—The Rhododendron is the fashionable flower of the moment, and the popularity of the genus is increasing as a consequence of the introduction of many new species from China; but there must be a foundation for the popularity of any flower, and this must be well and truly laid. Garden Rhododendrons have long been favourites, and in the warmer parts of this country and in Ireland the garden hybrids which have some Himalayan species as an ancestor have raised the enthusiasm for these gorgeous shrubs to a high degree. One of those who helped to lay the foundation of this popularity—happily still with us—is Mr. Richard Gill, who commenced his horticultural career when twelve years of age in the gardens at Tremough, in the service of the father of the present Mr. Shilson. The Tremough estate was even then famous for its fine Himalayan Rhododendrons, and young Gill took a keen interest in the plants. At the early age of twenty years he became head gardener at Tremough, a position he continued to hold until some years ago, when he took over the gardens for his own nursery business. In his younger days Mr. R.

MR. RICHARD GILL.

Gill was famous in the West of England for the very fine specimen Heaths, Azaleas and other hard-wooded plants he grew and exhibited most successfully. He also won a high reputation for the skilful cultivation of Chrysanthemums. It is, however, with Rhododendrons that the name of Gill is most closely connected, for he has raised a fine series of varieties of Rhododendron arboreum and a magnificent set of large flowered hybrids, of which Gill's Triumph, Gill's Goliath, Beauty of Tremough, Glory of Penjerrick, Duke of Cornwall, Duchess of Cornwall, Richard Gill, Ernest Gill and—the newest and best—Norman Gill, are a few of the most striking in regard to colour, form and size of truss; these and others have been exhibited by the firm at recent R.H.S. meetings at Vincent Square. Mr. Gill is testing many of the newer Chinese species and making crosses, but he is of opinion that the older races will not be superseded as plants for garden decoration. Both of Mr. Gill's sons are horticulturists; the elder, Mr. R. E. Gill, is in partnership with his father in the nursery, seed and florists' business, established at Tremough, Penryn and Falmouth, and has been deputy mayor of the last town. The younger son, Mr. Norman Gill, is superintendent of the Government Gardens at Kumaun, India. Mrs. Gill is also a keen horticulturist and a particularly clever artist, who paints portraits of the new Rhododendrons and has made a fine series of paintings of fungi, a collection of which was exhibited at a comparatively recent meeting of the Royal Horticultural Society.

Ghent Quinquennial Exhibition.—The Southern Railway Company is arranging for the issue of excursion tickets from London to Brussels and Ghent in connection with the Brussels Commercial Fair and the Ghent Quinquennial Exhibition. These tickets will be available for fifteen days, commencing on either April 6, 7 and 8, or April 13, 14 and 15. Certain tickets are issued via Calais and others via Ostend, and the latter are extremely reasonable in price. Excursion tickets to Brussels may be obtained from the company's agents in the usual way, or from the departure station, but excursion tickets to Ghent will be available only at Victoria Station, and may be obtained there on application.

Gardeners' Royal Benevolent Institution Festival Dinner.—The seventy-eighth anniversary festival dinner in aid of the funds of the Gardeners' Royal Benevolent Institution will be held at the Hotel Victoria, London, on Thursday, June 28.

Sandy Flower Show.—We have received a preliminary announcement to the effect that the Sandy Flower Show will hold its jubilee exhibition on August 30. To celebrate the occasion a special attraction in the horticultural section will be a class for a group of cut hardy flowers arranged on a space twenty feet by eight feet, and open to all exhibitors. Displays are to be arranged on the ground, and hardy and half-hardy annuals will be admitted. Six prizes are offered, respectively of £10, £8, £6, £4, £2 and £1. The secretary is Mr. F. W. Western, Sandy, Bedfordshire.

Appointments for the Ensuing Week.—Monday, April 9: United Horticultural Benefit and Provident Society's meeting; Bath Gardeners' Society's meeting; Reading and District Gardeners' Mutual Improvement Association's lecture on "Fruit-growing in Berkshire." Tuesday, April 10: Royal Horticultural Society's Committees meet (two days); Jersey Gardeners' Society's meeting. Wednesday, April 11: East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting. Thursday, April 12: Royal Horticultural Society's Daffodil show (two days). Saturday, April 14: Ghent Quinquennial Exhibition (nine days).

"Gardeners' Chronicle" Seventy-five Years Ago.—*Cottage Garden Allotments.*—I am fully persuaded, from many years' experience of letting out allotments, though I have not until last year distributed prizes for the culture of vegetables, that such a mode of encouragement very greatly contributes, in many respects, to the happiness, order, and prosperity, not only of a neighbourhood but of the community; for, certainly, it must be acknowledged that whatever conduces to improve the moral character and industrious habits of our labourers, to sweeten their toil, and to make their homes more comfortable, and especially to promote a reciprocal feeling and good understanding between the employer and his servants, who are, of course, mutually dependent on each other, is a patriotic intention, and a most likely means of begetting and preserving happiness and contentment. The present season of the year is most favourable for the commencement of granting allotments to labourers; and the disorganised state of continental Europe (and it is impossible to foresee what evils may result from recent tumults, and what may be the effect even upon the quiet habits of the English labourer from such a lamentable precedent) demand of every one who has it in his power to alleviate the necessities and to mitigate the privations of our labourers, as well as to remove all just cause for murmuring and discontent, and to make them sensible of the blessings of order, harmony, and peace. "For all of us in our several positions and grades of society to do our duty in that station of life in which it has pleased God to place us, and to fill up our proper place in improving, faithfully and diligently, and wisely, the talents and tasks committed to us is no ideal and transitory notion or fallacious beguilement of liberty, equality, and fraternity," but a permanent source of peacefulness, happiness, and satisfaction. *H. D., Chipperfield, Rickmansworth. Gard. Chron., April 1, 1848.*

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THE BULB GARDEN.

THE GLADIOLUS.

Up to the time of writing the condition of the ground has not allowed a Gladiolus corm to be planted. I have started so early as the last week in February, but I do not remember such a late start as will be made this year. The corms are in many instances showing, by the thrusting forth of their roots, a desire to be placed in mother earth. Good average soil will produce good average flowers, but no flower responds more readily to high culture than the Gladiolus. In other words, the ground should have been well prepared during the autumn, and dug over again prior to planting, adding a little lime and bone meal.

To prolong the flowering time it is a good plan to plant at intervals of two or three weeks up to the first week in June. The corms should be planted four inches deep or more, and from four to eight inches apart in the row, allowing fifteen inches to two feet between the rows. The deeper planting will help to keep the plants from falling over when in bloom.

After planting keep the surface clear of weeds, and as soon as the plants show through the ground, start to keep the soil well worked. Do not allow the soil to cake hard after rain or watering. Remember the Gladiolus loves sunshine and moisture, so in dry spells a good watering should be given every seven or ten days. If watering is done in the evening and the soil well worked the next day, the surface will not cake.

When the bloom spikes appear, surface cultivation should not go more than two inches deep. At this time a further sprinkling of steamed bone meal or other good fertiliser should be raked in between the rows to good purpose.

The question of what varieties to plant is a matter for individual taste. If one is planting for the first time, then, in addition to the low-priced varieties, a few new varieties should be obtained, three to five corms of a sort. Most varieties will grow in any ordinary garden soil, but some do better than others, and by trying a few of the new introductions a grower will be able to select those which give the best return. Messrs. Barr and Sons, and Messrs. Lowe and Gibson, list a fair percentage of the newer sorts.

Growers with small gardens would do well to make their chief selection from the Primulinus hybrids, as the colours in this section and the form of the spikes lend themselves more readily to table and indoor decoration. Further, they do not require so much attention as others in the matter of staking. If wanted for indoor decoration cut the spikes when the first flower is open, and let the other blooms open in the house. Each spike will last from seven to ten days. Few flowers will repay the care and attention given it than the Gladiolus. So

"Where grows it not? If vain our toil,
We ought to blame the culture, not the soil."
Smilax.

THE ALPINE GARDEN.

ARENARIA VERNA.

Arenaria verna is a very old and favourite plant of mine. Years ago when I was at school in Yorkshire I used to go and look for it—out of bounds—among the old lead workings on Attermire. In those days its chief interest for me was that it was a delightfully pretty little plant and one of the rarer natives. It now has for me the added charm of being an invaluable small plant for the rock garden. It is one of the very best plants for associating with Gentiana verna to keep it clean and healthy. Arenaria verna forms close fairy turves of the very finest emerald velvet. In June it covers itself with countless tiny star-flowers, white, with pink anthers, carried low on stems of green thread. It is, moreover, perfectly easy to grow in any good light soil.

For forming a turfy groundwork in the alpine lawn garden Arenaria verna is the ideal plant. No one has yet discovered a suitable grass for the alpine lawn. "Exhaustive and painful researches" to this end seem only to have revealed, even enhanced, the hedgehoggy stubbornness of grasses.

In nature Arenaria verna has a strange appetite. It seems to crave a diet of lead. On Attermire it haunts the neighbourhood of the old disused lead mines, and on Ingleborough when I collected the plant two summers ago the rock is full of curious veins and indications of lead. It is also found at the Lizard and in other plumbiferous districts of Cornwall. If I were prospecting for lead I should (not being a geologist) study local floras and go to the stations given for Arenaria verna, feeling pretty certain that there I should find at any rate traces of lead. Yet there is no need in the garden to provide Arenaria verna with a scree of lead filings. It is quite content in cultivation to forego this odd craving, just as many plants which in nature cling rigidly, some to calcareous, and others to lime-free soils, prove utterly indifferent as to lime in the garden.

In spite of its undeniable daintiness and charm Arenaria verna has hitherto remained almost unknown and ungrown by rock gardeners. Hence this note. *Clarence Elliott, Stevenage.*

OENOTHERA TARAXICIFOLIA.

There is much confusion in the names of the Evening Primroses, as is evidenced in some degree by this plant. A high authority regards it as the same as Œ. acaulis, while another informs us that the latter has yellow flowers; whereas Œ. taraxicifolia has white blooms. It is probably more convenient, therefore, to give it by its best-known title of Œ. taraxicifolia, especially as seeds are generally sold by this name, and it is exceedingly descriptive of the appearance of its foliage, which is quite like that of a Dandelion. So like is it, indeed, that more than once I have had plants of this Evening Primrose, when not in flower, pulled up by helpers in the garden, whose zeal was much greater than their knowledge, and who had no hesitation in pouncing upon these "Dandelions," and glorying in the fact that they had eradicated them, while I was left lamenting, especially as the "weeds" had been destroyed.

It is a very pretty plant for the front of the border or the rock garden, with, perhaps, just one weakness, and that is its inability to withstand severe winters when growing in heavy soil. It does best on well-drained rockwork, and in light sandy, gritty soil it has every chance of living for several years. Some have considered it a biennial, but it is a perennial. It makes a low tuft of Dandelion-like leaves, which are a masterpiece of mimicry of those of that all-pervading weed, but above these rise the wonderfully beautiful white flowers in summer. They may not have the grandeur of the difficult Œ. eximia, or marginata, but the plant is much easier to raise and grow. Seedlings are very easily raised in a cool or cold greenhouse or frame. Sow the seeds in pots in light soil in April; prick out the seedlings about two inches apart when big enough to handle, and plant them out, where they are to bloom in June or July. A little group of the Dandelion-leaved Evening Primrose is a feature of pronounced beauty on the rockery. *S. Arnott.*

FIG. 83.—ACHILLEA ARGENTEA.

ACHILLEA ARGENTEA.

Some of the dwarf Achilleas are excellent rock garden subjects, of which one of the best is the species illustrated in Fig. 83. There is some doubt as to its origin, whether it is a wild species or whether it is of garden origin; but of its merits as an ornamental and charming plant for a sunny position in the rock garden, there is none whatever. It is a low, almost sub-shrubby alpine, with tufts of silvery leaves which are pinnately lobed to the midrib, while the flower stems, three inches to four inches long, bears umbels of from four to six large, white flowers, in June and July.

The plant grows well in light warm soils, but it is most at home on a well drained ledge in a sunny situation. It should be planted in a very gritty medium, from which surface moisture soon drains away, as excessive wet in winter is fatal to success with this plant. It is easily propagated by means of cuttings in June or July, as well as by division in early spring.

Other members of the family with almost the same habit, and equally of value as companions to the above are: A. rupestris, with entire, silvery leaves; A. ageratifolia, with larger flower heads produced singly on short stems; A. umbellata and A. conjuncta. *W. I.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Laelia monophylla.—The bright scarlet Laelia monophylla has always been considered a difficult subject to import and establish successfully, and even now is somewhat rare and seldom seen, but when once established and well rooted, and not allowed to exhaust itself by over flowering, is a plant of easy growth. When grown under similar conditions as Miltonia vexillaria, it will succeed admirably. If the plants require fresh rooting material, now is the best possible time to afford the same. Place them in small, well drained pots, using similar material as advised for Cattleyas, but cut up finely. Pot each plant firmly. These Orchids, being of small stature, are best grown near to the roof-glass, where they will receive plenty of light. Strong sunlight, however, must be guarded against at all times.

Miltonia.—Miltonias from now onwards and until their flowers are fully developed, need watering whenever they become dry. During the winter and early spring the leaves of Miltonias are very liable to turn brown at the tips, and this, if the growths are weak, is a sure indication of using too much heat and moisture and not sufficient air. Plants that are in full growth and not in flower may be lightly sprayed on sunny mornings as a preventive of insect pests.

Oncidium.—The various Oncidiums in cultivation come from widely different latitudes and altitudes in tropical America, and necessarily require different treatment to cultivate them successfully. Some species adapt themselves to the conditions of our plant houses, whilst others behave in a most indifferent manner, it being almost impossible to keep them in a vigorous condition over a series of years. An intermediate temperature suits the majority of them, whilst some delight in considerable warmth, and others again do best in the coolest house. Oncidium sarcodes is a most difficult plant to maintain in a healthy condition, but I have found it succeed in the warmer end of the intermediate house, in a rather shady place. Oncidium Lanceanum is another generally troublesome species, although it is often seen growing freely, and doing as well as any plant in the house. This species enjoys the conditions of the warmest house, where its broad, leathery leaves will withstand a considerable amount of sunshine. Oncidium carthaginense may be cultivated under the same conditions, whilst there are several other species which are not often seen at the present day, worth growing, and undoubtedly if again imported, will be much sought after.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Ceanothus.—Gloire de Versailles is one of the best know varieties of the blue-flowered Ceanothuses, the pruning of which may be done now. Cut back last year's shoots to within two to four buds, according to the strength of the growth, whether the plant be growing as a bush in the open or against a wall as a climber, allowing, however, any extension of strong shoots necessary for the additional furnishing of the wall or for altering the symmetry of plants in the open border. This shrub is not hardy everywhere in open beds; in very cold districts it should be planted against a warm wall, and in severe winters the branches covered lightly with some protective material. A well drained rooting medium contributes to the successful cultivation of this plant. Of the evergreen species, the best I am acquainted with is C. Veitchianus, which flowers in early June. It is necessary to grow this species against a wall, and to give the plant a little extra protection in hard winters. Should any cutting back of this and similar kinds be required, it should be done after the flowers are over.

Hardy Fuchsias.—The pruning of these graceful plants may be also undertaken with reasonable hopes of being safe from harmful frosts. Cut unripened shoots of last season well back, also small, weakly growths, and adjust other stems according to their vigour and the outline of the bush. Where protection is not afforded these plants, they are damaged by frost so badly as to necessitate being cut down almost to the ground level in spring; but they invariably send up fresh growths from the root-stock.

Evergreen Edgings.—There are several kinds of evergreens suitable for use as edging plants, but the commonest used are Box, Ivy and Vinca minor, all of which may be cut now with the shears to keep the plants within bounds and preserve some degree of neatness around the beds and borders. For the same reasons a second trimming is advisable about half-way through the season. The present is a timely season for making good any gaps in edgings of this character.

Dahlias.—These plants are easily propagated from cuttings or division of the old roots. For the former method a hotbed is helpful. When the shoots are about two inches long, they may be inserted in small pots filled with sandy soil; after they are rooted, pot the plants singly and transfer them to a cold frame. Divided plants may be accommodated in boxes, making sure there is a growing eye with every portion planted. A mild temperature will excite the plants into growth, and they should be hardened in their early stages in the usual way.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Strawberries.—Pot Strawberry plants in fruit standing on shelves and fully exposed to the sun and air should on no account suffer from drought at the roots, dryness under such conditions rendering the berries hard and seedy. When the fruits on the early batch of plants are colouring, maintain a drier atmosphere, and admit air freely whenever it is possible to do so. Withhold stimulants, and use the watering-pot with great care. Plants on which the fruits have set will, if given generous treatment, swell their berries rapidly. Reduce the number of the latter on each plant to six or eight, according to the strength of the plant, at an early stage. Maintain a genial atmosphere, and guard against an excess of fire heat, which would be favourable to the spread of red spider. Ventilate the house with care when cold winds blow, or mildew may develop on the leaves and fruits. An occasional syringing with a mildew specific when the fruit is swelling will help to keep the plants clear of the fungus during the ripening period.

Cucumbers.—The early plants are showing the effects of the continuous lack of sunshine, and although growth is fairly rapid it is inclined to be weak and long jointed. Early attention should be paid to pinching and tying in the young growths. Rub off any superfluous shoots, allow ample space for leaf development, and do not overcrop the plants, particularly in the early stages of growth. When the roots show freely through the surface soil apply a top-dressing of good turfy loam, leaf mould and old plaster rubble, with a sprinkling of wood-ash added. Maintain a steady bottom-heat of about 80°, with an overhead temperature of 65° to 70° by night and 75° to 80° by day. Further sowings of seeds in small pots should take place according to requirements, and the preparation of fermenting material for making up the necessary hotbeds should receive consideration.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Asparagus.—The beds of Asparagus should be raked over, and the manure dug into the alleys, which will be useful for planting early Cauliflowers, etc., in later. The sides of the beds will give the young plants protection from cold winds. Raised beds are much better on heavy land, to allow the superfluous moisture to drain away freely, but on light, dry soils, almost flat beds are preferable. In any case, keep them clean by hand-weeding.

Cucumbers.—Sow another batch of seeds to obtain plants for succeeding the earlier ones, and in the same manner as previously advised. Treat the plants generously now that the days are getting warmer; pot them on in five-inch pots if the beds are not quite ready for them, rather than let them become root-bound in the seed-pots. Plants growing in the beds should have some rich soil placed round the roots as soon as these show on the surface, and a little artificial manure sprinkled over the soil and watered in, when they come into bearing. Keep the growths tied to the trellis regularly, taking out any that cause crowding.

Potatos.—Small trenches may now be taken out on land intended for mid-season Potatos, at thirty inches apart, or, if Brussels Sprouts or other Brassicas are to be grown between them, five feet apart, and the rows dusted with wood-ashes. On heavy ground it is advisable to incorporate some old hotbed manure or leaves with the soil, or even long litter from the stable-yard, as Potatos need a free root run, and good tubers cannot be expected from heavy, retentive soil. It is surprising what a difference is seen in the crop at lifting time if the nature of the soil is studied, and the necessary additions made, as the case may be. All the sets should be well sprouted before they are planted, and do not plant old "seed."

Lettuces.—Continue to plant Lettuces in frames if available, and sow more seed to obtain seedlings for pricking out in the open later.

Horseradish.—Roots of this vegetable, each with a crown and about six inches long, should be planted in deeply-dug ground, in rows made about one foot apart and set nine inches asunder in the rows; place the crown about six inches below the surface, and when the bed is finished, fork the soil lightly and afterwards keep it free from weeds. Where Horseradish is much in demand, it is well to have two beds, replanting them alternately each year, as young roots are much preferable to old, coarse ones.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Veronica Hulkeana.—This species is the most beautiful of the New Zealand Veronicas, and although hardy against a wall in the south and west is well worth growing in pots for the greenhouse. It is an uncertain plant out-of-doors, and its successful cultivation in pots is by no means easy. Cuttings root readily at this time in a close case; if they are grown on and stopped several times they will make good specimens next year for the decoration of the plant stage. These same plants grown on the second year will make large specimens, but they require very careful management. They should be grown in quite cool conditions with plenty of air; in their younger stages they may be grown in cold frames.

Veronica diosmaefolia.—This is a small, compact-growing species which flowers during the spring, and is very pretty for furnishing the plant stages. It is easily propagated at this time by means of cuttings rooted in a cool case. When rooted and grown on in 48-sized pots they naturally form neat, compact plants without pinching.

Buddleia asiatica.—Although an old garden plant, this Buddleia is very seldom seen in gardens now, which is very surprising, consider-

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ing how graceful it is, with its long, slender sprays of white, delicately scented flowers. It has the added merit of flowering during the winter when flowers are by no means plentiful. Cuttings may be rooted at this time in a close case provided with slight bottom heat, choosing slender, twiggy growths for the purpose, for the young shoots being covered with a woolly tomentum, stout pieces are liable to damp off. Grown on in 6-inch pots, and stopped twice, they make good subjects for the plant stage during their first season. These plants are, however, at their best condition in their second year, provided they are pruned back about this date, and potted on into 8-inch or 10-inch pots. In this way they will make fine large specimens, suitable for standing in the conservatory beds. During the summer they are best stood out-of-doors on a bed of ashes. This plant is also suitable for clothing a pillar in a large, cool house.

THE HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Fructification.—It is very desirable that bees should be kept in or near a garden, otherwise it will be wise to resort to pollination, in the case of Apricots, Plums and Peaches, and certainly for shy-setting varieties. The weather and other conditions may be blamed for a light fruit crop, but it is slowly and surely becoming recognised that fruit must be assisted to set. Some growers cut sprays of free-setting Apples and distribute the pollen by hand. Others top graft branches of other varieties here and there. The latter is probably the most satisfactory method.

Peaches and Nectarines.—The trees have responded to the warm and humid atmosphere of the past few days, and it will be necessary to consider the disbudding of the growths. Disbudding should be done at intervals, as it would not be advisable to remove too many of the young shoots at one operation. Retain only those shoots that are necessary for the proper formation and extension of the tree, and in wall trees secure firm and good fruiting wood over the whole space of wall occupied by the tree. The terminal and basal shoots are the important ones to retain, and the central one may also be necessary. It may happen that there is only sufficient room for the basal shoot; all others may then be stopped, and also any shoots of undue strength. The growths of these trees are often trained too thickly, with the result that the increase of insect pests is favoured, the foliage is cramped in its development, and the wood gets improperly ripened, especially in such seasons as last year.

PUBLIC PARKS AND OPEN SPACES.

The National Trust for Places of Historic Interest or Natural Beauty has acquired the manorial rights in Bookham Common for the sum of £4,450. Bookham Common is a favourite pleasure centre to the north of Box Hill, and its area is three hundred acres. The manorial rights were sold last year, and the new owners disposed of some of the timber, and although a certain number of trees have already been felled, the Trust desires to retain those still marked for felling, and for this purpose requires a further sum of £500 to £600.——We are pleased to learn that £5,200 has been subscribed towards the purchase of the piece of land in the neighbourhood of Box Hill, to which reference was made in *Gard. Chron.*, p. 76, leaving about £1,800 still to be raised. The very handsome sum of £1,000 was contributed by a reader of *Country Life* living in Rio de Janeiro, conditional on the purchase being completed before September 30, 1923, and he further offers to subscribe the last £1,000.——The London County Council has under consideration a proposal to form an old English garden on part of the nursery site in Victoria Park.

TREES AND SHRUBS.

PYRUS SCHEIDECKERI.

The abnormal weather at the end of March, when the thermometer on one day, the 27th, registered 68.2° in the shade, resulted in a transformation of the landscape, for trees and shrubs burst rapidly into bloom, as though they had been straining at the leash, waiting for the weather to turn. Of a sudden the countryside appeared to be white with the blossom of Plum trees. Gardens became the gayest of places, owing to the numerous spring bulbs and other vernal blossoms, but the greatest display was made by the early-flowering Prunuses. The gay scene will be continued by the later-flowering trees, of which Pyrus Scheideckeri is one of the most floriferous.

The illustration in Fig. 84 shows what a glorious sight this ornamental tree of the shrubbery and lawn presents when in full bloom, and the expression "riot of blossom" is fully justified when applied to this beautiful tree. Its origin is somewhat uncertain, but it is commonly supposed to be a hybrid between P. floribunda and P. spectabilis. Bean, in *Trees and Shrubs Hardy in the British Isles*, states that this tree and its reputed parent, P. floribunda, are the two finest of the fruiting Crabs, an opinion that the specimen illustrated fully justifies.

FIG. 84.—PYRUS SCHEIDECKERI.

PRUNUS CERASIFERA AND VARIETIES.

I have never seen these flowering trees more beautiful than they are this season. At present they are a distinct feature in the canal beds at Kew. The large trees of the type tower above the varieties and are upwards of 25 feet high, with spreading branches and a cloud of flower; the varieties with purple foliage are more dense and rounded in habit.

Prunus cerasifera var. atro-purpurea (syn. Prunus Pissardii, of nurseries) still maintains its popularity, but the two varieties P. cerasifera var. Blireiana and P. cerasifera var. Moseri are not cultivated nearly so extensively as their merits warrant. At present they are making a glorious display with their semi-double, rich rose-pink flowers, the former being deepest in colour and the better of the two. Both develop the purple foliage and habit of P. Pissardii.

According to Mr. Bean, in his book on *Trees and Shrubs Hardy in the British Isles*, these varieties are of Continental origin, and I have been pondering over their derivation; from what do they inherit their lovely colour and large flowers? On close examination of the flowers I find the ovary and style are covered in soft, silky hairs, but not so the type or in P. Pissardii, in which these organs are perfectly smooth.

I have never seen the fruits, if fruits do develop on these semi-double varieties; fruits doubtless would be the determining factor. From a casual glance at the trees there is a resemblance to P. Mume var. flora plena rosea, which is now in full beauty and greatly admired, having the additional merit of sweetly-scented flowers. Those acquainted with P. Mume know at once it is an Apricot, distinctly seen in the bright green twiggy growths.

Having introduced the subject of Apricots, it is worth while to mention the Siberian Apricot, P. sibirica, now very showy with its rose-pink flowers, evidently a tree slow in growth and hard-looking, yet for all that interesting.

Prunus cerasifera var. gigantica is a variety I cannot fathom; perhaps the varietal name suggests the size the tree attains, as it is after the style of type, but it is so much later to flower than the others. It is now only in the small bud stage, and will be some time before it is fully in flower. *B. F. C.*

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EASTER IN COVENT GARDEN

IT is curious that Rudyard Kipling, whose inquisitive genius has led him to explore and illuminate so many aspects of human activity, has never, so far as we can remember, described the amazing wealth of flowers which Covent Garden exhibits in Easter week. There you may buy our English posies or acquire the floral produce of the Islands—Guernsey and the Scillies, or have the precocious blossoms of the Riviera, or those which come from Holland and even from Italy. Of all this display of bloom, cut foliage and pot plants, that which comes from the early districts of England can hold its own with the best of the flowers which come from more favoured climates. To Covent Garden Flower Market nothing comes amiss, and in it enterprise not infrequently meets with its reward. The farmer's daughter who sends her cardboard boxes of closely bunched Primroses may, perhaps, not receive in return for her early morning labours the pin money which she looks forward to, but, on the other hand, the grower who first thought of putting fine foliage on the market must have done well until flattering imitation obliged him to discover new outlets for his ingenuity.

At Easter time white flowers are conspicuous in the market, and there are kinds for all folk. Arum Lilies, of course, and Erica persoluta—fine pot plants, though not so fine perhaps this year as it usually is; the double Arabis, Allium neapolitanum, and the white, or almost white, Daffodil White Lady, and the poeticus variety Horace. But for those who want bright colours there is ample choice in Covent Garden. Of Daffodils and Narcissi you may choose between a dozen or more varieties—Barrii conspicuus, Victoria, Empress, Emperor, King Alfred, Sir Watkin, polyantha varieties such as Scilly White, Jonquils, poetaz and poeticus varieties. Tulips are there in great variety, long stemmed and plucked with their foliage, only the base of which has a yellow tinge to show that the flowers are not the produce of the open air. Of foliage plants there are Pittosporum undulatum from Ireland, and from Cornwall, Drimys Winteri to show that Cornwall knows no winter, Berberis Aquifolium, bronzed as though sunburned, and commoner, but acceptable, things, such as Box, Rosemary, Bay and broad-leaved Laurels, and even bunches of Thuja occidentalis, to be used, no doubt, in the making of wreaths. Great boulders of moss are to be had wherewith to make a bed for Primroses, and to keep the stems of other plants moist. Of Irises, there are Spanish—particularly Franz Hals and Rembrandt—and I. filifolia, and a new-comer among forced plants, the big, bearded Irises.

For those who prefer living plants there is an equally large choice. Perfectly grown Cyclamens in miniature pots attest the skill of British growers, while Erica Willmorei is profusely blossomed, and Spiraea confusa very graceful. Cinerarias are grown to perfection, both stellata and large-flowered forms, in all the opulence of colour which these races affect—deep purple, violet and pale blue, white, pink, rose and crimson. Hydrangeas, white and blue and pink, with flower heads almost too big for their bodies, hobnob with Roses which suggest full summer in spring.

To those who are proud of the energy and enterprise shown by British growers, it is a special pleasure to see how fresh are the flowers plucked in England, well packed, in ready-made bouquets, often arranged with perfect taste. The flowers which make longer journeys from distant countries often reflect the weather they have experienced on their journey, and those from the Riviera at this time this year have lost in transit some of the advantage they enjoyed in growing in the Côte d'Azur. Some curious subjects arrive occasionally from the Mediterranean coast, and among these are graceful sprays of Eucalyptus; a species which Kew determines as E. haemastoma, with glaucous leaves, red stems and creamy flowers (Fig. 85) were on sale in Easter week. The Scillies, in spite of the handicap of storms which may delay the landing at Penzance, are sending again their flowers in large numbers to the benefit of the Islanders and for Londoners. With amazing despatch this mass of bloom reaches Covent Garden, it is passed out through the narrow exits of the market and gives a radiance welcomed in every quarter of the grey city of London. Other cities may have more spacious markets and more elaborate organisation for sales, but no other has a greater variety of flowers nor a more expeditious way of distributing them, so that the blossoms reach everyone that wants them, and every purse, no matter how ill filled, that can spare a few pence to purchase them.

MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. XII.—Over the Mekong-Yang-tze Divide.

On August 7 we started to climb the Pai-Ma La, which is 15,500 feet above sea. From Tung-chu-ling down to the Yang-tze the valley is dry, though well wooded till the last 1,500 feet is reached; but we soon entered the forest.

August is the off-season here, and I found few flowers, though a rather pretty Oreocharis with lemon flowers grew on the rocks. The small, spotted Tiger Lily was also common in the dry valley. In the middle of the day we had a heavy shower, but the afternoon cleared again. We did not get very far, and camped in the forest, or rather in a meadow on the edge of the forest. There were more flowers here—they increased in number and variety as we went higher. Nevertheless, the meadows, in spite of Primula pseudo-sikkimensis, Parnassia, blue Epimedium, Iris, Corydalis, Impatiens, and species of Geranium, looked bedraggled and miserable. The only bright colour was supplied by patches of Pedicularis siphonantha.

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17 July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, March 10 and 24, 1923.

At dusk a dense mist came rolling up the valley and hid the peaks. Owing to the fact that half my men were suffering from mountain sickness next day, it looked as though we should get nowhere near the pass. However, we were soon up on the plateau above the forest, and, by marching till dark, managed to camp with some yak herdsmen just short of the pass, two of the giddy men riding. The morning was fine, and we even had a glimpse of the snowy peaks, which were not far from the road. But one can hardly expect fine weather on Pai Ma Shan in August, and in the afternoon a heavy storm swept across from the Yang-tze.

In the alpine zone numbers of flowers were still blooming, though here, too, August is a bad month; the spring flowers—particularly the Rhododendrons, which are such a feature of the plateau—are over; the autumn Gentians and Saxifrages are yet to come. But Meconopsis Prattii (bright blue flowers), the ragged-looking Primula Wardii (a poor thing which should never have been separated from P. siberica), and a bloodshot lavender-blue Codonopsis were all flourishing. Other species included a scree Cerastium with pale pink flowers, rather showy, with yellow Cyananthus, Corydalis, Polygonum, Pedicularis, and several Primulas peculiar to boggy places.

Of shrubs, Potentilla fruticosa, with very brilliant gamboge flowers, was the only one; though here and there a dwarf Rhododendron lingered on, particularly the lemon yellow R. chryseum.

The yellow Cyananthus mentioned above, and the lavender Codonopsis show interesting movements of the stamens to assist in pollination. They are both markedly protandrous, and the stamens at full anthesis are pressed against the stigma, preventing access to it. Later, the stamens move forward and are tucked away against the side of the corolla, while the stigmas unfold.

The Pai Ma Shan plateau is really a great longitudinal valley in the range, fed by torrents from the glaciers on the west, and the rocky limestone cliffs to the east. The main stream flows south, and is almost certainly the headstream of the Kari River, not flowing to the Mekong at all. The whole plateau has been glaciated in the past, and big glaciers must have flowed down towards Atuntzu as well as to the south.

We crossed the pass on August 9, and reached Atuntzu the same evening. I noticed an old friend, Primula minor, in fruit on the cliffs, and, along the edge of the wood, a few plants of the rather gross P. muscarioides. Along the shady bank were masses of P. pulchelloides still in flower. It was at this very spot that I first found it many years ago, and I have met with it nowhere else; but it has increased enormously in a decade. Primula pulchelloides has suffered rather undeservedly by comparison with P. pulchella; it is said to have fewer and smaller flowers. That is not my experience here. In colour it is not so good as the best forms of P. pulchella, which latter is a most variable plant; but P. pulchelloides, at its best, carries as many flowers as its rival.

After remaining two days in Atuntzu, I returned to Pai Ma Shan, crossing the pass again on August 13; but, instead of following the valley south, we turned west towards the snow peaks, finally camping at 16,500 feet, right opposite to the great pyramid called Tsaya. Its altitude is about 21,000 feet.

In this remote alpine valley, quite a thousand feet above the pass, we found numerous flowers. The weather was bad, the view poor, but I got out every day, and ascended to nearly 18,000 feet. In some places the grassy slopes were violet with what I took to be Meconopsis rudis, a finely coloured form; M. speciosa (Cambridge blue) was not rare, but was nearly over; the fragrance of it was astonishing. Still recognisable, though jaded, were Polygonum Forrestii, Primula bella, Androsace chamaejasme, species of Cremanthodium with nodding flowers, Corydalis—all the old set. A few Gentians and Saxifrages were

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already in flower. Up on the high screes species of Parrya, small Saxifrages, Aconitum, Cruciferae, and other plants flourished.

On this trip I discovered a new glacier on the Pai Ma Shan ridge, in an unsuspected valley at the extreme north end; but the weather was so bad, I failed to reach it. However, on the moraine of another glacier, the foot of which I reached, were several interesting plants, including golden Saxifrages and a big, woolly, white Saussurea. In the icy-cold water coming from the glacier foot grew a brilliant gamboge-yellow Ranunculus.

Another curious plant new to me, found on the highest alpine pastures, was a Pedicularis which at first sight looked marvellously like a Salvia; and up on the stoniest porphyry ridges was that jewel of Mu-li, Myosotis Hookeri. It was quite common, in fact, but the plants were all small, and apparently had never been in flower. Still, it was interesting to find it here. At the head of nearly every valley is a glacier lake; but, apart from them, it is astonishing the amount of water which oozes from the base of every stony ridge. Pai Ma Shan is by no means dry—it is not so dry as the Mu-li ranges, at any rate.

On August 17 we moved across to the other side of the main valley, pitching camp under the limestone towers and barren screes which face south; the valley between the porphyry, snow range and the limestone ridge being perhaps four or five miles wide.

The flora of the two is surprisingly different, or, though many species are common to both the porphyry range and the limestone ridge, each boasts plants not found on the other. Confined to porphyry are, for instance, Myosotis Hookeri, Meconopsis rudis, and M. speciosa; and to the limestone, two beautiful, woolly Labiatae, a Nepeta with violet flowers concealed under the gracefully arched leaves, and the Lamium of Mu-li, with shell-pink flowers (K W. 4644).

By the stream in the defile was a large yellow Cremanthodium, the only fragrant species known to me; and a Primula in fruit, allied, apparently, to P. Wardii. High up on the screes was what I took to be a very dwarf form of P. dryadifolia, but the flowers were over. On the whole, the plants met with at 17,000 to 18,000 feet are dwarfed forms of plants common at 15,000 feet; few new species occur above that altitude. Exceptions are Meconopsis speciosa, and a rather dwarf yellow-flowered Meconopsis densely covered with long, silky, golden-yellow hairs; Saussureas, certain Saxifrages, and a few others.

The weather continued bad, with frequent heavy showers sweeping over the mountains, muffling the high peaks in cloud. Every morning the mist came sweeping up from the hot Yang-tze gorge; and by mid-morning sufficient had accumulated for a steady drizzle, succeeded later by violent showers. When, as occasionally happened, the sun came out, it was distinctly hot, and, had the nights been at all clear, it would then have been equally cold as it was, the temperature at 15,000 to 16,000 feet did not fall below 38°.

On August 19 we broke camp and went down the valley, reaching Atuntzu the same evening. There were clouds of lilac Thalictrum, and we lunched in a sea of blue Cynoglossum. In the home valley the straw-yellow corollas of Clematis tottered in the hedges, and the bush-clad banks were blue with Delphinium yunnanense. *F. Kingdon Ward.*

ORCHID NOTES AND GLEANINGS.

LAELIO-CATTLEYA NANCIE GAMBLE.

A brightly coloured cross between L.-C. Hyeana and C. Trianae is sent by Frederick J. Hanbury, Esq., F.L.S., Brockhurst, East Grinstead (gr. Mr. Matthews). The flower, which is seven inches across, is an enlargement of L.-C. Hyeana, the tubular form of the lip inherited from C. Lawrenceanum, and the rounded expansion of the front lobe being well defined. The sepals, petals and tube of the lip are light rosy-mauve, the front of the lip ruby-purple, the disc pale yellow with darker veining.

ODONTOGLOSSUM OROSUM.

The first flower of a grand new cross between a fine blotched Odontoglossum crispum and Odm. Orosius (Maillardianum × Solon) is sent by R. Gerrish, Esq., Milford Manor, Salisbury (gr. Mr. W. Sorrell).

O. Orosum might be called a picture flower, so beautifully are the richly coloured blotches displayed on the blush-white ground. All the segments are broad; the clear, claret-red, irregularly-formed blotches are arranged in transverse bands, the tips and margins being blush-white with smaller red markings. The lip has a prominent yellow crest, around which are several claret-red blotches, the largest showing conspicuously in front. The crimped and fringed margin is white. This fine novelty is a worthy descendant of Messrs. Charlesworth's favourite Odontoglossum, Maillardianum, so frequently exhibited by them.

ODONTIODA DAFFODIL MONTAGUE MACKENZIE.

Mr. Hanbury also sends flowers of this pretty new cross between Odontoglossum crispum and Odontioda Leeana (Cochlioda Noezliana × Odm. Harryanum).

The flower is of fine shape, having sepals and petals nearly equal in size. The colour closely approaches that of C. Noezliana, being vermilion-red, the sepals having a few transverse white lines and the petals whitish margins. The lip is coloured, like the petals, in front, and the base is spotted with similar colour. The upper side of the column is also red.

THREE MADAGASCAR CYMBIDIUMS.

Cymbidium rhodochilum, Rolfe.—In the year 1900 the Belgian traveller, Mons. C. Warpur, introduced, with several other Madagascar Orchids, this showiest of the three known Madagascar Cymbidiums, and for some ten years it was occasionally seen in gardens, but later seems to have dropped out of cultivation. It is one of the most beautiful and distinct species, and in view of the great importance of the genus it would be of general interest to know whether it is still represented in gardens, and what use has been made or attempted with it in hybridisation. But the safeguarding of such beautiful species by fertilising the flowers with the plant's own pollen, and raising a batch of true seedlings should be the first object of every Orchidist who is fortunate enough to possess a good specimen. If that had been done in this and similar cases scores of fine plants now lost to gardens would still be well represented. The attempt to obtain selfed seeds does not prevent the use of the plant for hybridising if pollen from another flower is available for the purpose.

Cymbidium rhodochilum produces scapes from 1 foot to 2 feet in height, which bear flowers over 2 inches in diameter. The sepals and petals are pale green, the petals spotted with black. The front lobe of the lip is crimson, with a broad yellow band on the disc. The plant appears to be a true epiphyte, for the collector states that he always found it growing on masses of Platycerium clustered on trees at an elevation of about 1,800 feet to 2,000 feet, in

FIG. 85.—EUCALYPTUS HAEMASTOMA, FROM A SPECIMEN SENT TO COVENT GARDEN FLOWER MARKET FROM THE SOUTH OF FRANCE (SEE PAGE 186)

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humid localities. This peculiarity no doubt affords an explanation why it fails when grown with other Cymbidiums. It is probable that if the plants were fastened to bare rafts and suspended in a moist, warm, intermediate house their cultivation would give little trouble. Large numbers of Orchids, such as Broughtonia sanguinea, the section of Oncidium including O. tetrapetalum and O. triquetrum, all the Ionopsis, Comparettias, and similar Orchids which are found on small branches and twigs of bushes in their native habitat, may be said to "grow on nothing," and rapidly fail under pot cultivation in the usual Orchid compost.

Cymbidium Humblotii.—The discovery of this stately Cymbidium must be accorded to Mr. Charles Curtis when collecting in Madagascar for Messrs. J. Veitch and Sons in 1878, but living plants were not introduced until some years later. The first specimen to be shown was that for which Mr. C. Ingram, of Godalming, obtained an Award of Merit in June, 1892. In April, 1913, Messrs. Charlesworth obtained a First-Class Certificate for the species, the specimen shown being several feet in height, and bearing tall spikes of pale green flowers having black-spotted labelliums and resembling in some degree those of Coelogyne pandurata.

Cymbidium flabellatum.—Although the first of the Madagascar species to be recorded, this Cymbidium is known only through the dried specimens in Humblot's collection, the flowers being described as green, purple and yellow. It is a desirable species, and will be welcome when it can be imported.

These three Madagascar Cymbidiums were, later, separated by Mr. Rolfe, and included in a new genus Cymbidiella, but there seems to be little need for the distinction. *J. O'B.*

OLD BOTANICAL AND GARDENING BOOKS.

There is a growing interest in all kinds of old botanical and gardening literature. The well-known house of Bernard Quaritch, Ltd., of 11, Grafton Street, W., has just issued, at the price of one shilling, a catalogue of second-hand rare and valuable books on these subjects, which they offer for sale. The catalogue consists of 145 pages, and contains the titles of quite a large number of some of the rarest and most valuable books of the kind ever brought together. Under the heading of Botany I find Boott's *Illustrations of the Genus Carex*, several sets of the *Botanical Magazine*, Hooker's *Icones Plantarum*, Jacquin's *Hortus Botanicus Vindobonensis*, his *Florae Austriacae*, his *Icones Plantarum Rariorum* and several others; Miss Lawrance's *Collection of Roses*, Redoute's *Les Liliacées*, and his *Les Roses*, Sibthorp's *Flora Graeca*, Waldstein and Kitaibel's *Descriptiones et Icones Plantarum Rariorum Hungariae*, and many more at prices far beyond the purse of any but the most well-to-do collectors.

Fruit culture, Herbals and other departments of literature are all well represented. Gardens and gardening occupy about 30 pages, and copies are offered of such works as De Bry's *Florilegium Novum*; Boyceau, *Traité du Jardinage*; Franeau, *Jardin d'Hyver*; Robert Furber's *Plates of Flowers*, 1730; Hill's *Profitable Art of Gardening*; Louis *Le Thresor des Parterres de l'Univers*; Mollet, *Le Jardin de Plaisir*; *The Orchard and the Garden*, 1596 (probably unique); Gerard's, Parkinson's and Crispin de Pass' works in several editions, some of the rarer and most valuable works of Repton and Sweet. A copy of Ventenat's lovely work, *Jardin de la Malmaison*, and the *Wilton Garden*, first issue, must conclude this all too brief notice of the contents of a most attractive catalogue.

Although it is a second-hand bookseller's catalogue, yet, as a work of reference for the librarian and collector and student of horticultural and botanical literature, it is of great value, and well worth the price charged for it. *C. H. P.*

DEGENERATION IN POTATO FLOWERS AND CAUSES OF STERILITY.*

(*Concluded from p.* 176.)

The anthers of very slightly older buds are filled with disorganised contents and foreign bodies. The elucidation of the problem of degeneration is now complicated by the presence of a secondary infection.

In addition to the amoebae which have much increased in size there are, lining the anther wall, strings of small bodies which I diagnose as chytridiaceous zoospores, each spore having one flagellum.

Also in the anther cavity are larger, darkly staining bodies. These have the appearance of chytridiaceous sporangia. On the examination of fresh material these latter are found to be motile, having a rather slow movement. They stain reddish purple with iodine. The zoospores mentioned above are very rapid in their movements, swimming to and fro with the flagellum straight in front. On the appearance of the chytrid, the amoebae immediately show signs of degeneration.

Up to the present I have not been able to work out the life histories of these parasites.

Returning to the amoeba, I have been able to identify several stages of nuclear division. The resting nucleus consists of a large karyosome surrounded by a clear zone, across which are several rays slightly thickened in the centre. Binucleate amoebae are common, and often examples are found possessing three or even more nuclei.

Not only are the anthers of the flower attacked by the amoebae, but frequently also the ovary walls and ovules. The division stages of the amoebae from the ovary are more easily determined than those from the anther cavity, since the complication arising from degenerate tissue is less apparent in the former than in the latter. Typical amoeba cysts are common. In fresh material I have frequently observed the encystation of the organisms. These cysts often contain two and may contain up to four nuclei.

Great difficulty is experienced in diagnosing the morphology of numerous large dark double bodies which I find in the anthers of all Potatos showing the Up-to-Date type of degeneration. These curious bodies are very distinct in character, although they differ in size, shape, and granular density. Some appear to consist of a network of cells, each cell of which is more or less pentagonal, and some of which were observed to have five round dot-like particles of chromatin. Larger bodies contained dark lateral masses connected with a semi-transparent tube. Still larger ones showed the dark masses completely separate. Some of these bodies are surrounded by a cell wall. Other stages are devoid of a cell wall, the exterior of the body consisting of a thick coat of irregular surface. On treating these bodies from fresh anthers with 5 per cent sugar solution, they become lighter in colour, swell, eventually disintegrate, and set free small, round globules surrounded by oil.

My diagnosis at present is in favour of the fact that they represent the original pollen mother cell attacked by parasites, and that, therefore, the varying appearance of these bodies is due to the fact that there are present all the stages of invasion from the infection of the pollen mother cell nucleus to its entire replacement by the development of the parasites. The anthers show no apparent outward sign of the wholesale disorganisation of the plant tissue caused by the invasion of the amoebae. They are larger and finer in the flowers than many comparatively fertile varieties, the enlargement being due to the hypertrophied condition of the tissue.

It will be understood from my previous remarks that the male sterility resulting from varieties having the Up-to-Date type of degeneration is complete. There are, however, a large number of varieties in which there is partial male sterility. With the most satisfactory pollen parents, the percentage of Potato hybridising successes is small.

This lack of success may be due to—

(1) The presence in the anther of a large percentage of shrivelled grains.

(2) The presence of hypertrophied grains.

(3) Weak compatibility of the gametes which unite in fertilisation.

The third problem I shall touch upon later, and only very slightly, since this paper is chiefly morphological in character.

The fact of the widespread presence of hypertrophied pollen grains in the anthers, not only of Potato varieties, but also of a large number of monocotyledons and dicotyledons, seems to me a matter of great importance in the consideration of a partial male sterility.

I have myself examined over two hundred Angiospermic plants, chiefly of hybrid and horticultural interest, and in the anthers of 40 per cent. of these I have found hypertrophied grains. Considering their widespread occurrence, very few observations appear to have been made on them.

Bj. Palm, in a paper on "Pollen Development in Tropical Monocotyledons," makes the following statement:—"Only regarding Palisota it deserves to be mentioned that pollen grains of a very big size were often found. In size these pollen cells exceeded the ripe normal tetrads. Further, they constantly showed a scanty highly vacuolated plasma contents with a hypertrophied nucleus within. The origin of the giant grains could not be ascertained in the material at hand."

In my observations, many of these hypertrophied grains contain numerous round, oily-looking bodies which stain reddish purple with iodine. When placed on the stigma of the flower some of the grains have been observed to send out germ tubes which are distinguished from the pollen tubes of the normal grain by their inflated and irregular shape.

It would appear that these abnormal pollen tubes result from the high osmotic pressure in the inside of the grain. On the stigmas of Potato flowers I have often observed hypertrophied grains enveloped in globular projections emerged from four or five pores.

Wingfield Dudgeon (*Botanical Gazette*, 1918), describing hypertrophied pollen grains in Rumex crispus, writes:—"Pollen grains that have proceeded to full wall development and generative cell formation begin to enlarge until about twice the normal volume. In all such there is considerable accumulation of starch."

My own diagnosis with respect to the cause of hypertrophy in Potato pollen grains is that it is due probably to the invasion of the amoebae or to the chytrid mentioned above.

The amoebae which are so abundant in the Up-to-Date anthers are also found in large numbers in the anthers of Myatt's Ashleaf Potato, and I have observed two or even three of these organisms in the pollen grains.

Further investigation on the cause or causes of hypertrophied pollen grains is being made.

In this short paper I have been able to deal only with the main and obvious causes of sterility in Potato flowers. It is well known, however, that once a successful attack has been made on a plant by a foreign organism, and the plant has been unable to withstand the invasion of the parasite, then the field is open for the entry of other parasites.

My observations with respect to Potato varieties lead me to the opinion that all the Potato plants I have examined are attacked by the amoebae, but that many varieties are able to partially or entirely withstand the attack, and hence pollen development goes forward.

Plants which withstand the amoeba attack may partially succumb to chytridiaceous infection.

It seems advisable at this point to add the parenthetical statement, viz., that in a complex group of plants, such as we have in the commercial varieties of Potatos, we probably have to deal with *several* causes leading to conditions of sterility.

For example, the history of Potato seedlings leads us to suspect that the physiological phenomenon of incompatibility—self and cross—is at the bottom of much sterility, and possibly also of much degeneration.

* A paper, illustrated by lantern slides, read before the Agricultural Section of the British Association for the Advancement of Science, Hull, 1922, by M. S. G. Breeze, B.Sc.

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INDOOR PLANTS.

JAVANICO-JASMINIFLORUM RHODODENDRONS

At the fortnightly meeting of the Royal Horticultural Society, on February 13, a splendid Rhododendron of the javanico-jasminiflorum section, exhibited by Sir George Holford (gr. Mr. Clarke), attracted universal attention. It was one of the hybrids raised some years ago by Messrs. James Veitch and Sons, Ltd., of Chelsea, and named Ne Plus Ultra. The flowers are of a rich orange-scarlet colour. The fine plant carried eight or nine large trusses of bloom fully open, and there were others to follow. As these beautiful greenhouse Rhododendrons are of great merit, a few remarks on their treatment may be useful, for many imagine they are difficult plants to cultivate, which is quite erroneous.

These hybrid Rhododendrons require an intermediate temperature ranging from 50° to 60° in winter, with a warm, humid atmosphere at all seasons, and they should be shaded from the direct rays of the sun. They will not succeed in a dry atmosphere. Draughts also must be prevented from reaching the plants. They do well in any ordinary warm conservatory, planted out, growing amongst other warm greenhouse plants. They should not be potted or planted very deeply in the soil, as they are surface rooting plants; when grown in pots, they should not be over-potted. The most suitable soil is a mixture of good fibrous peat, a small quantity of light turfy loam, and silver sand. The pots should be well drained.

The flowers of these Rhododendrons have rich, soft subdued colours, unsurpassed by any other flower, ranging from pure white to orange-scarlet, crimson-scarlet, pink, primrose-yellow, salmon-rose, and many other shades. There are very few plants that can compare with those beautiful hybrids for the decoration of the warm greenhouse or conservatory, especially during the autumn and winter, and a collection affords a succession of blooms of varied and brilliant colours during the whole year. The plants, when well grown, are of a bushy habit, with bright green foliage, that provides a fine foil to the richly coloured trusses of bloom. If allowed to grow in a dry atmosphere, the plants lose their foliage; when in that condition, the shoots should be bent down, and tied to the central stem during the winter or early spring; as the season advances, the plants will, if placed in a warm moist atmosphere, throw out fresh growths from the dormant buds on the branches, and become bushy again. The plants should be syringed lightly two or three times daily when the condition of the weather permits. Some of the healthiest specimens I have seen were growing in an intermediate house amongst Ferns, Palms, Dracaenas, and other miscellaneous foliage and flowering plants.

The plants are best propagated in the winter and spring, but cuttings may be inserted at any other time if the wood is well ripened. The cuttings should be made four inches to five inches long, of ripened wood of the previous spring and summer growth. Cut the shoot smoothly and level just under a bud, then insert the cutting singly in a small thumb pot filled with sandy peat. Cover the soil with clean sand at the top, and give it a copious watering. Place the cuttings in a hand light or frame, furnished with slight bottom heat of about 65°, and do not allow the soil to get dry. The cuttings will form roots freely, and when well rooted, may be transferred to larger pots as required. The following are all free growing varieties, and may be highly recommended. Ne Plus Ultra, previously described, the finest of its colour; King Edward VII., bright yellow flowers, borne in large bold trusses; Hercules, bright fawn-yellow, toned with rose-pink, an extra large flowered variety; Aphrodite, blush pink suffused with white; Diadem, bright orange-scarlet, tinted carmine; luteo-roseum, satiny rose, the centre toned light yellow; Princess Alexandra, white, with a faint tinge of blush; Princess Royal, light rose-pink; Souvenir de J. H. Mangles, orange-yellow suffused with rose-pink, a fine variety; Triumphans, crimson-scarlet; President, clear buff-yellow tinted rose, and Apollo, bright orange. The multicolour hybrids include Ruby, dark coral-red toned with crimson; Mrs. Heal, pure white, a very free flowering variety; Neptune, brilliant scarlet, and Latona, pure creamy yellow.

The best of the balsaminaeflorum hybrids (or double varieties) are album, pure white; aureum, yellow; roseum, rose; carneum, flesh-coloured tinted with rose; and Rajah, bright fawn-yellow tinted with rose towards the margin. *John Heal, V.M.H.*

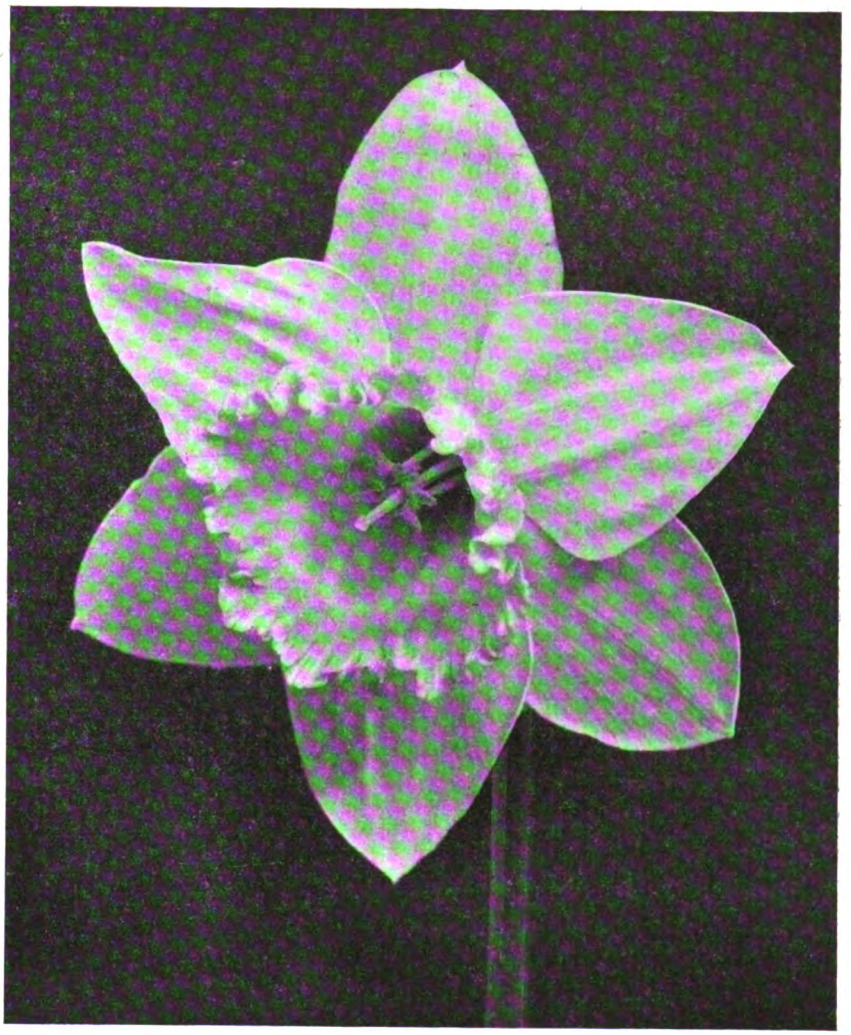

FIG. 86.—NARCISSUS PRINCE UMBRIA, R.H.S. AWARD OF MERIT, MARCH 27 (SEE PAGE 179).

FOREIGN CORRESPONDENCE.

SEMPERVIVUM.

In the years 1874 and 1879 the late Mr. G. Baker gave in the *Gardeners' Chronicle* some interesting notes on the genus Sempervivum, and tried to throw light on a very obscure subject. In 1874 he commenced a classification which he did not maintain in his note of 1879, because it was too artificial. It is not possible to fix the characters of such variable plants by the measurements of their leaves and stems. Everyone who grows those interesting plants knows how polymorphous the genus is, and how easily the plants change their dimensions with the composition of the soil. I saw last year in the most interesting and rich garden of Mr. E. A. Bowles at Waltham Cross some Sempervivum which, thanks to the good soil, were as big as some Echeverias, and three times larger than they are in their natural habitat.

This difficulty Baker recognised, and in his study of 1879 he gave us another classification. Since that time no other botanist has had the courage to deal with such a difficult genus, as the plants cannot be studied alone as dry herbarium specimens, but must be cultivated. Indeed, those botanists who work *en chambre*, dealing only with dried specimens, and neglecting the botanic gardens, are liable to make mistakes.

Some botanists have tried to study the Sempervivum as living specimens, and have cultivated them. The chemist M. Martial Lamotte, in Clermont-Ferrand, seems to have had, half a century ago, a good collection of them on which he based his study of *Sempervivum*, published in 1864. So did the botanist Jordan, in Lyon, who had 6,000 pots of living Sempervivums, each coming from a special source. He published numerous new species, many of which are reduced by the *Index Kewensis*, and by botanists generally, to synonyms. The great botanist of the *Flora Orientalis*, M. Ed. Boissier, had in his botanic garden here a big collection of which he gave me, in 1876, a large set which has been the base of my own collection. Our botanic garden here at Geneva contains a large collection too, and I know, in England, some collectors and amateurs who possess collections of them. The late Mr. Neill Fraser, of Edinburgh, had the finest collection in Great Britain, and now here and there some lovers of plants grow them and collect them in a goodly manner.

The object of my note is to appeal to these amateurs to let me know anything of interest they have observed in regard to their plants. This information is for a book, now almost ready to be printed, and which is exclusively devoted to Sempervivums. There are many garden names which must disappear. For instance, S. californicus, which was distributed by Van Houtte 60 years ago, is

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simply S. calcareum, and was wrongly labelled by a careless or distracted gardener (See *Gard. Chron.*, May 3, 1914, p. 345).

But there are forms of Sempervivum which cannot be identified, and which bear names that no one can explain and which have never been published. Can any reader give information concerning S. admontensis, S. Bungeanum, S. colchicum, S. commutatum, S. cornutum, S. pennicellatum, S. pseudo-ruthenicum, S. putriflorum, S. Schmidtii, S. Scherzerianum, S. sérpyllifolium, S. spathulifolium, S. spicatum (not spiculifolium), S. Studeri, S. Wendereri and S. Winkleri, which I have received from several places without any indication of authority for the names? I would be greatly obliged for some help in this matter. *H. Correvon, Floraire, Geneva.*

VEGETABLE GARDEN.

WINTER PURSLANE.

In reply to Mr. Nicholson's query on page 166, I am quite sure of my species, having known the Winter Purslane too long to mistake it for any other. The plant is certainly not much used in this country, but on the Continent it is used not only as a salad, but also as a substitute for Spinach, and the name Winter Purslane is widespread.

The Dutch catalogues list it as Winterpostelijn, the French catalogues as Pourpier d'hiver, Vilmorin's book on vegetables gives it as Pourpier d'hiver, and the English edition of this book also gives it as Winter Purslane. Further, in each case, the botanical name Claytonia perfoliata is given, so that there can be no question as to the identity of the plant.

Technically the plant is an annual, but this does not mean that its growth is confined to the summer months. On the light soil of this district it certainly does not disappear long before winter; on the contrary, the generations succeed each other in quick succession and give crops of succulent leaves over the greater part of the year. Even at mid-winter I found plants in flower, and at the present time seed-pods can be found well advanced towards maturity. *W. Auton, Pyrford Court, Woking.*

——As regards this useful winter and spring salading (see p. 116), *Les Plantes Potagères* (Vilmorin) gives the English equivalent as "Cuban Winter Purslane," perhaps taken from the Dutch "Winter postelijn." By ringing the changes between this and Witloof, we have the most perfect salads for the early salmon—why do people so frequently serve Cucumber when so much better adjuncts exist? I generally collect self-sown plants in the late summer or autumn and give them the shelter of cloche or frame for the winter; larger and more sappy crisp leaves are thus obtained than when less shelter is given. We sometimes have had it as a "spinaching," but it boils down to very little, though it is quite good. *H. E. Durham.*

THE HARDY YAMS.

In the issue for January 8, 1921 (p. 18), I gave an account of the propagation of these plants. As will be remembered, there is no need to keep cuttings growing all the winter, as a recent writer in these pages seems to do. The bulbils and thin ends of the tubers are stored in dry earth until the spring, when they are sprouted and planted out. Last year they did very badly. I only got about 16½ lb. of the Chappellier of usable size from more than 100 plants, and 6 lb. of the Upeh from half that number; the Japanese were not weighed. In an ordinary year there should have been quite or more than a hundredweight of the first named. Evidently our climate cannot be relied on for this plant to supplant the Potato!

BULBOUS CHERVIL.

This excellent root receives little attention in this country. It struck me that possibly one could improve the size of the roots by giving help during their short growing season, so, when sowing in November, 1921, a range of lights on a low portable frame used and designed for Canteloup Melons was made use of. Notwithstanding the bad summer, in this way we harvested the most even crop that I have yet obtained. Last autumn the same plan was pursued with similar hope, and I suggest it as sound to the devotees of this vegetable, as it should do well to serve with turkey or guinea-fowl in place of Chestnuts. Owing to its larky and fragile nature in the young seedling stage it is very difficult to thin nicely, but incomplete thinning usually leads to the production of tiny, useless roots; yet the autumn sowing must not be too scanty, and it seems preferable to the spring sowing of stratified seeds. I once tried planting the tiniest "bulblets" to see whether a better start could be thus obtained; but they either bolted or did not grow. No growth occurred from those obtained whilst the plants were still in seed-leaf, so that one perforce has to grow direct from seed. For those who do not know it, note may be made that the roots should be stored in dry earth from harvesting in June or July until the autumn or winter; they will keep till March or April, if not eaten before then. *H. E. Durham.*

APPROXIMATE ORDER OF BLOSSOMING OF PLUMS FOR THE SOUTH OF ENGLAND.

(*For explanations, see notes which follow the table.*)

Japanese Plums.—Burbank and Abundance commence to flower about nine days before the earliest European varieties. Red Myrobalan or Cherry Plum (F_1) is also very early, soon followed by Yellow Myrobalan.

Earliest Varieties.

1st and 5th days: Grand Duke (S), Mallard (S), Bittern (F_3), Blue Rock, Rivers' Late Prolific.

6th day: Abricotée de Braunau, Damascene Prune or Shropshire Damson (S).

Early Varieties.

7th day: Black Diamond (S), Prince of Wales, Curlow (S), Late Black Orleans (S).

8th day: Monarch (F_1), Warwickshire Drooper, Jefferson Gage (S), Early Mirabelle (F_1), Reine Claude de Bavay (F_1), Heron, Guthrie's Late Gage, Count Althann's Gage (S), Mitchelson's, Rivers' Late Orange (S), Coe's Golden Drop (S), Winesour.

9th day: Denniston's Superb (F_1), Early Transparent (F_1), President (F_3), Old Greengage (S).

Mid-Season Varieties.

10th day: Rivers' Early Prolific (F_3), Decaisne (S), Rivers' Late Orange, Bryanstone Gage (S), Burbank's Giant Prune (F_2), Supreme, Admiral, Swan, Rivers' Early Damson, Wyedale (S).

11th day: Victoria (F_1), Purple Gage or Reine Claude Violette (F_3), Early Orleans (F_3), Farleigh or Crittenden's Damson (F_3), Liegel's Apricot, Sultan (S), Angelina Burdett, July Greengage (S), Golden Transparent Gage (F_1), Bradley's King of Damsons (F_1).

12th day: Pershore Yellow Egg (F_1), Martin's Seedling or Pershore Purple Egg (F_1), Kirke's Blue (S), Ickworth Imperatrice, Belgian Purple (F_1), Yellow Magnum Bonum (F_1), Cambridge Gage, Denbigh or Cox's Emperor (F_1), Rivers' Early Transparent (F_1), Old Transparent Gage (F).

Late Varieties.

13th day: Czar (F_1), Rivers' Late Transparent Gage (S), Washington Gage (S), Prince Engelbert (F_3), Coe's Late Red, Cullins Golden Gage (F_1), July Greengage (S), Peach, White Bullace (F_1), Old Orleans (S), Goliath.

Latest Varieties.

15th day: Pond's Seedling (S), Smith's Purple Prolific, Red Magnum Bonum, Autumn Compote (?), Blacker's Scarlet, Stint (F_1), Gisborne's Early (F_1), Kentish Bush ? (F_1).

17th day: Belle de Louvain (F_3).

Notes and Explanations of the Above Table.

1. Varieties recommended by the Ministry of Agriculture for market planting are in large type.

2. The approximate average order of blossoming is based on the following records:—

Hertfordshire.—Sawbridgeworth; of 40 varieties in 1912, recorded by H. Somers Rivers; the difference of date between earliest and latest variety to flower was 15 days.

Worcestershire.—Droitwich; County Council Experimental Garden, 36 varieties recorded for 21 years (1900-1920) by James Udale; shortest period eight days (1917), longest 39 days (1915); average for 21 years 18 2/3 days; earliest to commence being March 4 (1903); latest April 30 (1917), the crop was the heaviest in this year.

Gloucestershire.—Long Ashton; Fruit and Cider Institute, 18 varieties (1908-1914); average difference 18 1/7 days.

Surrey.—Wisley, Royal Horticultural Society's Gardens, 16 varieties (1908-1920).

Essex.—51 varieties in 1921.

Herefordshire.—12 varieties in 1894 by John Watkins.

Kent.—Wye; 18 varieties 1908-1910, by C. H. Hooper.

Sussex.—Hailsham; by W. E. Bear.

Leicestershire.—Desford, by F. Lonsdell, and at Evesham; ten varieties for eleven years, by H. B. Pollard.

3. Self-fertility or sterility is indicated by "S," for self-sterile, F_1 strongly self fruitful, F_2 somewhat self fruitful, F_3 occasionally slightly self fruitful, based on reports of John Innes Research Station at Wimbledon, the R.H.S. at Wisley, and C. H. Hooper, Wye. *Cecil H. Hooper, Agricultural College, Wye, Kent. March* 16, 1923.

FRUIT REGISTER.

HARDY GRAPES.

Several years ago, I was greatly interested in viewing a fine crop of Grapes growing on an old mill house in Suffolk, the aspect being South-West. New rods were trained in every season, and by this system large bunches and fine berries were obtained.

The variety was Black Cluster, one of the best sorts for growing out of doors. On a low wall in a garden near Ross grows a vine, with beautiful downy serrated foliage, the variety being similar to the old Sweetwater, but it is not that variety. The foliage is so finely serrated, and tooth-like, it would make splendid material for table decoration.

Vines succeed in a well-drained soil that is neither too rich nor too compact in texture. A moderate amount of phosphate and potash should be present in the soil. Lime rubble, bone meal, crushed bones and fish manures are suitable material to use as fertilisers for Grape vines.

Vines out-of-doors should be planted in a South or South-West aspect, and good drainage of the soil is essential.

Planting may be done about the first week in April, just as growth commences. The following sorts will be found useful for growing on walls or wooden fences: Black Cluster, the bunches of this variety are small but compact; the berries oval or nearly so. The skin is blue-black, with a beautiful bloom. This old Grape is extensively grown on the Continent. Miller's Burgundy is a large, roundish black Grape, the skin of the berry being covered with a dense bloom. It is one of the best varieties to ripen in the open, and is a Grape of merit, being of a rich Sweetwater flavour.

Sweetwater is one of the oldest outdoor varieties, and in some seasons the berries finish well. They are pale green, thin skinned, and with a slight bloom. This sort is often met with on cottage walls, and the Grapes are often made into wine.

August Frontignan is useful for growing on low walls, being dwarf and bush-like in habit. The berries are of medium size, oval in shape and with the skin coloured deep purple. *Pomona.*

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HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

"The Orchard and Garden."—I was much interested in your leading article of February 24 on *The Orchard and Garden*, 1596. I have an old book entitled the *Practical Kitchen Gardener or a New and Entire System of Directions for his Employment in the Melonry, Kitchen Garden and Pottagery in Several Seasons of the Year*, by Stephen Switzer (1727), author of *The Practical Fruit Gardener*, commencing with a long letter to the Rt. Hon. Lord Bathurst, Baron of Battledeen, the preface referring to several early writers on gardening. The covers are in a dilapidated condition, the letter and preface discoloured by damp, but the book itself is in fairly good condition. It also contains a plan of an octangular garden. In various subjects such names as Pliny, Varro, Syllano, Cato, Columella, Virgil and others are mentioned. It is a very interesting book. *A. B. Stanton*, 5, *The Liberty, Wells, Somerset.*

The Practical Kitchen Gardener is not scarce and is only one of the many works by Stephen Switzer, an account of whom was published in this journal, September 18, 1915. The above work was supplemented by another in 1728, entitled *A Compendious Method for the Raising of the Italian Brocoli, Spanish Cardoon, Celeriac, Finoche, and other Foreign Kitchen Vegetables*, etc., etc. It passed through at least five editions. In *A Dissertation on the True Cythisus of the Ancients* there is appended *A Catalogue of the Best Seeds*, all of which make a complete account of the vegetables cultivated at the period in question. The last-named was published in 1731, when he had been established 3 years a seedsman in Westminster Hall, and is supposed to have had a nursery on the site of which is the Waterloo Railway Station.—Eds.]

Rust on Carnations.—Growers of Carnations who are troubled with "rust," will do well to syringe the plants on favourable days twice a week all through the season with salt water. Use 5 oz. of agricultural salt dissolved in three gallons of water, rain water for preference. Prevent so far as possible the salt spray coming into contact with open blooms. I have used salt water for years past on all kinds of Carnations, and at the moment the Malmaisons and perpetual flowering varieties growing in the houses here are as clean and healthy as possible. There is no need to spray, indeed the Carnations may be syringed heavily, until they are dripping, as they will not take harm. *Arthur Hardicr, The Gardens, Burwarton Hall, Bridgnorth, Salop.*

Gardens at Olympia.—I was interested in the comments in various issues of your paper on the horticultural exhibits at Olympia. It is characteristic of the British horticultural fraternity to criticise any effort which is made outside their own fold, and that is why the Wembley Exhibition receives, in horticultural circles, more criticism than support. We are too much like farmers, and too little like business men. If it were not for the enterprise and business methods of the seed firms, British horticulture to-day would be at a fairly low ebb. The R.H.S. does most excellent work in its limited sphere, but half the public have never heard of the Society, and only a very small per cent. of the general public have seen the R.H.S. shows. To a large extent the future of British horticulture lies with the multitude, the small buyers, who cannot get to flower shows until the evening, and know little of gardening beyond what they read in the Daily Press, and that is why shows such as the one in question at Olympia are, in spite of their shortcomings, invaluable. Perhaps some day the R.H.S. or a similar horticultural body will have the pluck to take Olympia and run a flower show there for a month, and have the doors open from 10 a.m. to 10 p.m., for I believe it is our lack of business methods that results in miserable wages being paid for gardening, and keeps horticulture in the same rut as agriculture. *Maulan C. Allwood.*

The Ghent Jury, 1923.—The list of jurors, published in the *Gard. Chron.* of March 24, is interesting from a retrospective point of view. The last Ghent Quinquennial Show was held in April, 1913, and there were then 45 British and Irish members. This year there appear to be 54. Of this number there are only about 19 who formed part of the jury ten years ago. Death and other causes have diminished the number of our old colleagues. *C. H. P.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Thursday, March 15.—*Committee present*: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, A. T. Cussons, J. Cypher, J. Evans, W. Giles, A. Hanmer, J. Howes, W. M. Jackson, A. Keeling, D. Losh Thorpe, D. McLeod, F. K. Sander, E. W. Thompson, J. Whitham, and H. Arthur (Secretary).

First-Class Certificates.

Cypripedium Moonstar (*Boltonii* × *niveum*) a distinct Cypripedium of the white type; *Cypripedium Windsor* (*Eurybiades* × *Chardwar*), a flower of fine shape, the broad, dorsal sepals being heavily blotched; *Dendrobium Cybele majalis*; *Lycaste Skinneri brilliantissima*. All from S. Gratrix, Esq.

Odontoglossum crispum Lady Rachel; *Cattleya Enid alba Our Queen*, a flower with pure white sepals and petals, and broad lip that is beautifully coloured. From Mrs. Gratrix.

Lycaste Skinneri hellemensis, one of the finest and most richly coloured varieties of Lycaste. From Mrs. Bruce and Miss Wrigley.

Cymbidium Alexanderi Cussons' var., a very fine variety of a reddish-coloured type. From A. T. Cussons, Esq.

Odontoglossum amabile Duke of Portland. From P. Smith, Esq.

Brasso-Cattleya Somme var. Enchantress (*C. Schroderae alba* × *B.-C. Maroniae*). From Messrs. Cowan and Co.

Awards of Merit.

Odontoglossum Mandarin (*parentage unknown*); *Cattleya Stuartii var. albina* (*Mendelii Queen Mary* × *Mossiae Queen Mary*); *Lycaste Skinneri Pallas*; *Dendrobium electrum magnificum*. From S. Gratrix, Esq.

Lycaste Skinneri His Majesty; *Coelogyne Sanderae*. From Mrs. Bruce and Miss Wrigley.

Cymbidium insigne Cussons' var., *C. Schlegelii var. Kervalli*, and *C. Maydew* (*Holfordianum* × *insigne*). From A. T. Cussons, Esq.

Maxillaria Fletcheriana. From B. J. Beckton, Esq.

Cymbidium Alexanderi var. White Wings. From the Rev. J. Crombleholme.

Odontoglossum crispum Daisy. From A. Hanmer, Esq.

Groups

S. Gratrix, Esq., West Point (gr. Mr. J. Howes), staged a group, for which a Gold Medal was awarded.

Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), were awarded a Silver-Gilt Medal for a group of Lycastes in great variety.

Capt. W. Horridge, Bury (gr. Mr. A. Coningsby), staged a collection of cut Orchid flowers, for which a Silver-Gilt Medal was awarded.

A Hanmer, Esq., Buxton (gr. Mr. G. Giles), was awarded a Large Silver Medal for a group.

F. Hardy, Esq., Ashton-on-Mersey (gr. Mr. C. Branch), was also awarded a Large Silver Medal for a group of Dendrobiums in great variety.

The Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. E. Marshall), staged a group, to which a Silver Medal was awarded.

Messrs. Cowan and Co., Southgate, were awarded a Silver-Gilt Medal for a group in variety.

Messrs. Cypher and Sons, Cheltenham, showed a group of Orchids, for which a Silver Medal was awarded.

NEW HORTICULTURAL INVENTIONS.

Latest Patent Applications.

6,715.—Jolette, H. H.—Combined fruit picking and stringing or stalk-removing device. March 8.

7,003.—Lawrenson, T. A.—Device for supporting and training Rose trees, etc. March 10.

6,689.—Morrison, A. M.—Appliances for transplanting seedlings of forest trees, etc. March 8.

5,828.—Barritt, N. W.—Treatment of soil and compositions thereof. February 28.

5,970.—Propert, A. H.—Seed-sowers. March 1.

5,287.—Brogdex Co.—Treatment of fruit, etc. February 23.

4,911.—Burdick, C. L.—Apparatus for spraying liquids. February 20.

Specifications Published last Month.

193,165.—Keeble, A. W.—Motor lawn-mowers.

193,244.—Gaunt, C. F.—Apparatus for seed-sowing.

193,294.—Southall, J.—Field and garden rollers.

192,778.—Pease, E. L.—Production of material suitable for use as a fertiliser.

192,788.—Webster, T. H.—Metal label for naming or numbering fruit and other trees, plants, graves, and other outdoor identification purposes.

192,812.—Purchas, F. B.—Fruit grading machines.

193,219.—Eddy, E. D.—Apparatus for separating seeds from grain.

Abstract Published this Month.

Destroying Weeds. Patent No. 191,646.—Mr. C. E. West, of 11, Norfolk Road, Higham Hill, Walthamstow, London, has been granted a patent for a new weed extractor, adapted to be attached to a walking-stick. It comprises a tubular cutter for cutting out cores of earth and an inclined abutment for ejecting the cores laterally through a cut-away part of the tube. The inclined abutment consists of a spring tongue cut out of the tube. The tool may be constructed from a flat piece of metal bent to tubular form. The upper and lower parts of the tube may be slotted longitudinally, the upper part being thus adapted to fit sticks of various sizes.

TRADE NOTES.

A meeting of the Council of the Chamber of Horticulture was held on March 16, 1923, at 18, Bedford Square, London, W.C.1, Mr. G. W. Leak presiding. The Secretary's report referred, among others, to the following matters:—Owing to the attitude taken up by the Bedford Estate authorities in regard to the lease of 18, Bedford Square, held by the Chamber, and as to the under-letting of offices, an interview took place between the President, Mr. Geo. Monro, and the Estate Steward, when every endeavour was made to come to a satisfactory arrangement. The Steward could not agree to the Chamber's proposals, and contends that the Chamber can only sub-let to kindred societies. The Committee has therefore decided that the wisest course to pursue will be to dispose of the lease with a proviso that sufficient accommodation be sub-let to the Chamber and its kindred societies. Negotiations are taking place accordingly.

A meeting was held on the 30th February to consider the new Bill introduced by Sir William Bird for the marking of certain agricultural produce, steps having already been taken to have horticultural produce included in the Bill. Previous arguments on this subject were carefully reviewed and brought into line for submission at a later meeting to be held at the Ministry of Agriculture. Accordingly, the meeting adjourned, and met later at the Ministry of Agriculture in order to confer with Mr. E. C. Pretyman and other members of Parliament, who desired to discuss the Bill in relation to horticulture. This meeting was of a confidential nature, all points for the inclusion of horticultural produce being fully discussed, and it was arranged that a clause be drafted

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and embodied in the Bill. Arrangements were also made for the drafting of amendments to be moved on the committee stage of the Bill, such amendments chiefly concerning the sale of horticultural produce when exposed for sale.

This meeting was considered to be entirely satisfactory, and as a result it is anticipated that at last there is every chance of obtaining the desired legislation in this connection.

The Secretary reported that the above-mentioned Bill had been duly printed containing a clause in relation to fruit, vegetables, and fruit pulp. The Parliamentary Committee of the Chamber had met just prior to the Council, and drafted an amendment to be moved on the Committee stage of the Bill, as to the marking of horticultural produce when exposed for sale by retailers. The Secretary also stated that steps had been taken to parry certain opposition put forward by importers.

Several interviews have been held at the House of Commons in connection with the formation of a Horticultural Committee, and it has been decided, on the advice of Mr. Rupert Gwynne, Mr. Pretyman and others, that the Horticultural Committee shall act as a sub-committee to the main Agricultural Committee. A selected list of 15 members all representing horticultural districts has been supplied to the Agricultural Committee, and these members of Parliament will be duly elected to form the Horticultural Sub-Committee. By this means all horticultural subjects will receive due consideration from interested horticultural members, and their recommendations will be brought before the whole of the Agricultural Committee, thereby gaining increased support. The Secretary of the Agricultural Committee stated that he will rely on the Chamber of Horticulture to keep the Horticultural Sub-Committee supplied with subjects for discussion.

A meeting was held on the 21st February, under the auspices of the Federation of British Industries, of all those Associations entering objections to the "Terms and Conditions of Carriage" as proposed by the Railway Companies. In previous meetings with the railways' representatives many of the proposals to which traders could not agree had been favourably revised, and the points on which agreement could not be arrived at will be taken to the Railway Rates Tribunal.

The Chamber of Horticulture, on behalf of growers in the Spalding, Wisbech and Biggleswade districts, is endeavouring to obtain special and reduced rates on a sliding scale for this traffic, for which negotiations are taking place with the Railway Clearing House authorities, who have replied stating that special rates with a minimum of 10 cwts. are being arranged to northern towns, but the companies state they cannot at present make further concessions in the amounts charged. It is considered that these special rates are still too high, and that considerable reduction can fairly be made for large quantities.

It was submitted that in the event of the companies not conceding lower rates for the before-mentioned traffic, the case for the Spalding and Wisbech areas was strong enough to plead before the Railway Rates Tribunal.

A meeting of the Ghent Exhibition Committee was held at the R.H.S. Hall on 30th January, when preliminary arrangements were decided. The question of finance was considered, it being stated that the sum of £250 would be required for transport, paid assistance and other expenses. The Royal Horticultural Society has promised £50, and possibly an additional £50, and it was suggested that a fund be raised to meet the amount required, and that Mr. Geo. Monro be asked to act as Hon. Treasurer. The whole question of finance is referred to the Council.

In reply to a request made at the previous Council meeting the Rates Advisory Committee stated that they do not see their way to re-open the hearing of the classification of trees, plants and shrubs, but that it would be open for application to be made on or after the "appointed day" for alteration in the classification.

ANSWERS TO CORRESPONDENTS.

Construction of Hard Tennis Courts: *Head Gardener.* There is no necessity for you to provide a concrete foundation for the hard tennis courts you propose to construct. The use of a heavy roller will secure the desired solidity of the clinker bed that will form the foundation of the playing surface of the court. Asphalt tennis courts are not to be recommended. There are three reasons for this; they are difficult to lay perfectly true; after continued play on them, their surface becomes very slippery; lastly, during the summer they prove hot and tiring to the feet of players. Shale hard courts are more popular than any other type, and hundreds of such courts are being laid down all over the country. The following specification is the one adopted in the construction of sixty courts in the Manchester Public Parks: "The ground to be well drained with three inch land drain pipes set out in rows 15 feet apart. The whole site to be covered with a layer of hard clinkers and furnace cinders to a depth of four inches, and thoroughly consolidated with a heavy hand-roller. The consolidated clinkers to be covered with three inches of suitable red shale—2/3 next to cinders to be half inch material, the remainder as topping to have passed through a quarter inch screen. The first layer of shale must be well rolled, and made thoroughly firm before the topping is laid over it, and then the whole again rolled until the surface becomes hard, smooth, and of the requisite gradient." While the surface will, in all probability, retain its porosity, it may happen in time that this property may be lost, and it is therefore well to prepare for this by allowing a fall of 1 in 100 from the centre to the outer edges of the courts. The shale used at Manchester is obtained from a colliery spoil heap, where the furnace cinders have been twice burnt, and all the carbon eliminated, leaving a residue of silicate of alumina. Where courts are made of this material it is essential that a hydrant and hosepipe should be close by in order that the courts may be sprayed during dry weather, to preserve a hard surface and lay the dust.

Names of Plants: *E. G. L., Deal.* Chorizema cordatum (syn. Lowii). *A. F. F., Oxford,* and *H. B. S.* Cornus Mas.—*E. P.* A garden variety of Azalea viscosa.—*G. H.* Ornithogalum thyrosoides.—*R. A. McD.* Helxine Solierolii.

Plant Propagator: *C. I.* Plant propagators are made in a variety of types, sizes and prices by Messrs. Charles Toope and Son, Stepney Square, Stepney, London, E. The best plan would be to write them, and ask for their illustrated price list of propagators, and make the selection of one that suits you best. They have various sizes of each type of propagator. The success of a propagator depends on the skill of the user of it. Everyone has to gain his own experience by practice and close observation. Seeds of many trees and shrubs, such as Oaks, Chestnuts, Hawthorn and Holly, may be sown in the open ground in the autumn before they get dry. Those of Spruce, Pines and Larch are sown in the open in April; Cupressus, Thuyas and Junipers in cold frames in spring. Seeds of trees and shrubs from warm countries could be sown in the propagator in spring. Cuttings of Cupressus, Thuyas and other Conifers are best inserted in sandy soil in a cold frame in September. Cuttings of hard-wooded subjects in great variety can be rooted in the propagator during July and August, when the wood is getting firm. Thus you cannot blame a propagator if you use it for unsuitable plants or at the wrong time. Seedlings of hardy plants should be removed from the propagator as soon as they have germinated; and cuttings as soon as they are rooted.

Communications Received.—H. C.—J. E. F.—G. C. J.—J. S.—A. B. W.—F. F. B.

MARKETS.

COVENT GARDEN, Tuesday, April 3, 1923.

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus, bundle		
—Cavaillon ..	2 6–	4 0
—Lauris	3 0–	5 0
Beans—		
—Guernsey, lb.	1 6–	2 0
—Madeirabasket	4 0–	8 0
—Worthing ..	1 3–	2 0
Broad Beans, lb.	1 0–	– –
Belgian Chicory per lb.	0 2½	0 3
Beets, cwt. ..	2 0–	3 0
Cabbage, tally ..	2 6–	3 6
Carrots, cwt. ..	2 0–	3 0
—New, per bunch	1 0–	1 2
Cauliflowers, doz.	1 6–	3 6
Celery, roll ..	1 3–	2 6
Cucumbers, doz.	6 0–	8 0
—flats	16 0–	20 0
Endive, doz.—		
—English	1 0–	1 6
—French	2 0–	3 0
Greens, bag ..	1 0–	2 0
Lettuce, French	2 0–	2 3
Mint, doz. ..	4 0–	8 0
Mushrooms, lb.	1 6–	2 6
Onions		
English	4 0–	4 6
—Dutch, bag ..	3 0–	3 6
Onions.		
—Valencia, case	6 0–	7 0
Parsnips, cwt. ..	2 0–	3 0
Peas, lb. French	1 0–	– –
—Guernsey ..	2 6–	3 6
Potatos,		
—Canary Island case	10 6–	16 0
—Algerian ..	2–	2½
—Guernsey, lb.	0 7–0	9
—Dunbar ..	£5	10
—King Edward ..	£3 5–	£4 10
—Others ..	£2 5–	£3 0
Rhubarb, forced, doz.	1 6–	1 9
—natural ..	4 0–	6 0
Radishes, doz.		
—Long ..	9–	1 3
—Round ..	1 6–	2 0
Savoys, tally ..	5 0–	8 0
Seakale, Forced punnet ...	1 0–	1 6
—natural, half	4 0–	5 0
Scotch Kale ..	1 0–	1 6
Spinach, b'ushel	2 0–	2 6
Spring Greens, bag. —	1 6	
Tomatos		
—Canary Islands	15 0–	22 6
Turnips, cwt. ..	2 0–	3 0
New, bunch ..	1 0–	1 3

Remarks.—General conditions of trade last week were fairly brisk, a good demand being encouraged by the Easter trade. The first shipments of Australasian Apples have come to hand in fairly good condition. English Apples are still being marketed, mainly from cold storage, some varieties being rather out of condition, but where well kept they have sold moderately well. Consignments of fruit from the Cape, consisting of Grapes, Pears and Plums, are still on an important scale, and have sold freely. Choice vegetables, such as French Beans, new Potatos, Peas and Asparagus are more plentiful and lower in price. Forced Rhubarb is a slow trade, the naturally grown produce being slightly cheaper. Mushrooms are in steady demand, although the warmer weather has resulted in increased supplies. Green vegetables are abundant, and the inquiry is not sufficient to harden values. Root crops are a slow trade. The Potato trade remains unchanged.

Plants in Pots, etc.; Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz. ..	10 0–	18 0
—elegans ..	10 0–	12 0
Aralia Sieboldii ..	10 0–	12 0
Araucarias ..	30 0–	48 0
Asparagus plumosus ..	12 0–	15 0
—Sprengeri ..	12 0–	18 0
Aspidistra, green	48 0–	72 0
Asplenium, per doz. ..	12 0–	18 0
—32's	24 0–	30 0
—nidus	12 0–	15 0
Azaleas, 48's per doz.	30 0–	48 0
—60's	18 0–	24 0
Cacti, per tray, 12's, 15's ..	5 0–	7 0
Cinerarias 48's per doz. ..	15 0–	18 0
Crotons, per doz.	30 0–	42 0
Cyclamens, per doz.	12 0–	18 0
Cyrtomium ..	10 0–	15 0
Erica melanthera		
„ 48's per doz.	24 0–	36 0
„ nivalis 48 „	24 0–	30 0
„ 60 „	10 0–	15 0
„ Thumbs „	6 0–	8 0
Genistas 48's per doz. ..	15 0–	18 0
Marguerites, per doz.	18 0–	24 0
Nephrolepis, in variety ..	12 0–	18 0
—32's	24 0–	36 0
Palms, Kentia ..	24 0–	30 0
—60's	15 0–	18 0
—Cocos ..	24 0–	36 0
Pteris, in variety	12 0–	21 0
—large 60's ..	5 0–	6 0
—small	4 0–	4 6
—72's, per tray of 15's ..	3 6–	4 0

Cut Flowers.

Remarks.—There was, as is usual at Easter, a fairly brisk market in most subjects on the Saturday, crowds of sightseers and small buyers from the hospitals lining the market early. Lilium Harrisii was asked for in vain after 5.30 a.m., what few blooms there were realised about 15s. per bunch. Richardias (Arums) were more plentiful, and sold from 9s. to 10s. per dozen. White Carnations and good White Swan and Hawk Tulips were all cleared early, although the foliage of some of the Tulips was not very good. To-day, Tuesday, is a very quiet market, and there is not a great supply of any particular subject. Some items, such as Lily-of-the-Valley, are difficult to obtain. Not many plant growers were represented in the market this morning.

GARDENING APPOINTMENT.

Mr. J. H. Roberts, for the past three years Gardener to Trevor Eyton, Esq., J.P., Plas-yn-Cwm, St. Asaph, as Gardener to the Rt. Hon. Lord Cobham, Hagley Hall, Stourbridge, Worcestershire. [Thanks for 2/6 for R.G.O.F. Box.—Eds.]

SCHEDULE RECEIVED,

Brighton, Hove and Sussex Horticultural Society.—Chrysanthemum show, to be held on November 6 and 7.—Secretary, Mr. H. J. Bingham, 60, Richmond Street, Queen's Park, Brighton.

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THE

Gardeners' Chronicle

No. 1894.—*SATURDAY, APRIL 14, 1923.*

CONTENTS.

Alpine garden, the—	
Aethionema iberideum	195
Oxalis lobata ..	195
Barr memorial cup	194
British Empire exhibition, timber and forest products at the	193
Bulbs, gift of, to a London park ..	194
Daffodils at Sutton Court	202
Eucalyptus, the genus	194
Flowers in season ..	194
Fruit, fungous diseases of	193
Fruit garden, the market	202
Fruit register—	
Apple Hanwell Souring	203
Fruit spraying ..	203
"Gardeners' Chronicle" seventy-five years ago	195
Gardeners' wages ..	203
Garden notes from S.W. Scotland ..	198
Glasnevin, notes from	199
Gourds, ornamental ..	198
Hardy flower border—	
Anemone	195
Indoor plants—	
Canna	201
Ipomoea alata ..	201
Oak timber, bog ..	198
Obituary—	
Turner, James S...	206
Orchid notes and gleanings—	
Cattleya Stuartii alba	201
Laelio-Cattleya Narcissus	201
Painters, early botanic	200
Perfume "cultivating"	194
Plant names, puzzles in	201
Potato, leaf-roll in ..	194
Potato variety trials..	193
Primula malacoides with rounded flowers	203
Pyrus Scheideckeri ..	203
Roses, wireless lecture on	193
Societies—	
Association of Economic Biologists ..	204
Glasgow and West of Scotland Hort.	204
Reading and District Gardeners' ..	204
Royal Horticultural	204
Symplocarpus foetidus	199
Vegetable garden—	
The Asparagus Fly..	203
Veitch Memorial medal	197
Week's work, the ..	196
Wilde, Mons. H. de ..	194
Weather, wintry ..	194

ILLUSTRATIONS.

Aethionema iberideum	195
Banana or Plantain, John White's drawing of the ..	200
Pineapple, John White's drawing of the	201
Primula malacoides, a new round-flowered form of ..	203
Symplocarpus foetidus in the Cambridge Botanic Garden	199
Veitch Memorial medal	197
Wilde, Mons. Henri de, portrait of	194

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 46.1°.

Actual Temperature:—

***Gardeners' Chronicle* Office, 5, Tavistock Street,** Covent Garden, London, Wednesday, April 11, 10 a.m. Bar. 29.8, temp., 55°. Weather—Fine.

Fungous Diseases of Fruit. The Report of the Ministry of Agriculture on the occurrence of fungous and allied diseases on crops in England and Wales, already noticed in these columns (see p. 141), gives an excellent summary of the chief diseases which affected fruit crops during the years 1920-1921. It is indeed to be regretted that the price at which the Report is published (3s. post free) will be likely to prevent its reaching many of the smaller cultivators to whom it would—or should—be most instructive. Thus it is by them that the remark (p. 54) should be read that Apple canker is still abundant in all parts of the country and causes great loss. The fact that the fungus Nectria galligena, which causes the disease, may gain entrance not only through wounds, but by bud infection by way of the leaf scars, is important, and helps to explain how resistant this disease is to eradication. Another pest scab, due to the fungus Venturia inaequalis, showed notable seasonal change of virulence. Severe in 1920, the attacks of this disease were but slight in the following year. Hitherto mildew on Apples has not been regarded as a very troublesome disease, although some varieties are badly handicapped by their susceptibility; but its prevalence appears to be increasing, and hence the work carried out at East Malling showing that lime sulphur and ammonium-polysulphide help to check mildew, is opportune. The light 1920 Apple crop was largely destroyed by brown rot, Monilia fructigena, and if the loss taught the need of adopting methods of control—including the removal of mummied fruit attached to the trees—it may have been not without use to the fruit grower. The Report confirms the results of general observation that not only does Silver leaf continue to destroy Plums, but that it has become a serious pest of Apples. Early Victoria and Lord Grosvenor appear to be most susceptible, and other varieties which are attacked by the fungus causing Silver leaf (Stereum purpureum) are Warner's King. Lord Derby, Grenadier, Lane's Prince Albert, Golden Spire, Bramley's Seedling, Newton Wonder and Cox's Orange Pippin. How severe may be the effect on Apples is indicated by the citation of Mr. Petterbridge's observations made in a Lincolnshire orchard. Out of six hundred and seventy Early Victoria Apple trees, four hundred and fifty were silvered, and in another orchard one thousand of one thousand four hundred trees were affected, and forty per cent. of Lord Grosvenor trees were dying from the attack. The spread of Silver leaf is indicated by the observation that in 1920, in a certain plantation near Wisbech, forty trees were diseased, and in 1921 one hundred trees. Wounds are, so far as is known, the places of infection, and hence, beside the destruction of diseased trees, attention to the dressing of cut surfaces is imperative. As to the results of the work which is being done with the object of reducing loss of the Plum crop from Silver leaf, the Report is not unhopeful; but for our part we think that the pest is serious enough to require the employment of a whole-time officer of the Department, who should visit and advise the Plum orchards and orchardists of the chief Plum-growing districts. Victoria and Czar are, of course, the chief sufferers, and in some orchards—e.g., in Middlesex, there have been counted as many as 3,000 diseased trees in a sixty-acre orchard. It is therefore a melancholy satisfaction to know that since the Silver Leaf Order was passed in 1919, 150,000 diseased Plum trees have been grubbed up and destroyed in Middlesex alone. Nevertheless, there would appear still to be vast numbers of diseased trees, the only use for which is to supply firewood, and that to be burned on the premises. Nor is it surprising that in some districts growers desire a more stringent Order. It is common knowledge that the original Order was deliberately more mild than the case required, and it was contemplated that as soon as growers generally realised the advantages of a systematic attempt to check the disease, a stronger Order should be introduced. In our opinion, the time has come when this question should be reopened by the Horticultural Advisory Council, and full inquiry made into the desirability of more drastic regulations. A point of practical importance mentioned in the Report should be noted by all Plum growers—*viz.*, that all cutting back and shaping of Plum trees should be done when the trees are young. It is greatly to be hoped that the investigations into this disease, now being conducted by Mr. Brooks, will lead to better methods of preventing or circumventing attack by this disease. In the meantime growers should remember that the fungus of Silver leaf grows on many plants other than Apple and Plum, and that it is capable of passing from one host to another. For example, it flourishes on dead Poplar stumps, and has been shown to spread therefrom to fruit trees. In conclusion, it may be mentioned that the Report contains two weather charts, so that the curious in discovering relation between severity of disease attack and weather conditions may study each disease with the charts in front of them.

Potato Variety Trials. The results of tests of yield of varieties of Potatos immune from Wart disease carried out in 1922 at various Welsh centres under the auspices of the University College of North Wales and the County Councils of Anglesey, Carnarvonshire, Denbighshire and Flintshire, have recently been published and the brochure containing them may be had free of charge on application to the Department of Agriculture, University College, Bangor. Of immune first earlies tested, none is equal to the widely grown but susceptible variety Sharpe's Express, a Potato of excellent cropping power, cooking quality and appearance. For those who must grow immune varieties Resistant Snowdrop, or its close relation, Witch Hill, and Resistant Ashleaf, may be tried. Of second earlies Arran Comrades gave good results, and proved earlier than the others of its class which were tried. It may be lifted in August, and indeed should be lifted in that month, for it is very susceptible to late blight, and if left longer in the ground may deteriorate seriously. Great Scot, the popularity of which is general, gave a good account of itself in the trials—a big cropper and apt to run to large size of tuber, it is somewhat later than Arran Comrade, and, like it, susceptible to late blight. The late Mr. Snell used to say that this variety was in great demand among vendors of fried fish, because, owing to its containing a slightly larger quantity of fat than other varieties, it enables those who prepare this delicacy for public consumption to effect an appreciable saving of oil. Of early, main crop immune varieties, Abundance is an excellent cooker, but owing to its great susceptibility to late blight, is more suited for garden cultivation than for growing for market. Of late varieties, Kerr's Pink and Lochar proved the best of those grown in these trials. It would be of advantage if in future reports the areas of each of the plots in which the tests were made were stated.

Wireless Lecture on Roses.—What was probably the first use of wireless broadcasting for the assistance of horticulture was made at the London Broadcasting Station on April 7, when Mr. Laurence Cook, of Messrs. Stuart Low and Co., delivered an address to the immense number of "listeners-in" who now own wireless receiving sets. Details of cultivation were included by the lecturer, who advised his hearers not to blame their gardeners when they pruned their Roses hard. In the course of his remarks Mr. Cook mentioned that in no other country in the world were gardens so appreciated by rich and poor alike, while horticulture gave a richer and more lasting return for the time and money spent upon it than any other hobby. Mr. Cook considered that Dutch Rose trees are never satisfactory in this country, as they make soft, sappy growth in the moist sandy and peaty soils of Holland, and do not take kindly to transplantation in this country.

Timber and Forest Products at the British Empire Exhibition.—The Committee of the Timber and Forest Products section of the British Empire Exhibition has accepted the offer of Mr. Dallimore to serve as Hon. Organising Secretary for the Committee. The Chairman (Lord Lovat) said he had envisaged the exhibits as falling roughly into two classes (1) silvicultural exhibits, including timber in

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the round; (2) sawn timber and finished products. Sir Lawrence Weaver, Director of United Kingdom Exhibits, suggested that the timber exhibit should be near the farm land, which he regarded as the best possible site if special pavilions were to be erected for the timber exhibit. Mr. Horton reported that the trade had expressed a wish that a special pavilion should form a feature of the exhibit. Mr. Munro pointed out that no meeting had taken place in Scotland, and that in his view a sub-committee for Scotland should be appointed. Lord Leven and Melville agreed with this view, and informed the Committee that office facilities in Edinburgh could be secured. The Committee resolved that a Scottish Sub-committee be forthwith formed, and that it should meet at the earliest possible date. Its membership should be as follows: Mr. F. R. S. Balfour, Mr. W. Black, the Earl of Leven and Melville, Sir Robert Lorimer, Mr. Donald Munro, Mr. R. Paterson, Sir Hugh Shaw Stewart, and its Secretary should be asked to keep in close touch with Mr. Dallimore. After discussion the Chairman suggested, and the Committee unanimously agreed, that it be decided provisionally, and subject to the consent of the Scottish Sub-committee, that a home-grown timber house should be erected as representing the English exhibit, that a village hall, in which exhibits could be shown, should be erected as representing the Scottish exhibit, and that a cloister joining the two should be provided. It was agreed that the English and Scottish exhibits would occupy a space of at least 100 feet frontage, on a depth of 50 feet each.

Flowers in Season.—Messrs. Storrie and Storrie, Glencarse, Perthshire, have forwarded spikes of a large-flowered strain of Primula obconica, which they distribute under the name of P. obconica gigantea. The blooms are from plants grown in five-inch pots, and Messrs. Storrie and Storrie state that each plant carries a minimum of from fifty to sixty spikes. The colours range from white through various shades of blush and rosy-purple to almost crimson, and the large inflorescences are borne on exceptionally long stems.

Peter Barr Memorial Cup.—This handsome cup commemorates the late Mr. Peter Barr and the great work he did in introducing and raising Daffodils. It was subscribed for by Daffodil lovers, is in the trust of the Royal Horticultural Society, and is awarded annually—to be held for one year—by the R.H.S. Narcissus and Tulip Committee, to someone who has done good work on behalf of Daffodils. The award is made each year at the first April meeting of the Committee. On Tuesday last the cup was awarded unanimously to Mr. Charles H. Curtis, who has almost completed twenty-one years of service as Honorary Secretary to the Committee, and has compiled the several *Lists of Daffodil Names* issued by the Royal Horticultural Society, besides acting as registrar of new varieties. Mr. Curtis is retiring from the secretaryship at the close of this season, but at the wish of the R.H.S. Council he will continue to act as registrar of new Daffodils. Previous holders of the Peter Barr Memorial Cup are: Rev. G. H. Englehart (1912), Mr. Peter R. Barr (1913), Mr. E. M. Crosfield (1914), Mr. P. D. Williams (1915), Mrs. R. O. Backhouse (1916), Mr. Walter T. Ware (1917), Miss E. Willmott, V.M.H. (1918), Rev. J. Jacob (1919), Mr. J. Duncan Pearson (1920), Mr. Alex. M. Wilson (1921), and Mr. W. F. M. Copeland (1922).

Wintry Weather.—After several weeks of exceptionally mild conditions, including several days when the temperature reached summer warmth, the weather changed suddenly on the 8th inst., and wintry conditions prevailed with frost and snow in many parts of England. A keen wind blew from the north-east, and we fear that much damage will be caused to some of the fruit crops, and especially Gooseberries and Plums. It is a matter for congratulation that the air was dry, and in these circumstances the top fruit may escape much damage, but it is feared that considerable injury has been done to bush fruits and others near the ground. In this uncertain climate, and especially in spring, the weather is apt to change suddenly, and the wise gardener takes the precaution of having protective material at hand for use should occasion arise. The need of this has been fully emphasised during the past week.

Sussex County Agricultural Show.—A horticultural section will be included in the annual exhibition of the Sussex County Agricultural Society, to be held at Horsham, on Wednesday and Thursday, July 18 and 19. Particulars and schedule may be obtained from the Hon. Secretary, Mr. W. L. Watton, 33, King's Road, Horsham, Sussex.

M. Henri de Wilde.—We have much pleasure in publishing the portrait of M. Henri de Wilde, the Director of Parks, Open Spaces and Plantations, in the city of Ghent. M. Wilde has a very responsible position which he fills with great satisfaction to all concerned. In connection with the Ghent Quinquennial Exhibition, which opens on April 13, M. de Wilde is an important personage, as he is responsible for the design of the exhibition and the lay-out of the grounds and general disposition of the exhibits.

M. H. DE WILDE.

Director of the Ghent Parks, Open Spaces and Plantations.

Cultivating Perfume.—Under this title the *Times* publishes a note from a Paris correspondent, describing a process adopted by M. Daniel, Professor of Botany at Rennes, for increasing the perfume of flowers. The method, which was explained before the Academie des Sciences in Paris, is stated to be as follows:—"By taking two plants of the same species and grafting one on the other—notably a Wormwood on a Chrysanthemum—he found not only that the grafted Wormwood developed remarkably, but its flowers gave forth a perfume much more powerful than that of the original plant. Moreover, the Chrysanthemum had given to the Wormwood flower something of its own perfume. M. Daniel collected the seeds of the grafted Wormwood, and the following year obtained from them some very fine plants. They had this notable feature—while the flowers of some of the plants emitted a perfume similar to those of the original graft, others were absolutely without odour." While the grafting of two genera of the same natural order may be possible, we are somewhat sceptical as to the progeny of the grafted plant showing any difference in the character of perfume. That the stock may have an influence on the scion is well known to gardeners, but we can call to mind no recorded instances of seedlings from grafted plants exhibiting distinct characters.

The Genus Eucalyptus.—We have received Part 7 of Volume VI., being Part LVII. of the complete work, of Mr. H. H. Maiden's *Critical Revision of the Genus Eucalyptus*. The species described are E. agglomerata, E. Simmondsii, E. sepulcralis, E. torquata, E. Kalganensis, E. melanoxylon, E. Isingiana, and E. aggregata, and there are four plates giving details of E. agglomerata, E. sepulcralis, E. Kalganensis, and E. Isingiana. E. agglomerata is known as the Blue-leaved Stringy-bark, and is stated to be the most useful of all the stringy barks, the timber being especially valuable for use as weather-boards and fencing. This Eucalyptus forms a tree about 60 feet high. E. aggregata is a Black Gum forming a tree from 50 up to 120 feet high. The juvenile leaves have a distinct character, and for this reason the young plant has been described as a distinct species—E. Rodwayi, by Messrs. Baker and Smith. E. Simmondsii, E. Kalganensis, E. melanoxylon and E. Isingiana are new species. A considerable portion of the text of Part 7 is devoted to "The Leaf," in which the leaves of the various Eucalypti are considered.

Gift of Bulbs to Hyde Park.—The London *Evening News* has presented the Office of Works with 106,000 bulbs for planting in Hyde Park. The bulbs will include 40,000 Narcissi, and the remainder will include Crocus, Scilla, Chionodoxa, and Irises. The Narcissi have been supplied to the *Evening News* by Messrs. Wm. Gaze and Sons, Kingston-on-Thames; Messrs. A. Luff and Sons, Wimbledon Park; Mr. George G. Whitelegg, the Nurseries, Chislehurst; Messrs. R. Neal and Sons, Trinity Road, Wandsworth; and Messrs. J. Carter and Co., Raynes Park. The bulbs will be planted in the area bounded by Park Lane.

Leaf-Roll in Potato Foliage.—In a paper read by Mr. P. A. Murphy before the Royal Dublin Society, the mechanism of rolling of Potato foliage as caused by leaf-roll, and incidentally by some other diseases and injuries, was dealt with. The cause of rolling is the distension of the spongy parenchyma, following the accumulation of carbo-hydrate in the leaves. A capsid (Calocoris bipunctatus), a jassid (Typhlocyba ulmi), and an aphis (Myzus Persicae), which develops on the sprouts of unplanted tubers, were said to be active agents in carrying leaf-roll. In view of this fact it may be advisable to treat seed tubers with a nicotine insecticide before they are planted, to destroy any of these insects that may be present on them.

Local Horticultural Societies.—The Royal Oxfordshire Horticultural Society, with which is now amalgamated the Oxfordshire Chrysanthemum and Fruit Society, is holding a two days show on August 29 and 30, instead of the one day show, as arranged when our yearly almanac was published last January. The Society is also holding a commemoration show in the Wadham College Gardens on June 26 and an autumn exhibition in the Town Hall on Wednesday and Thursday, November 7 and 8. The Society had a very successful year in 1922, finishing with a credit balance of £45, as compared with a deficit of £80 the previous year. This Society was formed in 1830, and its prosperity is reflected in the size of the two schedules before us, the one for 1884 and the other for 1923.—Hereford and West of England Rose Society finished the year 1922 with a balance in hand of over £80. The show of last year was a record one, the amount of money taken for admission being £54 1s. This year's exhibition has been provisionally fixed for Wednesday, July 18. Sir Geoffrey Cornewall has been re-elected president, and the Rev. C. H. Stocks re-appointed Hon. Secretary. Mr. G. W. Russell has been appointed assistant secretary. A special sub-committee has been appointed to revise the schedule for this year's show. A meeting was held in Kirkcudbright on

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3rd inst., to consider the advisability of reviving the horticultural show, which has been dropped for some years. Provost M'Alister presided over a good attendance. After consideration it was agreed, on the motion of the chairman, that the show should be revived, and that the name of the society be the Kirkcudbright Horticultural Society. It was resolved that no money prizes be given, the prizes to take the form of cups or medals. The show is to be confined to the Stewartry of Kirkcudbright.—Owing to the Sussex Agricultural Show being fixed to take place at Horsham on July 18 and 19, the same time as the Haywards Heath and Mid-Sussex Horticultural Society's Show, the dates of the latter exhibition have been altered to July 25 and 26. The original dates, July 18 and 19, of the Haywards Heath Show are given in our almanac, and the attention of readers is drawn to the alteration. In view of the later dates of the exhibition entries will be received up to and including July 18. The schedule of the summer and autumn exhibitions, the latter on October 31st, may be obtained from the Secretary, Mr. Geo. Prevett, The Rosery, Franklynn Road, Haywards Heath.

Royal Horticultural Society's Lecture on April 24.—The subject of the lecture at the fortnightly meeting of the Royal Horticultural Society on April 24, at 4 p.m., will be "The Flora of New Zealand," by J. A. McPherson, and not "Some of the Newer Shrubs," by Mr. W. J. Bean, as previously announced.

Appointments for the Ensuing Week.—Tuesday, April 17: Winchester Horticultural Society's meeting. Friday, April 20: National Rose Society's Spring Show, at R.H.S. Hall; Eastbourne Horticultural Society's meeting; British Mycological Society's Spring Foray at Bristol (three days).

"Gardeners' Chronicle" Seventy-five Years Ago.—*Yew Trees Poisonous.* We know as certainly, in this part of the country, that Yew branches are as poisonous to horses or cattle eating them as arsenic would be; but they act in this way only when cut by an edged tool. A farmer in an adjoining parish last year turned three cart horses into a field; they went immediately towards a hedge which had been mended with Yew tree stakes, and fed upon the branches. In twenty-four hours the horses, young and healthy before, were hanging in the fox-hounds' kennel. This is a well-known fact in this neighbourhood, in which a subscription was raised to enable him to replace them. Forty years ago, some clippings of a Yew hedge having been dropped in a field, much fear was entertained lest the cattle should eat them; but the hedge from which they had been cut (a long one) was open to animals at all times, but their eating the twigs themselves off the hedge excited no apprehension whatever. I could give numbers of instances, did I recollect dates, of animals being poisoned by eating Yew; but whether the poisonous qualities are imparted to it by the edged tool, as has always been considered to be the case here, or whether it exists in greater quantity in withered twigs than in fresh ones, I leave to wiser heads to discover.—*Dyn-o-Gwent, Gard. Chron., April* 8, 1848.

Publications Received.—*Administration Report of the Forest Department of the Madras Presidency for the Year Ending March* 31, 1922. The Superintendent, Government Press, Madras. Price 14 annas.—*Report on Experiments for the Year* 1922. Agricultural Education Committee, Holland County Council. The Agricultural Institute, Kirton—*The Herbaceous Garden.* By Mrs Philip Martineau. Fourth Edition. **Williams and Norgate, 14, Henrietta Street, Covent Garden, W.C.2.** Price 12/6 net.—*Poisonous Plants of All Countries.* By A. Bernhard-Smith. Baillière, Tindall and Cox, 8, **Henrietta Street, Covent Garden, W.C.2.** Price 6 · net.—*The Primulas of Europe.* By Dr. John MacWatt, "Country Life," Ltd., 20, Tavistock Street, W.C.2. Price 12/6 net.

HARDY FLOWER BORDER.

ANEMONE.

BOTH the Greek and the Italian Windflowers are equally decorative as border flowers, and the inflorescences are much in demand as cut blooms during the flowering season. The Poppy, or Garland Windflower, A. coronaria, in both double and single flowered varieties, is extremely effective, and much in evidence as a commercial flower in Covent Garden Market during spring. These plants are quite hardy and of simple cultivation, requiring similar treatment to the Ranunculus, with the exception that they may remain in the borders for three or more years undisturbed, but with an annual mulch, then lifted, cut up and replanted in autumn or spring as desired. The habit of the plants is all that could be desired. The foliage is of Fern-like appearance, and extremely decorative; when the plants are studded with their large double or single blossoms in all shades of colour, from white to deepest crimsons, and soft blues to dark purples, they form quite a unique picture. Being hardy, many are planted during autumn for spring flowering, and also in spring for summer flowering. The tubers being hard and dry, they are easily stored in a cool, dry shed, and may be planted in the open garden as the season approaches.

Anemone hortensis, or A. stellata, the starry Windflower of the Riviera, has single flowers, in the most diversified range of remarkable shades of brilliant colours.

The plant is of compact habit, has graceful foliage and is well adapted for the rockery. This Anemone should be planted in well drained, rather light soil in a somewhat shaded situation.

Anemone fulgens, the scarlet Windflower of the Pyrenees, is perhaps the most dazzling scarlet of all Windflowers, and certainly one of the most showy. It should occupy a position where colour is in request, whether in the borders or on the rockery. The tubers may be planted in autumn for spring flowering, and also in spring for summer flowering.

The variety graeca has much broader petals, and a conspicuous black central boss, which adds considerably to the general effect of the flower. It should be planted in well drained, rich soil in a sunny aspect. *W. Logan.*

THE ALPINE GARDEN.

OXALIS LOBATA.

THIS Wood-Sorrel is quite hardy but needs to be planted in a dry, stony, sunny place, with plenty of drainage in the soil. In such situations it will produce some of its golden flowers in summer, and a second crop will follow in late autumn, when its bright yellow flowers will be especially appreciated. I have had this plant in bloom on a sunny bit of rockwork well into October, and have stopped in passing, many a time, to enjoy the pretty leaves and bright flowers. It is a native of Chili, and grows only about one inch high. *S. Arnott.*

AETHIONEMA IBERIDEUM.

SEVERAL of the smaller Cruciferae are useful garden plants of value, especially for the rock garden, on account of their low stature. The genus Æthionema, which includes about forty species of low growing plants, is distinguished by its four large winged stamens, each with a tooth. They include herbs and sub-shrubs, and some are perennials and others annuals.

FIG. 87.—AETHIONEMA IBERIDEUM.

The inflorescences are terminal, and in most of the species form terminal racemes, but in the one illustrated in Fig. 87 the flowers are developed in scant clusters at the tips of the leafy shoots.

The majority of the species are well suited for dry, sunny positions in the rock garden, and the best known members of the family are Æ. grandiflorum; Æ. cordifolium, Æ. pulchellum, Æ. rubescens and Æ. speciosum, but there are others of merit, including Æ. amoenum and Æ. iberideum, all of which are worthy of inclusion in collections of alpines.

Æ. iberideum forms a neat, compact plant with erect stems some six inches or so high, bearing glaucous grey foliage and heads of white flowers, which are relatively large for the genus. This plant is a native of the Levantine Alps, and is sometimes known in cultivation as Æ. brachystachyum. All the perennial species of Æthionema may be increased easily by means of cuttings inserted in the summer after the flowers are over. Damp is a great enemy of these plants, for which reason it is necessary to plant them in thoroughly well drained soil.

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The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Cattleya and Laelio-Cattleya.—Plants of these Orchids which produced their flowers during the late autumn and have enjoyed a considerable period of rest are showing signs of renewed activity and developing new roots. Any plants in need of fresh material may receive attention, for the present time is the most favourable of the whole year for repotting them. C. labiata, C. Gaskelliana, C. Percivaliana, C. Trianae, C. Dowiana, and at a later period C. Schröderae, are the principal species which will need attention first. Amongst the hybrids there are many that produce their flowers during the winter, and, like those mentioned above, start on their new cycle of growth at this season. Vigorous plants that only require potting on account of the small size of the pot should be carefully taken out of the receptacle, cleansed thoroughly, have old leafless pseudo-bulbs removed, the decomposed material carefully picked out, and then be placed in the smallest receptacles that will accommodate them. Plants showing signs of deterioration should be carefully taken apart and placed in the smallest pots possible. In most cases the deterioration of the plants will be found to have been caused by the loss of roots either from too little or too much water, the cause and effect in both cases being the same

Potting Cattleyas and Laelio-Cattleyas.—There is great diversity as regards the rooting propensities of the different species and members of these families of Orchids. Some make large and strong roots, whilst others have more wiry and smaller ones; the former are generally strong and robust growers, whilst the latter are amongst those which are often regarded as difficult to manage. These weaker growers should always be given slightly more drainage than those of a more robust nature, and the grower must decide plant by plant, according to its individuality, how much drainage material is needed. Strong, healthy plants, under proper treatment, should not require potting again for at least two years, hence the necessity of the work and the material being of the best. A suitable compost for these plants consists of equal parts Osmunda and A1 fibre, mixed with a small quantity of Spaghnum moss, all thoroughly cleaned, and used in as rough a state as possible. The plants should be potted firmly, as when potted loosely the compost will soon decay, and with it the roots, this in most cases being the cause of the plants deteriorating. Water should be applied to the fresh material with extreme care until the new roots are established in the compost, but frequent dampings between the pots will be of great assistance in giving them a good start. With the increasing temperature, the house in which these plants are grown should have air admitted on all favourable occasions.

THE HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Mulching.—All fruit plantations, whether of top or ground fruits, should be well hoed, leaving a fine tilth of soil under the trees or bushes. The drier parts of the garden should then receive a mulching of decayed manure. If this it not obtainable, straw, or material from a spent Mushroom bed will serve. The main object of mulching is to prevent the loss of ground moisture by evaporation.

Peaches and Apricots.—Trees of these fruits in Peach cases should be carefully attended to. See that the soil at the base of the walls is not dry or red spider will soon affect the trees. Insect pests will the more readily attack trees that have become sickly from whatever cause. Some indication of the amount of the Apricot crop will now be seen. As the fruits swell, they should be thinned at intervals. The mulching of trees under glass should be done with well-prepared animal manure.

Espalier Trees.—The extension of these trees by training succeeding tiers should be carefully attended to. Buds suitable for developing into branches for the purpose, and seemingly dormant, may be forced into growth by notching the stem above them to prevent the sap passing through too freely. In training these trees particular care should be taken that the ties are made loose enough for the stems to swell. Suppression of buds may be made where there is a tendency for them to become too numerous.

Coral Spot Disease.—Those who find a prevalence of this fungus on their trees should immediately cut off the affected shoots, and burn them. It will be found principally on Gooseberries and Currants. "Die back" disease may also be present on these fruits; both these diseases have been common on Japanese Maples during the past season. Any arrears of spraying should be completed before the Apple blossom opens. At present there is a promise of a good Apple crop, and every care should be taken that the trees do not suffer through want of nourishment. Hoeing, followed by mulching, on light soils, is a very necessary detail of work

General Remarks.—The hoe should be used continuously, not so much for destroying weeds as for conserving the moisture in the soil. Plums are promising well for fruit, and the artificial pollination of shy setters should be carefully attended to. As soon as the fruits have set and danger from frost is over, the protective material should be removed, to allow free growth of the shoots. The netting may be required in the case of certain Apple and Pear trees to protect the blossoms from damage by birds.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Veronica speciosa.—There are many fine named varieties of this Veronica, which are useful for the decoration of the conservatory during the late autumn and early winter. Cuttings rooted at this time will flower in 48-sized pots during the autumn; if grown on a second year they make fine, large specimens. The plants are best grown in cold frames, or they may be stood out-of-doors during the summer.

Medinilla magnifica.—This handsome stove shrub, which has been in flower for sometime, may be propagated easily at this season by means of the smaller, half-ripened side shoots. Insert the cuttings singly in small pots containing light, sandy soil, and plunge them in a warm propagating case. The young plants should be potted on as they require increased room, and in time they will make large specimens in big pots or tubs. They succeed best in a compost consisting of fibrous peat, leaf-mould and light loam, with enough clean coarse sand to render the whole porous. This Medinilla requires stove temperature at all times, with plenty of atmospheric moisture; and when well established, enjoys ample supplies of water at the roots.

Psoralea affinis (syn. P. pinnata).—This South African Leguminous shrub or small tree is a very handsome subject for the conservatory, where it may be planted out; or good specimens may be grown in pots, as small plants flower freely. It may be propagated at this season by means of twiggy, half-ripened shoots, inserting the cuttings in pots of sandy soil, and plunging them in a case with slight bottom heat. It is by no means an easy plant to propagate, but cuttings taken from pot-grown plants are more likely to succeed than those from strong plants that are planted out: this is also the case with many other plants that are somewhat difficult to propagate.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Broad Beans.—Plants of Broad Beans raised in boxes under glass may be transferred to the open ground, choosing a sunny and sheltered position for planting them. Set them in double rows nine inches apart, and allow a foot between each plant in the rows. When they are planted, fork the ground up lightly around them. Make another sowing in boxes, and raise the seedlings in a cold frame; towards the end of the present month, make a good sowing outdoors in a well-manured piece of ground. When the plants have nearly completed their growth, pinch out the tops and stake them. If black fly appears, syringe the plants late in the afternoon with Quassia extract well diluted with soft water. If slugs are troublesome, place a ring of sifted coal ashes around each plant.

Carrots.—The main crop of Carrots may now be sown on deeply dug land which has not been recently manured. Carrots delight in a sandy, porous soil, and soil of this nature should be selected so far as is possible. If the soil is of a heavy texture, make holes with a crowbar and fill them with fine soil. Sow a few seeds at each station, as in the case of Parsnips. At the same time, make sowings of the French Horn and stump-rooted varieties to obtain roots for use during the summer and autumn.

French Beans.—Sow seeds of French Beans in five-inch pots, and raise the seedlings in warmth for planting out later in cold frames. The plants will give a profitable return much in advance of the outdoor ones. Towards the end of the present month sowings may be made on the ridges between Celery trenches, placing the seed about three inches deep and fifteen inches apart. Draw a little soil up to the seedlings when they are well through the ground.

Peas.—Continue to plant out seedling Peas raised in boxes, choosing a south border or other warm position. Plant in double rows made nine inches apart, and allow three or four inches from plant to plant in the row. Stake the rows as soon as the plants are set. The succeeding rows should be three or four feet apart, and intercropped with Spinach or Turnips. Make two or three more sowings of Marrowfat varieties during the present month in other positions. Guard against mice, and stake the plants as soon as they can be seen. Fork the ground to present a neat and tidy appearance.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Pot Vines.—The berries on pot Vines are swelling for the final time and will soon show signs of colouring. A moderately dry atmosphere should be maintained, and plenty of air admitted during the day, also a little during the night. Increase the amount of ventilation early in the morning as the sun gains power. Watering at this stage requires careful attention. The berries of Black Hamburgh, after they commence to colour, should rapidly assume a bluish-black hue, which denotes perfect finish and rich flavour. Berries that require a considerable time to colour are usually deficient in this respect, and in flavour also. In doubtful cases of this kind an application of sulphate of ammonia often has a good effect: this chemical is rapid in its action and should be used carefully or more harm than good may result. If used at the rate of half an ounce to a gallon of water, and applied at intervals of eight to ten days, it will promote a good colour in the foliage and berries. The night temperature should range about 65°, allowing 10° rise on dull days. In sunny weather the temperature may be allowed to rise to 80°, or more with plenty of ventilation. When the Grapes are ripe the use of stimulants should cease, and water should be given less frequently, but not so little as to cause the foliage to suffer.

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Planting Vines.—Assuming that the Vine border has been made in readiness for planting, the present time is suitable for setting out new Vines. If one-year-old or two-year-old plants are to be used—for preference choose the former—they should be turned out of the pot, and have the ball of roots immersed in a tub of tepid water. Shake out the soil and carefully disentangle the roots, to permit of them being spread out evenly, and work some moderately fine soil about them. Do not plant deeply, as surface roots may be fed and nourished better than those which are planted deeply. The border for the first year need not be more than three feet wide, but it is advisable to make the drainage of the whole border at one time, remembering that the drainage for Vine roots needs to be perfect. Young Vines raised from eyes this spring may be used, as these will now be making rapid growth. They will require careful handling in order not to disturb the roots, which are naturally very tender at this early stage. If young plants of this season's growth are used, the house must of necessity be kept close and warm, but if cut-backs are to be planted they may be grown along steadily, damping the house down and spraying the vines at closing time, early in the afternoon, more or less, according to the weather.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Corydalis bulbosa.—This compact-growing plant, about 6 inches high, does well here, making a good front-border subject in itself, but rendered more effective when early flowering Daffodils are interspersed between the purplish-lilac clumps. At the end of March both subjects were almost in full flower—so they will have passed out of bloom sufficiently early for some later flowering plants to be set over them. This bulbous Fumitory is a good carpeter for a shrubbery, as it flowers before the shrubs are clothed with foliage, and if the roots are planted deeply no customary treatment of a shrub bed will hurt them.

Ribes aureum.—Plants of the yellow-flowering Currant are rarely seen in gardens compared with those of the well-known red kind. Yet the former is as easy to manage as Ribes sanguineum, and it is a little later coming into flower than the red.

Planting.—Though March was a mild month heavy rains have hindered planting, particularly of small subjects. I refer to such plants as Carnations, Canterbury Bells, Geums, Sweet Williams and such like—the planting of which should now be hastened as speedily as possible to give them the opportunity of becoming established before hot weather tries them. Directly these are set out it will be necessary to deal with the autumn-rooted Pentstemons in cold frames. Any last-year plants of the latter left standing in the border through the winter, and still healthy, will be the better for being cut down to within three or four inches of their base. This treatment will result in a bushy habit and size of plant unequalled by those one year old from cuttings. It is, however, in mild winters only that this plant persists healthily through the winter unless the soil is on the light side—hence the need of rooting cuttings annually. Verbena venosa is another subject we have wintered in a cold frame, and are now replanting—it is one of the best of border plants. The old root-stocks had been simply heeled in the frame to keep them dry, because in wet winters a portion of them has a tendency to rot in our heavy soil. Rooted cuttings of this plant will be also planted forthwith.

Hypericum calycinum.—This shrubby plant, popularly known as St. John's Wort and The Rose of Sharon, may be cut back wherever it shows itself to be too aggressive or has become shabby. It does well near trees in partial shade, or in the flower border.

FIG. 88.—THE VEITCH MEMORIAL MEDAL (ACTUAL SIZE).

VEITCH MEMORIAL MEDAL.

MR. JAMES VEITCH was born on May 24, 1815, in the neighbourhood of Exeter, where his grandfather and his father were at that time carrying on a nursery business. When about eighteen years of age, he was sent to London for the purpose of gaining such experience as could only be obtained in those days in a London establishment. He served for one year in the nursery of Mr. Chandler, of Vauxhall, and another year in Messrs. Rollinson's nursery at Tooting. Returning to Exeter and impelled by new ideas, he devoted his energies to the extension of the Exeter establishment, and was mainly responsible for making it into one of the finest nurseries of the times. By means of Orchids purchased from Messrs. Rollison, he founded the collection for which the Veitchian establishments were famous for a long number of years. It will be remembered that the Exeter firm introduced large numbers of new plants, notably trees and shrubs, through their collectors, the brothers Lobb, and it was about this period, in 1853, while still a partner in the Exeter nursery, that Mr. James Veitch came to London and took possession of the nurseries established by Messrs. Knight and Perry, at Chelsea. These he entirely remodelled and so made possible the gigantic business of Messrs. James Veitch and Sons, famous the world over. By virtue of his skill as a cultivator, his genius as an organiser, his enterprise in sending out collectors to various parts of the world, and his generosity in regard to horticultural and other charities, Mr. James Veitch reached a very high position in the world, therefore it was small wonder that when he died on the 10th September, 1869, the horticultural community desired to raise a memorial to his memory. A committee was appointed under the chairmanship of Mr. James Bateman, with Mr. T. Moore as Secretary. Numerous meetings were held, mostly in the Council Room of the Royal Horticultural Society at South Kensington, and various proposals were put forward, such as a Veitch Club, a Veitch plantation, Veitch almshouses, a Veitch pension for disabled collectors, a Veitch portrait, a Veitch medal, Veitch prizes, and a Veitch pension for aged gardeners, all of which were duly considered. A well-attended meeting of subscribers was held on October 21, 1870, when Mr. T. Moore presented a report, which showed that the subscriptions to the Veitch Memorial Fund had reached the sum of £1,012 12s. 9d. Advertising, printing and postages cost £121 14s. 5d., leaving £890 18s. 4d. to be expended on the special object for which the fund was raised. In this report the committee recommended that the proposals to obtain a portrait of Mr. James Veitch and to establish certain Veitch prizes should be definitely adopted. Fortunately, the committee was also able to report that a very excellent likeness of Mr. James Veitch, painted expressly to meet the object of the movement, had been presented by Robert Crawshay, Esq., of Cyfartha Castle—a portrait which hangs at the present day in the offices of the Royal Horticultural Society, Westminster. The meeting agreed that the sum of £890 18s. 4d. should be invested in the names of trustees to whom should be left the charge of working out the various details, and it was suggested that in order to obtain a die for the commemoration medal, the trustees be authorised to use the interest first accruing to them from the capital sum. Mr. G. F. Wilson (treasurer), Mr. T. Moore (secretary), Mr. (now Sir) Harry J. Veitch, Dr. Robert Hogg, Mr. Zadok Stevens, Mr. Wm. Thompson and Mr. David Moore were appointed trustees. The Veitch Memorial Medal thus instituted was first awarded at the provincial show of the Royal Horticultural Society at Bath, June 24, 1873. The latest recipients of this handsome medal commemorating a famous horticulturist are Mr. W. J. Bean, the Curator of the Botanic Gardens, Kew, and the author of *Trees and Shrubs Hardy in the British Isles*, and Mr. Lloyd Praeger for his work on Sedums, and to assist him in his proposed work on Sempervivums, for in both cases a sum of £50 was given as well as the medal. The Veitch Memorial Trust is now vested in the Council of the R.H.S.

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BOG OAK TIMBER.

Irish bog Oak is known the world over for its rich, dark colour, beauty of graining and remarkable lasting properties. Owing to the action of the bog in which it is found embedded, the timber is usually of a jet black or dark brown colour, and when cut up and planed presents a wonderfully smooth surface that is susceptible of a silky polish. It is extremely hard and difficult to work, requiring the strongest and sharpest tools for its manipulation, and, partly owing to the antiseptic properties of the peat, is almost indestructible.

The drying and seasoning of bog Oak is a difficult and risky operation, for it is well known to dealers in this timber, that, after being removed from the damp bog, great care and a considerable length of time are required in the drying process, as on exposure to alternate rain and sunshine it will become cracked and shattered from end to end.

Some of this timber that I examined recently was dug out of the bog in pre-war days, and very carefully exposed to the drying influence of the atmosphere under cover in a builder's yard, where the outer wood, which is usually soft and worthless for constructive purposes, was cut away. After being stored for three years the logs were sawn into boards of the required dimensions. Seasoning and thoroughly drying the boards occupied another two years, so that from the time the trees were dug out of the bog until the timber was converted into articles of furniture, a period of nearly seven years elapsed.

Considerable quantities of bog Oak from Ireland have been sent to various parts of the Continent and to America, and it is well known that at an early date, long before foreign timber arrived in this country, some of the finest butts were sent to London in connection with the internal fittings of ecclesiastical buildings. Pulpits, choir stalls, figures and panellings were sometimes all of Oak, beautifully designed and richly carved. It is regrettable, however, to know that some of these early fittings were removed at a later date and foreign timbers substituted, and many of the choicer pieces of furniture that we have to-day were constructed of discarded church panellings, which will account for so many of these being carved with biblical designs. A suite of furniture of bog Oak sold recently included a side-board which was of massive construction and measured 12 feet in length by fully 9 feet high; it was richly carved in figures that represented the twelve apostles. A writing table, dinner wagon and set of chairs of the same design were all of jet black Oak with faultless workmanship. From a history that has been preserved by the family of the person for whom this furniture was specially made, it would appear that the timber was brought from near the shores of Lough Neagh, in Ulster, in short baulks, and converted by a London firm of cabinet-makers. That the timber was brought from the neighbourhood of Lough Neagh can be readily understood, as some of the largest logs that I have seen were dug out of the marshy lands on the banks of the River Blackwater, about three miles from where its waters enter the lake. One log that I saw unearthed from a depth of four feet was 35 feet long and 33 inches in diameter: others were at a depth of 5 feet, and occasionally at as much as 8 feet from the surface.

Both in the United States and Canada bog Oak furniture and panellings are greatly admired, but in its native country it is little valued, and numbers of tree stems may be seem lying about where they were removed from the bogs in reclaiming and cultivating the ground, and the Oak may often be had for the cost of removal.

Trinkets, toys and souvenirs are made by the Irish peasantry from bog Oak, and offered for sale at the principal tourist resorts. The bog Oak industry is, however, of quite modern origin, having been introduced by the Lord Lieutenant of Ireland in 1840. Samples of beautiful design and workmanship were sent to the exhibition of 1851, and brought to the notice of Queen Victoria and her illustrious consort.

Most of the ancient coracles and boats that have been found in Ireland are hewn out of a single piece of Oak, and one of the latter that I saw unearthed at Maghery, where the Blackwater joins Lough Neagh, was of unusual size. The wood was in an almost perfect state of preservation when the boat in its entirety was exhibited in the yard of the adjoining inn, but soon began to split and crumble on exposure to light and air. A perfect specimen of the coracle was found in a bog near Dungannon, in Co. Tyrone, a picture of which appeared in *Country Life*, July 28, 1917.

I have sometimes wondered why bog Oak, which is so plentiful in many parts of Ireland, is not more extensively employed for various constructive works than is at present the case. Doubtless the chief drawbacks are that the logs are expensive to dig out of the bog, difficult to work, and being short-grained and somewhat brittle it is not readily split for fencing or other farm purposes. In house-building it is largely employed for beams and purlins. For firewood the stems are sometimes split up and seasoned where they were dug out, but the resin-stained wood of the Scots Fir is preferred, and after being cut into suitable sizes is sold for fire-lighting in the neighbouring towns and villages. Up to the introduction of Mahogany in 1710, most of the better types of furniture were made of Oak or Walnut; indeed, until about the end of the seventeenth century our houses, ships and furniture were mainly constructed of Oak, and there are still examples of this wood in a perfectly sound condition after being in use for over seven hundred years. It is to be hoped that with the revival in trade and desire for the most beautiful and lasting of our native woods in the cabinet-making industry, bog Oak timber will be more extensively employed than has been the case for some time since. *A. D. Webster.*

ORNAMENTAL GOURDS.

These curious plants, members of the family Cucurbitaceae, are well worth growing on arbours or trellises, and the elegance and singularity of their fruits, combined with their handsome colouring when ripe, make them objects of great interest during the summer months. Owing to their rapid growth and highly ornamental character they are also very useful for covering bare surfaces with foliage.

Gourds are not very exacting in their requirements, but prefer a fairly light, rich soil with abundance of moisture. Seeds should be sown in pots in gentle heat in April, and as soon as germination takes place the seedling should be grown on, under as cool conditions as possible, to prepare them for planting out at the end of May or beginning of June.

The number of varieties is almost unlimited, and as they cross freely with each other new ones are constantly appearing. Although some of the larger fruiting sorts are very handsome they are sometimes more difficult to manage, as the plants are unable to carry the heavy fruits without artificial support. It is usually advisable to grow the smaller fruiting kinds, one of the most common forms of which is of elongated shape with an ovoid swelling at the end, and generally known as the Pear Gourd.

The fruits of the varieties differ considerably from one another in colour. Some have a clear, smooth skin, entirely white, others are dark green with longitudinal bands of either white or a much paler green; in some fruits one half is yellow and the other half a uniform green, and in still others the green colour only forms a ring of greater or less width round it instead of covering half the fruit. These different variegations may also be found combined with one another in several ways, thus giving rise to infinite variety in colouring.

The Apple Gourd has nearly spherical fruit, somewhat flattened at the ends and a smooth, entirely white skin, while the Orange Gourd has fruit almost exactly resembling a ripe Orange in size and colour.

The white-striped, flat Gourd is a very vigorous grower, with rather large leaves and much flattened fruits, striped or marbled with various shades of green. The Egg Gourd, bearing white fruits of the shape and size of a hen's egg, is also a very vigorous grower. The warty-skinned Gourd is not nearly so vigorous in growth as the foregoing, the rather thick stems seldom exceeding six feet in length. The fruit is usually spherical and the skin entirely covered with numerous excrescences of variable colour, sometimes green, but usually orange or white. *W. Auton, Pyrford Court Gardens.*

GARDEN NOTES FROM S.W. SCOTLAND.

In the whole round of gardening there is no greater gamble than the cultivation of Asiatic Rhododendrons in the British climate—even on the west coast. The temperature of a single night may suffice to blast the fond anticipation of a whole season. In the past winter—the mildest in my recollection—the plants had not suffered the slightest check; but on March 24 the sun rose upon a very wintry scene. Surveying the lawn thickly sheeted with hoar-frost under a cloudless sky, I mused gloomily, while shaving, on the ruin that must have been brought on the blossom that made garden and woodland so gay. All the finery I expected to find turned to ashes, nor did I derive any comfort from the bush first inspected—R. barbatum, 10 feet high, set with some two hundred trusses. Every flower in these trusses was broidered with rime, enhancing their beauty; but wait, methought, till the sun gets at you: a fine mess you will be in then!

I was wrong. It really was a very instructive morning, showing the relative endurance of the flower of different species, and illustrating the limitations of a ground frost. A thermometer fixed about four feet above the grass registered only three degrees of frost; but the cold had been much more severe at one foot, as was apparent on another R. barbatum which carried some expanded trusses close to the ground. In the afternoon, when the frost had gone, these lower trusses were blackened and destroyed, whereas all those higher up were unblemished.

I next visited three Chinese species which were in full bloom, viz., R. haematocheilon, R. Fargesii and R. oreodoxa, and was pleased to find them quite uninjured. So were the Indian R. campanulatum and R. Thomsonii, the latter of which I have never seen so loaded with blossom as in this season, and several of Gill's hybrids of that species. The only Rhododendrons that suffered disfigurement in this March frost were R. arboreum (only one plant happened to be in flower), whereof the trusses were quite disfigured, and R. ciliatum, which suffered discoloration. The advantage of these two species is that there are early and later flowering strains of each, and the display is now being carried on by the later ones. We have still to get through April, with its fateful "borrowing days," which so often prove deadly to the young growth of Rhododendrons. If that gets frosted, the blossom of the following season is compromised. I may add that I never gossip about Rhododendrons without wishing that we had possessed the sense to follow American example in substituting for that cumbrous polysyllable the useful English name of "Rosebay."

It is useful to note chance combination of colours. Among the most effective contrasts to-day (April 3) is that presented by Narcissus Johnstoni var. Queen of Spain, alongside a broad plot of the pale lavender Aubrietia graeca: this beautiful Daffodil, said to be a natural Portuguese hybrid between N. bicolor and N. triandrus, differs from all others of the genus in the luminous quality of its chrome-yellow perianth—the Greek Aubrietia holds its own well among the many more highly coloured garden forms, and excels them all, I think, in habit of growth.

Another very satisfying effect may be secured by allowing Anemone fulgens to rear its flaming scarlet rays alongside and mixed with Muscari conicum, usually known as "Heavenly Blue"; and a third arrangement to which each succeeding season adds richness consists of an inner

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band of Narcissus minor, with an outer one of Scilla siberica, round a circular bed filled with other things. In planting the error should be avoided into which we have fallen, namely, of not making the double band broad enough. It ought to be at least two feet broad, and three feet would be better, for these bulbs increase very fast. *Herbert Maxwell, Monreith.*

NOTES FROM GLASNEVIN

The weather during March was, on the whole, drier and brighter than in February, consequently there was an improvement in the general appearance of the Glasnevin Gardens. Many interesting trees and shrubs came into flower, and among them the various species of Prunus were noticeable. Prunus dasycarpum, the so-called Black Apricot, was early in bloom, and appears to be uncommon in gardens. It is certainly worthy of cultivation, as the flowers are produced in abundance; they are pure white, of good substance and well displayed against the dark brown shoots. Prunus Mira, one of Mr. Wilson's introductions, blossomed soon after, and promises to be a useful, early-flowering species. The flowers are not large, pale pink in colour, produced on wood of the previous year as well as on spurs, as in other Peaches. It has not the decorative value of some of the fine forms of Prunus persica, but, here at least, is much hardier. The purple-leaved variety of the Sloe is a useful small tree throughout the season. It is now, at the end of March, in full flower, coming in succession to P. cerasifera purpurea which is passing, and throughout the summer and autumn the foliage is attractive. The beautiful Prunus tomentosa is fast opening its flowers, and if lucky enough to escape frost it should make a good display in early April. It is a low-growing species, densely twiggy, the branches pendulous and spreading, so that the bush is as broad as it is tall, and when covered with white flowers makes a wonderful display.

A bush of Ceanothus rigidus, 6 ft. high and as much through, is now a mass of blue flowers, which show up well among the small, toothed leaves. The Warley variety, close by, is flowering quite as freely, and promises eventually to be of equal size. Osmanthus Delavayi, now becoming well known, has been very fine this spring, although slightly browned by frost recently. It is a vigorous grower, and a specimen planted near the rockwork threatens to outgrow its position. Uncommon and botanically interesting rather than highly ornamental is Plagiospermum uniflorum, one of Mr. Purdom's introductions. A spiny bush forming a mass of rather slender twigs furnished in summer with narrow leaves, it bears its small-petalled, white flowers most freely on shoots of the previous season.

Rhododendrons in the open are represented now by R. emasculum, Hort., a R. dauricum hybrid having the peculiarity that the stamens never develop. R. hippophaeoides is a useful and pretty dwarf bush bearing clusters of almost blue flowers at the end of the twigs: while R. Augustinii is also showing the blue colour in the buds, but is not yet fully open. R. virgatum, a low, spreading species, bears comparatively large flowers in the axils of the leaves, after the manner of R. racemosum, but the flowers are larger and not so numerous. It is also somewhat similar to R. oleifolium, which flowers in the same way, and is just opening. Indoors, some old forms of R. arboreum are in full bloom, also R. Edgeworthii, R. albescens, R. albescens × chicalyx, R. Beauty of Tremough and R. Dalhousiae.

Tulip species are flowering well now, and the various forms of Tulip Kaufmanniana have been beautiful for some weeks. The form called T. Kaufmanniana intermedia is particularly pleasing, being rich yellow inside flushed with pink on the outer segments. T. Kaufmanniana coccinea is a particularly richly-coloured form, and, like the former, is scarce. T. Eichleri is very striking with its immense scarlet blooms, and makes a wonderful show on a sunny day. The following are also now in flower: T. pulchella, T. triphylla, a pretty dwarf yellow species, T. sylvestris, and T. praestans Tubergens' variety, while numerous others are in bud.

The quaint and not readily noticed flowers of Iris tuberosa have been appearing lately, and are not without charm in their combination of green and black. Fritillaria askabadensis, with its pendulous, creamy-white flowers, is more generally attractive, and makes an interesting and pretty group in a sheltered position.

Primulas such as P. denticulata and its varieties are now bright in the bog garden and moister parts of the rockery, while in other positions on the rockery there are good groups in flower of P. ciliata superba, P. pubescens alba, P. Fortunei, and P. frondosa. P. pulchelloides, P. Dubernardiana and P. redolens are flowering in the alpine house.

Orchids in flower or flowering recently include Chysis Chelsoni, Dendrobium Kingianum and D. K. album, D. aggregatum majus, Maxillaria variabilis, Masdevallia minutum, Angraecum fastulosum and Paphiopedilum barbatum Warnerianum. *J. W. Besant, Glasnevin.*

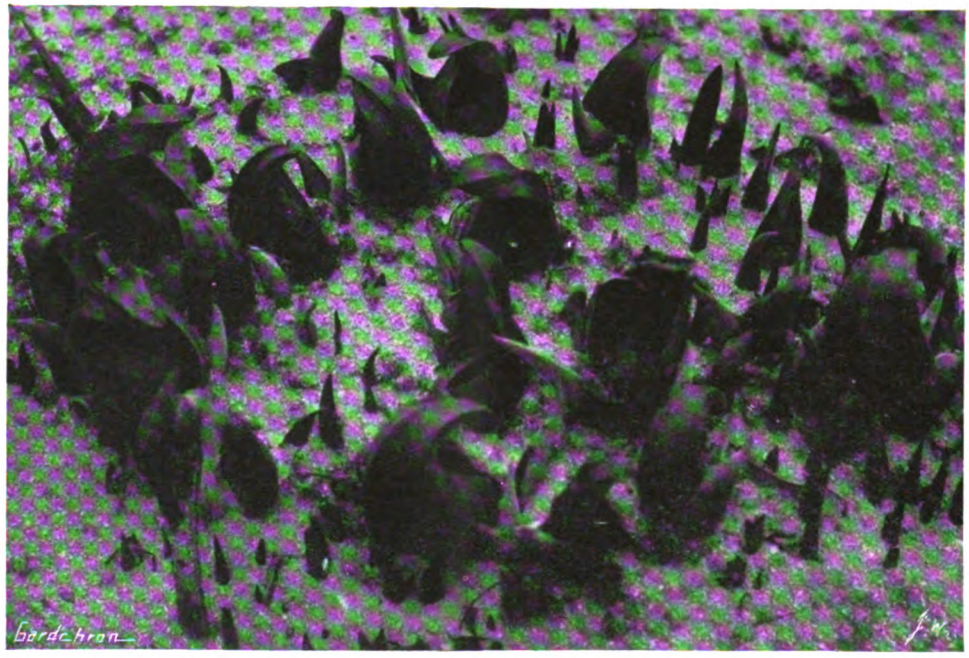

FIG. 89.—SYMPLOCARPUS FOETIDUS IN THE CAMBRIDGE BOTANIC GARDEN.

SYMPLOCARPUS FOETIDUS.

The family of Araceae provides us with a number of very interesting plants, among which may be included Symplocarpus foetidus, known as the Skunk Cabbage, or Skunk Weed. This is closely allied to Lysichitum and Orontium, each of which is monotypic and belongs to the same section or tribe known as Orontiaea, a group of Aroids having hermaphrodite flowers. The Skunk Weed may, perhaps, be considered more interesting or curious than beautiful, although the large handsome foliage has a somewhat tropical appearance. The plant has a thick, fleshy, tuberous, annulated root-stalk, branches of which bear the large foliage leaves one year, while the next year they produce flowers which are surrounded by large, membranaceous, sheath bracteas, and incipient leaves. The hooded, coriaceous spathes which appear in February remain fresh for some time and are from 3 to 6 inches high, borne on short peduncles, broadly ovate, acuminated, involuted both at the sides and at the extremity, and so singular in appearance that they might at first be taken for some kind of shell, rather than vegetation. The ground colour on the outside is yellow, but so spotted and blotched with blackish purple as to nearly obliterate the ground colour, while the inside is dark purple. The spathe surrounds a globose, short-peduncled spadix, about the size of a large Hazel nut, of a purplish tint; the upper part is entirely covered by flowers, which consist of a perianth of 4 erect scales, concave and depressed at the top, and so placed and shaped that their edges meet and form a square flower, through the centre of which the tips of the four bright yellow stamens and purplish style slightly protrude. The filaments are very short, while the broadly-ovate anthers with two cells which open longitudinally face the scale, so that the back is directed to the pyramidal style which is four-sided at the base, and terete above. The ovary is one loculed, with a solitary, suspended, anatropous ovule.

After the spathe decays the spadix continues to grow, and with it all parts of the flower except the anthers. The fruit develops into a large head of one-seeded berries, each one being about the size of a Pea seed, white, tinged with green and purple. The strong, bright green leaves are broadly cordate, petiolate, acute, with numerous branching veins which are prominent beneath a broad midrib; they are from one to three feet high and from eight to ten inches in width, the broad petioles being hollowed in front, sheathing at the base, and appearing in April and May, but they do not attain their full size until the spathe has decayed.

The name of Skunk Weed, or Skunk Cabbage, is derived from the foetid, or Skunk-like odour resembling that of the animal so named, and is given off from any part of the plant, but only when it is bruised.

Symplocarpus foetidus appears to have some medicinal properties, for in the *Treasury of Botany* the seeds are mentioned as useful for coughs, and Lindley, in the *Flora Medica*, states "the fleshy tubers are acrid, but when dried and powdered are anti-spasmodic, and an excellent remedy for Asthma, Catarrh and chronic cough. Also employed with success in histeric paroxysms, dropsy, rheumatism, and even epilepsy." But Dr. Bigelow states that it should be administered with caution, as he has observed it to cause vomiting even in a small quantity, and to produce headache, vertigo, and temporary blindness.

This interesting plant should be grown in a damp position; the illustration (Fig. 89) shows a clump growing in the water garden in the Botanic Garden, Cambridge. The species is a native of North America from Canada to Carolina, where it grows in the swampy meadows, and was introduced into this country in 1735. *F. G. Preston, Botanic Garden, Cambridge.*

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No. 4.—JOHN WHITE (1585—93).

DURING the numerous sea voyages undertaken by various nations in the fifteenth and sixteenth centuries, the employment of a cartographer and artist appears to have been general. Upon him rested the responsibility of providing pictorial evidence of the strange lands and peoples discovered; and his duties varied with the objects of the expedition. In the case of the artist who accompanied the now unknown originator of the *Herbarius zu Teutsch* (published in 1485) to the East, his chief duty was to portray plants in their natural forms and colours. Jacques Le Moyne tells us that his duties on the Florida Expedition were "to map the sea coast, and lay down the position of towns, the depth and course of rivers, and the harbours; and to represent also the dwellings of the natives, and whatever in the province might seem worthy of observation." He may have painted some of the plants of Florida; but De Bry, whose chief interest was in the natives, did not engrave any, and seldom did so in the *Grands Voyages*, even when he had the material at hand.

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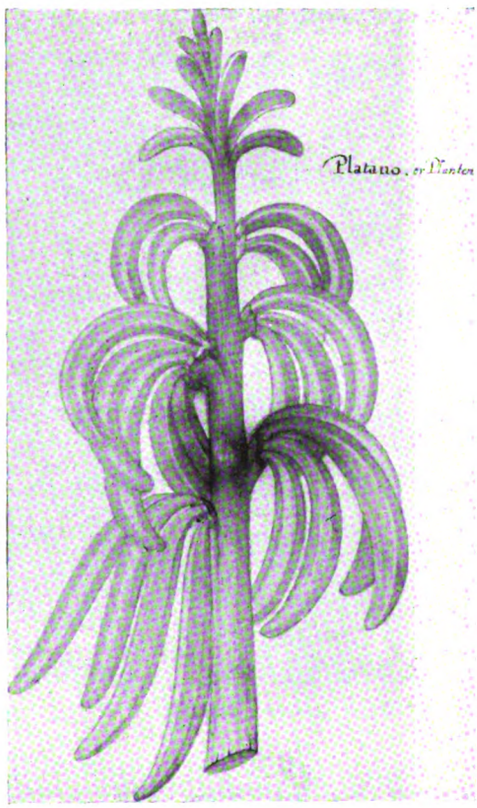

FIG. 90.—JOHN WHITE'S DRAWING OF THE BANANA OR PLANTAIN, MUSA SAPIENTUM, 1585-93.

Two MSS. in the Print Room of the British Museum contain some of the results of John White's work during the ten months' stay on Roanoke Island (1585-86). The first is the splendid Addit. MS. 5253, from which De Bry selected twenty-three paintings for his engravings in the first part of the *Grands Voyages*, 1590. The second (Sloane MS. 5270) is a curiously mixed collection, containing cruder duplicates of some of the paintings in the first MS., a number of contemporary paintings unconnected with the Virginia expedition, and a considerable number of mediocre paintings of English plants of about 1620 or later. The true relation between these two MSS. is still obscure. The studied finish of the first, in which silver and gold are used in some of the paintings, is, in my opinion, not what we should expect as the actual work of an artist in a far-off country; and White's return to America in 1587 would have prevented any very careful revision of his paintings. I am inclined to think that White's rough drafts (some of which may be those in the second MS.) were put into Le Moyne's hands to be worked up into better form; Le Moyne being in the service of Sir W. Raleigh at that time. Moreover, it is stated that De Bry obtained *copies* of White's paintings. However, in the absence of definite proofs, the paintings in the first MS. must be accepted as White's.

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These six botanic paintings occur about the middle of the MS.; and it is probable that those of the Banana and the Pineapple are the earliest surviving paintings of these fruits. The details of these interesting paintings are as follows:—(1) Asclepias sp. Milkweed. Inscribed "Wysauke. The hearbe wch the Sauages call Wysauke wherewth theie cure their wounds wch they receaue bv the poysoned arroes of theire enemves." This plant appeared in Gerard's *Herball*, 1597, Bk. 2, c. 334, with a woodcut evidently inspired by White's painting. He varied the name to "Wisanck," however, and from a reference made to Raleigh's colony it is evident that he wrote up this plant in 1586 or 1587, and did not correct his note when White returned about 1591 with the news that the whole colony had perished. (2) Sabbatia gracilis. A gentian. No inscription. (3) Musa sapientum. The Banana tree. (Fig. 90), and (4) a life-size study of the fruit (of a large reddish variety), which is shown also in cross-section. A. de Candolle, *Origin of Cultivated Plants*, 1886, devotes several pages to the question as to whether or not the Banana is indigenous to the New World; the evidence being in favour of its Asiatic origin and early introduction into America. (5) Mammea americana Mammee Apple. A single fruit, inscribed "Mammea." (6) Ananas sativa. The Pine-apple (Fig. 91). All the evidence is in favour of the Pineapple being of tropical American origin. However, those seen by White were no doubt in cultivation by the natives. It is surprising to find at how late a date the Pine-apple was actually brought to England. Under date, August 9, 1661, Evelyn records in his *Diary*, "I first saw the famous *Queen Pine* brought from Barbados and presented to his Majestie; but the first that were ever seen in England were those sent to Cromwell foure years since." To this, the editor, William Bray, added a footnote in 1818, "At Kensington Palace is a curious picture of King Charles receiving a Pineapple from his (?) gardener Mr. Rose, who is presenting it on his knees." But seven years later Evelyn again records seeing the fruit for the first time! He now called it "the *King-pine*, growing in Barbados and the West Indies," and described how the King handed him a piece to taste. He did not consider it very delicious, but preserved his prejudice by adding "possibly it might, or certainly was, much impair'd in coming so far"!

The absence of Gerard's "Potatoes of Virginia" in this MS. is significant, and confirms the now general opinion that he erred as to the place of origin.

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pressure for three weeks. The result was that in many cases perfect "off-sets" of the paintings were found on the interleaves; and only the most careful treatment has preserved both the originals and the "off-sets," now bound in separate volumes. *S. Savage.*

PUZZLES IN PLANT NAMES.

The fact of Black Currants being called Pepper by the French on account of the strings of fruit being like those of Piper longum recalls how our Currants were named on account of the individual fruits being somewhat like the small dried Grapes imported from Asia, and on that account named Corinths at first, and soon thereafter "Currans." It is only during recent years that the Scottish proletariat have used the English name, Red and White Currants having been usually named "Rizzers" from their partly dry and shrivelled appearance when dead ripe, while Black Currants were Blackberries.

But there is a vast number of curious names, the origin of which is involved in whole or partial obscurity. In Gerard's list of Old Names, and some of them are very old indeed, he gives Branke Ursine as the name for Cuthberdole and Cuthbertill, obviously the same word. Quite readily we would say the plant meant is Acanthus mollis, but even in those days they were given to alter the names of plants, and so when we go far enough back we find Cuthberdole to be a phonetic form of St. Cuthbert's Cole, and that another old name for it was Seadock and Hollyhock, the Althaea officinalis of botanists. And we all are aware how about 350 years ago Hollyhock was transferred to a novel plant which, among its other names, had that of Beyond-Sea-Roses, and this, 150 years later, we find changed from a French extraction into Rose Tremière, though nobody thinks of calling it now anything else but Hollyhock. The French, indeed, had quite a fair number of plants bearing names due to changing from one language to another; these are often curious enough, and sometimes puzzling to those who meet with them. But as Latin equivalents are not wanting in most cases, a fair guess may be made. There is the remarkable Tatesoriz or Tecesorite, a very old name for Sedum album, and equivalent to the true English Museballok and Musecode. It is corrupted from the French *Teste de souris*, and it is curious that *Teste* has been confounded by some with *Tête*, and the meaning thence supposed to be Mousehead, which the old Latin name of Testiculus muris shows to be wrong, as would be confirmed by a glance at a leaf.

The Scot sometimes stole a name from France to the bewildering of his southern neighbour. Such a one is Aippleringie, a common Scots name for Southernwood, that aromatic sub-shrub of which most wives of working men conveyed a sprig to church with unfailing regularity. We have to go further back than the French *Aurone*, even to *Aueroigne*, which through Scots Averoine and other changes was stabilised at last as Aippleringie. The root is, of course, the Latin Abrotanum. There is an instance of a plant having an English and a Scots name of a similar meaning in Veronica Beccabunga, and both derived from an Anglo-Saxon source apparently, but not essentially different. The English is the well-known Brooklime, the Scots Wellink. The former we are able to trace for centuries through remarkable variations till in the 16th it occurs as Broclem, the first syllable being obvious, and the latter a contracted form of leomeke. The Scots "Well" again corresponds to the "Brook" of England, and (l)ink to lime, though it is a shade nearer the original. It is well known that some of our poets refer to plants in a language not always easy to translate. There is one reference which, clear as Tennyson usually is has not, I think, ever been satisfactorily worked out. A well-known writer attributes red and purple Tulips as proper:—

"My dust would hear her and beat,
Had I lain for a century dead;
Would start and tremble under her feet,
And blossom in purple and red."

I sometimes wonder if the poet had in his subconscious mind the lines of Clare

"Fumitory—
Whose red and purple mottled flowers
Are cropped by maids in weeding hours."

How flowers receive names is well illustrated by the following relation: Last year a correspondent in Alberta described to me some of the prairie flowers of that province, among them one of varying colours and very common, which she called the Prairie Crocus. The name aroused my curiosity, and I asked for seeds, which were forthcoming in the past winter together with a shrivelled flower, an Anemone obviously, and if not Pulsatilla a species nearly related. Here is another instance:—

Last year I had some correspondence regarding the identity of a flower worn round the necks of girls on the occasion of special merry makings in one if not more Border towns. It was called Rararae from a doggerel rhyme that the wearers

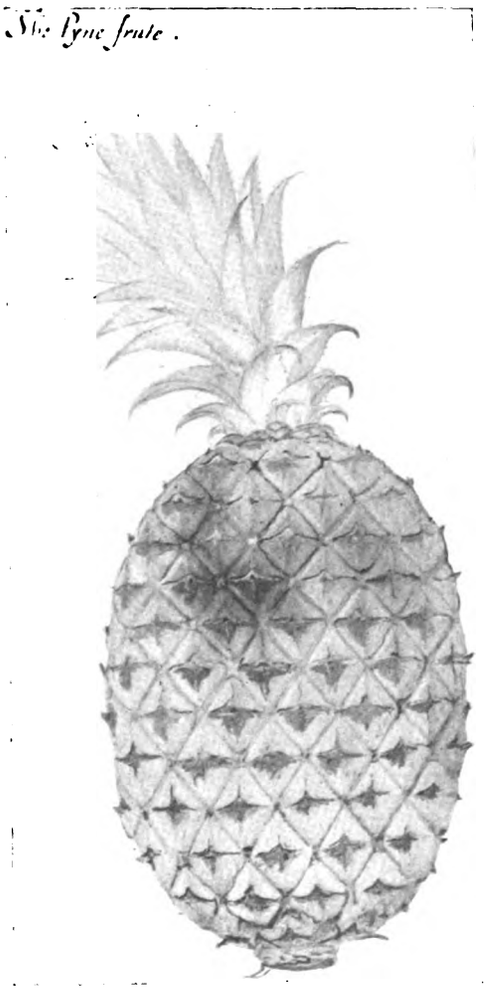

FIG. 91.—JOHN WHITE'S DRAWING OF THE PINEAPPLE, ANANAS SATIVA, 1585-93. (SEE PAGE 200.)

sang "Rararae, the nicht afore the fair," etc. The plant was identified as Ægopodium Podagraria, and it was ultimately explained that the flowers were tied on strings and so worn. This is an example of quite a local name, the origin of which will no doubt be forgotten ere long.

But sometimes a name is perpetuated by some abiding memorial. Of such, a plantation here affords a ridiculous example. When it was being planted Pinus austriaca formed the chief part of the trees, and the foreman forester, when he required one of these, called out for a "Pennystraiky," and such is the designation that particular spot bears to this day! Few, if any, know why it is so-called, and certainly the reason cannot much longer be remembered.

Those acquainted with the bygone literature of gardening know how easy it is to make mistakes in identifying plants by the names given, or finding philological reason for a name, and some of these, when pointed out, the author fails to correct. First and last, all the mistakes in Miss Amherst's *History of Gardening in England* have been indicated, but the mistakes have been perpetuated in every edition. There is Carsyndyllys, clearly two names, which the authoress thinks is Cress and Lily, instead of Dill for the latter—Ceterwort (Helleborus foetidus) is there Ceterach; Scalaceh (Convallaria Polygonatum) is Sinapis arvensis. These however are not so amusing as the mistakes made by older generations of writers who attempted to supply meanings to plant names, but of these one may be silent at present. *R. P. Brotherston.*

ORCHID NOTES AND GLEANINGS.

CATTLEYA STUARTII ALBA.

One of the best forms of the C. labiata section obtained by crossing C. Mendelii Queen Mary and C. Mossiae Queen Mary, both famous white varieties, is sent by Messrs. Flory and Black, Slough. The two-flowered inflorescence has finely formed blooms each nearly seven inches across, possessing very broad, pure white sepals and petals, and a large crimped, white lip with a broad band of reddish purple colour in front of the yellow disc. It is a charming blending of the two favourite species used in its production, the labellum showing the colouring of both parents, although that of C. Mendelii is most evident.

LAELIO-CATTLEYA NARCISSUS.

Messrs. Flory and Black send this new cross between L.-C. G. S. Ball (C. Schröderae × L. cinnabarina) and L.-C. Mercia C. Schröderae × L. flava), a very pretty flower in which the clear yellow of L. flava fixes the colour, the red tint of L. cinnabarina not appearing, although the crimped lip shows the influence of that species. The whole flower is buttercup-yellow, with the soft white ground giving lighter shades on the bases of the petals and lip.

INDOOR PLANTS.

CANNA.

The interesting article on Cannas, by Mr. John Heal (p. 171), should serve to draw the attention of growers to a valuable class of plants which seem to be neglected nowadays. The plants should now be in their flowering pots, which should be of six inches or seven inches in diameter. The growths should be restricted to one strong shoot. Where large specimens are required several plants should be placed in a twelve-inch pot, or dry roots that are just starting into growth may be used for this purpose. As Cannas are gross feeders, a rich compost is necessary; some dried cow dung or material from an old Mushroom bed should be added to the compost. When growing freely ample supplies of water and high feeding are necessary. Large specimens are very useful in the conservatory, as they will continue flowering until Chrysanthemums take their place in the autumn.

TECOMA ALATA (SYN. T. SMITHII).

This is a very useful plant for autumn and winter flowering, and may be readily propagated by means of cuttings inserted at this time. If large flower heads are required the growths should be restricted to a single stem; if bushy specimens are desired the plants should be stopped once and several shoots allowed to develop. The young plants should be potted on, as they require more room, until they are in six-inch pots, in which size they should be flowered. They require perfectly cool treatment; in fact, it is an advantage to stand them out-of-doors during the summer. Whenever the flower buds show, lateral growths usually develop below them: such growths should be rubbed out, for if allowed to develop the flower buds will soon drop. *J.*

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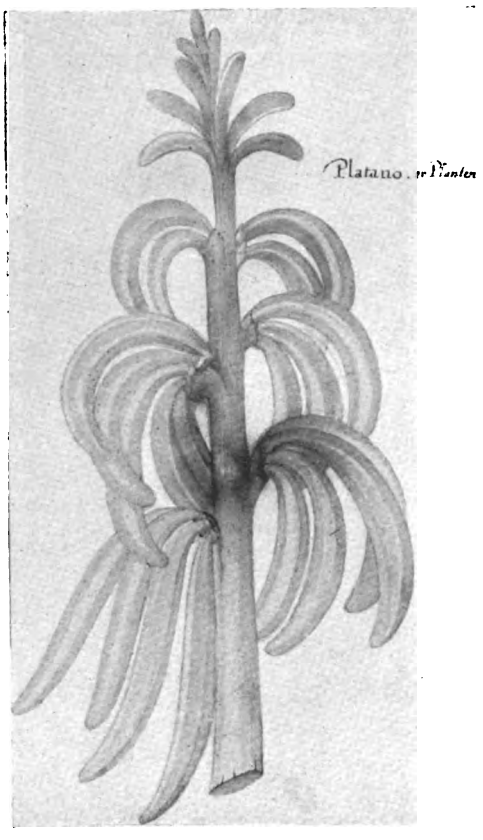

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PUZZLES IN PLANT NAMES.

The fact of Black Currants being called Pepper by the French on account of the strings of fruit being like those of Piper longum recalls how our Currants were named on account of the individual fruits being somewhat like the small dried Grapes imported from Asia, and on that account named Corinths at first, and soon thereafter "Currans." It is only during recent years that the Scottish proletariat have used the English name, Red and White Currants having been usually named "Rizzers" from their partly dry and shrivelled appearance when dead ripe, while Black Currants were Blackberries.

But there is a vast number of curious names, the origin of which is involved in whole or partial obscurity. In Gerard's list of Old Names, and some of them are very old indeed, he gives Branke Ursine as the name for Cuthberdole and Cuthbertill, obviously the same word. Quite readily we would say the plant meant is Acanthus mollis, but even in those days they were given to alter the names of plants, and so when we go far enough back we find Cuthberdole to be a phonetic form of St Cuthbert's Cole, and that another old name for it was Seadock and Hollyhock, the Althaea officinalis of botanists. And we all are aware how about 350 years ago Hollyhock was transferred to a novel plant which, among its other names, had that of Beyond-Sea-Roses, and this, 150 years later, we find changed from a French extraction into Rose Tremière, though nobody thinks of calling it now anything else but Hollyhock. The French, indeed, had quite a fair number of plants bearing names due to changing from one language to another; these are often curious enough, and sometimes puzzling to those who meet with them. But as Latin equivalents are not wanting in most cases, a fair guess may be made. There is the remarkable Tatesoriz or Tecesorite, a very old name for Sedum album, and equivalent to the true English Museballok and Musecode. It is corrupted from the French *Teste de souris*, and it is curious that *Teste* has been confounded by some with *Tête*, and the meaning thence supposed to be Mousehead, which the old Latin name of Testiculus muris shows to be wrong, as would be confirmed by a glance at a leaf.

The Scot sometimes stole a name from France to the bewildering of his southern neighbour. Such a one is Aippleringie, a common Scots name for Southernwood, that aromatic sub-shrub of which most wives of working men conveyed a sprig to church with unfailing regularity. We have to go further back than the French *Aurone*, even to *Aueroigne*, which through Scots Averoine and other changes was stabilised at last as Aippleringie. The root is, of course, the Latin Abrotanum. There is an instance of a plant having an English and a Scots name of a similar meaning in Veronica Beccabunga, and both derived from an Anglo-Saxon source apparently, but not essentially different. The English is the well-known Brooklime, the Scots Wellink. The former we are able to trace for centuries through remarkable variations till in the 16th it occurs as Broclem, the first syllable being obvious, and the latter a contracted form of leomeke. The Scots "Well" again corresponds to the "Brook" of England, and (l)ink to lime, though it is a shade nearer the original. It is well known that some of our poets refer to plants in a language not always easy to translate. There is one reference which, clear as Tennyson usually is has not, I think, ever been satisfactorily worked out. A well-known writer attributes red and purple Tulips as proper :—

"My dust would hear her and beat,
Had I lain for a century dead;
Would start and tremble under her feet,
And blossom in purple and red."

I sometimes wonder if the poet had in his subconscious mind the lines of Clare

"Fumitory—
Whose red and purple mottled flowers
Are cropped by maids in weeding hours."

How flowers receive names is well illustrated by the following relation; Last year a correspondent in Alberta described to me some of the prairie flowers of that province, among them one of varying colours and very common, which she called the Prairie Crocus. The name aroused my curiosity, and I asked for seeds, which were forthcoming in the past winter together with a shrivelled flower, an Anemone obviously, and if not Pulsatilla a species nearly related. Here is another instance:—

Last year I had some correspondence regarding the identity of a flower worn round the necks of girls on the occasion of special merry makings in one if not more Border towns. It was called Rararae from a doggerel rhyme that the wearers

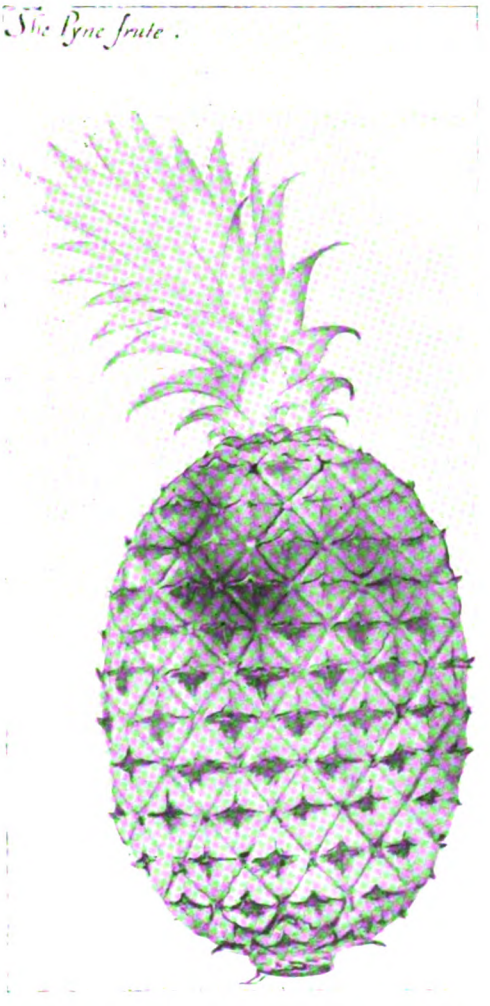

FIG. 91.—JOHN WHITE'S DRAWING OF THE PINEAPPLE, ANANAS SATIVA, 1585-93. (SEE PAGE 200.)

sang "Rararae, the nicht afore the fair," etc The plant was identified as Ægopodium Podagraria, and it was ultimately explained that the flowers were tied on strings and so worn. This is an example of quite a local name, the origin of which will no doubt be forgotten ere long.

But sometimes a name is perpetuated by some abiding memorial. Of such, a plantation here affords a ridiculous example. When it was being planted Pinus austriaca formed the chief part of the trees, and the foreman forester, when he required one of these, called out for a "Pennystraiky," and such is the designation that particular spot bears to this day! Few, if any, know why it is so-called, and certainly the reason cannot much longer be remembered.

Those acquainted with the bygone literature of gardening know how easy it is to make mistakes in identifying plants by the names given, or finding philological reason for a name, and some of these, when pointed out, the author fails to correct. First and last, all the mistakes in Miss Amherst's *History of Gardening in England* have been indicated, but the mistakes have been perpetuated in every edition There is Carsyndyllys, clearly two names, which the authoress thinks is Cress and Lily, instead of Dill for the latter—Ceterwort (Helleborus foetidus) is there Ceterach; Scalaceh (Convallaria Polygonatum) is Sinapis arvensis. These however are not so amusing as the mistakes made by older generations of writers who attempted to supply meanings to plant names, but of these one may be silent at present *R. P. Brotherston.*

ORCHID NOTES AND GLEANINGS.

CATTLEYA STUARTII ALBA.

One of the best forms of the C. labiata section obtained by crossing C. Mendelii Queen Mary and C. Mossiae Queen Mary, both famous white varieties, is sent by Messrs. Flory and Black, Slough. The two-flowered inflorescence has finely formed blooms each nearly seven inches across, possessing very broad, pure white sepals and petals, and a large crimped, white lip with a broad band of reddish purple colour in front of the yellow disc. It is a charming blending of the two favourite species used in its production, the labellum showing the colouring of both parents, although that of C. Mendelii is most evident.

LAELIO-CATTLEYA NARCISSUS.

Messrs. Flory and Black send this new cross between L.-C. G. S. Ball (C. Schröderae × L. cinnabarina) and L.-C. Mercia C. Schröderae × L. flava), a very pretty flower in which the clear yellow of L. flava fixes the colour, the red tint of L. cinnabarina not appearing, although the crimped lip shows the influence of that species. The whole flower is buttercup-yellow, with the soft white ground giving lighter shades on the bases of the petals and lip.

INDOOR PLANTS.

CANNA.

The interesting article on Cannas, by Mr. John Heal (p. 171), should serve to draw the attention of growers to a valuable class of plants which seem to be neglected nowadays. The plants should now be in their flowering pots, which should be of six inches or seven inches in diameter. The growths should be restricted to one strong shoot. Where large specimens are required several plants should be placed in a twelve-inch pot, or dry roots that are just starting into growth may be used for this purpose. As Cannas are gross feeders, a rich compost is necessary; some dried cow dung or material from an old Mushroom bed should be added to the compost. When growing freely ample supplies of water and high feeding are necessary. Large specimens are very useful in the conservatory, as they will continue flowering until Chrysanthemums take their place in the autumn.

TECOMA ALATA (SYN. T. SMITHII).

This is a very useful plant for autumn and winter flowering, and may be readily propagated by means of cuttings inserted at this time. If large flower heads are required the growths should be restricted to a single stem; if bushy specimens are desired the plants should be stopped once and several shoots allowed to develop. The young plants should be potted on, as they require more room, until they are in six-inch pots, in which size they should be flowered. They require perfectly cool treatment; in fact, it is an advantage to stand them out-of-doors during the summer. Whenever the flower buds show, lateral growths usually develop below them: such growths should be rubbed out, for if allowed to develop the flower buds will soon drop. *J.*

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DAFFODILS AT SUTTON COURT.

As the meadows have for some time been carpeted with the small yellow Daffodils so much beloved by the Herefordshire children for making into posies, the memory of a former visit to Sutton Court, four miles from Hereford, came back and prompted me to make another journey there in the certain hope that among Mr. Backhouse's seedling Daffodils would be found much to interest and delight.

On reaching the house, attention was at once divided between a large bed of Easter Eve, 12 inches high, used with considerable effect as a bedder—while Parker was only showing bud—and a bed of mixed Hyacinths grown from seed to flowering stage on the place. The owner is naturally proud of these, as some were last year selected by a Hyacinth-grower to work up stock from.

Last year two magnificent Daffodils, Mrs. R. O. Backhouse, the "pink Daffodil," and Viscountess Northcliffe, pure white, of the triandrus group, arrested attention. This year there are many other good things, with, apparently, many more to follow. Very soon I was guessing as to whether a bloom should be classed as a Leedsii, a Barrii, or some other type, so much have the sections been intercrossed. Daffodils seem to have taken possession of nearly the whole place at Sutton Court. A greenhouse was full of selected kinds brought into flower together, so as to have the necessary pollen ready at the right time for carrying on the work of crossing. The kitchen garden showed evidence of little else, and I noted a beautiful clump of flowers held well up, with a heavily frilled cup, and felt inclined to regard it as an improvement on Golden Herald.

A large flower with creamy perianth, measuring 4½ inches across, with an orange-red, frilled trumpet, 1½ inch long and 2¼ inches wide, seemed to command the name of It. Face the Foe (the foe being the R.H.S. Narcissus Committee!) is one of Mr. Backhouse's favourites, and in these days, when growers for market are ever on the look out for good flowers with long stems, this should take their fancy. It is best described as a giant white Leedsii, and several flower stems were measured 2 ft. 11 in. long.

Among the younger seedlings there were many showing cups of various degrees of redness. One with a yellow perianth measuring 4 inches, with a trumpet 1½ inch long by 1 inch across, looked rather lighter in the red than C. J. Backhouse, while another, 4¼ inches across the yellow perianth, showed a trumpet 1½ inch long of a brighter red than the last named variety.

A cross between an African and a French Marigold was suggested by a flower of the Incomparabilis type, having a creamy perianth and a wide cup, showing considerable doubling and frilling, and a mixture of red and yellow.

Passing to the Archery Butts, bows and arrows are suggested, but the archery, practised pre-war, has given place to Queen Daffodil. As the seedlings have multiplied they have been lined out here. The trade has once and again made selections, and still there is an abundance of good things left. The white Daffodils strike one both as to their variety and purity, and one wonders why they are not popular. Perchance it may be that growers have found that in the past the white flowers—such as Dryad and Waterwitch—attractive as their whiteness makes them, have been poor growers, and seek to steer clear of Daffodils having no tinge of colour in the cups or trumpets. But surely Mr. Backhouse has varieties with a stronger constitution, as bed after bed of white Daffodils were noted without a sickly plant in them. Some of these are small Leedsii flowers, some have longer cups (or trumpets) frilled and contracted at the mouth, suggesting a fly trap. Others with twin or triple flowers are of the triandrus type, and for these white varieties it is possible to predict a great future when they become better known. An exhibit made up of nothing else at one of the R.H.S. meetings would certainly arrest attention.

What of the future? Who can tell? Before leaving Sutton Court a visit was paid to the frame ground. Here numerous pots with seedlings in their first and second years held possession, and indicated how keenly interested the owner is in his work. *P. M. T.*

[A box of exquisitely beautiful Daffodil blooms accompanied the above note, and every bloom showed the mark of good breeding and high cultivation. Viscountess Northcliffe, Mrs. R. O. Backhouse, Stella Tid Pratt, Red Guard, and some cyclamineus and triandrus hybrids were included, and were a revelation of what may be expected from Sutton Court in the near future.—Eds.]

MARKET FRUIT GARDEN.

The first half of March was cold enough to give a healthy check to forward vegetation. The rest of the month was very mild. The season is early, but, according to my records, not abnormally so. It is about three weeks earlier than last spring, it is true; but that was a very backward season. Vegetation is not so forward as it was in 1920, and just about the same as in 1921, which was a good fruit year. Rain fell on fourteen days in March, the total amount being 2.16 inches. This is only about an average for the month; but the land was already so wet that very little has been possible in the way of cultivation. Weeds have been growing all the winter, and an opportunity to deal with them would be very welcome.

Plums in Bloom.

The first few Plum blooms opened on the 21st. Before the end of the month Black Diamond, Monarch and Rivers' Early Prolific were in full bloom, and President and Victoria were in the white bud stage. Czar, Pond's Seedling and Belle de Louvain are still to open, in the order named. Up to the time of writing, there has been no frost during the blooming of Plums, and conditions have been ideal for pollination—mild, sunny and calm. It is to be hoped, therefore, that Monarch and Rivers' Early Prolific, which are as full of bloom as they could possibly be, will set good crops. Altogether the show of bloom on Plums is astonishing, considering last year's heavy crop. All the varieties mentioned above give good promise, with the exception of Czar and Belle de Louvain, which will bloom lightly. But there is many a slip between the bloom and the crop; and there may be a very different story to tell later on.

If my trees are any indication, growers will be well advised to guard against leaf-curling Plum aphis this season. I never saw so many of these insects before the opening of the bloom. They were breeding freely by March 3, and massed on the still unopened buds. I counted eleven on one bud. This was fortunately noticed when spraying with copper sulphate was in progress, and the addition of nicotine to the wash pretty well cleared the trees of aphis. To make sure, however, they will be sprayed again with a nicotine wash immediately after the fall of the petals, which is the latest stage at which it is of much use to spray against this pest.

Spraying with Copper Sulphate.

I wonder why spraying in late winter or early spring with a solution of copper sulphate has largely gone out of fashion. I am convinced that I have had much less trouble from canker on Apples and brown rot on Plums since this practice was adopted. But the object of this note is to record the fact that a wash consisting of 10 lb. of copper sulphate to 100 gallons of water has considerable cleansing action. I discovered this to my surprise last year, and have now verified it beyond all doubt. I have been watching some trees which were green with a mossy coating. They were sprayed on March 19, and they are now practically clean. Little or no result is seen immediately after spraying, but gradually the moss dies and exposes the clean bark. Each shower of rain seems to advance the process. The cleansing action is, of course, less than that of caustic soda, but it is quite equal to that of the popular lime-sulphur wash, which is a far less powerful fungicide and much more expensive. I see no reason to use any other winter wash than copper sulphate, except where the trees are heavily coated with lichen, when nothing but caustic soda will serve the purpose. It is worth much to avoid the disagreeable business of using a caustic wash on a large scale. Copper sulphate may be used when the fruit buds are in an advanced stage. It will scorch the outsides, but this does not appear to matter. The Plum buds which I scorched in March are now fully open, and not the slightest injury can be detected.

Length of Spurs.

It has for a good many years been the custom on this place to prune laterals to about 5 in. long as the first stage in inducing fruit spurs to form on Apples. It is interesting to note that experience gained in the conduct of the valuable pruning experiments at the East Malling Research Station leads Mr. N. H. Grubb to recommend a similar practice. In the experiments the trees have been either "long spurred" (laterals cut to three good buds, about 1½ to 2 in.), or "short spurred" (laterals cut to one good bud, about ½ in. to ¾ in.). Strong laterals have in all cases been cut clean out. The one-bud method has been almost ruinous with some varieties. The three-bud method gives good results in some cases, particularly with the weaker laterals. But, says Mr. Grubb, observations strongly suggest that a five or six bud method would be still better, especially with the stronger laterals. The best recommendation he can make at present is this: By all means cut out all the strongest laterals, unless wanted as leaders. Of those that are spurred, cut the stronger laterals to five or six good buds (varying from 4 to as much as 6 in.), and the weaker ones one to two buds shorter. These remarks apply to newly-formed laterals which have not previously been cut. The treatment of these in their second year depends on the result of the first cut. If it is certain that a fruit bud has been formed on the two-year-old wood, then, provided the new wood growths are not very vigorous, everything may be cut away to that bud. If there is any doubt, or if the wood growths are strong, these should be shortened to about one inch, in the hope of weakening the spur and working it back to a fruit bud a year or two later.

Silver-leaf in Apples.

I have seen Silver-leaf disease develop on Apples that have been top-grafted, but never on normal trees. It appears, however, from the report on Fungus Diseases of Crops in 1920-1921, recently published by the Ministry of Agriculture, that there has been a marked increase in the number of attacks on Apples. This is rightly described as the most serious feature of the recent developments of the disease. Should Apples become as liable to the disease as Plums are, the situation will indeed be serious. Many hundreds of Apple trees have been killed in Lincolnshire, Cambridgeshire and Huntingdonshire, and reports of serious damage have been received from Middlesex, Hants and Devon, whilst records of silvered trees have been received from all parts. Many varieties are affected, but Early Victoria, Lord Grosvenor and Lord Suffield much more commonly than others. The worst outbreak on record occurred in orchards near Long Sutton, Lincs. In one case, out of 670 Early Victoria trees, 450 were silvered; and, in another, out of 1,400 about 1,000 showed the disease. No Plums are present in either of these orchards. These trees had been badly pruned, large branches low down having been cut out and the wounds left undressed with tar or any other protective application. The cause of Silver-leaf in Apples is the fungus Stereum purpureum, and the infection and course of the disease are precisely the same as in the Plum. *Market Grower.*

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FRUIT REGISTER.

APPLE HANWELL SOURING.

A CORRESPONDENT sends, from a garden in North Cumberland, fruits of Apple Hanwell Souring with the following remarks: "I send a few fruits of Apple Hanwell Souring for your inspection. Varieties of late Apples are none too plentiful, and Hanwell Souring is one that is a decided advantage to have in a collection. The fruits of last year's crop were much smaller than usual, and they possessed a defect common to all of last year's Apples in the north—lack of flavour." The specimens sent by our correspondent are exceedingly attractive and in excellent condition, but we quite agree with him that the flavour is very poor.

Hanwell Souring, which is sometimes known as Lawrence's Seedling, first came under notice in 1820, and is supposed to have originated at Hanwell, near Banbury, in Oxfordshire. Hogg describes it as "an excellent culinary Apple of first-rate quality; in use in December and keeps until March, when it possesses more acidity than any other variety which keeps to so late a period." The fruits are of medium size, and possess a greenish-yellow skin, freely sprinkled with russety dots, and flushed with crimson on the sunny side, the bright colour running in stripes. It is a very solid, heavy fruit, and is one that is worthy of inclusion in the varieties to be tested for commercial purposes at Wisley.

VEGETABLE GARDEN.

THE ASPARAGUS FLY.

THE Asparagus Fly, Platyparea poeciloptua, sometimes causes considerable damage to newly planted Asparagus beds in the southern counties. The insect is very distinct in appearance, having head, thorax and legs of a reddish brown, the antennae being somewhat brighter and the body darker in colour. The two wings, rounded at the ends, are marked with dark brown and cream, zebra-like stripes. The body of the female is prolonged to a point bearing a well-marked ovipositor, while that of the male is shorter and rounded.

It appears at the same time as the first heads of Asparagus and may be seen during the greater part of the growing season until June. Scarcely the size of the common house-fly, the perfect insect is heavy in flight and moves rather after the manner of a grasshopper, never rising very high above the surface of the soil. The female insect goes from head to head of the young Asparagus and lays her eggs at the base of the scales as the points emerge from the soil. The eggs laid on those heads that are cut are naturally destroyed, but in young plantations, where no cutting takes place, the damage is sometimes serious.

In from 10 to 15 days the eggs hatch and the larvae bore into the young shoots. They feed on the tissue, moving in a downward direction, and keep near the surface, thus forming tunnels in the longitudinal axis of the stem. They usually attain their full size of about half-an-inch in length by the time they reach the base of the stem, where they pupate. Affected stems soon show the result of attack; where only one or two larvae are present the stem may continue to grow, but when attacked by several, growth ceases, the head droops and finally the whole stem rots. Should several stems thus perish, root action becomes so retarded through the loss of the organs of assimilation that the plant weakens and frequently dies.

For the control of the pest the advantage of destroying the perfect insect before it can lay its eggs is manifest, and although this is not easy a good deal may be done to effect its destruction.

One of the best methods is to stretch across the bed at intervals narrow strips of canvas dressed with a sticky substance. French growers use a capital implement for the purpose, which consists of canvas stretched on a slightly curved wooden frame about 1 yard long and 1 foot wide, to which is attached an old scythe handle. The swinging of this in bright sunshine immediately over the young growths of Asparagus causes the fly to rise and large numbers of them are caught on the dressed canvas. During the growing season a sharp watch should be kept for affected stems, which should be removed and destroyed before the larvae reach the pupal stage. *W. Auton.*

HOME CORRESPONDENCE.

Spraying Fruit.—The inquiry on page 168 from *F.* raises a point of the greatest interest and importance to all fruit growers and an exhaustive discussion of it in *The Gardeners' Chronicle* should be productive of much valuable information on the subject. Your correspondent is not the only one by many hundreds to whom the present season has brought a heavy modicum of worry because it was impossible to do any spraying satisfactorily during the period when winter applications are known to be especially effective. And this brings us immediately to the crux of the question. Lime-sulphur dressings have not been made for this express purpose, and we are on the threshold of the moment when arsenate of lead will have to be used to destroy the grubs of the Winter and other moths, of which there are decided prospects of a serious infestation. *F.* would like to make a one solution application, but is obviously doubtful as to the advisability of taking such a step. There are others, too, in the same difficult position, and it is essential that a decision shall be reached by all growers at once. Personally, I should in no circumstances whatever mix lime-sulphur and lead arsenate, as it is my experience that both components lose substantially in value as soon as they are incorporated and applied. The objects to be achieved by the respective washes are so diametrically opposed that it is unreasonable to expect that they will work happily together. Rather than mix these two specifics I should drop out the lime-sulphur entirely for the season, though it is not necessary that this shall be done. When growth is advanced, as it must be ere your correspondent can secure the advice desired through your columns, the use of lime-sulphur at winter strength would be accompanied by real danger, but it can be reduced easily by the addition of more water and still be capable of doing very excellent work. Even when grease banding is done perfectly, and that has certainly not been the case as a general rule during the past winter, arsenate of lead is a dressing which stands alone in importance, and no risk must be taken that its effectiveness will be reduced in the smallest degree. *W. Tiplow.*

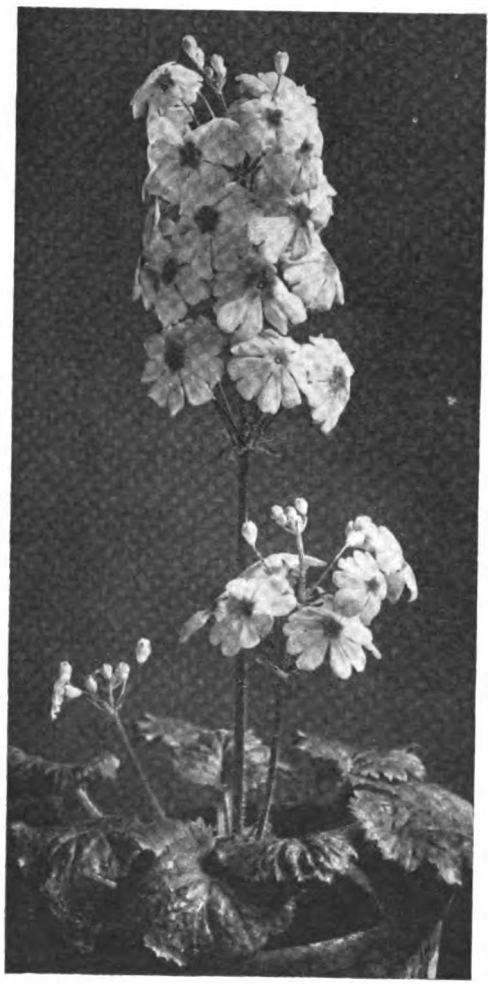

FIG. 92.—A NEW ROUND-FLOWERED FORM OF PRIMULA MALACOIDES.

Gardeners' Wages.—I quite agree with *G.W.K.'s* remarks on p. 151. We should look to the gardening papers to uphold a fair wage. There are employers to-day who take into consideration a man's pension and pay a small salary; do they expect to get good service under such conditions? *W.M.* (p. 166) seems to take it for granted that all gardeners during the war had a high wage, yet it is a fact that many of them had no increase in their salary and others only a very little, besides having to carry on with half the usual staff. Those that were eligible joined the army, others who went as munition workers were able to save a nice sum, and after the war were content to wait for a good place. It is almost impossible for a gardener with 50s. per week to keep himself, wife and family respectable and save money for a rainy day. The only time he can save a little is after his family has grown up. By then he is usually getting on in years and a reason is found for discarding him for a younger and cheaper man. There used to be a saying that the workhouses contained mostly gentlemen's servants, and there is a good deal of truth in it. I was not aware that unemployed gardeners could draw the dole. We do not have to pay for unemployment benefit, which I think is another grievance; why should we be exempt? We have to live when we are out of work. *S. H. G.*

Primula malacoides with Rounded Flowers.—A short time ago, when visiting Messrs. Sutton and Sons' nurseries at Reading, I saw a small batch of plants of a particularly fine form of Primula malacoides, with rounded flowers (Fig. 92). Readers will know quite well that this lovely species has deeply incised floral segments, but in this new-comer there is much less cutting or indentation, and the segments of the corolla are broader and rounder—in short, the blooms more nearly approach the florist's ideal of form, but the grace of the Primula is not lost in this fuller development. In the matter of colour this new form is deep and rich. Whether it will come true from seeds remains to be seen, and at least another year must elapse before the fixity of this type can be determined. It is to be hoped, however, that it will come true from seed, as it promises to be a fine garden plant and a commercially useful one also. Other greenhouse Primulas have produced forms distinct from the type, and it is to be hoped that another useful novelty will result from this round-flowered form of one of the most charming species of the genus. *C.*

Pyrus Scheideckeri.—With regard to the fine illustration of a specimen of this Crab which appeared in your issue of April 7, p. 185, please allow me to point out a wrong quotation from my book, *Trees and Shrubs Hardy in the British Isles.* I am made to say that it is one of the two finest of the fruiting Crabs. What I really wrote was that "P. Scheideckeri and P. floribunda are the two finest of *flowering* (as distinct from fruiting) Crabs." As a matter of fact neither of them has any great beauty of fruit. The tree figured is growing in a border near the Temperate House at Kew, and at the time it was photographed was one of the most beautiful objects I have ever seen. *W. J. Bean.*

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SOCIETIES.

ASSOCIATION OF ECONOMIC BIOLOGISTS.

A meeting of this Association was held on Friday, March 23, Professor E. B. Poulton, President, in the chair. Mr. J. H. Priestley gave an address on "The Causual Anatomy of the Potato Tuber." He stated that the underground portion of the stem system of the Potato is roughly circular in cross-section; aboveground the haulm is angular, with three leafy expansions rising from the angles. In the underground portion of the stem a primary endodermis is found to be present, which disappears in the haulm in the region where the leafy angles appear. The circular, unwinged stem formation can be shown to be a result of growth in darkness. The tuberiferous stolons also contain a continuous primary endodermis, and can only be formed in darkness; tubers may appear in the axils of leaves in the light, but are not borne upon stolons. The formation of the tuber at the end of the stolon coincides with the disappearance of the endodermis and the appearance of cork in the epidermal or subepidermal layer. The increase of tissue in the tuber is due to the meristematic activity both in the cortex and in the periphery of the pith. Scattered phloem elements run in all directions through the parenchymatous tissues thus formed. Haberlandts' experiments show the importance of these phloem elements in the formation of wound cork by cut tubers.

Possible casual factors leading to tuber formation are: (1) Mycorrhizal infection as suggested in Bernard's theory of tuberisation. (2) Factors tending to prevent the formation of the Casparian strip of the primary endodermis, possibly operative in Vöchting's experiments on tuber formation. (3) The increase of sap concentration in the vascular strands of the stolon.

As a result of these considerations it is suggested that earthing up Potatos may be expected to increase the stem area from which tuberiferous stolons may arise, and that adequate moisture in spring, with consequent vigorous root pressure, may favour the formation of stolons, but that tubers may be expected to arise upon the stolons when the evaporation of water from the leaves is in excess of water supply from the roots.

A second paper was given by Messrs E. R. Speyer and O. Owen, on "The action of simple aromatic compounds on the Cucumber house woodhouse (Armadillidium speveri, Jackson)."

Preliminary experiments on the action of some hydrocarbons, phenols, nitrocompounds and a few terpenes on woodlice were described. Observations were made on the effects due to contact, vapour, and mixing with the soil at a concentration on M./100 in 250 gms. of soil. The organism of the animal is not affected in a similar manner by different compounds. P-cresol and p-nitrophenol are less active than the corresponding ortho compounds, and both nitrophenols are less active than phenol. One part phenol in 750 parts soil is sufficient to kill all woodlice introduced during a period of 20 days, and this time corresponds with the disappearance of retardation in germination of Tomato seeds sown in the same soil. Certain compounds show a maximum activity shortly before their disappearance from the soil. Phenol and the cresols were the most active compounds tested. Naphthalene disappears within four days of mixing with soil. Thymol, camphor, and hydroquinone act slowly in soil.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL.

A lecture on "Hardy Bulbous Plants" was delivered by Sir Herbert E. Maxwell, Bart., at the monthly meeting of this Society, held on the 28th ult. Mr. John Cairns presided.

The lecturer described true Lilies as a family of plants with which greater difficulties have been encountered and more frequent failure incurred than in any other kind of bulbous plant. It was a mournful fact, he said, that of the immonse consignments of bulbs of the finer Asiatic species that reached this country every year, and the less abundant species imported from America, only a trifling percentage came to any good with us. They might flower once from nutriment stored within the bulb, but very few survived a second season. If only 5 per cent. of the Lily bulbs imported annually were to flourish and increase in this country, British gardens would by this time present a display in summer realising the dreams of the most sanguine amateur. A much larger percentage ought to survive provided (1) that better care should be applied to raising and packing the bulbs, and (2) that their wants on arrival should be better understood. For instance, L. auratum, the golden-rayed Lily of Japan, was capable of flourishing permanently under British conditions, as had been proved by instances that had come under his own observation. Unfortunately Japanese growers in their anxiety to take advantage of a profitable market had overpropagated this Lily and forced its cultivation on ground without rotation of crops. This probably accounted for the great majority of bulbs which arrived in this country being infected with a deadly fungus or by swarms of root mites. He thought it was high time that the leading horticultural societies such as theirs should take this matter up and urge on the Government the need for imposing restrictions on the importation of plants and roots calculated to carry disease.

The lecturer then gave the names and a few of the outstanding features of about a dozen varieties of the Lily family with which he said any amateur might deal with the best prospects of success. They are L. giganteum, L. monadelphum, L. testaceum, L. croceum, L. regale, L. Sargentiae, L. dauricum or umbellatum, L. Martagon, L. pyrenaicum, L. tigrinum, L. pardalinum, L. superbum, and L. chalcedonicum. These, he said, were Lilies with which the amateur might deal successfully. When he got these well established there were many others to which his attention might be turned.

On the motion of Sir John Reid, D.L., Sir Herbert was heartily thanked for his most interesting lecture.

At the close of the lecture a number of specimens of plants and flowers were exhibited, including several from the Glasgow Botanic Gardens. Special attention was directed to a hybrid raised in the Botanic Gardens in 1920. It is the result of crossing the British Meadow Saxifrage, S. granulata, with the well-known, dark flowered S. bathoniensis. A specimen of Columnea Banksii was also shown.

A Cultural Certificate was awarded to Mr. R. Benson, Paisley, for an exhibit of Narcissi grown in pots.

READING AND DISTRICT GARDENERS.

Mr. M. Goddard, Vice-Chairman, presided over a good attendance of the members at the recent fortnightly meeting of this Association. The subject for discussion was "Weather Forecasts," and the lecturer was Mr. R. J. Lloyd, University College Gardens, Shinfield. Mr. Lloyd dealt with his subject under various headings, including the movements of the atmosphere, fogs, mists, frosts, atmosphere pressures (high and low), clouds and their types, temperature, and gales.

In the competition for three vases of Daffodils, distinct varieties, Mr. F. Townsend, The Gardens, Hillside, was placed first, and Mr. H. Wynn, The Gardens, Querns House, Goring Heath, 2nd. For a vase of mixed blooms of Daffodils the first prize was awarded to Mr. E. J. Dore, Reading.

Mr. F. H. Pratten, The Elms, Shinfield Road, staged blooms of Violets.

The meeting was of special importance for the evening was set apart as "Hospital Night," and, as usual on these occasions, a magnificent lot of flowers were staged to be sent the next morning to the Royal Berkshire Hospital. A collection taken on behalf of the funds of the Institution amounted to £3 7s.

ROYAL HORTICULTURAL.

April 10 and 11.—Although Daffodils were shown in such large numbers at Westminster as to give the interior of the R.H.S. Hall a very attractive spring-like appearance, there was a greater variety of exhibits than in previous meetings of the present year. Orchids were not so numerous as usual, but there were Roses, Alpines, Rhododendrons, forced flowering shrubs, Carnations, Anemones, and various early spring flowers. The hall was well filled with interesting exhibits, but novelties were few.

Orchid Committee.

Present:—Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson (assistant secretary), C. J. Lucas, Arthur Dye, Henry H. Smith, H. T. Pitt, A. McBean, E. A. Ashton, W. J. Kaye, Richard G. Thwaites, Frederick J. Hanbury, J. Wilson Potter, Sir Frederick Moore, and the Hon. H. D. McLaren.

First Class Certificates.

Miltonioda Harwoodii Ashtead Park variety (*Miltonia vexillaria* × *Cochlioda Noezliana*), from Pantia Ralli, Esq., Ashtead Park, Surrey (Orchid grower, Mr. Farnes). The finest of a favourite section which has yet appeared. The plant shown was an excellent example of good culture and carried a spike of fourteen flowers, which have strong indication of Miltonia in the shape. The colour is magenta crimson, the broadly ovate lip lighter in tint.

Cattleya Dr. Miguel Lacroze var. Excelsior (*Octave Doin* × *Pityus*), from Messrs. Flory and Black, Slough. A true Cattleya and one of the largest and best, excelling both parents in form and size. The flowers are over eight inches across, the petals broad and well arranged; both sepals and petals are coloured rosy-mauve. The lip is broad and coloured yellow in the centre, the yellow lines on a purple ground running from the base. The front is purplish crimson with a light mauve margin.

Laelio-Cattleya Hassallii alba var. Perfection (*L.-C. Britannia alba* × *C. Warscewiczii Fr. M. Beyrodt*), from Messrs. Cowan, Southgate. The plant bore a two-flowered inflorescence, the large and finely formed flowers being pure white, with deep Tyrian purple lip that has a yellow disc and contrasts well with the pure white of the other segments.

Awards of Merit.

Odontoglossum Aiglon var. Majesticum (*eximium* × *Vuylstekeae*), from H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood). Odontoglossum Aglaon (C. Aiglon) was one of the first startlingly fine Odontoglossums shown by Mons. Vuylsteke, and which in its class was not surpassed until the advent of Messrs. McBean's Odm. Mirabeau var. Mastiff and Odm. Everest, which the form of Odm. Aglaon now shown approaches. The large flowers are white, with close blotching and marking of deep claret-purple colour.

Odontoglossum × *Aureola* (*parentage unrecorded*), from Pantia Ralli, Esq., Ashtead Park, Surrey (Orchid grower, Mr. Farnes). A fine, clear canary-yellow flower of the Odm. leochristiense section of Odm. harvengtense, the large chestnut-red blotch, as in Odm. triumphans, well indicating that species of parentage.

Laelio-Cattleya Faust (*Liminosa* × *Ernestii*), from E. R. Ashton, Esq., Broadlands, Tunbridge Wells. A very pretty and distinct hybrid. The plant bore a spike of well-formed, orange-yellow flowers, with maroon-crimson lip that has a yellow disc.

Other Exhibits.

E. R. Ashton, Esq., Broadlands, Tunbridge Wells (gr., Mr. Kent) was awarded a Silver Flora Medal for a pretty and well-arranged group of fine hybrids, among which were the handsome Odontioda Lady Patricia Ramsay (Odm. Lambeauianum × Oda. Coronation), with a grand spike of fifteen flowers; Oda. Schröderi Broadland's variety (Odm. crispum × Oda. Bradshawiae), with a strong spike of dark scarle

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flowers; a fine form of Brasso-Laelio-Cattleya Veitchii with very richly coloured lip; good specimens of yellow Dendrobium Thwaitesiae and D. chessingtonense, and various pretty hybrids and species, the most attractive of which was a fine specimen of the scarlet Sophronitis grandiflora, with many flowers.

H. T. Pitt, Esq., showed his fine scarlet Odontioda Zarina in excellent form.

Mr. Chas. Gray, The Gardens, Compton House, Cobham, showed a pretty white Brasso-Cattleya of unrecorded parentage.

Lt.-Col. Sir Geo. L. Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander) again showed his fine chrome-yellow Laelio-Cattleya Orange Blossom (Elinor × Trimyra), for which a First-Class Certificate was awarded on April 5, 1921.

Floral Committee.

Present: Messrs. H. B. May (in the chair), C. Williams, G. Reuthe, John Heal, J. F. McLeod, G. Harrow, W. Howe, H. J. Jones, J. B. Riding, Donald Allan, Chas. E. Pearson, W. P. Thomson, C. R. Fielder, D. B. Crane, Chas. E. Shea, Thos. Stevenson, W. B. Gingell, J. Jennings, M. C. Allwood, H. D. McLaren, W. B. Cranfield, H. V. Warrender, Reginald Cory, W. J. Bean, Clarence Elliott, W. R. Dykes, R. W. Wallace and James Hudson.

Novelties.

Award of Merit.

Rhododendron Exminster.—This fine hybrid is the result of crossing R. Thomsonii grandiflora with R. campylocarpum, and it shows the influence of both parents. The flowers are broadly campanulate in shape, and make up a loose truss. The colour is cream pink, heavily flushed with deep reddish pink. Shown by Messrs. Robert Veitch and Son, Exeter.

Other Novelties.

Mrs. Heyward Johnstone, Bignor Park, Pulborough, sent flowering branches of several interesting Rhododendrons, notably R. campylocarpum × Prince Camille de Rohan and the handsome, flesh-tinted R. Dr. Stocker. Mr. G. Reuthe showed R. Yolande, a creamy white campanulate variety derived from R. campylocarpum and R. Aucklandii. A freely flowered branch of R. Thomsonii was shown from the R.H.S. Gardens, Wisley, and a truss of R. Delavayi, flowering for the first time, was exhibited by Lionel de Rothschild, Esq., Exbury, Southampton.

Groups.

Roses were staged in even greater beauty than a fortnight ago. The blooms generally were very highly coloured, and the fragrance of many varieties was pronounced and appreciated. Mr. George Prince included a splendid vase of the deliciously fragrant T variety, Muriel Wilson, and the creamy white blooms were of large size and very shapely. Padre, Madame Butterfly and the deep yellow Lady Hillingdon were also excellent in this exhibit.

In a fine collection arranged by Mr. Elisha J. Hicks there was a generous quantity of climbing Lady Hillingdon displaying a depth of colouring which approached orange-yellow in its intensity. There were many other desirable H. T. Roses on view and the Polyantha varieties included highly decorative vases of Coral Cluster and Edith Cavell.

At the far end of the hall Messrs. B. R. Cant and Sons staged beautiful blooms of such sorts as Padre, Phoebe, Esme and Rev. F. Page Roberts; the last-named variety was especially well coloured.

Rhododendrons were very prominent amongst the exhibits of trees and shrubs. Messrs. R. Veitch and Son brought a goodly collection of somewhat tender varieties, and amongst their large-flowered hybrids there were trusses of Countess of Haddington, Princess Alice, Ciliicalyx and a charming little hybrid raised from R. campylocarpum and R. Thomsonii. They also showed large quantities of Myosotidium nobile, the uncommonly beautiful blue Norfolk Island Forget-Me-Not, Primula The Jewel, a greatly improved Primula Juliae, and gorgeous flowers of Anemone St. Brigid strain. Such Rhododendrons as R. campanulatum, R. campylocarpum, R. niveum and the small blue-flowered R. fastigiatum were prominent in a collection by Mr. G. Reuthe, who also showed various alpines.

Mrs. Heywood Johnstone (gr. Mr. J. R. Nightingale), Bignor Park, Pulborough, gave well-deserved prominence to many magnificent trusses of Rhododendron Falconeri and also staged many blooms of the deep pink R. leucumbeana and R. Dr. Stocker. Lt.-Col. Messel sent an unnamed collection of meritorious Rhododendrons, chiefly of arboreum seedlings.

Excellent plants of Rhododendron Fosteriana, R. Gibsoni superba, R. Princess Alice and R. Marchioness were shown by Mr. L. R. Russell, who filled a large floor space with forced shrubs. There were also many splendid varieties of Azalea indica, Mollis Azaleas and Clematis, and a bush of the uncommon Camellia cuspidata, a small-leaved variety, bearing plenty of small white flowers.

Floriferous Pyruses, Magnolias, Cherries, Wistarias and other shrubs were contributed by Messrs. J. Cheal and Sons. Messrs. J. Piper and Sons exhibited various Brooms, Japanese Maples, especially good blooms of Japanese Paeonies (Paeonia Moutan) in various colours, Pansies and a goodly batch of Primula pulverulenta.

Well-flowered bushes of Daphne Cneorum and Veronica Hulkeana were associated with blue-flowered Verbenas in the exhibit from the Maytham Gardens. Primula Mrs. J. Wilson, Gentiana Clusii and the large yellow Meconopsis integrifolia were well shown by Messrs. R. Tucker and Sons. The Misses Hopkins had a pretty little garden with a pool and many spring flowers. Violas were prominently shown by Messrs. Carter Page and Co., who also had many alpines, including Edraianthus perpyllliflorus, and also Iris bucharica.

Gentiana verna of intense blue colour was conspicuous in a small collection of alpines arranged by Mr. Clarence Elliott. There were several interesting varieties of Mesembryanthemum in an exhibit by Messrs. Maxwell and Beale, while Messrs. W. H. Rogers and Son had a beautiful patch of Lithospermum Heavenly Blue, Dianthus multiflorum and Rhododendron ciliatum in quantity.

In a rockery Messrs. J. Cheal and Sons displayed Anchusa myosotidiflora and Aubrietias of several sorts. Messrs. Barr and Sons had the gorgeous scarlet Tulipa praestans and a large rose-coloured variety of T. Kaufmanniana named Brilliant. Excellent St. Brigid Anemones were staged by Messrs. Reamsbottom and Co. Cheiranthus Allionii was prominently shown by Mr. G. G. Whitelegg, who also had various Saxifrages, Lychnis alpina and Conifers suitable for rock gardens. There was a large basket of the showy Caltha palustris fl. pl. in a display made by Messrs. B. Ladhams, Ltd., who also had Omphalodes cappadocica. Mr. G. W. Miller again brought his excellent Polyanthuses. Messrs. J. and A. H. Crook also had a good strain of Polyanthuses, the bronze strain being exceedingly good. Messrs. G. Bunyard and Co. showed a collection of alpines.

Excellent Polyanthuses were staged by the Chalk Hills Nursery Co., who also displayed various alpines and Auriculas of merit. Messrs. Waterer, Sons and Crisp included plants of Iris pumila coerulea, I. bucharica, Erythroniums, Dodecatheon and Primulas in an interesting exhibit. There were several excellent varieties of Aubrietias, amongst Primulas, Drabas, Houstonias and other alpines, in an exhibit by Mr. M. Prichard. Mr. Fred G. Wood staged such seasonable flowers as Alpine Auriculas and Polyanthuses.

Zonal Pelargoniums are not nearly so often shown as formerly, so the collection displayed by Messrs. Jarman and Co. was welcome, as it amply illustrated the value of these plants. Amongst the many good single-flowered varieties were Bombay and Good Friday, a beautiful blush pink. Doubles were also well shown.

A splendid collection of Auriculas was staged by Mr. J. Douglas, who represented many of the best of the Fancy and the alpine varieties. Of the former Adonis and Grey Eagle were prominent, while the alpines included Argus and Admiration; there also were some splendid seedlings of both types.

Carnations were shown in considerable numbers and of the high quality that has been so consistent of late. Messrs. Allwood Bros. had beautiful vases of such sorts as Mary Allwood, Charity and Edward Allwood. Prominent in the collection arranged by Mr. C. Engelmann were White Wonder, Peerless, Lady Northcliffe and Improved Ward. Messrs. Stuart Low and Co. again had large vases of their novelties, with standard varieties, and also showed very good Hippeastrums, Cyclamens, Hydrangeas and Acacias.

Narcissus Committee.

Present: Mr. E. A. Bowles (in the chair), Mrs. Brodie, Sir Daniel Hall, Messrs. G. W. Leak, J. Duncan Pearson, Arthur R. Goodwin, G. Reuthe, H. V. Warrender, Rollo Meyer, G. Churcher, J. W. Jones, J. P. Arkwright, W. F. M. Copeland, W. Poupart, C. W. Needham, P. R. Barr, Herbert Smith, W. B. Cranfield, and Charles H. Curtis (hon. secretary).

Following the opening proceedings, the first business of this Committee was to vote for the award of the Peter Barr Memorial Cup; this is held for one year, and it was awarded unanimously to Mr. C. H. Curtis, the hon. secretary, who has rendered service in many ways, over a period of twenty-one years, on behalf of the Daffodil.

Awards of Merit.

Narcissus Puritan Maiden.—A dainty white trumpet Daffodil, but approximating closely to a great Leedsii. The trumpet is beautifully formed, cream coloured, and with a frilled, slightly recurring rim; perianth white. Shown by Messrs. J. R. Pearson and Sons, who are also the raisers.

Narcissus (unnamed).—This large trumpet variety has a pale cream yellow-frilled trumpet and white perianth. It is a strong grower, and the blooms are of good substance. The award was given subject to a name being supplied for the variety. Shown by Capt. Burton, Titchfield, Hampshire.

Preliminary Commendation.

Narcissus Scarlet Perfection.—A gorgeously beautiful broad-cupped Barrii variety, with sulphur-yellow perianth segments of great breadth and substance. The cup or dish is rich, vivid, orange scarlet, and finely frilled at the margin. Shown by Messrs. R. H. Bath, Ltd.

Groups.

Daffodils were a fine feature of the exhibition, and Messrs. Barr and Sons had the finest of many excellent displays. This firm showed a large number of types and varieties, but the public fancy was arrested chiefly by their splendid blooms of the golden yellow trumpet sorts, Glory of Haarlem, Fantin Latour, Mustapha, Royal Gold and Warwick. Pale-coloured trumpet varieties were also finely represented by Tamora and Silver Gift, while there were beautiful blooms of Croesus, Great Warley, The Czar, and Dubloon (Gold Medal).

Messrs. J. R. Pearson and Sons contributed a beautiful group in which light-coloured Daffodils held a prominent place; the blooms were very clean and of excellent quality, especially those of Countess of Northesk, Florence Pearson, Beersheba, Seagull, Sanctity, and Mrs. R. Sydenham (Silver-Gilt Banksian Medal). Messrs. R. H. Bath, Ltd., showed numerous exquisite flowers, very many of them being under number, but among named sorts in this fine collection we noted the new Scarlet Perfection, Sarabando, Fishtail, Cleopatra and Marie Hall (Silver-Gilt Banksian Medal).

A very large group was exhibited by the Donard Nursery Co., and, considering the distance they had travelled the flowers were very clean and fresh, but the arrangement was scarcely so good as usual. Leading varieties of special merit were Joan of Arc, Irish Girl, White Slave, Lord Kitchener, Fortune, Mace-

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bearer, Lady M. Boscawen and Eglinton (Silver-Gilt Flora Medal). Messrs. Sutton and Sons contributed a large decorative display of Daffodils with a central group of coloured Freesias. The exhibit included pillars of the bold Daffodils Olympia, Phantasy, Neron, King Alfred and Van Waveren's Giant, with bowls of popular smaller-flowered sorts in front and vases of selected kinds of various types in between (Silver-Gilt Banksian Medal). Mr. W. F. M. Copeland was also an exhibitor of Daffodils, and among many good things he showed his fine double variety Mary Copeland (Silver Banksian Medal). A similar award was made to Messrs. Cartwright and Goodwin for a corner group of useful varieties shown in good form.

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (chairman), J. Cheal, H. S. Rivers, W. J. Jefferies, S. B. Dicks, W. F. Giles, F. Treseder, G. Reynolds, Geo. F. Tinley, A. Bullock, Ed. Beckett, J. C. Allgrove, W. Bates, W. G. Lobjoit, W. Divers, W. Poupart, T. Pateman, E. Neal, H. Prince, A. Metcalfe, J. Wilson, E. A. Bunyard, Ed. Harriss, and A. N. Rawes.

Two varieties of Rhubarb were brought from the Wisley Gardens, the one a large, highly crimson variety named Hancock's Early Crimson Grooveless, the other Appleton's Red, a variety of small size, but of excellent flavour. These two Rhubarbs have been grown under trial at Wisley, but the Committee did not consider either as worthy of an award.

Mr. P. C. M. Veitch sent from the Royal Nurseries, Exeter, a dish of Apples labelled Newtown Pippin, but which were recognised by the chairman as the one known in America as Oregon Pippin. The fruits are not so round and smooth as those of the true Newtown Pippin, but are more conical, with prominent ridges around the eye, as in London Pippin. The flavour was good for a dessert Apple so late in the season.

Obituary.

James S. Turner.—We very deeply regret to record the untimely death of Mr. James S. Turner, manager of the bulb department of Messrs. Geo. Monro, Ltd., in whose service he had been employed for over twenty years. He was assisting in the flower department on Good Friday afternoon, when he was suddenly taken ill; three hours later he was operated on for appendicitis, and, although he survived the operation, a collapse followed and he passed away early on the 6th inst. Mr. Turner was educated at the Merchant Taylors' School, and was particularly well acquainted with British, Dutch, French, and South African bulbous plants.

TRADE NOTES.

Readers who are familiar with the High Road, Chiswick, will know there is a large outdoor market there. They will be interested to learn that Mr. Cooper, of 18, Savoy Street, W.C., has recently purchased a site and proposes to erect thereon a substantial fire-proof market building 350 feet long, and about 60 feet wide, which will accommodate about one hundred and twenty shops and stalls. A number of the open air traders at Chiswick are florists, fruiterers, and greengrocers.

The making of nets and netting of every description has been found a very suitable industry for the blind inmates of St. Dunstan's. Every net is made entirely by hand of the very best materials obtainable, and they comprise almost every description of nets for sportsmen, farmers and gardeners. Special terms are quoted to trade buyers and cricket and tennis clubs, and all details will be gladly sent on receipt of a card addressed to The Netting Room, Headquarters of St. Dunstan's Work, Inner Circle, Regent's Park.

The United Brassfounders and Engineers, Ltd., makers of the Ubel spraying and lime-washing machines, have issued an interesting little booklet illustrating many types of their machines, with a variety of nozzles and accessories. The address given in this booklet is Holloway Head, Birmingham, where, we understand, Ubel machines are now made since the firm has closed down its Manchester works.

The proprietors of the Cross Bone Manures are forming their business into a company, and are inviting offers of capital. The founder of the business is taking up 12,500 shares, and will act as managing director. The issue to the public is in shares of the denomination of £1, and these are intended to attract the small as well as the large investor. We understand that in allotting the shares, in the event of the issue being over-subscribed, preference will be given to customers of the firm, however small the number of shares they desire to take up. The total capital of the company is to be £50,000, of which £22,500 is offered to the public.

THE WEATHER.

THE WEATHER FOR MARCH.

After the first week, and until the night of the 30th of March, the weather was generally very dry, and the winds almost continuously of an easterly type. Wind-force was proportionally light. The mildness of the past winter, however, continued, and during the daytime hours, after the middle of the month, the temperature became quite high, and from the 25th to the 27th unusually so. Sunshine was normal, but there was a striking deficiency of ozone. The mean temperature equalled 44.7°, or 3.3° above the average. Sunshine duration amounted to practically the Southport March normal of 118 hours. Rain fell on 13 days, or two fewer than the average, and the total quantity was only 1.38 inch, implying a deficiency of 0.92 inch. Winds from the eastward prevailed during no fewer than 231 hours, the normal duration being exceeded by 152 hours; compounds of east added a further 200 hours. The mean velocity fell short of the average, in consequence, by 86 miles per day; and evaporation was quite moderate. Ground-frost was registered on nine nights, but the freezing-point was never reached in the shade; no gales occurred; hail was reported twice. Fog prevailed on the night of the 4th to 5th. A little lightning and thunder were experienced on the evening of the 28th. *Joseph Baxendell, The Fernley Observatory, Southport.*

THE WEATHER IN SCOTLAND.

With the exception of its sunshine record, March was a well-behaved month—for March. There was an entire absence of the usual bluster, the winds being remarkably light, the mean temperature was one and a half degrees above the normal, while the rainfall was meagre, with the infrequent phenomenon of a drought lasting from the 13th to the 26th inclusive. On the first ten days of the month it rained every day, but the total yield for that period was only 0.72 inch, while for the whole month the yield was 1.36 inch for 14 days, against a normal of 3.20 inches for 17 days. Almost one-third of the total was recorded for the 31st—the wettest day. Bright sunshine was registered to an aggregate of 81.2 hours; this gives a daily average of 2.6 hours and a percentage of 22—a rather low percentage for March; there were 9 sunless days. The mean temperature was 41.5°, with a mean maximum of 47.0° and a mean minimum of 36°. The highest maximum was 56° on the 29th, and the lowest minimum 30° on the 19th. On only two nights did the screen temperature fall as low as the freezing-point. On the grass, with a mean of 34°, the lowest minimum recorded was 28°—this on 4 nights—the only nights of ground frost. The forward march of the season was well shown in the steady rise of the soil temperature at 1 ft. deep. By fairly regular increments it advanced from 40° on the first to 45° on the 31st. The wind was variable in directions and always light. *John Davidson, Director of Studies, Meteorological Station of the St. Andrews Provincial Committee at the Training College Gardens, Mayfield, Dundee.*

GARDENING APPOINTMENT.

Mr. G. Woolley, for nearly four years Gardener to H. Dixon Kimber, Esq., Hitcham Place, Taplow, Buckinghamshire, as Gardener to J. G. Murray, Esq., Wrest Park, Ampthill, Bedfordshire.

Mr. John Anderson, for the past two years Gardener to Sir Henry Lawson, Bt., Brough Hall, Catterick, as Gardener to W. Gordon Black, Esq., The Priory, Kirkcaldy, Fifeshire, N.B., in succession to his father, who has retired after 37 years' service.

CATALOGUES RECEIVED.

C. E. West, Higham Hill, E.14.—Garden Sundries.
J. Cheal & Sons, Ltd., The Nurseries, Crawley.—Dahlias.

ANSWERS TO CORRESPONDENTS.

A New Geranium: *W. W., Berks.* The best way of bringing your new Pelargonium to the notice of the public is to enter it for award at one of the Royal Horticultural Society's fortnightly meetings. Wait until you have a good specimen or two in flower, and pack them carefully, addressed to the Secretary, Royal Horticultural Society, Vincent Square, Westminster, to be entered before the Floral Committee. It is essential that the variety should have a name before you submit it for an award. The only method of protecting your rights in the plant is to ensure that no one has any of the stock until you dispose of it. There are no patent rights in plants.

Asparagus Sprengeri Discoloured: *H. S.* We have examined the spray of Asparagus Sprengeri and find no fungous disease present, nor could we find any insect pests, but the damage done suggests that the discolouring is due to the action of thrips, the remedy for which is syringing and fumigating.

Correction.—Mrs. Heywood Johnstone draws our attention to errors made by our reporter in his notice of the Rhododendrons she exhibited at the meeting of the Royal Horticultural Society, on March 27. "Bigley Park" should read Bignor Park, and "Haywood" Johnstone, Heywood Johnstone.

Cucumbers Diseased: *Cloe.* The plants are attacked by wilt, caused by the fungus Verticillium. All diseased plants should be destroyed by burning. It would be advisable to utilise another house for succeeding crops of Cucumbers this season; remove all the soil from the house in which the diseased plants were grown, and bury it in some out-of-the-way part of the garden.

Lettuce Plants Diseased: *W. W. F.* The mycelium of a fungus is present in the crown of the plants; specimens that are affected with the disease should be destroyed by burning.

Names of Fruit: *O. F. F., Oxford.* 1, Ross Nonpareil; 2, Newton Wonder; 3, Margil; 4, Minchull Crab; 5, Lane's Prince Albert; 6, Cox's Orange Pippin; 7, Bramley's Seedling; 8, Lord Derby; 9, Baumann's Reinette; 10, Allington Pippin; 11, Dutch Mignonne; 12, not recognised; 13, Fearn's Pippin; 14, Cockle Pippin; 15, Ashmead's Kernel. *J. S.* Golden Harvey (syn. Brandy Apple). *W. M. B.* 1, Hoary Morning; 2, Winter Strawberry; 3, Small's Admirable.

Name of Plant: *H. B. S.* Cornus Mas (Cornelian Cherry). *F. R.* Pinus Pinaster (Cluster Pine). *W. W. C.* 1, Cotoneaster microphylla; 2, Olearia Haastii; 3, Ligustrum lucidum; 4, Pyracantha Lalandei; 5, Euonymus europaeus.

Pentstemons Unhealthy: *A. L.* The Pentstemons are affected with the fungus Botrytis, a common disease of cultivated plants. Diseased stocks should be burned and cuttings for propagation obtained from a fresh source.

Red Bricks for Garden Paths: *A. S. P.* The following firms supply red bricks suitable for garden paths, but you should obtain a guarantee that the bricks would not flake off during frost: The Haunchwood Brick and Tile Co., Nuneaton; The Hathern Station Brick and Terra Cotta Co., Loughborough; Mr. J. C. Edwards, Ruabon; Messrs. S. and E. Collier, Reading; The Cattybrook Co., 15, Clare Street, Bristol; Messrs. Candy and Co., Newton Abbott; Messrs. Watson, Nelson and Co., Ltd., Napton, nr. Rugby; and the Bromyard Tileries, Ltd., Broad Street, Bromyard, Hereford.

Communications Received.—R. T. C.—J. G. J.—E. K.—A. M.—D. R.—W. B. (thanks for 2s. 6d. for R.G.O.F. Box.)

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THE

Gardeners' Chronicle

No. 1895.—SATURDAY, APRIL 21, 1923.

CONTENTS.

Association of Economic Biologists 208
Ceanothus rigidus .. 208
Chrysanthemums, late-flowering 220
Covent Garden, strike at 208
Florists' flowers—
Carnations in the flower garden 209
Flower border, hardy—
Ranunculus 209
Fruit register—
Apple Tompkin's King 212
"Gardeners' Chronicle" seventy-five years ago 208
Garden League for devastated France .. 208
Ghent International Exhibition .. 207, 216
Gibbon's garden at Hampton Court .. 214
Gladiolus show, a national 208
Henry, Prof. A., honour for 207
Hop growers, payment to 208
Nursery note—
A London Florist's nursery 213
Obituary—
Russell, James .. 222
Welsh, Alex. .. 222
Orchid notes and gleanings—
Cattleya Delphin .. 213
Cymbidium Merlin Westonbirt variety 213
Laelio-Cattleya Gwendolen Leach .. 213
Odontoglossum Amillus Gerrish's variety 213
Pears 208
Pears and Apples in the south of England, approximate average order of blossoming of market varieties of 212
Polyanthuses, in praise of 207
Royal Gardeners' Orphan Fund 207
Societies—
United Hort., Ben. and Provident 221
Ghent Quinquennial 216
London Daffodil .. 220
Royal Caledonian .. 221
British Mycological .. 221
Thomas, Mr. Owen .. 207
Trees and shrubs—
Linum arboreum .. 209
Vegetable garden— .. 212
Victoria, settlement scheme for 207
Ward's, Mr. Kingdon, seventh expedition in Asia 214
Week's work, the .. 210
Worms, climbing .. 212

ILLUSTRATIONS.

Azalea Albert-Elizabeth, adjudged the best new plant at the Ghent show 211
Cymbidium Merlin Westonbirt variety 213
Ghent Show: plan of the British section, 217; the King and Queen of the Belgians at the opening ceremony, 216; views of the 215
Lambourne, the Rt. Hon. Lord, portrait of 208
Linum arboreum, a fine clump of 209
Sander Memorial cup offered for the best new plant at the Ghent show 210

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 46.4°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, April 18, 10 a.m. Bar. 30, temp. 49°. Weather—Dull.

Ghent Quinquennial International Exhibition.

In the year 1908, the Société Royale d'Agriculture et de Botanique de Gand celebrated its centenary by holding a horticultural exhibition on a scale never previously attempted, and those who were privileged to take part in it will never forget the brilliant scene at Ghent or the functions connected with the celebration, for Belgian horticulturists are as hospitable as they are skilful and enterprising. The exhibition held in 1913 was also a great success; then came the war, under which Belgium suffered greatly and nobly. It was, of course, impossible to hold a show in 1918, when the next one was due. From small beginnings at the Frascati Inn in 1809, the Ghent Society has progressed amazingly, and indeed it is not the only horticultural society which had its beginnings in the desire of a few friends to gather at an inn for the purpose of comparing their flowers and plants. Evidently there had been such meetings at the Frascati Inn for many years previously, as we may gather from the fact that there were sufficient enthusiasts to establish the Society in 1809, after Franz van Cassell had told them of the new plants he had seen in England. We may therefore take no little pride in the progress of the Ghent Society, inasmuch as our British activities inspired certain good Belgian gardeners to create it for the furtherance of horticulture in Ghent. The exhibition of 1923, described and illustrated in the present issue, and opened by His Majesty the King of the Belgians on Saturday, April 14th, continues until April 21st. It is of special interest as indicating the revival of horticultural activities in Belgium; it is also unique in that for the first time a Ghent show has included a section filled entirely with British productions and arranged under the auspices of the Chamber of Horticulture and the Royal Horticultural Society. Another feature which marks the present function is the re-dedication of the memorial to the late Comte Oswalde Kerchove de Denterghem, who was for a long period the President and moving spirit of the Floralies Gantoises. The original memorial was removed by the Germans during their occupation of the city. A special interest also attaches to the 1923 exhibition, inasmuch as the Fédération Horticole Internationale Professionale held its conference at Ghent during the opening days of the show, consequently the International Conference and the Floralies Gantoises brought together a large number of eminent horticulturists from many lands. The exhibition of 1923—the eighteenth of the International Quinquennial series, and the hundred and seventy-third exhibition of the Ghent Society—compares favourably with its predecessors of the past thirty years. In addition to occupying two huge buildings at the Palais des Floralies, very large numbers of exhibits are accommodated in the surrounding grounds. In brilliance and effect it is no whit behind those we have previously attended, and in its general arrangement it is an object lesson for those who have to organise great horticultural displays. In former years new plants were a feature of special interest at Ghent, but in this matter the present exhibition falls somewhat short of those previously held. Azaleas were exhibited in large numbers, and were the central feature of the big exhibition building where the colours of their flowers presented a picture of dazzling brilliance. Here and there, perhaps, the association of colours left much to be desired, but the general arrangement in large groups set in grass and surrounded by an abundance of foliage plants made up a garden scene not soon to be forgotten. Orchids were exhibited freely and finely, and probably at no previous Ghent show have these aristocrats of the floral world occupied so much space or created such a rich and graceful picture in the various salons. Sir Jeremiah Colman's exhibit, from Gatton Park, Reigate, was much appreciated, as it is no small business for an amateur to take a large collection of valuable plants so far from home; but he had his reward in the congratulations of his own countrymen and the admiration of others. Stove plants, Palms, Cycads, Caladiums, giant Ferns and others were used with splendid effect in various parts of the exhibition, but these were not represented so extensively as on former occasions, and it was obvious that war-time conditions had reduced many collections. It is difficult to convey an adequate idea of the extent and brilliance of this international exhibition, but it is a matter for pride that British horticulture was admirably represented and the British section was a fine example of elegance in design and arrangement. His Majesty the King of the Belgians paid an early visit to this section on Saturday, April 14. He made a tour of the exhibits with Mr. J. S. Brunton as guide, spoke to most of the British exhibitors and graciously referred to *The Gardeners' Chronicle* as a "most important paper." Concerning the outings, entertainments and hospitality offered to the members of the Jury and delegates to the Conference, we refer our readers to our report, which, we trust, will convey a fair idea of the extent, importance and beauty of the great Ghent Show of 1923.

Royal Gardeners' Orphan Fund.—The thirteenth annual dinner in aid of the Royal Gardeners' Orphan Fund will take place at the Hotel Victoria, Northumberland Avenue, W.C., on Friday, May 18, under the chairmanship of Mr. George Monro.

Mr. Owen Thomas.—The many friends of Mr. Owen Thomas will learn with regret that he is seriously ill with pneumonia. We trust that his robust physique may enable him quickly to recover and that horticulturists may soon see him hale and hearty, engaged again in manifold good works as of yore; for surely no gardener has shown more public spirit, nor disinterested solicitude for horticulture than has Mr. Owen Thomas.

Settlement Scheme for Victoria.—An agreement under the Empire Settlement Act has been signed by representatives of the Overseas Settlement Committee and an Australian State. The scheme makes arrangements for the settling of 10,000 new migrants from the United Kingdom, and their dependents, on 10,000 farms, to be provided within the state of Victoria, on Crown lands, or on lands resumed for subdivision. It is hoped to make arrangements immediately for the settlement of 2,000 of these migrants at an estimated cost of £3,000,000. Financial assistance will be given by the Victorian Government to settlers to enable them to purchase farming equipment and stock. An advance will also be made against improvements on their farms, such as houses and farm buildings. The total indebtedness of a settler, both for land and for advances made by the Victorian Government, must not exceed £1,500. The land is to be paid for at the rate of 6 per cent. per annum on the capital value. This 6 per cent. will wipe out the capital cost and interest in 36½ years. It is expected, however, that the great majority of the settlers will become sufficiently prosperous to pay off their farms in a much shorter period.

Honour for Prof. A. Henry.—The National Acclimatation Society for France conferred, on March 18, its large silver medal on Prof. Augustine Henry, of the College of Science, Dublin, in recognition of his services to horticulture and forestry. Prof. Henry's explorations of the flora of China, some twenty to thirty years ago, resulted in the discovery of about 1,000 species of plants new to science, many of which are now in cultivation in our gardens. Prof. Henry's researches into the artificial production of vigorous trees by hybridisation are also well-known, and one of these new hybrids, Populus generosa, has already proved its value for planting by its astonishing growth, some of the specimens being 35 feet high at the age of seven years. His introductions of trees include the Western Larch from Montana, U.S.A., and the geographical races of the European Larch, which occur wild in Poland and in the Tatra Mountains of Slovakia.

In Praise of Polyanthuses.—In seasons such as the present one, when winter wet makes Wallflowers in any but the most sheltered spots grow weedily, and the rain and winds combined prove too much for the continued endurance of Daffodils, the garden is made bright by the sturdy refusal of Polyanthuses to reflect the gloom of the skies. With the least touch of sun and regardless of rain and wet ground, they flower bravely. One of the most beautiful garden pictures may be made by planting among shrubs in sight of the house strains of yellow, gold and white Polyanthuses. Although many may prefer the coppery, purple and other rich hues, the yellow and golden colours seem more suitable for spring, and brighten more than do the latter the sombreness of dull spring days;

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even giving a faint hope that the incessant rain shall sometime cease. With them Forget-me-Nots blend very harmoniously, and large white double Daisies growing in the path make, though each be a common plant enough, one of the most beautiful corners in the early spring garden.

Payment to Hop Growers.—Hop growers are to receive a further payment on account of their last year's crop, on April 27. The Hop Controller proposes to pay an inclusive sum of £5 per pocket. Growers have already received up to eighty per cent. of the full value of their crop. Thus, in the case of Hops valued at £10 per hundredweight, there will be a sum of only £2 per hundredweight outstanding.

Sad Death of a Gardener.—Mr. George Harrington, gardener for over thirty years at St. Paul's School, was knocked down by a motor-car in the Hammersmith Road and killed. The inquest was held at Hammersmith on Monday last, and a verdict of accidental death was recorded.

Pears.—It looks as though an unhappy aftermath of last year's cheerless summer will appear in a very poor Pear crop. In a "cordon walk" consisting of about fifty trees, of which half are Apples and half Pears, though the former show promise of plenty of blossom, there are not more than a dozen flower trusses showing on the Pears. Similar scarcity of Pear blossom may be seen in many gardens, and those who want to make the most of such blossom as there is, will do well to pollinate the flowers of trained trees artificially. Although paucity of Pear blossom seems to be the general rule, here and there in gardens are to be found occasional trees with profusion of blossom.

Association of Economic Biologists.—A general meeting of the Association of Economic Biologists will be held at 2.30 p.m. on Friday, April 27, in the Botanical Lecture Theatre of the Imperial College of Science, Prince Consort Road, South Kensington, London, S.W.7, when Dr. C. M. Wenyon, C.M.G., C.B.E., will read a paper on "Some Recent Observations on Pathogenic Protozoa of Plants and Animals."

Reduction in the Postal Rates.—The reduction in the postal rates announced by the Chancellor of the Exchequer will be welcomed by traders, especially those with large mail order businesses. A saving of 33 1/3 per cent. will be effected on carriage rates for parcels under 2 lb. The alteration in the letter rate of 2 oz. for 1½d. instead of 1 oz. for 1½d. should also prove a valuable stimulus to trade, as will also the reduction in the inland printed paper rate, which will especially benefit those who distribute catalogues extensively.

Ceanothus rigidus.—In despite of the inclement spring, this shrub is flowering particularly well just now, and its deep blue-violet inflorescences give a shade of colour which is both rare and pleasing in the garden. Too tender to be grown in the open in most parts of England, it nevertheless flourishes exceedingly under the shelter of a wall. Those who wish to grow it should take care to obtain the true species, which is characterised by opposite, wedge-shaped, coarsely-toothed leaves, decurved at the apex, and by flowers—deep purplish blue, according to Bean (*Trees and Shrubs Hardy in the British Isles*), but in the plants which occasioned this note, better described as deep blue-violet.

Garden League for Devastated France.—A British Committee of The Garden League for Devastated France has recently been formed under the Presidence of Honour of His Excellency the French Ambassador, Monsieur le Comte de Saint-Aulaire. The League, which is known in France as L'Œuvre du "Jardin de la France Dévastée," exists for furthering friendly relations between France and England through the material expression of its work in the restoration of fruit and vegetable cultivation of garden ground all over the devastated area. At a meeting held recently at Mortimer Hall, His Excellency the French Ambassador, who was accompanied by Madame de Saint-Aulaire, paid an eloquent tribute to the work. He warmly congratulated the League on its successful organisation in the devastated regions, and upon the link formed by the adoption system between the school gardens of Britain and those it was restoring in devastated France. A resolution proposed by Sir John Miller and seconded by Lady (Capel) Wolseley, was passed unanimously, commending the League to public sympathy and support. The Hon. Organising Secretary is Miss Helen Colt, 31, Upper Berkeley Street, London.

Guelph International Gladiolus Show.—An International Gladiolus Show will be held at Guelph, Ontario, on August 22 and 23 next. The Ontario Government is providing trial plots for the planting of Gladioli sent for the purpose of the exhibition, in lots of 100 or less from any one grower. The corms will be grown by competent horticulturists attached to the Ontario Agricultural College. Growers and hybridisers of the Gladiolus in this country who desire to

LORD LAMBOURNE, PRESIDENT GENERAL OF THE JURY OF THE GHENT EXHIBITION (SEE P. 216).

exhibit their products are invited to send the required number of corms so as to reach Guelph not later than May 24. Consignments should be addressed to Mr. J. E. Carter, Chairman, The Plot Committee, Horticultural Society, Guelph, Ontario.

Leaf-Spot of Pelargonium.—Growers of Pelargoniums are often troubled with a mysterious complaint in their plants, resulting in spotting of the leaves. The late Dr. Cooke, in *Fungoid Pests of Cultivated Plants*, referring to Geranium leaf-spot, states: "We have often seen Pelargonium leaves having large and confluent discoloured and decayed spots, without any evidence of the presence of fungi, but the spotting has been attributed to sour soil, from which the plants have recovered after a good cleansing of the roots and transplanting in good soil." Miss Nellie A. Brown, pathologist in the Laboratory of Plant Pathology, United States Department of Agriculture, has published a paper* in which the spotting is attributed to a bacterium, Bacterium pelargonii. The organism is said to be unlike the one described by Lewis as Bacterium erodii, which also causes leaf-spotting. The author states that the organisms seem to be harboured in the soil, and this may be the reason why the plants referred to by Cooke recovered after they had received a good cleansing of the roots and were transplanted in fresh soil. The disease is said to be favoured by warm, moist conditions and insufficient ventilation; the author states that care in regulating the temperature, ventilation, and moisture conditions in the greenhouse, and in allowing plenty of space between the plants will go far towards preventing the appearance of the disease and towards curing it when it is present. She further recommends that all spotted leaves should be removed and destroyed, and states that the disease is not a serious one, unless the physical condition of the plant is weakened by too rapid development, caused by growing it in an excessively moist, warm atmosphere, with insufficient air circulating in the house. Miss Brown also points to the need of great care in watering Pelargoniums; she found in the case of affected plants that, when the spotted leaves were picked off and the plants placed well apart, allowed plenty of air, and watered with great care, the disease disappeared entirely by the end of three weeks and did not return.

* "Bacterial Leaf-spot of Geranium in the Eastern United States." By Nellie A. Brown. Reprinted from *Journal of Agricultural Research*. Vol. XXIII., No. 5. Government Printing Office, Washington.

Local Horticultural Societies.—Norton, Malton and District Chrysanthemum Society enjoyed a very successful year in 1922, and the annual report of the committee states that the show of 1922 was one of the most successful in the history of the society, the number of entries constituting a record. The date of the annual show this year has been provisionally fixed for November 15.

Strike at Covent Garden.—A complete stoppage of work occurred in the Floral Hall, Covent Garden Market, on Friday morning, the 13th inst., as a result of a ticket inspection by the Transport and General Workers' Union. It was discovered that one man was not a member of the Union, and in consequence all the Union men struck work. The trouble, however, was short-lived, for after one and a half hour, the non-union man joined the Union and work was then resumed as usual.

Appointments for the Ensuing Week.—Tuesday, April 24: Royal Horticultural Society's Committees meet in conjunction with the National Auricula and Primula Society's Show (two days). Wednesday, April 25: Lincolnshire Daffodil Society's Show. Thursday, April 26: Mitcham, Tooting and District Horticultural Society's meeting; Royal Botanic Society's meeting. Friday, April 27: Association of Economic Biologists meet.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Disbudding.* In the case of several of our cultivated fruit trees, experience has abundantly proved that the removal of shoots at an early stage of their growth (which from the adoption of a system of training, or a tendency in the tree to excessive luxuriance, are deemed superfluous) is both advantageous to the health of the tree and favourable to the production of handsome fruit. Pruning may effect the result desired, but it is a violent remedy, although necessary in some degree. Disbudding, properly speaking, is the art of preventing the development of useless buds at the expense of those which should be preserved, as it must be more advantageous to check an unnecessary shoot at an early stage than to wait until it has exhausted the tree of a greater or less quantity of sap; as it is probable that a proportion of roots is directly connected with vigorous shoots, it follows that derangement in the distribution of the sap ensues from their removal at the period of their full development. It is, then, generally advisable not to wait until a badly placed shoot is developed, but to suppress it early. With Apples and Pears, peculiar judgment and discrimination are necessary; stopping should systematically be practised. The excess of shoots produced by Peach trees invites the practice we recommend. The same attention should be directed to Vines. In our flower gardens much unnecessary growth may be prevented. Roses, for example, if judiciously disbudded, not only bloom better, but form finer and more vigorous plants. In fine, we advise a daily inspection of the sort of trees we have alluded to. *Gard. Chron., April* 15, 1848.

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FLORISTS' FLOWERS.

CARNATIONS IN THE FLOWER GARDEN.

There is a special charm about Carnations, and their importance in the flower garden needs no emphasising, especially now that raisers, with the aid of the perpetual-flowering type, have been successful in lengthening the period over which their flowering is extended. None of these modern sorts, however, exactly takes the place of the original border Carnations.

With other types so much in evidence, recognition of what recently has, and is being, accomplished amongst true border Carnations is in danger of being overlooked. There is, however, abundant proof that many varieties show marked advance in stoutness of stem and calyx, with a corresponding increase in fulness of the flower, whilst fragrance, an invaluable asset, is not being neglected. In this respect the Bookham Cloves may be instanced.

All the leading colours are now represented in this type, and are given in most cases as a prefix to the variety, viz., Salmon Clove, White Clove, Rose Clove, and so on, and so far as at present can be ascertained, the plants have all the vigour and hardiness of the best border varieties.

Other noteworthy self-coloured varieties include Border Yellow, Fujiyama, scarlet; Miss Wilmot, coral pink; Mrs. Robert Gordon, salmon pink; Peach Blossom, pale rose; the Grey Douglas, a lovely variety, and Purity. There are numerous others, not to mention the Fancies and Picotees, which not even the best perpetuals yet excel in beauty.

Soil and district of necessity govern the cultural treatment of these plants, for in low-lying and very humid places it may be necessary to winter the layers in cold frames. Where, however, conditions are favourable, autumn planting is a decided advantage. The present is a suitable time to plant these Carnations from pots.

Mention has been made of a longer flowering season, and this is due to the introduction of the Perpetual Border Carnation. Whilst this extended season of blooming is to be welcomed in the newer type, the old border Carnation has valuable qualities, which those whose resources do not admit of other than growing Carnations entirely in the open cannot overlook, while all who prize the ideal in florists' flowers, and require neatness of habit, must still grow the orthodox border varieties. Yet in such varieties as Sussex Pink, Sussex Scarlet, Highland Lassie, Rosalind, and two or three others, there is material which it would be folly to ignore where Carnations from about the middle of June until so long as the weather remains open would be welcome. In these varieties there is ample evidence of the influence of the true perpetual, in fact, rather too much, for dwarfness is being forfeited to extend the flowering period far beyond what our climate allows advantage to be taken of. They have, however, a constitution which enables them to withstand an average winter without injury. Rapidity of growth is not a marked feature in the perpetuals, and the successful cultivation of the new race appears to be summed up in having strong plants ready for planting out in spring, the season being too short to admit of weak plants showing the perpetual-flowering habit to the advantage which rightly belongs to them.

The true perpetuals have long passed the experimental stage, in so far as their use in the flower garden goes. Here again, however, the secret of a lengthy display depends on the age of the plants when they are put out. It is too much to expect spring-rooted cuttings to make an attractive bed: moreover, it is unreasonable, for what is not possible under glass is totally out of the question in the open. To ensure success with perpetuals as bedding plants the flower buds should be in evidence, or nearly so, in May, when the plants are put out, and this can only be obtained by propagating in the summer and autumn previous to planting. Under these conditions, and given a fair season and good treatment, they are an unqualified success, with the exception of slow growers such as Baroness de Brienen, and others that resent open-air treatment, like Carola and its sports. The best varieties, however, belong to the May Day and Britannia type, as they possess the desirable qualities of freedom of growth and dwarf habit. Aviator, May Day, Wivelsfield White, Champion, Brilliant, Winter Glow, Britannia, White Britannia, and Nora West are a few perpetual varieties which do well in the flower garden. *Y. G.*

HARDY FLOWER BORDER.

RANUNCULUS.

Ranunculus asiaticus, the Persian King Cup, may be had in endless variety, and in both symmetry and brilliancy of colouring excels most of the other species. Beds or borders formed of the plants present one of the most attractive displays in the garden that it is possible to conceive. The flowers are of shades of purple, violet and black intermixed, snow-white, rose, carmine, yellow to crimson, whilst a few are prettily striped and mottled equal to the Carnation or Picotee. All forms of the plant are very beautiful, and deserve to be represented in gardens. They enjoy a fairly open situation, but not too exposed, and for preference, a sandy loam. It is necessary to dig the ground deeply, incorporating well-rotted manure with it. The surface should be kept level as the work of digging proceeds, to promote a fine tilth, and thus conserve an equable degree of soil moisture during the plants' season of active growth. The best results are obtained from spring-planted tubers, as the young plants have then a better opportunity of forming strong growth without a check, which they frequently suffer when they are planted in autumn. The corms should be set six inches apart and two inches deep, pressing them firmly into the soil, and finally covering them with a layer of cocoa-fibre refuse. They need occasional waterings during times of drought.

The hardiest section of Ranunculus is undoubtedly that known as the Turban or Turkish. These forms will withstand almost any kind of inclement weather, and push up their foliage in huge tufts, above which arise numerous spikes of pretty Rose-like flowers in all shades, the flower-stalks growing from 10 inches to 15 inches high. The plants are thus well adapted for furnishing beds, or for massing.

Persian Ranunculi have large double flowers in many shades of showy colours, and a neat, compact growth.

The Scotch and Dutch Ranunculi are also to be recommended for massing in beds, forming lines, etc., and are invaluable for supplying cut blooms for house decoration, the flowers lasting well in water. *W. Logan.*

TREES AND SHRUBS.

LINUM ARBOREUM.

This attractive little shrub from the eastern Mediterranean region is certainly deserving of more attention than it receives, being quite the best yellow-flowered Flax, having lighter and less orange-colour in its flowers than either L. flavum or L. capitatum. When in flower few plants are so bright, while its vividly glaucous foliage, almost of a steely blue, is pleasing at other times of the year. It forms a neat, compact, evergreen shrub (Fig. 93) up to 2 feet high, and probably more in a warmer climate.

FIG. 93.—A FINE CLUMP OF LINUM ARBOREUM; FLOWERS YELLOW.

The flowers are of a bright Daffodil yellow, 1½ inch across, and borne from May till August, on erect terminal, somewhat capitate panicles, from 4 to 6 inches in length; the petals are of a fragile texture, and although the flowers are rather fugacious, they are borne so freely that they almost completely cover the foliage. The five green sepals are narrow and lanceolate, or acuminate, the top leaves being similar in shape, while the lower leaves are from one to two inches long, broader at the apex, gradually tapering to the base and almost stalkless. The species was first introduced in 1788 by Prof. J. Sibthorp, who was then Professor of Botany in the University of Oxford; at that time the plant was treated as a greenhouse shrub, and grew several feet high, but out-of-doors it seldom exceeds 2 feet high and not always that before it dies, as old plants seem less able to withstand the cold than young ones. It is readily propagated from cuttings of half-ripened shoots, placed in sandy soil, under a bell-glass in a little warmth (and it is advisable to keep a few young plants in reserve); or it may be raised from seeds which are freely produced, although it will be found to prolong the life of the plant if the young seed vessels are picked off. It should be planted in a sunny position, in soil that is not too rich; and should there be an absence of lime in the soil, a little mortar rubble should be added. *F. G. Preston, Botanic Garden, Cambridge.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Cypripedium.—Cypripediums of the bellatulum section, which comprise C. niveum, C. Godefroyae, and their varieties, are showing their flower scapes, and should have water afforded them whenever they become dry. There are also numerous hybrids, in which one or the other of these species is a parent, and the hybrids should be grown under similar conditions to the species. This section has been considered difficult to manage, and this is so in comparison with the ease by which most growers cultivate the green-leaved section of this large family of plants. The bellatulum Cypripediums should be grown in the lightest and warmest part of the Cypripedium house, in a position close to the roof-glass, where they will receive the maximum amount of light and air and be well out of the way of the syringe. Whilst plenty of light is necessary, they should not be exposed to strong sunlight at any time. As the plants pass out of bloom, those that require repotting should be attended to. Use a compost consisting of limestone, peat, and good fibrous loam broken into pieces according to the size of the plants. For large plants the material should be used in a rougher and larger state than for the smaller ones. The pots should be sufficiently large to accommodate the plant for at least two years, as these Orchids resent root disturbance too often. At the same time care must be taken not to damage the succulent roots. The pots should contain plenty of drainage material, and this may consist of limestone or old mortar rubble. Pot firmly, and, when the plants are well rooted in the compost, give the roots copious supplies of water, taking care that the plants get dry between each operation. The old method of keeping them dry during the winter is a mistake. Both an excess and a deficiency of moisture have the same effect upon the plants; those that lose their roots by shrivelling and those that lose them by rotting both eventually deteriorate and gradually dwindle away. Once these plants have lost their roots it is most difficult to restore them to health and vigour again, hence the necessity of paying the greatest attention to the roots.

Late-Flowering Cypripediums.—Late-flowering varieties of the winter-flowering Cypripediums which have passed out of bloom should be repotted forthwith, should they require it, for, if this operation is deferred too long, they do not readily become re-established, especially if the weather is bright and warm. These Orchids should be potted in a similar compost to that advised previously for the green-leaved section of Cypripediums.

THE HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Danger of Frost.—It is to be hoped that the frosts of last week on several consecutive nights will not have caused much damage to the Plum crop. The dry atmosphere may have helped to prevent it. Preparations should still be made for such eventualities with the Apple crop. Where the growth of these trees is restricted to a height of, say, 8 to 10 feet, it is possible to arrange a light framework on which fish netting of double thickness may be used to encircle a tree or a number of trees. This would apply mainly to select varieties, such as Cox's Orange Pippin and Laxton's Superb. Care must be taken to see that all ties are secure on wall trees. As these trees pass out of flower, the frost-protecting material and boards should be removed. Our crop of Pears promises, from present indications, to be a light one. Pear trees will need the greatest attention to secure the fullest advantage of the fruits that do set.

General Remarks.—Attention should be paid to all grafts, loosening the ties if necessary. Continue to disbud or stop shoots of wall trees at intervals. Spraying may be resorted to in the case of trees that have not yet expanded their blossoms. The use of arsenate of lead should be discontinued at this period, or bees visiting fruit blossom will be destroyed. Care must be taken in the use of this insecticide where ground crops are near, and, if such are ready for immediate use, spraying should be withheld. Fruit in store should be examined carefully. An increase of decay is now bound to be seen, and long-keeping varieties, such as Newton Wonder and Bramley's Seedling, are now mature. The former variety will be found quite suitable as a dessert Apple, failing others, at this time of year. Although only suitable as a culinary Apple, Norfolk Beefing is a good keeping variety. Dumelow's Seedling (Wellington) is equally good, but the tree is very subject to canker. I have found Gascoyne's Scarlet Seedling a useful table Apple during the past few weeks. A variety strongly recommended to me—D'Arcy Spice—is of excellent flavour and has good keeping qualities, but appears to be a poor grower. Easter Orange will certainly be a useful variety as

FIG. 94.—THE SANDER MEMORIAL CUP, OFFERED FOR THE BEST NEW PLANT AT THE GHENT SHOW (SEE PAGE 211).

a late keeping dessert sort. Cherry trees subjected to Cherry leaf Scorch (Gnomonia erythrostoma) should be sprayed twice, just before and after the flowering period.

Strawberry Beds.—Unmulched plantations of Strawberries should be constantly hoed to promote a fine tilth and to encourage liberal growth of the plants. In doing this, do not draw away the soil from the crowns of the Strawberries.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Nerium Oleander.—Even when not in flower, well-grown specimens of Oleanders make handsome plants for furnishing the conservatory; successful flowering depends very largely on the wood being well ripened. The plants should, on this account, be grown in a light, sunny position in a greenhouse; during the summer they may be stood out-of-doors in an open, sunny situation. When the flower buds begin to show, care should be taken to disbud the lateral growth that appears below them, for if such growths are allowed to develop the flower buds will drop. When in full growth Oleanders need ample supplies of water at the roots, but during the winter they should be kept on the dry side. They are very liable to attacks of red spider and mealy bug, and require frequent attention to keep them clean. They may be propagated from the tops of mature shoots inserted singly in small pots, and plunged in a close case furnished with slight bottom-heat. There are numbers of beautiful varieties of Nerium, including both single and double-flowered sorts.

Winter Flowering Begonias.—This section of Begonia was raised between B. socotrana and the tuberous-rooted varieties; they are represented by such fine varieties as Optima, Exquisite, Fascination and Mrs. Heal. The plants have now passed their most critical period—the resting stage—and are beginning to push fresh growth from the base. Such growth should be encouraged by giving the plants more moisture at the roots. This, combined with more atmospheric moisture, should soon result in a supply of young shoots suitable for use as cuttings, and should be secured when they are three to four inches in length. They are best inserted singly in small pots, plunging them in a propagating case with slight bottom heat. Their subsequent cultivation presents few difficulties as they grow well in a house having an intermediate temperature. They should not be over-potted, and watering must be done carefully at all times. Attacks of Begonia mite must be guarded against by the use of the sulphur vaporiser.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Mulching Paeonies.—Paeonies require a generous treatment to enable them to develop and sustain their gorgeous flowers, and mulchings are of great benefit to them. Cow-dung is the best material for use as a mulch, but this is not obtainable everywhere, and where it is not available recourse should be made to old stable manure. Perchance some of the first manure can be secured, but not enough, in which case a blending of the two makes an excellent mulch, and it should be applied now. Any roots of Paeonies carrying an excess of small, weakly, flowerless shoots should be somewhat relieved of such growths in order that all the energy of the plant may be directed to flower production.

Double White Arabis.—Seldom is this plant referred to, but a large patch of it in bloom is not unlike, in the distance, a bed of Lily of the Valley—though the individual flowers are nearer akin in size to those of small Stocks—and, being double, last longer on the plants than those of the more frequently seen single variety. Moreover, the spikes of this double form are stronger and stand erect, displaying the individual blossoms at their best. Although pure white when fully open, the flowers in the bud stage show a tinge of pink on them. The stock may be increased by dividing the roots or inserting cuttings, both operations being deferred until after the plants have passed out of flower. These methods of propagation may be followed for the single varieties of Rock Cresses—more popularly known as Aubrietias—or the single sorts may be also raised from seed.

Polyanthus Seed.—Where it is necessary to add to the stock of next year's flowering plants sow seed of Polyanthus now, in a box or pan, if only a few plants are wanted, but where large numbers of plants are required sow the seed in shallow drills in a cold frame, using in either case light, rich soil for the purpose and give shade. When the seedlings are of a suitable size, transfer them to other boxes, cold frames, or a nursery bed out-of-doors in a semi-shaded spot. Sifted leaf-mould is a valuable aid to good progress in those early stages.

Scirpus lacustris.—The Bullrush has a peculiarly ornamental value, and is most at home in swampy ground or fringing the end of a pond or lake. For this latter purpose it is employed in the park here. Owing to the vigour and rough nature of this Rush, it is not to be recommended for choice or restricted water-courses. Clumps of this Rush associate well with Pampas Grasses for indoor winter decoration.

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FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Melons in Frames.—The planting of Melon seeds in pits or frames may now be done, using 5-inch pots as seed-pans. If the pits are provided with water pipes, a deep hot-bed of fermenting material is not essential, but if the pit is unheated a good hot-bed will be necessary to ensure a steady warmth. Adequate protecting material for covering the pit at night should be available. Unless a steady warmth can be maintained it would be advisable to wait until the weather conditions are more favourable. The fermenting material should be thoroughly prepared in advance of making the hot-bed. After making the latter, place a ridge of suitable soil at the back of the pit or frame in a similar manner as recommended in a previous calendar for Melons in houses. When the plants are sufficiently advanced in growth set them out about six inches from the back of the pit or frame, allowing a space of 21 inches to 24 inches between them; vigorous growing varieties should be allowed the maximum space. The subsequent training of the plants should be similar to those grown in houses and trained on the cordon system.

Cherries.—After these fruits are set there should be no attempt to hasten their development. Moderate temperatures should be provided until the stoning process has been completed. Use fire-heat only to prevent the temperature falling below 45° at night, and to maintain it at 50° by day. Open the ventilators a little when this warmth is reached. In hot, sunny weather the freest ventilation should be afforded the trees, and at no time should the temperature be higher than 70°. If it cannot be kept so low as this by other means, a slight shade may be used during the hottest part of the day. Allow the house to cool down to 60° before closing time. Syringe the trees in the mornings of bright days, and again as soon as the house is closed. Careful attention should be paid to watering, especially in the case of trees in pots, and they will need occasional manurial assistance in a weak form. Cordon-trained trees should have their side shoots stopped at the third or fourth leaf, allowing the leaders to grow unstopped until the trellis is covered. When dealing with fan-trained trees, train in young wood where necessary to furnish the tree, and stop all other shoots in order to promote the formation of fruit buds.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Lettuces.—Plant out autumn-sown Lettuces in a sheltered position, and make sowings out-of-doors of both Cos and Cabbage varieties. Continue to sow Lettuce seed once a fortnight to maintain an unbroken supply, and thin the seedlings to one foot apart as soon as they are large enough to handle. Dust around them with old soot, and use the hoe frequently to keep the soil stirred. Celery ridges are excellent on which to sow the earliest Lettuce crops.

Peas.—Sow varieties of tall-growing early Peas in boxes and raise the seedlings in a cold frame for planting out next month, also sow a row or two outdoors in an open, sunny position, taking care not to sow too thickly. If mice are troublesome, dust the seed with red lead before sowing, and place traps along the rows. A good trap is made by sinking to the rim in the ground a two or three-pound jam-jar containing water to two-thirds its depth. I have caught many mice by this simple method. Dust the young plants during showery weather with wood ash, as Peas respond readily to potash, which this contains. Birds are sometimes apt to peck out the growing points; therefore, the plants should be staked as soon as they are through the ground, as this will help to ward off the birds. Continue to sow a fresh row or two about once a fortnight to maintain a supply. Allow plenty of room between the rows.

NOTES FROM WISLEY.

Although the correct names used by gardeners for plants are often a source of grievance to those unversed in botany, a common language and system is absolutely essential in plant nomenclature, and many of the Latin names when understood are as attractive as their English equivalents. It cannot be denied, however, that in some cases this is not so and that plants are invested with names which seem hopelessly unwieldy and even ridiculous to the ordinary man. A case in point occurs in Rhododendron hippophaeoides, a pretty little shrub which is now in bloom at the R.H.S. gardens at Wisley. The flowers are nearly as blue as those of R. intricatum and somewhat larger. The foliage bears a silver sheen like that seen on the leaves of Sea Buckthorn (Hippophäe rhamnoides), which is apparently the reason for this unwieldy specific name.

FIG. 91.—AZALEA ALBERT-ELIZABETH, AWARDED THE SANDER CUP FOR THE BEST NEW PLANT AT THE GHENT EXHIBITION. THE FLOWERS ARE WHITE WITH A PICOTEE EDGE OF BRIGHT CARMINE. (SEE PAGE 219.)

Numbers of seedlings of R. campanulatum are also in flower and some vividly-coloured R. arboreum hybrids.

The sulphur-flowered R. lutescens has never flowered so freely before as this year, and makes a graceful woodland plant. R. Thomsonii, with its Arbutus-like stems and blood-red flowers, is also blooming exceptionally freely.

The Alpine house is a blaze of colour chiefly from blue and purple-flowered Primulas, such as the hybrid Mrs. J. H. Wilson and P. × Juliana.

Primula Winteri is now nearly over, but in the case of the thrum-eyed form in this house, which has been set by means of pollen from the pin-eyed flowers, the whole calyx and ovary have swollen up, and give the effect of a handsome green flower.

Other Primulas in bloom are P. frondosa, P. fasciculata, a little gem collected by Forrest, bearing red flowers with a yellow eye, and, out in the open, P. rosea and P. denticulata.

In the Alpine house is also to be seen the minute-flowered Androsace pyrenaica. Here, also, but considerably more conspicuous, is the clear yellow Anemone ranunculoides which has been naturalised in a few places in this country.

On the rock garden, one of the most beautiful plants in bloom at the present time is Anemone Hepatica var. angulosa. The flowers are of a shade of blue difficult to describe, but none the less enchanting, against which the white stamens stand out conspicuously. The reverse of the petals is silvered, and the sepals and flower stalks red-brown. The blue Anemones blanda and appenina, which are often confused, have started flowering in the wild garden, where several species of Cardamine are showing bloom. Among these are C. bulbiferum, a native, and C. digitata. The latter, though not unlike C. bulbiferum, may easily be distinguished from it by its palmate leaves and absence of bulbils. It is also earlier in flowering, has larger blooms, and is not so tall. Growing in the same recess is the delicate and Anemone-like Isopyrum thalictroides.

The spotted leaves of Orchis maculata are now pushing through the soil. Numbers of these plants are to be found growing through and around the still dormant Male Ferns, which seem to provide suitable germinating places for the dust-like seed of these Orchids.

Various pleasantly scented shrubs are sending out their perfume, such as Viburnum Carlesii, the popularity of which seems now assured, the Vanilla-scented Azara microphylla (familiarly known as the "bothy pudding"), Osmanthus Delavayii and Daphne Mezereum, the flowers of which are now giving place to foliage. A lesser-known and small evergreen species of Daphne is now coming into flower, namely, D. tangutica; the outside of the corolla tube is stained a bright red purple, but the flowers, when open, are nearly white.

Among the plants received from the Mt. Everest Expedition a white-flowered Composite with woolly foliage is showing bloom. It appears to be a species of Helichrysum and of no special garden merit.

In the same pit is a curious freak of nature in the form of a Dahlia sporting alternate instead of opposite foliage. It is one of the plants sent for trial at Wisley. *J. E. G. White.*

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CLIMBING WORMS.

Among the many letters which are reaching me respecting worms, prompted by the articles which have appeared in the *Gard. Chron.*, is one from the Royal Horticultural Society's Gardens at Ripley, which is especially interesting. Mr. Fox-Wilson sent me a tube of worms with the statement that "their interest lies in the fact that these worms were found under grease bands on standard Apple trees, about three feet above the ground. When the old bands are taken off, about the third week in September, to be replaced by new ones, worms similar to the enclosed are found every year underneath the old bands. I am at a loss to account for their presence, and the only food appears to be some of the older bark, which surrounds them in the form of 'grass.'"

Here is a subject concerning which few observations have hitherto been published. About 20 years ago a work appeared entitled *Deserts and Forests of America*, in which we find the query, "Is it generally known that worms can climb walls and plank-palings?" The author proceeds to say that they do so, slowly and surely. "They often climb up the outside of water-butts, and falling in are drowned." He adds (p. 34), a few other particulars about worms which merit attention, but belong to another branch of the subject. A reviewer, making special reference to this inquiry, replied: "We may be allowed to inform Mr. Fountain that several species can, and do, climb trees: and that to several forms of these the appropriate name of Dendrobaena has been given on that very account." The reviewer gives no evidence from his own experience that worms climb trees, though his statement is perfectly correct. He is in error, however, when he says the name Dendrobaena was given to several forms for that very reason. My friend, Dr. Gustav Eisen, who introduced the term in 1874, applied it to a tree-dweller, and not a tree-climber. Though there are now quite a number of species of Dendrobaena known to science, only one or two are known to be climbers, and some do not even live in trees. They are called Dendrobenes because they are generically related to the type, and not on account of any peculiar life-habit. What, then, are the worms which are known to climb trees, fences, water-butts, door posts, spouts and walls? Those received from Ripley are typical. One is the well-known brandling, readily recognised by its chestnut-brown and golden bands. Another is the gilt-tail, a true Dendrobene, with life-habits of a very similar nature to those of the brandling. These worms are peculiarly fond of decaying vegetable matter, dead leaves, mouldering tree trunks and rotten wood. They appear to climb old trees occasionally in search of holes where decay has begun, but they also have a peculiar fondness for old sacking. Many years ago during a worm-hunting excursion on the moors beyond Haworth, I found them in great numbers under a portion of an old sack, and since then I have invariably found them under similar conditions when shedding their habits and habitats. I have also found them on painted woodwork several feet from the ground, as well as on slop-stones or sinks, which have been reached by means of the waste pipe. Other species I have collected in bathrooms upstairs, the worms in these cases also having climbed by means of the discharging pipes.

It may be asked what are the means which worms possess for feats such as these. In the first place there are the well-known bristles. An average sized climber has about 100 segments, each of which possesses eight bristles. Thus we find 800 fine claws, finger nails, or grappling hooks ready for action, and these can lay hold of the finest irregularities. But in many species of worms the setae are not arranged with a view to climbing, and only a certain percentage would come into action. In the climbers all the setae are available for this purpose.

Next we find that many worms secrete a viscid slime which would greatly assist them in their operations. The shapes of worms also have to be considered. Round or octagonal forms would be at a disadvantage compared with the gilt tail and brandling, whose ventral surface is concave, so that it acts as a sucker, and thus enables the worm to get a very firm grip. It must be remembered that with worms like these, capable of adpressing themselves very closely to the woodwork, the centre of gravity is exceedingly favourable, and the risk of falling extremely small.

Lest it should be thought that tree climbers are injurious, I hasten to remark that such worms never attack sound bark or wood, and never wantonly damage trees in the way that certain caterpillars do. If they are found under the bark, or in the tissues, it is a sure indication that an unhealthy condition already exists, and their presence should lead to careful examination, and treatment of the parts where they are found. It is much to be desired that gardeners, fruit growers and foresters should collect any worms they may find on trees and have them examined. The subject is one about which little is at present known, and I should be glad to identify and report on specimens sent to me for the purpose. Where possible, living material should be sent in tin boxes, which should be free from perforations through which the specimens might escape. *Hilderic Friend. Cathay, Solihull.*

APPROXIMATE AVERAGE ORDER OF BLOSSOMING OF MARKET VARIETIES OF PEARS AND APPLES IN THE SOUTH OF ENGLAND.

Pears.

Earliest Varieties.

1st to 7th day: Varieties such as Brockworth Park, Doyenné d'été, Jargonelle, commence to flower early, but are not usually suitable for market.

Early Varieties.

8th day: Beurré d'Amanlis (S), Conference (F_2).

9th day: Marguerite Marillat (F_2), Beurré Clairgeau (S), Durondeau (F_3).

Mid-Season Varieties.

10th day: Louise Bonne of Jersey (S), Emile d'Heyst (S), Clapp's Favourite (S), Marie Louise d'Uccle (S).

11th day: Fertility (S), Catillac (S).

Late Varieties.

13th day: Hessle (F_2), Beurré Capiaumont (S).

14th day: Dr. Jules Guyot (F_2).

16th day: Doyenné du Comice (S).

Notes.

Time of flowering of Caillot Rosat, Chalk, Lammas, and Muirfowl's Egg not ascertained.

The above list includes market varieties mentioned in the Ministry of Agriculture's leaflet on *Profitable Pears for Market*. The safest varieties are printed in large type.

The order of flowering is based on records at R.H.S. gardens at Wisley, at Droitwich Experimental Garden, the Fruit and Cider Institute, near Bristol; by H. Somers Rivers, at Sawbridgeworth; and at Wye, Kent. All vary slightly, but agree in the main order.

The self-fruitfulness or sterility is based on observations at Wisley gardens and at Wye. Pears, as a rule, appear to be self-sterile, and most of those that are self-fruitful are only slightly so. S = self-sterile; F_1 = somewhat self-fruitful; F_2 = occasionally self-fruitful; F_3 = very rarely self-fruitful.

Apples.

Earliest Varieties.

1st day: Irish Peach (F_1), not recommended, but used as the standard for earliness.

3rd day: Warner's King (F_2).

4th day: Bismarck (F_2).

Early Varieties.

5th day: Beauty of Bath (S), Stirling Castle (F_1).

Mid-Season Varieties.

10th and 11th day: James Grieve (F_2), Gladstone (F_2 or S), Allington Pippin (F_2).

13th day: Rival (F_2), Cox's Orange Pippin (S or F_2), King of the Pippins (F_2).

14th day: Early Victoria (F_2), Bramley's Seedling (F_2 or S), Lord Grosvenor (F_1), Ecklinville (F_2), Worcester Pearmain (F_2 or S), Grenadier (S).

Late Varieties.

15th day: Lord Derby (F_1), Lane's Prince Albert (S or F_2).

17th and 18th days: Newton Wonder (F_2), Annie Elizabeth (F_2), Lady Sudeley (F_2 or S), Blenheim Pippin (S).

24th day: Graham's Royal Jubilee (S).

Notes.

The varieties are those mentioned in the Ministry of Agriculture's leaflet, *Profitable Apples for Market*. Those in large type are specially recommended.

The average order of blossoming is based on records of R.H.S. at Wisley, at Droitwich Experimental Garden, Woburn Fruit Farm, by John Watkins at Hereford, at the Fruit and Cider Institute near Bristol, and at Wye, Kent.

From a record of 20 varieties of Apples at Wye, in 1922, the average length of time in flower of a variety was 10 days from start to fall of petals, varying from 8 to 12 days, full flower for about 2 days, 3 to 5 days after first flowers. The weather during Apple blossoming in 1922 was hot and dry.

The notes on self-fruitfulness or self-sterility are based on records of Royal Horticultural Society, John Innes Horticultural Research Station, and at Wye. S = self-sterile; F_1 = somewhat self-fruitful; F_2 = slightly self-fruitful; F_3 = very rarely self-fruitful. Two-thirds of the varieties of English, American, and Australian Apples are self-sterile; none is sufficiently self-fruitful to plant alone in block. *Cecil H. Hooper, Agricultural College, Wye, Kent. April, 4, 1923.*

FRUIT REGISTER.

APPLE TOMPKIN'S KING.

The fruits of Apple Tompkin's King (syn. King of Tompkin's County) I send you—the first week in April—proves it to be one of the best late varieties, both for dessert and culinary purposes. They are, perhaps, a little large for dessert purposes, but very juicy and firm in the flesh. The Apples are a good shape, with bright yellow skin, streaked with red at this time of the year, which gives them a handsome appearance on the table. For culinary use they require little or no sweetening. The tree is a good clean grower and makes plenty of wood. In its young state it requires to be frequently root-pruned to bring it into free bearing. *A. B. Wadds, Englefield Gardens, Reading.*

VEGETABLE GARDEN.

WINTER SALADS.

Mr. C. Nicholson (p. 166) expresses a doubt as to the value of Claytonia perfoliata as a winter Salad plant, so I write to say that I can corroborate Mr. W. Auton's experience, and tell him that we use it habitually and find it excellent. It comes up every year self-sown in our garden at Liss, Hampshire, and we gather young plants of it almost every day to mix with Endive, Lamb's lettuce and Rampion. This last, the young plants of Campanula Rapunculus, is not mentioned by Mr. Auton, but I recommend him to try it. The young plants come up also self-sown and the young leaves are good for salad up to about May. Then, of course, the tall stalks push up and give their pretty flowering panicles so valuable for decoration. *J. Gamble.*

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NURSERY NOTE.

A LONDON FLORIST'S NURSERY.

Some of the larger London florists find it very convenient—even necessary—to include a small nursery in connection with their business in the metropolis. It enables them to grow and maintain a continuous supply of flowering plants and cut flowers. It also acts as a clearing station for choice plants obtained from other sources, for eventual despatch and disposal as required. Such a business requires both a Palm-house and a glass-house in which the choice Ferns and foliage used for public and private functions may be recuperated. A nursery of this nature is owned by Mr. Moyses Stevens, in conjunction with his well-known florist's business at 146, Victoria Street. It is probably the latest and most up-to-date nursery of its kind round London, and has been established about four years.

The houses are all new and provided with the latest improvements and necessities for growing plants, regardless of expense. The nursery, which is about one acre in extent and mostly covered with glass-houses, is situated in Magdalene Road, Wandsworth Common, in the near vicinity of 300 acres of open space, within ¾ mile of Wimbledon Common, and yet within 12 minutes' run by motor-van from Mr. Stevens' London shop near Victoria Station.

The Palm-house is a fine structure, 100 feet long, 30 feet wide, and 18 feet high. A side stage runs around the house, while a four-tier stage is arranged through the centre, leaving ground space for very large Kentias, Cocos flexuosa, Phoenix canariensis, P. Roebelinii, Araucaria excelsa, etc. On a recent visit I noticed in this particular house a fine specimen of Chamaerops excelsa, 15 feet to 16 feet high—a fine plant for a large conservatory—and another of C. Fortunei, 6 feet high. The other division contains large numbers of Richardia (Calla aethiopica in flower; Lilium speciosum, L. rubrum and L. album, for supplying cut blooms; also Genistas, Dracaenas, large Nephrolepis, and other Ferns useful for decorative purposes. Suspended from the roof are large numbers of big wire baskets filled with Asparagus Sprengeri. A large heated cellar under the centre of the house is used for forcing early Hyacinths, etc.

This glass-house contains eight water-tanks. On either side of the house is a wide, heated frame, and both frames are filled with Lilium lancifolium, L. l. rubrum, L. l. album, L. candidum, etc., which are transferred to the larger house for flowering.

Another glass-house, 130 feet long, is devoted to Adiantum cuneatum for supplying cut fronds. The house contains 1,500 plants, while through the centre of it hang wire baskets containing Asparagus Sprengeri. Another house, 100 feet long and 21 feet wide, was filled to its utmost capacity at the time of my visit with many hundreds of pot Hyacinths in different stages, also a large quantity in boxes for cutting. Altogether, over 20,000 Hyacinths were in pots.

I saw many Liliums in bloom and others for succession; a quantity of Azalea indica, all of the best kinds; also large batches of seedling Asparagus plumosus and S. Sprengeri, these being for the special purpose of replacing worn-out plants. Thousands of these Asparagus plants are grown for cutting purposes alone.

Another house, 120 feet long, with beds on either side and furnished with bottom heat, was filled with Asparagus plumosus, while a shelf running each side of the house was filled with A. Sprengeri. Large wire baskets containing A. Sprengeri were suspended in two rows down the whole length of this house, all for cutting purposes. Every inch of room is made use of. Another glass-house the same length is similarly filled. Underneath the stage were Hyacinths fresh from the ash-beds, and in front of this house runs a wide heated frame for starting Liliums, etc. The space around the glass-houses is used for garage, office, potting-shed, standing-out room for various plants, large Bays, etc. One side of this area is used for the plunging of Hyacinths, the place being utilised in summer for Chrysanthemums, of which a very large quantity is grown, of varieties suitable for supplying cut blooms.

The water supply of the nursery is very convenient, and the houses are well heated by two powerful boilers. The nursery has an air of tidiness about it. The offices, greenhouses, potting-shed, and stokehole are all lighted by electricity.

The establishment is under the management of Mr. Weeks, who for 20 years was in charge of the soft-wooded department at Messrs. James Veitch and Sons, Chelsea, and 10 years at their Feltham nursery when the department was moved there, until the firm closed down.

Mr. Stevens' nursery is well worthy of a visit by those interested in seeing how plants are grown in large quantities for supplying the wants of a large London florist. *John Heal.*

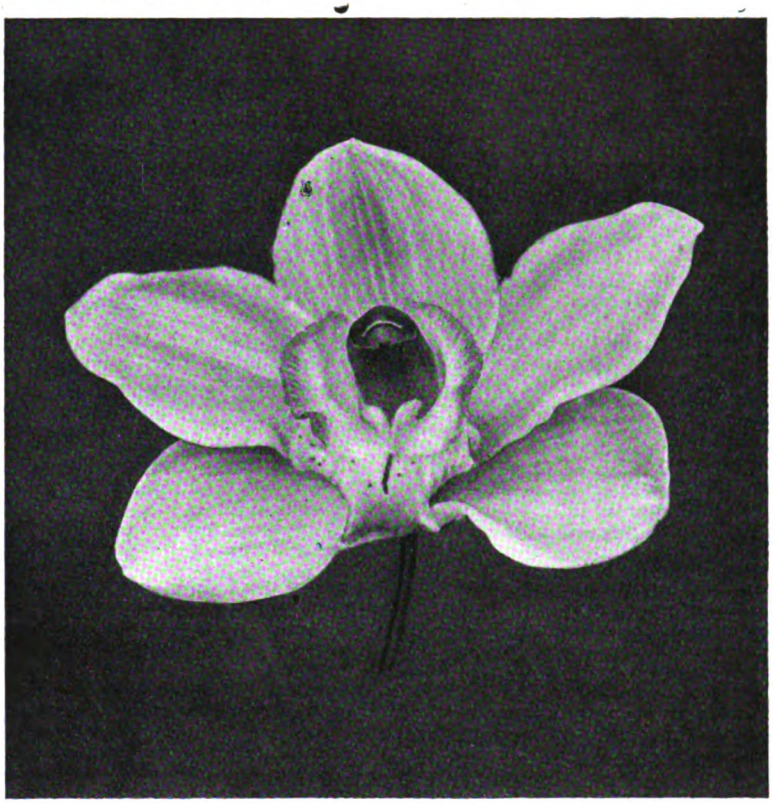

FIG. 96.—CYMBIDIUM MERLIN, WESTONBIRT VARIETY. R.H.S. FIRST-CLASS CERTIFICATE, MARCH 13, 1923.

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM AMILLUS GERRISH'S VARIETY.

R. Gerrish, Esq., Milford Manor, Salisbury (gr. Mr. W. Sorrell) sends a superb flower of one of the richest coloured hybrid Odontoglossums yet produced, and which has the glowing tints of the best red Odontiodas, with the large size and perfect shape of the finest type of Odontoglossum.

The parents are Odm. illustrissimum (ardentissimum × Lambeauianum) and Odm. Amethyst (eximium × Lambeauianum), O. Pescatorei, O. crispum and O. Harryanum. The very broad sepals and petals are ruby-crimson, with a thread-like and scarcely perceptible silver margin; there is a slight tinge of rose on the tips of the sepals. The large, fringed lip is reddish-crimson, with a white zone in the middle and white margin. It is a beautiful novelty of which its owner is justly proud.

CATTLEYA DELPHIN.

Both Messrs. McBean, Cooksbridge, and Messrs. Flory and Black, Slough, have sent us flowers of this handsome hybrid, which was recently first recorded for Messrs. McBean. The cross is between C. Tityus (Enid × Octave Doin) and C. Empress Frederick (Dowiana × Mossiae). The flowers from both raisers are very similar, C. Tityus appearing largely in each. The large flowers have rosy-mauve sepals and petals, the latter being almost circular in outline. The showy lip has a light orange disc, the crimped front lobe being claret purple, the veining showing the C. Mossiae ancestor plainly.

LAELIO-CATTLEYA GWENDOLEN LEACH.

A very good new cross of complicated parentage and resulting in a very pretty flower is sent by Frederick J. Hanbury, Esq., F.L.S. The cross is between Mr. Hanbury's L.-C. Capulet (L. purpurata × L.-C. G. S. Ball) and L.-C. Merciana (C. amethystoglossa × L. flava). The flower, which is of firm substance, is rich chrome yellow, with a claret-red lip that has a gold shade.

CYMBIDIUM MERLIN WESTONBIRT VARIETY.

In our issue of April 22, 1922, we gave some account of the outstanding collection of Cymbidiums in the gardens of Lieut.-Col. Sir Geo. L. Holford, K.C.V.O., at Westonbirt (gr., Mr. H. G. Alexander), together with illustrations of three of the beautiful forms in flower at the time of our visit. We now illustrate another choice variety from the Westonbirt collection, Cymbidium Merlin Westonbirt variety (see Fig. 96), which obtained a First-Class Certificate at the Royal Horticultural Society's meeting on March 13 this year. The cross is between C. Alexanderi and C. Dryad, the latter a fine hybrid flowered at Westonbirt in 1914, the cross being between C. insigne Sanderi and C. Parishii Sanderae, which has been instrumental in producing the fine shape and substance in the beautiful hybrid now illustrated. The colour of the flower has been described as Tea-rose blush with a slightly darker mottling on the lip, which has a thin claret line in front. The upper side of the column is also dark claret colour. Sir George Holford is to be congratulated on his success in improving one of the most useful Orchids for all purposes.

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. 13.—Through the Mekong Gorges.

On August 22 I set out for Tsa-ka-lo on the Mekong, nominally six marches. I had by no means made up my mind where to spend the autumn, or by which route to return, so much depended on the local situation; but I had contemplated the long journey via Batang to Tatsienlu, and thence back through Mu-li to Yunnan.

We left A-tun-tzu in the afternoon, crossed the pass, and began the long descent of the wooded ravine which leads to Adong. Such flowers as we saw looked jaded, and a tint, suspicious of autumn, was creeping over the forest; the impression was strengthened by the tasselled fruits hanging from the Lime and Maple trees.

In the evening we reached Adong. Here the road branches; one road goes north, up the valley, to Batang; the other west, down the gorge, to the Mekong. The latter is the road to Tsa-ka-lo, whence another road joins the Batang road farther north.

On August 23 we reached the Mekong in under three hours. The weather was sunny, and the atmosphere in the gorge seemed incandescent. Up on the bare cliffs were a few trees, mostly Junipers. Down below, the only striking plant was the twining Codonopsis convolvulacea, a hideous purplish-lavender atrocity. I have already described it from Mu-li, and the A-tun-tzu plant does not seem to differ from the type. It is a widely distributed plant in N.W. Yunnan.

The Adong gorge seems to have been ground out by glacier streams working in a dry climate; sharp glacier grit would almost certainly be required for such a task. The Mekong-Yang-tze divide, whence the torrent springs, was formerly glaciated, though there are probably no glaciers left in this part now.

The Mekong gorge proved to be a veritable furnace, though we were about 2,000 feet above the river. The dry slopes were well clothed with a variety of thorny shrubs, some of them in flower. Herbs, too, are usually eloquent of the hard life here—prickly, hairy, dwarf, sour-looking creatures, tired of life; or succulent in a nasty, glutinous way. Amongst a good selection of tight little bushes in flower were species of Clematis (tiny white flowers), Berberis, Desmodium, Bauhinia, Aster (ray florets pale mauve), Sophora, Ceratostigma, yellow Jasmine, several Labiatae (genera unknown), and yellow Wikstroemia; whilst the herbaceous harvest yielded Amphicome, a hairless form of Campanula colorata, Allium, yellow Corydalis with pale sea-green foliage, and a very dwarf form of Didissandra lanuginosa. Yet, wherever there was any moisture, shade or no shade, Maidenhair Ferns flourished in happy verdure.

The road up the Mekong to the salt wells at Tsa-ka-lo is decidedly frightful in places, and our journey was by no means without incident.

After halting at the first village for lunch, we learnt that we could not go by the low road, which was partly under water in the summer, but must follow the high road. This would have been a simple matter had we been provided with Tibetan mules, but for our Chinese mules with their pack racks it proved altogether too narrow.

A few miles from the village, at a place where a rock bulged awkwardly, the first accident occurred. Thirteen mules had passed safely; the last one caught the projection hard and jammed his feet into the path on the brink of the precipice. He held on, but the load was tipped out of the saddle and crashed down 200 feet. Luckily it was bedding and clothes, and, though the cradle and a box were badly smashed, little other damage resulted.

The rescuing of the load occupied an hour, and the remaining mules were sent on ahead to a village we could see perched up on the next spur; but by the time we had tied up the damaged load and were ready to start, the men returned, saying it was impossible to get along. There was nothing left but to return to the village where we had lunched, spend the night there, and engage porters over the difficult stretch.

Rain had begun to fall, and it was dark when we reached the village. However, we found good quarters (though the roof leaked badly), and made inquiries about local transport.

The start was tardy on August 24, and it was nearly midday when we got going. The mules carried their packs as far as the dangerous place, and then everything was untied and handed over to our five Tibetans. It required three trips to carry my boxes up to the next village, about a mile distant, and by the time we arrived with the mules it was too late to go on, so we stayed there for the night.

A short march next day brought us to another village, where we rejoined the so-called main road; Tibetan donkeys carried the loads thus far, after which we were left to our own devices. But the road continued almost as dangerous as before and we were lucky not to meet with an accident. In the evening we reached a prosperous village under the limestone cliffs.

Excellent small Peaches were obtained daily in these villages, Walnuts also sometimes; but they were not yet properly ripe. The only vegetables we got were Pumpkins.

Although the rocks down by the river (close beside which we marched for a whole day) were almost bare of vegetation, this was by no means the case at the heights to which the road frequently climbed.

Besides the plants already mentioned in flower, there were bushes of Cotoneaster covered with coral-red berries, a scraggy Rose with clay-yellow hips, Buddleia, Thuja orientalis, Androsace coccinea, a white-flowered Androsace, a rose-pink Lychnis, and a very pale-eyed Myosotis, to mention only a few. Nevertheless, it was right down by the river that I found the most unexpected plant of all—to wit, a Primula (KW 5359), apparently of the Nivalis type; but there was not much to judge by beyond the foliage, for the flowers were long since over, and the capsules so far perished that I had difficulty in securing the merest odd seed or two which had been overlooked at dispersal time. Its chance of germinating is slight. It was a bog plant, but flourished only on the limestone rocks or on sinter terraces built up by streams impregnated with lime. (It was under such conditions that it grew on the red sandstone at Tsa-ka-lo itself.)

The strap-shaped leaves are slightly fleshy, brilliantly silvered with meal beneath, and the plant sends out curious suckers. It always grows in colonies, associated with other bog plants—Mentha, Equisetum, an Orchid (probably Habenaria), Maidenhair Fern, and small, compact bushes of Berberis.

On August 27 we did a long march, as we had already lost much time on the road, and it was dark before we found shelter in a lonely farmhouse.

Two hoary species of Symphytum were conspicuous hereabouts, one with white, the other with blue flowers; but by far the most astounding plant of the arid gorges was a Valerian-like undershrub, with flowers of loud magenta. The perennial rootstock sends up a mass of stems which attain a height of 2 feet or 3 feet, and seems to last for as many years. Big tussocks of the plant grow in the driest, stoniest places down by the thundering river.

The only other plant of note was a third species of Androsace, which formed small cushions, composed of the crowded rosettes, on shaded slopes under bushes, and therefore fairly high up. It was in fruit, and I collected seed of it, as I did not remember to have seen it before; but it is not likely to prove hardier than A. coccinea.

On August 28 we started late, and, being unable to reach Tsa-ka-lo the same day, made a short march; and on the following day we reached our destination, having been eight days on the road.

On the 30th I made the necessary preparations, and on the last day of August we set out for the snow peak called Damyon, situated on the other side of the Mekong. *F. Kingdon Ward.*

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17 July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, March 10, 24, and April 7, 1923.

GIBBON'S GARDEN AT HAMPTON COURT.

It is not generally known that Edward Gibbon, the great historian, ever showed any taste for gardening; indeed, in his Autobiography he expressly states his disinclination for the practice of country pursuits. Yet he had been country-bred, and after many months of the seclusion of a town life Nature reasserted herself, and he developed what we now call the week-end habit. In 1782 his friend, Mr. W. G. Hamilton, a member of Parliament, popularly known as "Single-Speech" Hamilton, lent him a furnished house close to the Palace at Hampton Court, and opening by a private door into the Royal garden.

I have now before me two bills, probably the only two in existence, which relate to his gardening:—

1 Edwd. Gibbon, Esqr., to Thos Hurcom 1782 for work don in the Garden at Hampton Court:—

December the 3	£	s.	d.
for 18 Days at 2s. 6d. a Day	2	5	0
1 Load and a half of dong	0	8	0
4 hund. of cabbige plants	0	4	0
Seeds	0	3	0
	£3	0	0

Received March 23d 1783 the Contents of this bill in full and all Demands. Sarah Hurcom, this mark.

2. Mr. Gibbons to Thos. Hurcom.

1783.	s.	d.
1 pint french beans	1	7½
moing the Grass	0	3
nailing the vine	0	6
	£2	4½

July ye 23, 1783 recivd. the Contents in full by me.

The only printed observation relating to his latent gardening tastes, with which I am acquainted, is the passage in a letter to his step-mother, dated May 3, 1786, in which he acknowledges that his Swiss friend, Deyverdun, "has almost given me a taste for minute observation, and I can dwell with pleasure on the shape and colour of the leaves, the various hues of the blossoms, and successive progress of vegetation. These pleasures are not without cares; and there is a white Acacia just under the windows of my library, which in my opinion was too closely pruned last autumn, and whose recovery is the daily subject of anxiety and conversation!"

This, however, was in Lausanne. *R. T. Gunther, Magdalen College, Oxford.*

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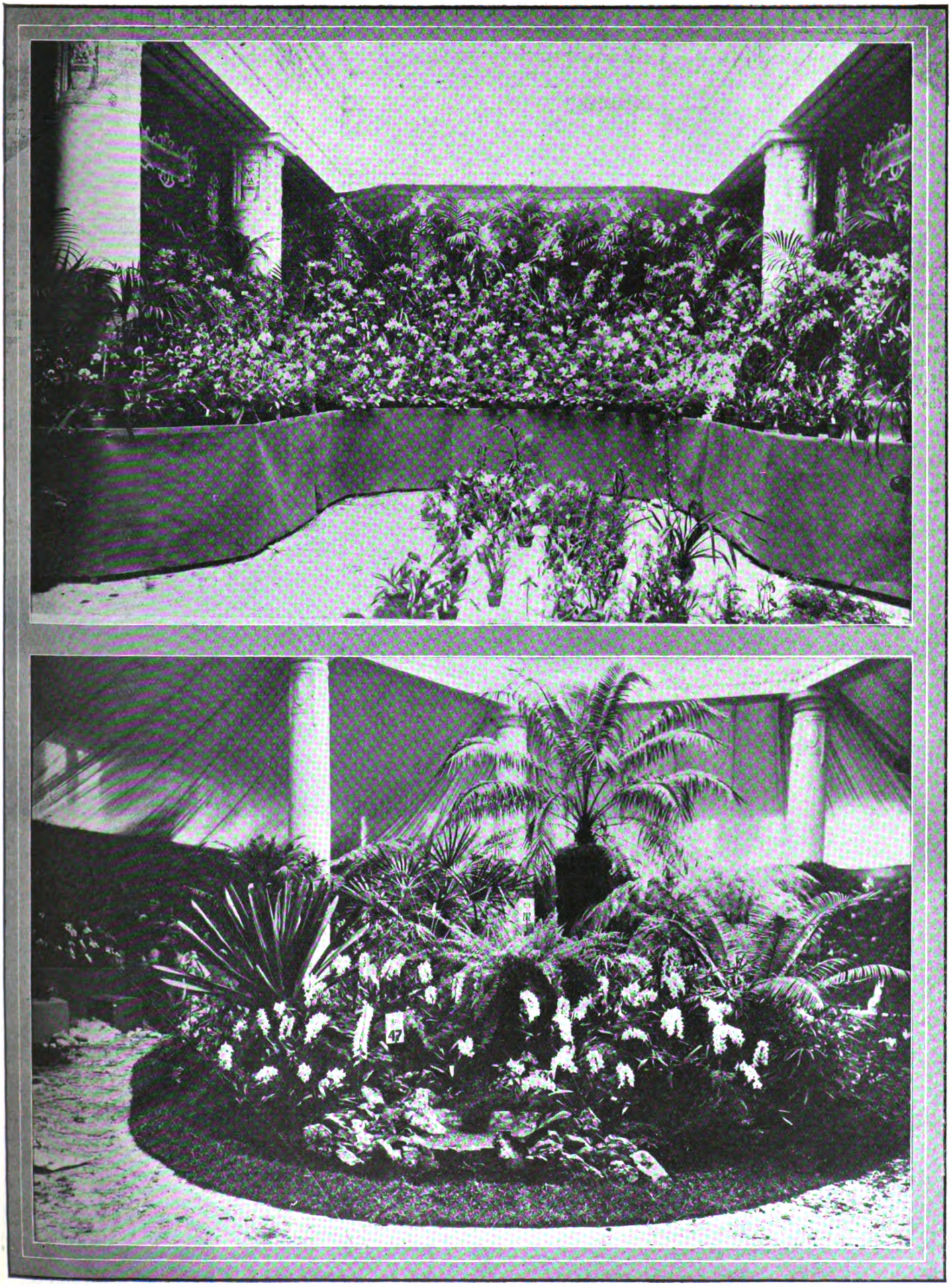

FIG. 97. THE GHENT EXHIBITION.—DR. G. BALLION'S LARGE GROUP OF ORCHIDS IS ILLUSTRATED ABOVE, AND MM. LOUIS VAN HOUTTE'S CENTRAL GROUP OF ORCHIDS IN THE LARGE SALON, BELOW.

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GHENT INTERNATIONAL EXHIBITION.

APRIL 14—22.

In addition to the hundreds of exhibitors, nearly three hundred judges met at Ghent on April 14 on the occasion of the eighteenth International Quinquennial Exhibition held by the Société Royale d'Agriculture et de Botanique de Gand. This enormous exhibition, one of the finest of a long series, covers an area of about eight acres, and the display is accommodated in the spacious and stately salons of the Royal Casino, Palais de Fêtes, a huge exhibition building, and in the surrounding grounds.

As is usual in connection with Continental exhibitions, every exhibit has to fit in with a pre-arranged design so that the general effect may be good. Nor is there any real loss of individuality in this method as the large grower fills the bolder positions, but it must be remembered that a small exhibitor may occupy an equally prominent position, such as a small bed on one of the lawns or an important corner site. For the general design of the exhibition M. Henri de Wilde—whose portrait appeared in our issue of April 14—was responsible, and he received many congratulations upon the success of his work. If, as on some occasions, the colours of Azaleas were somewhat crudely associated, that was not M. de Wilde's fault.

Some of the giant Palms seen in other years were absent on this occasion, as they, like many other plants, were lost during the war. Nevertheless, numerous skilful cultivators produced wonderful specimens of stove plants, and the firm of MM. Louis Van Houtte père deserve special mention in this connection, their big collection of Palms, Aroids, Dieffenbachias, etc., being one of the most interesting and striking features of the show. So far as colour is concerned, the main exhibition is the most attractive part, as here are thousands of Azaleas, in all shapes and sizes, in beds and groups of many forms, and presenting dazzling masses of pink, scarlet, crimson, mauve, blush and white. Add to this the long rows of Rhododendrons, great beds of Hydrangeas, and the big vases of many varieties of Lilac and the extraordinary colour effect may be imagined.

We are of opinion that although the present Ghent Show does not fall short of its predecessors in the matter of colour, it is scarcely so imposing and dignified as some we have seen. We refer, of course, only to the effect in the main building, and any apparent loss in this direction is due undoubtedly to the absence of the Giant Azaleas, tree Ferns, Rhododendrons, Acacias and Palms of other years.

Out of doors, along corridors and flanking the flights of steps at the entrances, the big Bay trees are prominent. These are a speciality among Belgian growers, and war conditions do not appear to have affected them to any appreciable extent—there are literally regiments of them, ranging in size from perfect little pyramids a couple of feet high to giants ten or twelve feet high, and standards with heads eight feet or more in diameter. Formal and rock gardens are also arranged out of doors, while the magnificent display of Orchids is accommodated in the warmer salons where also is to be found a capital grouping of Anthuriums, Vriesias, and a very fine collection of well-grown Caladiums.

The Opening Ceremony.

To the City of Ghent, to the Province of Flanders and even to Belgium itself the great international quinquennial exhibitions are of enormous importance, both for the impetus they give to the horticultural trade, and for the social events in connection with them. The city was en fête for the opening of the exhibition; every road and street of importance had its array of flags, and even the trams and the official buildings had their bunting. Brilliant weather attended the exhibition, and the warmth of several previous days brought out the leafage of the Horse Chestnuts, Maples and Poplars, and these added the fresh green of their foliage to the gay scene. His Majesty the King of the Belgians, with Her Majesty the Queen and the Duc de Brabant, attended in state to open the show at 10 a.m. on April 14 (see fig. 98). Many state and provincial and city officials were present in bright uniforms, and there was a military guard of honour. Many thousands of invitations must have been issued for this imposing function, as the attendance was very large indeed. The Royal party was received by the chief officers of the City, State and Society, and there were several speeches having reference to trade revival since the war, and the importance of the horticultural industry to Belgium. After the official opening the Royal party first visited the British section, and was received by Lord Lambourne, Mr. G. Monro, Mr. J. S. Brunton, and Mr. Lobjoit; on behalf of the British exhibitors Mr. Brunton presented a beautiful basket of flowers to the Queen, and then toured the section with the King.

FIG. 98.—THE GHENT EXHIBITION. RECEPTION OF THE KING AND QUEEN OF THE BELGIANS AT THE ENTRANCE, BY THE PRESIDENT, M. ALEXIS CALLIER, AND VICE-PRESIDENT, M. ALBERT CEUTERICK, OF THE SOCIETE ROYALE D'AGRICULTURE ET DE BOTANIQUE DE GAND, ON THE OCCASION OF THE OPENING CEREMONY.

The Jury.

Early in the afternoon of April 13 the judges gathered in one of the halls of the Casino to receive instructions. Nearly three hundred answered to their names. M. Alexis Callier, President, welcomed the jury on behalf of the Societé Royale d'Agriculture et de Botanique de Gand, and he was supported by M. Albert Ceuterick, the Vice-President, M. Lucien de Cock, General Secretary, and M. Maurice Duquesnoy, treasurer. To this address of welcome Lord Lambourne responded on behalf of the Britishers; Mr. Ernst Krelage on behalf of Holland: and M. Nomblot, in the unavoidable absence of M. Viger, for France, each congratulating the Ghent Society on its magnificent show and its revival so soon after the devastating years of war.

The various appointments then followed. Lord Lambourne was appointed Président Général of the Judy, with M. A. Viger Président d'Honneur. The Vice-Presidents included Sir Jeremiah Colman, Mr. W. G. Lobjoit, Mr. G. W. Leak, and Mr. J. S. Brunton: and the General Secretaries of the Jury included Mr. George Monro, Mr. L. Sander, Mr. W. H. Page and Mr. J. H. Jolis. Besides these the British members of the Jury, various Presidents or Secretaries of Sections were Sir Frederick Moore, Dr. A. Hill, Mr. P. C. M. Veitch, Mr. W. Watson, Mr. H. J. Pitt, Mr. W. R. Dykes, Mr. H. J. Jones, Mr. C. Harman Payne, Mr. W. R. Oldham, Mr. E. A. Bunyard, Mr. Chas. H. Curtis, Mr. C. E. Pearson, Mr. W. G. Baker, Mr. Stuart H. Low, Mr. J. Gurney Wilson, Mr. H. H. Smith, Mr. J. E. Shill, Mr. Arthur Turner, Mr. John Weathers, Mr. W. E. Wallace, Mr. F. K. Sander, Mr. L. R. Russell, Mr. John Cairns, Mr. J. M. Bridgeford, Mr. J. Arlinson, Mr. J. Collier, Mr. C. Engelmann, Mr. R. F. Felton, Mr. Alfred W. White, Mr. R. Brooman White, Mr. C. M. Matthews, Mr. A. Merryweather, Mr. R. H. Page, and Mr. R. W. Wallace.

Press Gathering.

One of the most pleasing of the various functions connected with the exhibition was the luncheon given by the Ghent Agricultural and Botanical Society to the members of the Press; indeed, this was the first of the entertainments, and took place at 11 o'clock on the morning of Friday, April 13, at the Royal Casino. Nearly forty persons were present under the presidency of M. Keurvels, president of the Press Association of Ghent, who was immediately supported by Mr. Charles H. Curtis and Mr. Charles Pynaert, Mr. Chas. E. Pearson, and Mr. Gurney Wilson.

M. Keurvels offered a very hearty welcome to the pressmen of the various countries represented who had come to report the exhibition and conference. He made special reference to the camaraderie existing among pressmen the world over, and to the wonderful power journalists held as distributers of information. He assured the officials of the exhibition that all present had come with the purpose of extending a knowledge of plants and flowers and doing all that lay in their power to encourage the extension of horticulture, and commerce, and increase good will among men.

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Mr. C. H. Curtis responded on behalf of the British Press, and on behalf of his confrères and himself thanked the president for the hospitality received and this early opportunity of making the acquaintance of so many journalists of world-wide reputation. He also promised to render any assistance that lay in his power to any present who came to England, if they would communicate with him at the offices of *The Gardeners' Chronicle*. M. Sauvage responded with his usual poetic eloquence on behalf of French journalists, and M. Charles Bosschere, for the Belgian Press, added humour to eloquence. Mr. Gérard Harry responded for the Dutch Press.

Hearty thanks and congratulations were offered to M. Lucien de Cock, M. Duchesnoy, and M. H. de Wilde, chiefly concerned with the organisation of the exhibition, for the admirable arrangements made and the success already assured.

M. Pynaert thanked M. Keurvels for his welcome, and all joined in appreciation of the efforts made on behalf of the Press by M. Camille Verhé, the secretary of the Press Commission of the Floralies.

Various Functions.

The horticultural pressman who attends a Ghent Quinquennial Exhibition and is a Member of the Jury and also a delegate to the Fédération Horticole Professionelle Internationale, ardently desires the gift of that power which is said to enable one to be in two places at once—one part to attend to business and the other part to attend the various functions which the hospitable Belgians so lavishly provide for the entertainment of foreign horticulturists. The following programme was provided, but we doubt whether anyone found time and opportunity to follow it in every detail:—

Friday, April 13.—Press lunch at 11 a.m.; reunion of Members of the Jury at 2 p.m.; judging commences at 2.30 p.m.; cold collation at 5 p.m.; gala performance at the Theatre Royal at 8 p.m.

Saturday, April 14.—Official opening of the Exhibition by their Majesties the King and Queen of the Belgians, accompanied by H.R.H. the Duc de Brabant; F.H.P.I. Conference at 2 p.m.; official banquet to the Jury at 5 p.m.; ball at the official residence of the Governor of East Flanders—the Comte de Kerchove de Denterghem, and the Comtesse Kerchove de Denterghem, at 9 p.m.

Sunday, April 15.—Inauguration of the reconstituted monument erected to the memory of the late Comte Oswald de Kerchove de Denterghem, former President of the Société Royale d'Agriculture et de Botanique de Gand; reception by the Chambre Syndicale des Horticulteurs Belges, at the Bourse du Commerce, at 12 noon; official reception of the Members of the Jury by the Burgomaster at the Hotel de Ville.

Monday, April 16.—Excursion to the Royal Gardens at Laeken, and to the Park and Museum at Tervucren, by rail and motor cars; Britishers dine together at the Hotel de la Poste at 8 p.m., after return from the excursion.

Tuesday, April 17.—F.H.P.I. Conference at 9 a.m., and at 3 p.m.; banquet offered to International representatives by the Chambre Syndicale des Horticulteurs Belges at 6 p.m.

British Section.

Forty-eight hours before the time appointed for judging the exhibition the area occupied by the British Section was merely a stretch of reddish, sandy soil in a big annexe of the huge exhibition. Twenty-four hours later the ground plan had been worked out—beds sunk, beds raised, paths prepared, turf laid, and many of the exhibits were well on the way to completion. By the time the jury met at 2 p.m. on Friday, April 13, the transformation was complete—the desert had been taught to blossom as the Rose—and the Britishers had nothing to apologise for, notwithstanding the distance they had brought all their material.

The ground plan (fig. 99) shows the general design of the British Section. The central portion was sunk below the general level, with ample paths leading thereto. This area was grassed over, and on the central lawn a very large bowl-shaped receptacle, raised some 8 ft. above a bed of Primula obconica, was filled with several dozen of the big golden spathes of Richardia Elliottiana, with ample Arum foliage, some blooms of a pale yellow Carnation, and pendant plumes of Asparagus Sprengeri. Set in the same lawn were two large vases of Carnations, half-a-dozen vases of exquisite Rose blooms, and several small vases of Orchids. The two pillars, draped with Smilax, carried large baskets of flowering plants of Orleans and Betty Roses, and their bases were grouped around with Astilbes.

In the irregularly crescent-shaped beds the pillars supporting the exhibition roof were treated similarly to those already described, while big baskets of glorious Ophelia and Mme. Abel Chatenay Roses, Carnations, Tulips and Anthuriums were well placed, while in the lawn itself were small beds of Erica persoluta, Hydrangeas and Marguerites, with a few splendid specimens of Nephrolepis, all giving ample evidence of British cultural skill. The other large beds were filled respectively with Spanish Irises in great variety, Narcissi of many kinds, rich-hued Crotons, graceful Dracaenas, Stocks, Genistas and Cinerarias.

Mr. C. Engelmann, Saffron Walden, surpassed himself on this occasion. He may have had more Carnations at Antwerp two years ago, but never so many blooms of superb quality. All his flowers were disposed in elegant grey pottery of pleasing design and grouped in three mounds with a few Palms and an edging of Asparagus Sprengeri. We were particularly

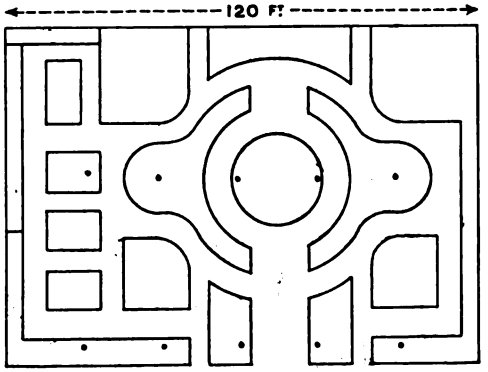

FIG. 99.—PLAN OF THE BRITISH SECTION AT THE GHENT EXHIBITION.

pleased with the large vases, each containing about fifty blooms, filled respectively with long flowers of Laddie, Cupid, Bona, Dora, Lady Northcliffe, and the darker Tarzan, Nigger, Aviator, Ethel Fisher, Topsy, and Belle Washburn. Mr. Engelmann also showed some exquisite blooms of his yellow variety, Saffron. He was awarded three gold medals, three silver-gilt medals, and one silver medal, as some parts of his group came into the competitive classes.

Messrs. Stuart Low and Co. displayed Carnations extensively in vases and stands of varied heights, and a few notable varieties massed in their exhibit were the scarlet Lord Lambourne, the lovely White Pearl, the pink Eileen Low (very fine), Red Ensign, Topsy, and the pale pink Hon. Nita Weir, a novelty of the present year. Several medals also fell to the share of the Bush Hill Park firm.

Messrs. Reamsbottom's bank of Anemones set in green moss was at once pleasing and attractive. The group of Clematis attracted the special attention of H.M. the Queen of the Belgians, who commented on the beauty of the mauve variety, Mrs. Cholmondeley. Other attractive sorts, all of which carried their flowers well, were Lady Londesborough, President, Sir Garnet Wolseley, the lovely white smaller-flowered Miss Bateman, and the larger Marie Boisselot, a very pleasing exhibit.

Close by Messrs. Watkins and Simpson had a rectangular bed of their strain of East Lothian Stocks, which by their colour and fragrance drew the attention of crowds of visitors.

Two large rock gardens, with their backing of dark-hued Conifers, were a delightful relief from the gayer flowers, and also formed a fine background for the central design. Mr. G. G. Whitelegge's exhibit, with its grey stone from the Ardennes, was a carefully restrained effort and a good example of rock garden design of planting. The principal groups of alpines consisted of the dainty Androsace carnea, the golden and true Geum montana, Primula frondosa, Arabis Sundermanni, Æthionema Warley Rose, Saxifraga bathoniensis, Cheiranthus Allionii, Sedum spathulifolium, and yellow Alpine Auriculas.

Messrs. Hayes and Sons, Keswick, arranged a large and bold Alpine garden, but were unfortunate in the stone they had to use, which was far too regular in form to be pleasing. The centre feature was a widening stream of water. Shrubby plants were the chief occupants of this garden, and the Heath, Pernettya, Berberis, Azaleas, and pigmy Conifers attracted considerable attention, the three tiny columnar specimens of Juniperus sibirica compressa coming in for a great deal of admiration. Saxifrages, Irises, and Primulas were used to fill the lower levels of this exhibit.

The British Empire exhibit of fruit proved a great attraction. It occupied a space 30 feet by 6 feet, and Palms, Smilax, and pink Tulips were used sparingly for decorative effect. The fruit was supplied by several English growers, including Messrs. Robert Veitch and Son, Messrs. Rochford, and other Lea Valley growers; by the New Zealand Government, and to a much larger extent by the Trade Commissioner for South Africa. The South African Grapes—Cannon Hall Muscat, Gros Colmar, White Hannepoot, Red Hannepoot, Barbarossa; Pears—superb Josephine de Malines, Winter Nelis, Glou Morceau, and Doyenné du Comice were all extraordinarily fine, and, set up in dark brown baskets 2 feet and 2½ feet wide, with smaller ones in front, made a sumptuous and mouth-watering display. The New Zealand Apples were excellent examples of Cox's Orange Pippin of lovely colour and flavour, and an unnamed rosy-cheeked variety of very attractive appearance.

The exhibit made by *The Gardeners' Chronicle* Co., Ltd., was imposing, and proved very interesting to hosts of visitors. In large frames, about four dozen of the coloured plates issued during the past few years were exhibited on a high background, together wtih a similar number of full-page and other black-and-white illustrations. In the foreground various bound and open volumes of *The Gardeners' Chronicle*, containing illustrations and reports of earlier Ghent shows, were displayed on elegant stands and small easels. Portraits of the founders of *The Gardeners' Chronicle* and successive editors were grouped in the centre, around the four medals previously awarded to our exhibits at Continental shows. H.M. the King of the Belgians was very interested in our illustrations of the first Ghent Show, 1809. Miss Winifrid Walker, the floral artist, well known to frequenters of the R.H.S. meetings, brought several dozens of her paintings—an excellent piece of enterprise—and it is to be hoped she received a due reward in purchases. A few of her most pleasing pictures were those of Oriental Poppies, bearded Irises, Roses, Chrysanthemums, Anemones, Rhododendrons, Gaillardias, Clematis, Cyclamen, and Odontoglossums.

Mr. Macdonald, of Harpenden, contributed an interesting exhibit of dried Grasses mounted on specimen sheets.

The Chamber of Horticulture and the Royal Horticultural Society were jointly responsible for the British Section, but the organisation was left in the hands of a special committee, consisting of Mr. J. S. Brunton as chairman, Mr. Jolis as show superintendent, and Mr. G. Monro treasurer, and Mr. C. Matthews, Mr. Alfred White, Mr. H. J. Jones, Mr. C. H. Curtis, Miss M. Ellis, Mr. Garner, Mr. Aylesworth, Mr. W. White, Mr. F. Ladds, Mr. E. Murrel, Mr. R. H. Page and Mr. Vasey.

The awards made to exhibitors in the British Section were as follows:—

Works of Art.—To the Royal Horticultural Society, the Chamber of Horticulture, Mr. G. G. Whitelegg, Messrs. Hayes and Son, Mr. C.

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GHENT INTERNATIONAL EXHIBITION.

APRIL 14—22.

In addition to the hundreds of exhibitors, nearly three hundred judges met at Ghent on April 14 on the occasion of the eighteenth International Quinquennial Exhibition held by the Société Royale d'Agriculture et de Botanique de Gand. This enormous exhibition, one of the finest of a long series, covers an area of about eight acres, and the display is accommodated in the spacious and stately salons of the Royal Casino, Palais de Fêtes, a huge exhibition building, and in the surrounding grounds.

As is usual in connection with Continental exhibitions, every exhibit has to fit in with a pre-arranged design so that the general effect may be good. Nor is there any real loss of individuality in this method as the large grower fills the bolder positions, but it must be remembered that a small exhibitor may occupy an equally prominent position, such as a small bed on one of the lawns or an important corner site. For the general design of the exhibition M. Henri de Wilde—whose portrait appeared in our issue of April 14—was responsible, and he received many congratulations upon the success of his work. If, as on some occasions, the colours of Azaleas were somewhat crudely associated, that was not M. de Wilde's fault.

Some of the giant Palms seen in other years were absent on this occasion, as they, like many other plants, were lost during the war. Nevertheless, numerous skilful cultivators produced wonderful specimens of stove plants, and the firm of MM. Louis Van Houtte père deserve special mention in this connection, their big collection of Palms, Aroids, Dieffenbachias, etc., being one of the most interesting and striking features of the show. So far as colour is concerned, the main exhibition is the most attractive part, as here are thousands of Azaleas, in all shapes and sizes, in beds and groups of many forms, and presenting dazzling masses of pink, scarlet, crimson, mauve, blush and white. Add to this the long rows of Rhododendrons, great beds of Hydrangeas, and the big vases of many varieties of Lilac and the extraordinary colour effect may be imagined.

We are of opinion that although the present Ghent Show does not fall short of its predecessors in the matter of colour, it is scarcely so imposing and dignified as some we have seen. We refer, of course, only to the effect in the main building, and any apparent loss in this direction is due undoubtedly to the absence of the Giant Azaleas, tree Ferns, Rhododendrons, Acacias and Palms of other years.

Out of doors, along corridors and flanking the flights of steps at the entrances, the big Bay trees are prominent. These are a speciality among Belgian growers, and war conditions do not appear to have affected them to any appreciable extent—there are literally regiments of them, ranging in size from perfect little pyramids a couple of feet high to giants ten or twelve feet high, and standards with heads eight feet or more in diameter. Formal and rock gardens are also arranged out of doors, while the magnificent display of Orchids is accommodated in the warmer salons where also is to be found a capital grouping of Anthuriums, Vriesias, and a very fine collection of well-grown Caladiums.

The Opening Ceremony.

To the City of Ghent, to the Province of Flanders and even to Belgium itself the great international quinquennial exhibitions are of enormous importance, both for the impetus they give to the horticultural trade, and for the social events in connection with them. The city was en fête for the opening of the exhibition; every road and street of importance had its array of flags, and even the trams and the official buildings had their bunting. Brilliant weather attended the exhibition, and the warmth of several previous days brought out the leafage of the Horse Chestnuts, Maples and Poplars, and these added the fresh green of their foliage to the gay scene. His Majesty the King of the Belgians, with Her Majesty the Queen and the Duc de Brabant, attended in state to open the show at 10 a.m. on April 14 (see fig. 98). Many state and provincial and city officials were present in bright uniforms, and there was a military guard of honour. Many thousands of invitations must have been issued for this imposing function, as the attendance was very large indeed. The Royal party was received by the chief officers of the City, State and Society, and there were several speeches having reference to trade revival since the war, and the importance of the horticultural industry to Belgium. After the official opening the Royal party first visited the British section, and was received by Lord Lambourne, Mr. G. Monro, Mr. J. S. Brunton, and Mr. Lobjoit; on behalf of the British exhibitors Mr. Brunton presented a beautiful basket of flowers to the Queen, and then toured the section with the King.

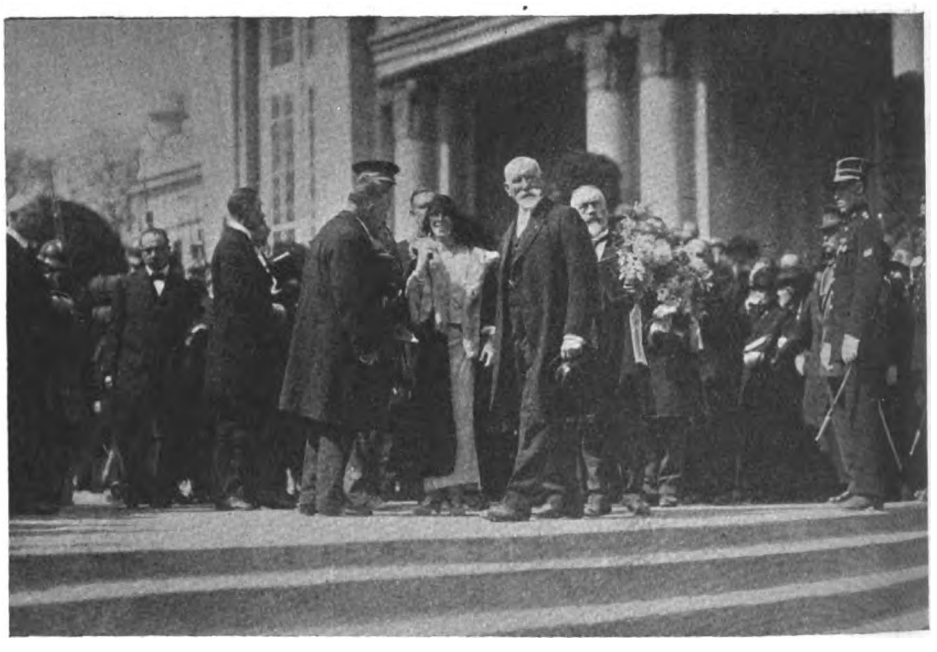

FIG. 98.—THE GHENT EXHIBITION. RECEPTION OF THE KING AND QUEEN OF THE BELGIANS AT THE ENTRANCE, BY THE PRESIDENT, M. ALEXIS CALLIER, AND VICE-PRESIDENT, M. ALBERT CEUTERICK, OF THE SOCIETE ROYALE D'AGRICULTURE ET DE BOTANIQUE DE GAND, ON THE OCCASION OF THE OPENING CEREMONY.

The Jury.

Early in the afternoon of April 13 the judges gathered in one of the halls of the Casino to receive instructions. Nearly three hundred answered to their names. M. Alexis Callier, President, welcomed the jury on behalf of the Société Royale d'Agriculture et de Botanique de Gand, and he was supported by M. Albert Ceuterick, the Vice-President, M. Lucien de Cock, General Secretary, and M. Maurice Duquesnoy, treasurer. To this address of welcome Lord Lambourne responded on behalf of the Britishers; Mr. Ernst Krelage on behalf of Holland: and M. Nomblot, in the unavoidable absence of M. Viger, for France, each congratulating the Ghent Society on its magnificent show and its revival so soon after the devastating years of war.

The various appointments then followed. Lord Lambourne was appointed Président Général of the Judy, with M. A. Viger Président d'Honneur. The Vice-Presidents included Sir Jeremiah Colman, Mr. W. G. Lobjoit, Mr. G. W. Leak, and Mr. J. S. Brunton: and the General Secretaries of the Jury included Mr. George Monro, Mr. L. Sander, Mr. W. H. Page and Mr. J. H. Jolis. Besides these the British members of the Jury, various Presidents or Secretaries of Sections were Sir Frederick Moore, Dr. A. Hill, Mr. P. C. M. Veitch, Mr. W. Watson, Mr. H. J. Pitt, Mr. W. R. Dykes, Mr. H. J. Jones, Mr. C. Harman Payne, Mr. W. R. Oldham, Mr. E. A. Bunyard, Mr. Chas. H. Curtis, Mr. C. E. Pearson, Mr. W. G. Baker, Mr. Stuart H. Low, Mr. J. Gurney Wilson, Mr. H. H. Smith, Mr. J. E. Shill, Mr. Arthur Turner, Mr. John Weathers, Mr. W. E. Wallace, Mr. F. K. Sander, Mr. L. R. Russell, Mr. John Cairns, Mr. J. M. Bridgeford, Mr. J. Arlinson, Mr. J. Collier, Mr. C. Engelmann, Mr. R. F. Felton, Mr. Alfred W. White, Mr. R. Brooman White, Mr. C. M. Matthews, Mr. A. Merryweather, Mr. R. H. Page, and Mr. R. W. Wallace.

Press Gathering.

One of the most pleasing of the various functions connected with the exhibition was the luncheon given by the Ghent Agricultural and Botanical Society to the members of the Press; indeed, this was the first of the entertainments, and took place at 11 o'clock on the morning of Friday, April 13, at the Royal Casino. Nearly forty persons were present under the presidency of M. Keurvels, president of the Press Association of Ghent, who was immediately supported by Mr. Charles H. Curtis and Mr. Charles Pynaert, Mr. Chas. E. Pearson, and Mr. Gurney Wilson.

M. Keurvels offered a very hearty welcome to the pressmen of the various countries represented who had come to report the exhibition and conference. He made special reference to the camaraderie existing among pressmen the world over, and to the wonderful power journalists held as distributers of information. He assured the officials of the exhibition that all present had come with the purpose of extending a knowledge of plants and flowers and doing all that lay in their power to encourage the extension of horticulture, and commerce, and increase good will among men.

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Mr. C. H. Curtis responded on behalf of the British Press, and on behalf of his confrères and himself thanked the president for the hospitality received and this early opportunity of making the acquaintance of so many journalists of world-wide reputation. He also promised to render any assistance that lay in his power to any present who came to England, if they would communicate with him at the offices of *The Gardeners' Chronicle*. M. Sauvage responded with his usual poetic eloquence on behalf of French journalists, and M. Charles Bosschere, for the Belgian Press, added humour to eloquence. Mr. Gérard Harry responded for the Dutch Press.

Hearty thanks and congratulations were offered to M. Lucien de Cock, M. Duchesnoy, and M. H. de Wilde, chiefly concerned with the organisation of the exhibition, for the admirable arrangements made and the success already assured.

M. Pynaert thanked M. Keurvels for his welcome, and all joined in appreciation of the efforts made on behalf of the Press by M. Camille Verhé, the secretary of the Press Commission of the Floralies.

VARIOUS FUNCTIONS.

The horticultural pressman who attends a Ghent Quinquennial Exhibition and is a Member of the Jury and also a delegate to the Fédération Horticole Professionelle Internationale, ardently desires the gift of that power which is said to enable one to be in two places at once—one part to attend to business and the other part to attend the various functions which the hospitable Belgians so lavishly provide for the entertainment of foreign horticulturists. The following programme was provided, but we doubt whether anyone found time and opportunity to follow it in every detail:—

Friday, April 13.—Press lunch at 11 a.m.; reunion of Members of the Jury at 2 p.m.; judging commences at 2.30 p.m.; cold collation at 5 p.m.; gala performance at the Theatre Royal at 8 p.m.

Saturday, April 14.—Official opening of the Exhibition by their Majesties the King and Queen of the Belgians, accompanied by H.R.H. the Duc de Brabant; F.H.P.I. Conference at 2 p.m.; official banquet to the Jury at 5 p.m.; ball at the official residence of the Governor of East Flanders—the Comte de Kerchove de Denterghem, and the Comtesse Kerchove de Denterghem, at 9 p.m.

Sunday, April 15.—Inauguration of the reconstituted monument erected to the memory of the late Comte Oswald de Kerchove de Denterghem, former President of the Société Royale d'Agriculture et de Botanique de Gand; reception by the Chambre Syndicale des Horticulteurs Belges, at the Bourse du Commerce, at 12 noon; official reception of the Members of the Jury by the Burgomaster at the Hotel de Ville.

Monday, April 16.—Excursion to the Royal Gardens at Laeken, and to the Park and Museum at Tervucren, by rail and motor cars; Britishers dine together at the Hotel de la Poste at 8 p.m., after return from the excursion.

Tuesday, April 17.—F.H.P.I. Conference at 9 a.m., and at 3 p.m.; banquet offered to International representatives by the Chambre Syndicale des Horticulteurs Belges at 6 p.m.

BRITISH SECTION.

Forty-eight hours before the time appointed for judging the exhibition the area occupied by the British Section was merely a stretch of reddish, sandy soil in a big annexe of the huge exhibition. Twenty-four hours later the ground plan had been worked out—beds sunk, beds raised, paths prepared, turf laid, and many of the exhibits were well on the way to completion. By the time the jury met at 2 p.m. on Friday, April 13, the transformation was complete—the desert had been taught to blossom as the Rose—and the Britishers had nothing to apologise for, notwithstanding the distance they had brought all their material.

The ground plan (fig. 99) shows the general design of the British Section. The central portion was sunk below the general level, with ample paths leading thereto. This area was grassed over, and on the central lawn a very large bowl-shaped receptacle, raised some 8 ft. above a bed of Primula obconica, was filled with several dozen of the big golden spathes of Richardia Elliottiana, with ample Arum foliage, some blooms of a pale yellow Carnation, and pendant plumes of Asparagus Sprengeri. Set in the same lawn were two large vases of Carnations, half-a-dozen vases of exquisite Rose blooms, and several small vases of Orchids. The two pillars, draped with Smilax, carried large baskets of flowering plants of Orleans and Betty Roses, and their bases were grouped around with Astilbes.

In the irregularly crescent-shaped beds the pillars supporting the exhibition roof were treated similarly to those already described, while big baskets of glorious Ophelia and Mme. Abel Chatenay Roses, Carnations, Tulips and Anthuriums were well placed, while in the lawn itself were small beds of Erica persoluta, Hydrangeas and Marguerites, with a few splendid specimens of Nephrolepis, all giving ample evidence of British cultural skill. The other large beds were filled respectively with Spanish Irises in great variety, Narcissi of many kinds, rich-hued Crotons, graceful Dracaenas, Stocks, Genistas and Cinerarias.

Mr. C. ENGELMANN, Saffron Walden, surpassed himself on this occasion. He may have had more Carnations at Antwerp two years ago, but never so many blooms of superb quality. All his flowers were disposed in elegant grey pottery of pleasing design and grouped in three mounds with a few Palms and an edging of Asparagus Sprengeri. We were particularly

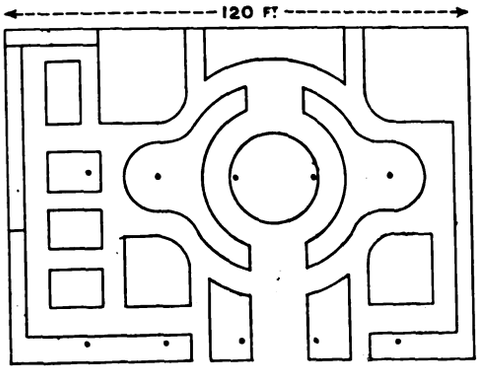

FIG. 99.—PLAN OF THE BRITISH SECTION AT THE GHENT EXHIBITION.

pleased with the large vases, each containing about fifty blooms, filled respectively with long flowers of Laddie, Cupid, Bona, Dora, Lady Northcliffe, and the darker Tarzan, Nigger, Aviator, Ethel Fisher, Topsy, and Belle Washburn. Mr. ENGELMANN also showed some exquisite blooms of his yellow variety, Saffron. He was awarded three gold medals, three silver-gilt medals, and one silver medal, as some parts of his group came into the competitive classes.

Messrs. STUART LOW AND Co. displayed Carnations extensively in vases and stands of varied heights, and a few notable varieties massed in their exhibit were the scarlet Lord Lambourne, the lovely White Pearl, the pink Eileen Low (very fine), Red Ensign, Topsy, and the pale pink Hon. Nita Weir, a novelty of the present year. Several medals also fell to the share of the Bush Hill Park firm.

Messrs. REAMSBOTTOM'S bank of Anemones set in green moss was at once pleasing and attractive. The group of Clematis attracted the special attention of H.M. the Queen of the Belgians, who commented on the beauty of the mauve variety, Mrs. Cholmondeley. Other attractive sorts, all of which carried their flowers well, were Lady Londesborough, President, Sir Garnet Wolseley, the lovely white smaller-flowered Miss Bateman, and the larger Marie Boisselot, a very pleasing exhibit.

Close by Messrs. WATKINS AND SIMPSON had a rectangular bed of their strain of East Lothian Stocks, which by their colour and fragrance drew the attention of crowds of visitors.

Two large rock gardens, with their backing of dark-hued Conifers, were a delightful relief from the gayer flowers, and also formed a fine background for the central design. Mr. G. G. WHITELEGGE'S exhibit, with its grey stone from the Ardennes, was a carefully restrained effort and a good example of rock garden design of planting. The principal groups of alpines consisted of the dainty Androsace carnea, the golden and true Geum montana, Primula frondosa, Arabis Sundermanni, Æthionema Warley Rose, Saxifraga bathoniensis, Cheiranthus Allionii, Sedum spathulifolium, and yellow Alpine Auriculas.

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Engelmann, and Messrs. Charlesworth and Co.

Gold Medals.—Messrs. Stuart Low and Co., Mr. L. R. Russell, Mr. C. Bause, Messrs. Cragg, Harrison and Cragg, Messrs. Sanders, and Messrs. Watkins and Simpson.

Large Silver-gilt Medals. — *Gardeners' Chronicle*, Ltd., and Messrs. W. Artindale and Son.

Silver-gilt Medals. — The Spalding Bulb Growers' Association, Messrs. Reamsbottom, Mr. W. Watts (St. Asaph), and Miss W. Walker.

Silver Medals.—To Mr. J. Macdonald, Messrs. Watson and Sons (for new hybrid Cytisus), and Mr. Bunn (for Pelargonium Fascination).

New and Rare Plants.

To many of the English growers the finest Orchid in the exhibition was Cymbidium insigne Bieri, shown by Messrs. Bier and Ankersmit, Melle, Ghent. This lovely variety has flowers of unusual size and superb form. The broad sepals and petals are a charming shade of pink, while the well displayed lip is also pink, freely marked with deep chocolate red and enhanced by the soft yellow crest. It is the kind of Orchid which every member of the R.H.S. Orchid Committee would want to propose a First Class Certificate for!

Very rarely are the filmy Ferns seen in good conditions nowadays, therefore the little closed greenhouse filled with these exquisite plants was a little Mecca for Fern lovers. This exhibit, arranged by M. Arthur de Smet, contained capital examples of Todea superba, Trichomanes radicans dissecta, the rare T. reniforme, and Hymenophyllum demissum. We are afraid many lovers of decorative plants missed this exhibit, as it was in the shade of some big Palms, close to the end of the French section, and as the moisture had condensed on the glass, thousands of folk must have passed it by unnoticed.

Many British visitors to the Ghent Show considered the best "new plant" was Dr. Attilo Ragionieri's giant strain of florists' Ranunculus. Dr. Ragionieri is one of our correspondents whom we have not yet had the pleasure of meeting. A few years ago he sent us some flowers of a new pink Lily-of-the-Valley, but as its journey in the post had not improved it, we were chary of commending it; as shown on this occasion, however, the flowers were distinctly pink, but not so lovely as the best white forms. However, the Ranunculi were the attraction, a small salon was almost filled with the wonderful flowers in a great range of colouring. All the varieties were double and some were fully six inches in diameter and, set on a Begonia plant, would have passed for a very double Begonia bloom. In form, doubling, vigour, interest and effect, these Ranunculi were certainly unusual, and deserved a better position than they had, and also far more space for the display of the blooms. There were few white flowers, but all shades of yellow and gold, red and maroon, mauve and purple, rose, pink, and almost scarlet. The firm which secures this strain for distribution in England—assuming it will grow at home as florists' Ranunculus did in the old days—will deserve well of horticulturists, and no doubt profit by its good deeds.

Oncidium Cavendishianum may be considered a rare plant, though by no means a new one. At Ghent, however, it did not appear to be very rare, as it was shown in several groups of Orchids, but the finest examples were exhibited by M. Jean van de Putte, Meirlebeke, who grouped eighteen plants, each carrying a tall spike of its yellow flowers.

Orchids.

Orchids were magnificent, and no other adjective will serve to denote the extent, beauty, colouring, and high cultivation demonstrated in the many exhibits.

Sir Jeremiah Colman's exhibit merited general approbation, and seven or eight medals were awarded for various plants in it and the group as a whole. Very interesting were the rare species of Orchids along the front of the group, these including Masdevallia trichaete, M. Massangeana, the rare M. deorsa, and M. Chestertonii, and Megaclinium sp. In the main group were some very fine forms of Lycaste Skinneri and the interesting Coelogyne Lawrenceana, Anglocaste Cooperi, and a setting of excellent Cattleyas, Odontoglossums, Cymbidiums and Dendrobiums—a fine display.

Messrs. Charlesworth and Co. staged a beautiful exhibit that was at once attractive and interesting and also contained many varieties. Of outstanding merit were the spikes of their grand strain of Odontoglossum crispum xanthotes, a variety that won great admiration. Odontonia Ceres was shown finely, as well as the newer O. Olivia, of soft golden yellow colouring and scarlet marks on the big lip. Laelio-Cattleya Primrose was a lovely plant, carrying fine flowers, while even more imposing was the particularly handsome specimen of Laelio-Cattleya G. L. Ball, with a tall spike of about a dozen and a half golden flowers. With hybrid Odontoglossums of rare form and colour, and beautiful Odontiodas, the Haywards Heath firm admirably sustained the prestige of British Orchid culture.

Messrs. Stuart Low and Co. maintained their high position as Orchid growers by showing an interesting group, in which we noted Cattleya Cowaniae alba, various finely coloured Odontoglossums and Odontiodas, good plants of Cypripedium Shillianum, and C. James H. Veitch, Bifrenaria Harrisoniae, and Oncidioda Stuart Low.

Messrs. Sander's Orchid group was a forest of Cymbidium spikes, and the grassy leafage of the plants added to this effect. The display included several very large specimens of C. Ceres, C. Ceres magnificum, C. Alexanderi, and the lovely blush-tinted C. A. var. St. Alban with wonderful large blooms. In this interesting group of easily grown and graceful Orchids was also noted C. Yellow Hammer, C. Kittiwake, C. Pauwelsii, C. Redstart of very rich colouring, C. Lonoraie, and several others of the hybrids originally raised in the Westonbirt collection.

An extensive and beautiful exibit of Orchids arranged in a large recess in the salon where the neighbouring plants were all Anthuriums, showed that amateur orchidists are as keen in Belgium as at home. Dr. G. Ballion's plants grown in Ghent, were always the centre of an admiring crowd. Hybrid of the C. insigne section, and hybrids from this useful species provided material for a light and graceful background. The erect or arching spikes in their setting of Palms lent grace and elegance to a very fine display that thoroughly merited the several gold medals it received. C. Alexanderi, C. Sibyl, C. Miranda, and C. Pauwelsii amabile, were represented by admirable specimens, carrying fine spikes of full-sized flowers. Odontoglossums figured largely in the central foreground, and among the many hybrids none stood out so boldly as O. Reine des Belges, with red purple markings on a white ground. Equally well grown were the numerous Odontiodas, among which O. Maréchal Foch, white, blush and red; O. Maréchal Gallien, rose pink; O. "on ne passe pas !!!" white with deep chocolate blotches; O. General de Goutte, with violet-purple margins; and O. Belle France, with a big branching spike of white ground flowers, blotched with scarlet, were conspicuously fine. Some beautiful Cattleyas and Brasso-Cattleyas added fine colouring, while the groups of Miltonias of the M. Bleuana group compelled admiration. Not less attractive to Orchid lovers were the specimens of Cypripedium of the Maudiae type, and the examples of C. beechense, the white C. Boltonii, C. callosum Sanderae, and the old C. Haynaldianum. Mixed with these and other species and hybrids, were spikes of Oncidium tigrinum, and O. Cavendishianum, species rarely seen in good condition in England.

The special prize offered by H.M. the King of the Belgians, was awarded to M. Firmin Lambeau, of Brussels, for a superb display which was, however, rather formally arranged. Nevertheless, each plant could be seen, in its setting of Maidenhair Ferns. Once again Cymbidiums formed the background. Where everything was so good, it was very difficult to select a few for special comment. In making the attempt, however, we give first place to Miltonia Bleuana var. Reine Elizabeth, with very deep, white flowers of grand form, marked with deep purple on the bases of the two petals, and with a tawn-yellow disc. Laelio-Cattleya Isobel Sander, with pure white sepals and petals, and a glorious purple, white-edged and chrome tinted lip, attracted as much attention as the Miltonia. The dozen plants of the white Cattleya Edithae made a group that aroused the envy of many Orchid fanciers, while the specimen of Brasso-Cattleya Joan var. aurea, stood alone in its golden colouring. Concerning the Odontiodas it is difficult to write with restraint, as they were so wonderful in colouring and cultivation. O. Chanticler stood out with its dazzling red-scarlet flowers, and its principal associates with rich colouring were O. Bradshawiae var. Vulcan, O. Rex, of grand form; O. Isadora, handsomely marked with crimson on a pink ground: O. Charlesworthii, and the velvety crimson O. Alcantara. Groups of varieties of Miltonia vexillaria and M. Bleuana were included, as were Odontoglossum eximium xanthotes, Phalaenopsis Rimestadiana and Cattleya citrina.

In one of the large upper salons, Orchids were gorgeously beautiful, as they filled the artistically handsome and beautifully lighted place. Palms, Tree Ferns, Adiantums, moss and rocks were pleasingly associated in the round, central display, and formed a charming setting for M Louis van Houtte's display of Odontoglossum eximium xanthotes, represented by about fifty spikes of this chaste Orchid. M. Maurice Verdonck's exhibit in this grouping was somewhat sparsely filled, but it contained some excellent white Cattleyas, Odontoglossums and Odontiodas, but alas, none of the varieties was named! In a setting of rock and green moss M. Emile Praet showed some pleasing Laelio Cattleya of L. purpurata parentage, together with Cattleya Mossiae varieties, and a few Cypripediums of a type which would not find favour with British growers.

Laelio-Cattleya Roi Alphonse XIII., a glorious Orchid with golden sepals and petals, and purple lip, was shown by M. Chas. Dietrich, Brussels, together with Brasso-Laelio-Cattleya Cliftoni, Miltonia Bleuana, in grand form, Phalaenopsis Rimestadiana, and a fine example of Cypripedium Lawrenceanum, with eight grand flowers.

A big specimen of the old Cypripedium villosum aureum, shown by M. A. Maes-Braeckman, Mont. St. Amand, carrying fourteen flowers, greatly interested the older Orchid growers, although it would realise a very small price in these days. M. Janssen's display of Cypripedium Maudiae magnificum was greatly admired, both for its extent and the excellent cultivation of the plants.

For many years past Messrs. Bier and Ankersmit, Melle, have been known as excellent cultivators of the fine old Cymbidium Lowianum as they invariably show giant plants at spring Continental shows. On this occasion, however, the firm devoted chief attention to Cymbidiums of the insigne group, and showed splendidly flowered examples of the various useful hybrids derived from this species, as well as good forms of it. With their Orchids they associated a fine strain of Clivias, of orange colouring, and in a glass case exhibited the finest form of Cymbidium insigne we have ever seen—C. insigne Bieri.

Stove and Greenhouse Plants.

The collections of stove and greenhouse plants which formerly were imposing features of a Ghent Quinquennial, were greatly reduced at this last one. Messrs. Louis Van Houtte, Messrs. F. Sander and Sons, Flandria, and Mr. F. Spae all made highly creditable exhibits in this section, and there were smaller efforts of the same kind which helped to maintain the great reputation of the Belgian nurserymen for the skilful cultivation of tropical foliage plants. It should be noted that this falling off in interest in tropical gardening is not peculiar to Belgium: it is just as marked in the British Islands, in France, and doubtless in Russia and Germany also. The trade with the United States was formerly largely concerned with tropical plants.

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Messrs. Van Houtte's collection was in the opinion of many the best of all the foliage plant exhibits. In variety and in the size and condition of the specimens it equalled any that this great firm has ever produced at Ghent. It comprised most of the exhibition plants of former years: Crotons, Dracaenas, Anthuriums, Marantas, Bromeliads, Philodendrons, Phyllotaenium Lindeni, Alocasia Thibautiana, A. Watsoni, the more elegant of the Palms, including a beautiful example of Leopoldinia pulchra, a near relation of Cocos Weddelliana and the source of a valuable fibre in Brazil. Another plant that stood out conspicuously was a short-leaved very glaucous variety of Encephalartos Lehmanni. It was unnamed, but Mr. Watson identified it as one known as glauca. These two were the only novelties in Messrs. Van Houtte's great collection This firm also had a large number of economic plants of special interest. A smaller but highly meritorious group was that shown by Flandria, a Bruges firm long associated with the superior cultivation of stove plants This firm also showed a superb group of Palms in which were large examples of such rarities as Ravenia Hildebrandtii, Kentiopsis Linderi, Glaziova insignis and Chamaerops hystrix. Mr. F. Spae showed a superb collection of Palms including distinct varieties of Kentias and a noble example of Livistona Dournouveana which appeared to be the same as what is known in England as L. Gebanga Messrs. F. Sander and Sons confined their efforts in this section to Palms, Cycads and tree Ferns. Their Kentias and Phoenix Roebelinii were perfect examples of the best cultural skill, and their collection of Cycads was a grand exhibit, including as it did large-stemmed Encephalartos, Macrozamia, Cycas, Dioon and Lepidozamia. It is gratifying to learn that there is still a demand for good specimen plants of these noble genera. Formerly they were largely cultivated in Belgium for amateurs in Russia and the United States. Dr. Watney is a keen collector of them and cultivates them successfully in his garden at Madeira, where the climate is favourable to them. We may note here the large examples of Phoenix canariensis, Cycas revoluta and Furcraea longaeva from the Riviera shown in the French section.

Bromeliads were shown by several specialists, the most decorative being Vriesias, Billbergias and Tillandsias. The classes for collections of varieties of Anthurium Scherzerianum were well supported, Ghent growers continuing to pay particular attention to this species which has been a speciality with them for many years. There were also hybrids between A. Andreanum and other species, and some of them bore very large fantastically-coloured spathes. We found no hybrid in which A. Scherzerianum was evident, and so far we believe this species has refused to cross with any except its own varieties. We saw only one collection of Begonia Rex, and a group of B. xanthina × B. tuberosa was noteworthy. B. Gloire de Lorraine was very effectively employed by the Dutch in their great flower garden which occupied the central area of the great hall. The classes for Nepenthes and Bertolonias failed to draw entries. The groups of Hippeastrum from Holland were attractive features, the quality of the flowers being quite first class. A group of pure whites was greatly admired. The Hippeastrum cult originated in Holland, Messrs. De Graaf, of Leiden, being the first to apply skill and selection to their breeding and improvement. It may be said that our best English growers of these plants have little to learn from the Dutch growers to-day.

One of the most charming of the newer plants was Dracaena Dermuensis var. Bausei, a group of well grown examples occupying a conspicuous position in the English Section. It is a most cheerful plant to look at, the broad, curved leaves being banded with glistening white on dark green. It is closely related to Dracaena Lindeni, and we believe it was introduced from the same country. There were many—one might say thousands of plants—used as decoration, of such useful things as Cocos Weddelliana, Phoenix sylvestris, P. Roebelinii, Cordyline australis, Aralias, Aspidistras, and Selaginella Watsonii.

Whatever deductions one might be disposed to make from the character of this exhibition, it is certain that Belgium and its gardeners do produce quite extraordinary results with some kinds of plants—Azaleas, of course; the rest of the world cannot compete with them; also Bays, Dracaenas, Araucarias, and, we think we should add, Hydrangeas, seeing how far the Belgians have gone with them. With respect to Palms, Belgium produces them in great quantities, though no better in quality than our best growers do, though they certainly make the running. The art of finding out what conditions answer best for plants worth growing is a valuable one which is not peculiar to any country. Cymbidiums are the latest addition to market growers' specialities, and it looks as if the Belgians are on the track of the treatment that will make the plants as easy as Kentias—easier, perhaps.

Among the non-competitive exhibits, the most noteworthy that come into this section were excellent examples of Anthuriums, grand specimen plants of Stangeria paradoxa, Pandanus Baptistii, and well-grown Platyceriums. These were shown by the Director of the Gardens at Monaco, Monte Carlo.

Both Mr. J. Van de Putte, Meerelbeke, and Mr. A. de Smet, Ledeberg, were awarded Gold Medals and first prizes for Anthuriums. Messrs. F. Sander and Sons were awarded a Gold Medal and first prize for a group of large Phoenix Roebelinii. Mr. L. Van Houtte was awarded Œuvres d'Art, valued 1,000 francs, for stove plants, and a similar award went to Messrs. F. Sander and Sons for Cycads. Messrs. W. Warmenhoven and Son, Hillegom, were awarded the Ker Memorial prize for Hippeastrums.

Ferns.

Tree Ferns were employed mainly in the decoration of the great hall. They have always been conspicuous for size and excellence of cultivation at the Ghent Quinquennials, more so at previous exhibitions than at this last one. Alsophilas, Cyatheas and Dicksonias stood out either singly or in groups above the smaller flowering plants. Most of them were exhibited by Messrs. De Smet Frerfs, Ghent, who were awarded a gold medal and first prize for them. A particularly elegant Tree Fern from the Congo was in Messrs. Sander and Sons' group of stove plants. The Fern most in evidence throughout the exhibition was the spurious Adiantum Farleyense, known as Glory of Moordrecht. It is evidently a good-natured Fern, easy to cultivate, and in its large, elegant fronds it has just the qualities that give the right setting for plants that require ground cover. Some grand examples of it were used in this way by Messrs. Bier and Ankersmit, Ghent, to furnish their wonderful group of Cymbidiums, noted elsewhere. Near to them, and shown by the same firm, was a splendid lot of Clivia miniata, as remarkable for the size and very dark green of their leaves as for the size and rich colour of their flower heads. They recalled the group recently shown by Sir George Holford at Vincent Square.

Cacti and Other Succulents.

An exhibit which received considerable attention was a collection of succulent plants from Mr. F. de Laet, Antwerp, who for many years has been a collector and grower of them. They were arranged on an area covered with sand and rocks in imitation of the desert conditions where Cacti grow wild. They comprised large examples of Echinocactus, Mamillaria, Cereus, Euphorbia, and other genera. A heap of shingle was a very good attempt to show the natural conditions in which the fat little Mesembryanthemums are found. Mr. de Laet has a large collection of these oddities, and we commend to his notice and study Mr. N. E. Brown's careful monograph of them, which has been appearing for some time in our pages. Agaves and Aloes were among the exhibits in the French Section; probably they came from Algeria. A big bunch of flowers of Strelitzia regina was shown along with them; also a collection of fruits of the Citron family and the highly decorative bunches of fruits of Phoenix canariensis. There was even a full-sized stem of a Banana bearing leaves and a bunch of fruit. The French exhibitors took little pains in arranging their exhibits. It would be startling if one of their collections of vegetables, for example, were to be placed by the side of those periodically set up by Messrs. Sutton and Sons, Messrs. Webb and Sons, Messrs. Carter and Co., or Mr. Vicary Gibbs. The quality was there, but there was no art shown in setting them out for the edification of visitors.

Azaleas and Rhododendrons.

Without any doubt whatever, the Ghent Show of 1923 may be said to be an Azalea show. Azaleas occupied the entire centre, and much of the sides and ends of the great glass roofed hall, and if they were taken out, the exhibition would be poor indeed. The roof of the hall was draped with pale crimson material, but, strange to say, the effect on the colours beneath did not appear to be a disadvantage. It would be almost impossible, without being tedious, to refer to the many varieties that were exhibited. They were innumerable, and yet one may sum them up so far as the predominating colours were concerned, as pure whites, dazzling scarlets, the softest and the deepest of pinks, the deepest of crimsons, clear mauves, and salmons. In addition to these, of course, were numerous variegated or bicolor varieties, in which two or more colours are eye-catching in about equal proportions.

So far as the culture was concerned, nothing but the highest praise would do it justice. Quite tiny specimens in 3-in. pots, up to large bushes and standards, were to be seen, and all simply smothered in bloom. In the great majority of cases, indeed, the plants appeared to be nothing but bloom, so effectively were the leaves hidden by their floral burden.

Not only were single varieties much in evidence in all colours, but doubles and semi-doubles perhaps constituted the great bulk of those shown.

Among varieties that struck us as being particularly fascinating, mention may be made of Daybreak, a beautiful rose-pink semi-double; Blushing Bride, just a soft shade of shell-pink on a white ground; Pink Pearl, deeper and more double; John Llewellyn, salmon scarlet; our old friend Vervaeneana, blush pink with deep rose centre and blotches; and Madame Petrick, deep rose, very effective.

One of the most conspicuous and certainly one of the most attractive varieties was that named Albert-Elizabeth (see Fig. 95), a new one dedicated to their Majesties the King and Queen of the Belgians. It was raised by J. B. Haerens and Henri Wille, Somergem, Ghent, and was awarded the Sander Memorial Cup (see Fig. 94). The groups were very numerous, and while all were meritorious displays of highest horticultural skill, it may not be invidious to mention a few that stood out distinctly, and, as it were, "caught the eye" more quickly than others. The large circular bed of August Haerens and Sons, of Somergem, St. Amondsberg, very worthily secured the award of a gold medal, and this firm won valuable awards for groups in other parts of the show.

Mr. L. van Houtte was awarded "Œuvres d'Art," valued at 1,000 francs, for Rhododendrons and Azaleas.

L. de Smet-Duvivier, Mont. St. Amand, had a conspicuous lot of Azalea "Magenta," which, with others, obtained a silver-gilt medal.

Theophile Piens, Melle-lez-Gand, obtained first prize for a very effective group, mostly in 8-inch pots, with an extraordinary number of varieties. The firm of Louis van Houtte, pere, La Pinte-lez-Gand, put up a very large, and highly attractive exhibit of almost every known variety, and in every size, ranging from 5-inch pots to tub specimens of great size. The exhibit obtained the well-deserved first prize of a gold medal.

MM. Bier and Ankersmit, Melle-by-Ghent, had a very fine display at the side, arranged in an inclined plane, from small specimens at the base to pyramidal standards at the back. Achille de Coster, Heusden, Ghent, had a fine group of Vervaeneana and V. alba, for which a gold medal was given.

Besides the Indian varieties, those of the mollis section, although not so numerous or conspicuous as on former occasions, were never-

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theless well represented, and were in striking contrast to the other groups. A very effective group was put up by L. J. Endtz and Co., of Boskoop.

A special feature was a variety named Princess Juliana, soft yellow tinged with orange-red, in the adjoining group, by MM. C. Frets et fils, Boskoop. Koster's "Brilliant red" really a vivid orange-scarlet, is a very attractive variety that will find many admirers.

Rhododendrons were not shown in great abundance, and forms of fastuosum seemed to be most conspicuous. Koster and Son, of Boskoop, had several good hybrids, including Mrs. R. W. Wallace, a pure white variety with a few orange spots on the upper petal.

The specimens were well grown and varied a good deal in size, but the mauve masses of colour were in some cases out of harmony with the groups of blue and magenta Cinerarias, and other plants which were used as foils to set them off to greater advantage.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

R.H.S. Reports (see page 206).—It is not surprising to learn that your reporter "fell" in the spelling of Mrs. Heywood Johnstone's name and address. The wonder is that errors of this description are not more numerous. Over quite a considerable period I have been often "intrigued" by the deplorable caligraphy on the exhibitors' cards at the R.H.S. meetings, and of late they seem to be even worse, if possible, than formerly. Nor is the Society's well-nigh indecipherable writing confined to the exhibitors' cards; it extends to the official lists of awards which are posted in the vestibule. And, what is more embarrassing to the visitor, they, every now and then, lead one woefully astray. A short time ago, on the list of Orchid awards there were the names of three genera, written badly and spelt incorrectly, which did not receive awards on that day. At the Daffodil Show last week the usual official list of awards was posted, and it contained, as one of the varieties which had received Awards of Merit, "Miss Helen Hard." The raiser's name for the variety that was undoubtedly meant is Miss Helen O'Hara! *Visiting Fellow.*

Late-flowering Chrysanthemums (see pp. 94, 139, 165 and 166).—*Y. G. and Another Grower* state that Liverpool yellow was registered; we have it catalogued as Golden Glory; is not one name sufficient? I take Liverpool Yellow to be a synonym; we only require the correct name. I have grown Golden Glory since it was sent out; when well cultivated it is six feet six inches in height. Golden King is two feet six inches tall, a difference of four feet. *Y. G.* is very decrial in his statement in his second attempt; he never mentioned that it was classed among the incurved as Golden Glory. I have been a reader of *The Gardeners' Chronicle* for 30 years. He states that he was attending to Baldock Crimson fourteen years ago. Why not study the younger growers who are readers of *Gard. Chron.* and interested in growing Chrysanthemums? As for Bronze Mollie, etc., being in bloom last December. On January 10, 1922, I was cutting blooms of that variety, and I also exhibited it in November, 1921, which was a very dry year. Timing the bud is one of the chief factors in success which all Chrysanthemum growers know. Enfield White is quite distinct from Cheshunt White. *Chrysanthemum Grower.*

——I am obliged to *Chrysanthemum Grower* for giving us a list of up-to-date varieties which are worth growing. I notice that *Y. G.* in his second note does not state that Liverpool Yellow is catalogued among the incurved varieties. There is a difference between Enfield White and Cheshunt White. Pink Pearl is not worth pot room. As for Empire Day, I cannot find such a name. We young readers want to learn about the best varieties, or how are we to take the place of the older growers? *A Young Chrysanthemum Grower.*

SOCIETIES.

LONDON DAFFODIL SHOW.

April 12 and 13.—While the entries in the various competitive classes of the Daffodil Show arranged by the Royal Horticultural Society fell short of expectation, the general quality of the blooms was very high. Although there were blanks where it had been hoped to have had vases of Daffodils, the hall generally was well filled. The large collections of Daffodils which had been exhibited on the two previous days were replenished; a few additional groups were arranged, and many of the miscellaneous collections were left over from the fortnightly meeting. These latter added variety, and, no doubt, gave pleasure to those of the visitors who had not attended on either of the previous days. But the Society made an unfortunate mistake in giving the most important position in the hall to Mr. James Douglas's Auriculas. It was to have been a Daffodil show, yet the first flowers seen on entering the hall were Auriculas, and these were supported by other extraneous flowers. From these remarks it must not be inferred that the plants and flowers other than Daffodils were not worthy of admiration. Such is far from being the case. What we regret is that, in the rearrangement of the hall, these were given such prominent places which certainly should have been occupied by Daffodils.

Trade exhibits contributed largely to the show of Daffodils; a great many fresh varieties were included in them, and there were several additional collections. Messrs. Barr and Sons were again deservedly awarded a Gold Medal for a magnificent group.

Awards of Merit.

Narcissus Beauty of Radnor.—This is a graceful Incomparabilis variety. The perianth is pure white, and the medium-sized corona is lemon-yellow margined with pale orange yellow. Shown by Dr. N. G. Lower.

N. Dainty Maid.—A well-formed Poeticus variety, which has an uncommon flattish corona of lemon-yellow colour edged with buff-orange. Shown by Mr. W. A. Watts.

N. Dinton Red.—In form and purity of perianth this is a model Poeticus variety, and the flowers are held well erect on stout stems. The flattish corona is of fiery orange—almost red—colour. Shown by Rev. G. H. Engleheart.

N. Dulcimer.—This is one of the longest-stemmed Poeticus varieties in cultivation, and the shapely blooms are well set, so that they are displayed to the fullest advantage. The perianth is of milky whiteness and the corona is margined with bright scarlet. Shown by Capt. Hawker.

N. Miss Helen O'Hara.—One of the best of the large white Trumpet Daffodils, and it possesses plenty of substance. The long cylindrical tube has a graceful recurving rim. Shown by Mr. J. L. Richardson.

N. Owen.—A highly decorative Barri variety in which the Primrose-coloured perianth sets off a glowing orange-yellow corona. Shown by Mr. W. A. Watts.

N. Red Guard.—This was the most uncommon of all the novelties. The somewhat star-shaped and long perianth segments are of pale, though bright, buff-orange colouring, while the cup-shaped corona is a vivid orange-scarlet. Shown by Messrs. R. H. Bath, Ltd.

N. Red Rim.—This splendid Poeticus variety has a substantial milk-white perianth of good round shape and a broad, flat, yellow corona definitely margined with red. Shown by Rev. G. H. Engleheart.

N. Wide Wing.—The perianth of this large Poeticus variety is almost paper white. The pale yellow corona has a narrow, but well-defined margin of orange-scarlet. Shown by Rev. G. H. Engleheart.

Open Competitive Classes.

The best twelve Trumpet varieties were shown by Mr. J. L. Richardson, who, besides several excellent seedlings and the new variety Miss Helen O'Hara, included splendid blooms of Lord Roberts, White Knight, and Herod. Dr. N. G. Lower, who was placed second, showed mostly his own seedlings. In the class for Incomparabilis varieties the first prize was won by Mr. W. A. Watts with praiseworthy blooms of such sorts as Stormer, Juniper, and Peggy. Mr. Richardson was a good second, and his best blooms were Great Warley, The President, and Lady Moore.

The twelve varieties of Barri types were exceedingly beautiful, and the competition for first place was so keen that the judges felt compelled to place Mr. F. H. Chapman and Mr. J. L. Richardson equal. Both exhibitors staged many beautiful seedlings. Mr. W. A. Watts was second, and he had delightful vases of Cherry and Miss Willmott.

The Leedsii division has been divided into two sections, which are governed by the length of the perianth segments. But these were poorly represented.

Although Mr. F. H. Chapman was alone in the Poeticus class, he had a particularly good collection, and fully deserved the first prize which was awarded. His blooms were very shapely, and besides several good seedlings, he showed Valetta and Raeburn.

The following classes required six varieties each of the different divisions. The best self-coloured Trumpet Daffodils were set up by Mr. W. B. Cranfield, and these were large shapely blooms of unusually rich colouring. The very best were Betty and Grenadier. Mr. Chapman was placed second, and in Cinema he showed an exceptionally large flower. Mr. Richardson had the best bicolor Trumpet varieties, and amongst these he included Miss Helen O'Hara. The first prize bicolor Trumpets, exhibited by the Rev. T. Buncombe, were also especially meritorious. The choicest varieties were Pugilist, Torrington, and Beara. In the second prize exhibit, shown by Mr. Cranfield, there was a vase of Cranfield, which has an exceedingly long tube. Dr. Lower, showing especially good seedlings, was placed first for yellow Incomparabilis, and Mr. Richardson was second. Dr. Lower was also first in the class for bicolors and for yellow perianth Barri varieties.

The class for large-cupped Leedsii contained many beautiful blooms. Mr. Richardson was first, and he included Lady Millicent Taylour, a new variety of great merit, which has a widely expanded tube beautifully tinted with pinkish-buff. Mr. Chapman had the best small cupped Leedsii blooms. The Triandrus varieties shown by Mr. Cranfield were particularly dainty and charming. In the class for doubles Mr. W. F. M. Copeland, who was first, had Silver Rose, Orange Doubloon, and Petronia.

The chief class in the section for new varieties required twelve varieties not in commerce, and the first prize included the valuable Engleheart Challenge Cup. This was won by Dr. N. G. Lower with a magnificent collection, which included Crucible, a Barri bloom; Beauty of Radnor; Delhi, a large orange-coloured Incomparabilis; and some excellent seedlings. Mr. Watts was placed second, and his was a worthy collection, in which we noticed Enid Dorothea, which has a large crinkled corona of orange colour, and Gladys Bibby, a Leedsii with a lemon-yellow cup. Mr. Richardson, showing seedlings, was first for six varieties, and Mr. Copeland, who included Inez, a large self yellow Incomparabilis, was first for three varieties.

Dr. N. G. Lower, in addition to winning the Engleheart Cup, won the Gold Medal, offered for the best 12 varieties raised by the exhibitor, with beautiful seedlings. The best six similar varieties were shown by Mr. P. D. Williams, who included Picador, a most shapely Poeticus bloom. There were many exhibits of these varieties raised by the exhibitor, and in this class Sir C. H. Cave was placed first. The Novice Class was very popular. Miss Hinchcliff was first, showing Burgomaster Max, a large bicolor Trumpet, and Helga, a beautiful Leedsii.

There was a goodly array of blooms in the classes for one bloom of the different sections. The principal first prize-winners were Mr. P. D. Williams, Mr. W. A. Watts, Mr. J. L. Richardson, and Capt. H. G. Hawker.

The amateurs' blooms were of particularly

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high quality, though the competition was not so good as might have been expected. The first prize collection of 24 varieties, arranged by Mr. H. R. Darlington, was particularly meritorious, and Miss Hinchcliff was a good second. Mr. Darlington was also placed first in the class for six Tazetta, and three double varieties.

Major G. Churcher won the first prize in the class for 12 varieties, with a splendid collection of such sorts as Discus, Pedestal and Prince Fushimi. In the classes for three varieties of the different divisions Mr. B. Robinson won five first prizes with very meritorious blooms.

The Barr Silver Daffodil Vase was offered for the best collection of 36 varieties, three stems of each, representing the different divisions, and was open to all amateurs. It was won by Mr. W. B. Cranfield, with a magnificent collection. Amongst his Trumpet Daffodils were Monarch, King Alfred and The Doctor, and his Barri blooms included Firetail, Dorosis and Will Scarlett.

Two Market Classes were arranged to illustrate the most approved methods of packing high-class Daffodils for the market. The first class was for six varieties, 12 stems of each, to be judged from the market standpoint. The first prize was won by Mr. J. T. Poupart with a splendid box of Trumpet, Barri and Poeticus varieties. Mr. W. P. Downer, who was second, packed Trumpets, Poeticus, Barri and Incomparabilis varieties. Mr. J. E. Exley was third. The other class required a market box of Daffodils, as packed for transit, and exhibitors had to deliver the box of flowers tied, labelled and addressed to the Secretary, R.H.S. Hall, the previous evening. All the exhibits were beautifully fresh at the end of the first day of the show. Mr. J. T. Poupart was first with a box of Poeticus Daffodils, Mr. J. E. Exley was second with King Alfred, and Mr. W. A. Watts third with a well-filled box of Leedsii varieties.

Non-Competitive Groups.

Messrs. Barr and Sons placed many fresh blooms in their magnificent and extensive collection of the previous show, and added a number of new sorts. Prince Fushimi, a Barri with a distinct frilled corona, in which the prominent pale orange rim is very fascinating; Scarlet Cockade, a large-cupped Barri with a fiery orange corona; and Golden Apricot, an Incomparabilis with a frilled lemon-orange cup, are the names of only a few of the beautiful sorts shown in generous quantities (Gold Medal).

In the group exhibited by the Donard Nursery Company the pale yellow-cupped White Star, Market Glory, an Incomparabilis with a yellow perianth and a large orange-coloured tube, and Festive, a beautiful Incomparabilis of somewhat similar colouring, were very prominent (Silver-Gilt Flora Medal). Messrs. J. R. Pearson and Sons gave prominence to Beersheba, a lovely white Trumpet variety, which received a Preliminary Commendation, and also displayed many additional varieties cut from home-grown bulbs (Silver-Gilt Flora Medal).

Messrs. Sutton and Sons removed their centre of Freesias and filled the space with excellent Daffodils, mostly of Barri and Poeticus varieties possessing richly coloured coronas. Firetail, Croesus, Kestrel and Will Scarlett were very prominent (Silver-Gilt Banksian Medal). Mr. J. L. Richardson had an interesting collection of the various types, amongst which were many excellent seedlings; Marquis of Headford, a white Trumpet variety; Lord Roberts and Great Warley were very conspicuous (Silver-Gilt Flora Medal). Mr. W. A. Watts illustrated the great decorative value of some new sorts which he arranged in quantity. He had large baskets of Owen, Zenophon, a twin-flowered Poetaz, Nannie Ellicoat, an Incomparabilis with a long, narrow salmon-pink flushed tube, Gladys Bibby, Enid Dorothea, and Precious tastefully arranged. Messrs Warnaar and Co. had a small collection which included Golden Giant, an immense, richly coloured Trumpet variety, Red Cross, a large Incomparabilis with an orange-yellow tinged cup, and Expectation, which has a curious little double-frilled cup (Silver Banksian Medal).

Collections of Daffodils were also exhibited by the Welsh Bulb Fields (Silver-Gilt Banksian Medal); Messrs. R. H. Bath, Ltd. (Silver-Gilt Banksian Medal); Messrs. Cartwright and Goodwin (Silver Flora Medal); Mr. W. F. M. Copeland (Silver Flora Medal); Mr. E. H. Thurston (Silver Banksian Medal); and Mr. W. P. Downes (Silver Banksian Medal).

BRITISH MYCOLOGICAL.

At the March meeting of the British Mycological Society, held at University College, London, Mr. F. T. Brooks, Vice-President, presided. Miss M. H. Carré, Dr. A. S. Horne, Miss H. M. Judd and Mrs. H. S. Williamson gave an account of the genus Eidamia. Messrs. A. S. Horne and H. S. Williamson first described the morphological and physiological characteristics of the two new species of Eidamia and their behaviour compared with that of the type species, E. acremonoides, when grown under similar cultural conditions. One species, obtained from Oak wood, is strongly acidophile and causes colouration of the wood; the other, isolated from decaying Apples, is capable of causing rot in Bramley's Seedling Apple when kept under ordinary storage conditions or at a constant temperature of 1° C. Miss M H. Carré and Mr. A. S. Horne demonstrated the reaction occasioned by various fungi when grown in soluble pectin of a high degree of purity obtained from Apples. Certain fungi utilise the pectin with production of acidity (Botrytis, Diplodia cacasicola, etc.); the pectin was completely broken down by others with the production of sugar (Apple Eidamia), whilst others were apparently incapable of growth in pectin. Mr. Horne and Miss H. M. Judd stated that the Apple Eidamia, when grown in solution of sugar exhibits, in many cases, different reactions according to the sugar used, as evidenced by emission of odour (Coconut oil smell) liquid colouration and rate of growth (in agar plate cultures containing sugar). The reactions obtained appear to show a definite relation to the configuration of the sugars concerned. Mrs. H. S. Williamson gave an account of an undescribed fungus, "Golden" Oak, a species of Eidamia which caused the production of a yellow colour in seasoned Oak. This colour was produced when normal Oak was inoculated with conidia of the fungus. It was found to be due partly to the colour of the conidia and partly to a yellow refractive substance produced by the metabolism of the fungus and accumulated in some of the cells of the wood.

Dr J. S. Bayliss Elliott and Miss O. P. Stansfield described the life history of Polythrincium Trifolii. The fungus attacks the under surface of Clover leaves producing olive brown to black, cindery patches which consist of punctiform stromata crowded together and gradually coalescing. The conidiophores arise from a plate-like mass of parenchymatous cells, the stroma extending only into the first two or three layers of cells. Attempts to infect healthy Clover plants with conidia failed. The conidial stromata form rapidly and soon become mature. Pycnidia begin to form amongst the conidial structures, appearing shining and black, and lie for the most part under the cuticle of the leaf. The pycnospores are discharged in tendril-like masses. When placed on Clover leaves they germinate and infect the host usually by penetrating the cuticle. After the pycnidial stage reaches maturity, the Clover leaves wither. It was found possible to study the further development of the stromata, however, by laying infected Clover leaves between cover slips or glass slides, and placing between Ivy leaves buried in soil in flower pots in the open. The mature Pyrenomycetous fungus is not Phyllachora, as has usually been supposed, but a species of Dothidiella.

Mr. J. Ramsbottom gave an account of the correspondence of Berkeley and Broome, which is preserved in the National Herbarium. This voluminous correspondence covers a period of upwards of forty years, and gives particulars of the manner in which the collaboration between these eminent workers was carried on; also many facts with regard to mycology in general. It contains a mass of biographical detail more particularly of Berkeley, and gives a much closer picture of the "Father of British Mycology," than do the meagre and misleading biographies which have so far been published. It is of interest to note that Henslow desired Berkeley to succeed him as Professor of Botany at Cambridge, and that he would later have become Professor at Oxford, as successor to Daubeny, but that it was decided by the lawyers that a clergyman was not eligible for the part.

The Rev. P. J. Alexander described the habitats and the period of growth of a large number of Surrey Myxomycetes. So far 122 species have been recorded for the county, and no time of the year is barren of these attractive organisms. Mr. J. Ramsbottom described the proposed mycological exhibit in connection with the Tropical Diseases Section at the British Empire Exhibition (1924), and asked that members of the Society should give what assistance they could in making the exhibit a popular success.

ROYAL CALEDONIAN HORTICULTURAL.

April 3.—The ordinary monthly meeting of this Society was held at 5, St. Andrew Square, Edinburgh, on this date, Mr. J. W. M'Hattie, president, in the chair.

A paper was read by Mr. Alex. M'Callum, M.A., LL.B., of the Board of Agriculture for Scotland, on "The Training of the Young Gardener." At the outset, Mr. M'Callum stated that he would treat the subject entirely from the non-professional gardener's point of view. The first questions that occurred to him were—What are we going to train the young gardener for? Is the career proposed for him of such a character as to justify a long course of training?

Owing to high taxation and high costs, luxury gardening could not now have the same vogue as it formerly had in large private establishments, but he could hardly believe that it was altogether a thing of the past, and bad as the present times were, there was hope for a gradual return to more normal conditions. In the big municipalities and in commercial gardening also there seemed to be good prospects of careers for young gardeners. He did not think the theoretical was more important than the practical training for a young man. There were two ways of acquiring a theoretical education. It might be acquired contemporaneously with the practical work, as was the case at the Royal Botanic Garden at Edinburgh, and the Royal Horticultural Society's garden at Wisley, or it might be acquired after the practical work had been learnt by attending full courses of instruction, as at the Edinburgh and East of Scotland College of Agriculture, or the West of Scotland College. Both methods had their advantages.

Mr. M'Callum referred to what was being done by the Research Institutions originated by the Development Commissioners in 1911. Under this scheme fourteen institutes were to be set up, of which one was to be in Scotland and four in Ireland, but since then recognition for other stations in Scotland had been obtained. But all the work which had a bearing on horticulture had been done in England.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The monthly meeting of this Society was held in the R.H.S. Hall on Monday, April 9. Mr. T. R. Butler presided. Eleven new members were elected. Seven members withdrew interest from their deposit accounts amounting to £21 7s. 6d. The death certificates of two deceased members were received, and the sum of £85 19s. 7d., also £10 each funeral benefits was paid to their respective nominees.

The sick pay for the month on the private side was £112 6s. 5d., and on the State £94 3s. 4d., maternity benefits amounted to £6. Two members

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received grants of £7 2s. towards dental treatment, and three other applications were considered.

Obituary.

Alexander Welsh.—We regret to record the death, on April 12, at his residence, The Hawthorns, Coldstream, of Mr. Alexander Welsh, of the firm of Messrs. Hogg and Wood, nursery and seedsmen, Coldstream and Duns. Mr. Welsh, who was 74 years of age, was found dead in his bed. He was well-known and highly esteemed by a wide circle of business and other friends. He was for some years a member of the School Board of Coldstream, and he performed much other useful public work. His remains were interred in Lennel churchyard on April 15.

James Russell.—The death of Mr. James Russell, for long a leading member of the Glasgow fruit trade, and a partner, together with his brother William, of the well-known firm of Thomas Russell, Rokeby Terrace, occurred suddenly on the 12th inst. at a nursing home in Glasgow. The brothers retired from the firm a few years ago, but Mr. Russell continued to take a warm interest in the fruit trade of Glasgow. He was for a considerable time treasurer of the Glasgow Fruit Trades' Association, and also held the office of president. A man of thorough business capacity, Mr. Russell was very highly esteemed.

TRADE NOTE.

THE Society of Motor Manufacturers and Traders, Ltd., will hold from Thursday, November 22, to Saturday, December 1, 1923, in the recently enlarged Olympia, an exhibition embracing not only the various types of commercial motor vehicles and their components and accessories, but also plant, machinery and materials used in the construction, maintenance and development of roads. It is hoped that the exhibition will afford the opportunity for a full study, on the one hand of the requirements of the users of commercial road transport, and, on the other, of the problems of the road surveyor and engineer in the construction, maintenance and development of roads suitable for the traffic. The exhibition will be divided into four sections :—(a) Commercial motor vehicles and body work; (b) accessories and components; (c) tyres; and (d) road plant, machinery and materials.

INQUIRY.

CAN any reader of *Gard. Chron.* inform me of the value of leather dust as a manure, and what results are obtained by its use? This manure was at one time bought by German manure manufacturers. Maybe some other gardeners living in or near large boot factories are interested in this leather waste. *J. E. Fitt.*

GARDENING APPOINTMENTS.

Mr. W. Thomas, for the past fifteen years Gardener to Mrs. CHEGWYN, Birklands, St. Albans, Hertfordshire, as Gardener and Bailiff to Miss STOKER at the same place. (Thanks for 2s. for R.G.O.F. Box.—EDS.)

Mr. J. McWhan, previously Gardener to the Rt. Hon. EARL and COUNTESS OF LISTOWEL, Convamore, and for the past three years General Foreman at Curraghmore, Ireland, as Gardener to Capt. E. W. S. and Mrs. FOLJAMBE, Osberton Hall, Worksop, Nottinghamshire. (Thanks for 2s. 6d. for R.G.O.F. Box—EDS.).

Mr. Wm. H. Arrowsmith, for the past ten and a half years Gardener to the MARQUIS OF LANSDOWNE, Derreen, Kenmare, Co. Kerry, as Gardener to the MARQUIS OF WATERFORD, Curraghmore, Portlaw, Ireland. (Thanks for 3s. 6d. for R.G.O.F. Box.—EDS.)

Mr. A. Corner, previously Gardener to Sir CECIL NEWMANN, at Cheverells, near Dunstable, Bedfordshire, as Gardener to the same gentleman at Burloes, Royston, Hertfordshire.

ANSWERS TO CORRESPONDENTS.

NAMES OF PLANTS: *F. F. B.* 1, Juniperus Sabina; 2, Spiraea Thunbergi; 3, Berberis buxifolia; 4 and 6, B. Darwinii; 5, B. sinensis; 7, Daphne Laureola.—*W. H. M.* Rhododendron arboreum.—*J. W.* Libonia floribunda.

PLANTS OF THE 16TH CENTURY: *C. and Sons.* We know of no modern work on the plants, etc., of the sixteenth century. Reference might be made to Turner's *Names of Herbes*, 1534 (English Dialect Society), and either Lyte's *Nieuwe Herball*, 1578, of which there is an edition without figures, which used to cost two to three pounds, or Gerard's *Herball*, 1597, but these books are very expensive. There is also *The Countrie Farme*, 1600, 1606 and 1616, but that is a translation from the French Ail the above works contain other than plants cultivated in England, Turner being honest enough to state of such, "Not known in England."

TREATMENT OF CHRYSANTHEMUMS: *F. B.* If your Chrysanthemum cuttings were inserted singly in small pots filled with sandy soil, and placed in a closed frame, they should be rooted sufficiently for transferring to 4 inch pots in three or four weeks' time. Fire heat is not necessary in mild weather, though a little warmth in the pipes during cold or wet weather will be beneficial. If the plants are in an unheated frame, admit a little air on mild days to change the atmosphere, as all varieties benefit by plenty of fresh air in favourable weather. The majority of Chrysanthemums are hardy, although some of the newer, large flowered varieties are less hardy than others. The compost for the first potting should consist of good turfy soil, mixed with a little burnt earth, sand and leafmould. From the 2 inch pots they should be transferred to 4 inch pots, watered through a fine rose, and subsequently watered only when the soil is dry or until the plants have made plenty of fresh roots. A second potting into receptacles 6 inches in diameter will then be necessary, using a slightly rougher compost, and watering the plants carefully as before. The final potting should be done late in June or early in July, using pots 8 inches to 10 inches in diameter. Pieces of rough turfy loam should be used as a rooting medium, adding a little wood-ash, old lime rubble, and a 7 inch potful of bone meal to each barrowload of the soil. Pot the plants firmly when the soil is moderately dry; firm potting is essential to success. Stand the plants out-of-doors in a sunny situation on an ash bottom, or the edge of a walk, say from May to late September, according to the weather. The question of taking and timing the buds is most important if big blooms are required. Early in May, plants that have not been stopped will form several growths; select three and rub off the others. In due course each growth will bear a flower bud; these are known as first-crown buds, and if such buds are not suitable for the variety in question, the formation of second crown buds must be encouraged by rubbing off all but one. Which ever bud is taken, either first or second crown, all the side growths that appear around it should be removed to favour the development of the bud selected for flowering. The plants need copious supplies of water at the roots during the summer whenever moisture is necessary, and liberal feeding later with diluted liquid manure and, if large exhibition blooms are required, sprinklings of artificial fertilisers.

YEW TREE UNHEALTHY: *J. S. Henley.* The trouble is not due to either insect attack or fungous disease. From the appearance of the leaves and shoots it would seem that the tree is suffering from the drought of 1921. It is possible that the health of the tree will improve this year.

Communications Received.—E. F.—H. F. H.—Anxious—R. S. & Co.—R. M.—L. G. P.—C. E. C.—E. A.—H. A.—F. A. S.—F. H.—A. N.—H. G. T.—A. V.—G. E. M.

MARKETS.

COVENT GARDEN, Tuesday, April 17, 1923.

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus, bundle		
—Cavaillon ..	2 0–	3 0
—Lauris	2 6–	4 0
Beans—		
—Guernsey, lb.	1 6–	2 0
—Madeira basket	4 0–	8 0
—Worthing ..	1 3–	2 6
Broad Beans, lb.	– 9–	1 0
Belgian Chicory per lb.	0 4–	0 6
Beets, cwt. ..	2 0–	3 0
Cabbage, tally ..	2 6–	3 6
Carrots, cwt. ..	2 0–	3 0
—New, per bunch	1 0–	1 2
Cauliflowers, doz.	1 6–	3 6
Celery, roll ..	1 3–	2 6
Cucumbers, doz.	6 0–	8 0
—flats	16 0–	20 0
Endive, doz.—		
—English.. ..	1 0–	1 6
—French	2 0–	3 0
Greens, bag ..	1 0–	2 0
Lettuce, French	1 6–	2 0
Mint, doz. ..	4 0–	8 0
Mushrooms, lb.	1 6–	2 6
Onions		
English	4 0–	4 6
—Dutch, bag ..	3 0–	3 6

	s. d.	s. d
Onions.		
—Valencia, case	6 0–	7 0
Parsnips, cwt. ..	2 0–	3 0
Peas, lb. French	– 8–	–10
—Guernsey ..	2 0–	2 9
Potatos,		
—Canary Island case	10 0–	15 0
—Algerian ..	2–	2½
—Guernsey, lb.	0 5–	0 6
—Dunbar ..	£5	10
—King Edward ..	£3 5–	£4 10
—Others ..	£2 5–	£3 0
Rhubarb, forced, doz.	– 6–	1 6
—natural ..	4 0–	6 0
Radishes, doz.		
—Long ..	– 9–	1 3
—Round ..	1 6–	2 0
Savoys, tally ..	5 0–	8 0
Seakale,		
—natural, half	3 6–	5 0
Scotch Kale ..	1 0–	1 6
Spinach, bushel	2 0–	2 6
Sprouts Greens, bag. —		1 6
Tomatos		
—Canary Islands	30 0–	35 0
—English, per lb	2 0–	2 9
Turnips, cwt. ..	2 0–	3 0

REMARKS.—Increased supplies have been available during the past week, and a generally brisk tone has prevailed. Shipments of Apples from Australia and New Zealand have been heavy, but unfortunately supplies from New Zealand have, on the whole, been out of condition, a considerable proportion showing waste. Fruit from South Africa now consists largely of Grapes, Pears, and a few Apples. For the season of the year there are large quantities of English Apples on the market, and though the condition of the fruits is variable, for those of first-class quality firm prices are being obtained. Forced Strawberries are slightly cheaper, and the first home-grown Black Hamburgh Grapes have arrived. The season's earliest picking of English Gooseberries were marketed to-day (Tuesday). Forced Rhubarb has been quoted very low indeed, owing to absence of demand, but a temporary shortage has at the moment hardened values. French Beans and Guernsey Peas have been in good demand, but there is now a slightly easier tendency for these vegetables. Supplies of New Potatos from Guernsey, Jersey and Scilly Isles have increased, and their prices are lower. English Tomatos are increasing in quantity, but their prices are maintained. Green vegetables are plentiful and cheap. Root crops are in excess of the demand.

Plants in Pots, etc.; Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz. ..	10 0–	18 0
—elegans ..	10 0–	12 0
Aralia Sieboldii ..	10 0–	12 0
Araucarias ..	30 0–	48 0
Asparagus plumosus ..	12 0–	15 0
—Sprengeri ..	12 0–	18 0
Aspidistra, green	48 0–	72 0
Asplenium, per doz.	12 0–	18 0
—32's	24 0–	30 0
—nidus	12 0–	15 0
Azaleas, 48's per doz.	30 0–	48 0
—60's	18 0–	24 0
Cacti, per tray, 12's, 15's ..	5 0–	7 0
Cinerarias 48's per doz. ..	15 0–	18 0
Crotons, per doz.	30 0–	42 0
Cyclamens, per doz.	12 0–	18 0

	s. d.	s. d
Cyrtomium ..	10 0–	15 0
Erica melanthera		
„ 48's per doz.	24 0–	36 0
„ nivalis 48 „	24 0–	30 0
„ 60 „	10 0–	15 0
„ Thumbs „	6 0–	8 0
Genistas 48's per doz. ..	15 0–	18 0
Marguerites, per doz.	18 0–	24 0
Nephrolepis, in variety ..	12 0–	18 0
—32's	24 0–	36 0
Palms, Kentia ..	24 0–	30 0
—60's	15 0–	18 0
—Cocos ..	24 0–	36 0
Pteris, in variety	12 0–	21 0
—large 60's ..	5 0–	6 0
—small	4 0–	4 6
—72's, per tray of 15's ..	3 6–	4 0

CUT FLOWERS.

REMARKS.—Trade is, on the whole, on the quiet side. Carnations are plentiful, and Roses are arriving in larger quantities daily. Richardias (Arum Lilies), Liliums, including L. formosum, have been easier in price the past few days. Very few Violets are obtainable, either single or Neapolitan. Irises in blue and mauve colours are coming from Guernsey more freely, but very few yellow or white blooms are seen yet. This morning (Tuesday), good Daffodils were much firmer in price, stocks of several varieties being finished. There is a brisk trade in hardy plant roots.

SCHEDULES RECEIVED.

Burnley and District Horticultural Society.—Eleventh annual show, to be held in Cronkshaw Meadow on Saturday, August 18.—Secretary, Mr. Arthur Eastwood, 59, Ennismore Street, Burnley.

Guildford and District Gardeners' Association.—First annual show, to be held on Wednesday, July 25, in the grounds of Stoke Park Preparatory School.—Secretary, Mr. E. Sawyer, 30, Recreation Road, Guildford.

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THE

Gardeners' Chronicle

No. 1896.—*SATURDAY, APRIL* 28, 1923.

CONTENTS.

Apples, Pears and Plums, manurial treatment of 232
Birmingham Daffodil show 224
British tribute to Belgium's unknown soldier. 224
Copper sulphate as a tree cleanser .. 232
Fernery, the—
A fine hardy Maidenhair 225
Foreign correspondence—
Different systems of growing Cyclamens 225
Forestry—
Old and new Coniferous trees .. 228
"Gardeners' Chronicle" seventy-five years ago 225
Gardeners' wages .. 232
Ghent Show 223
Hardy flower border—
Herbaceous Paeonies 229
Stylophorum diphyllum 229
Horticultural Club .. 224
Imperial Fruit Show .. 223
Indoor plants—
Eucharis 231
Ruellia macrantha .. 231
North of England Tulip Society 224
Parks and open spaces, public 227
Plants new and noteworthy—
Rhododendron obtusum album .. 227
Rose growing 223
Rubber, wonderful .. 228
Societies—
Ghent Quinquennial 223, 233
National Rose .. 236
Royal Horticultural .. 237
Switzer, Stephen .. 230
Vegetable garden—
Runner Beans .. 232
Week's work, the .. 226
Welsh garden, notes from a 230
Wireless lectures on gardening 232

ILLUSTRATIONS.

British horticulturists at the grave of Belgium's unknown soldier 224
Eucharis grandiflora, well-flowered plants of 231
Ghent Exhibition: views of the 235, 236
Narcissus Brimstone 225
Rhododendron obtusum album 227
Rubber trees, a plantation of, 228; suitable for tapping 229

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 48.7°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, April 25, 10 a.m. Bar 29.7, temp. 49°. Weather—Rainy.

Ghent Show, 1923.

Although we still hold the previously expressed opinion that the Ghent Show of 1923 was not so imposing as certain of its predecessors we have been privileged to attend, a careful inspection of the great exhibition conducted during the course of several days leaves the impression that the Société Royale d'Agriculture et Botanique de Gand has every reason to be satisfied with the first post-war exhibition. We offer further congratulations to M. A. Callier, M. Albert Ceuterick, M. Lucien de Cock, M. R. Delmotte, M. Maurice Duquesnoy, and M. H. de Wilde, the chief officials of the Society, upon the great success achieved, and we hope that the great show will be the means of stimulating commercial horticulture, not only in Belgium, but in the other countries represented at Ghent. The crowds of visitors to the Ghent exhibition were extraordinary in their size, orderliness and enthusiasm, for it must be remembered that there were no side shows or amusements of any kind, though good music was provided. The fine weather with which the exhibition was favoured broke on the last day, Sunday, April 21, and the rain, although not very heavy, continued from early morning; this, perchance was not altogether unfortunate, as it reduced the crowd to manageable proportions, whereas the officials were rather dreading the crush on closing day if fine weather continued. Considering the excellent organisation of affairs, and remembering the warm-hearted hospitality of our Belgian friends, it may seem ungracious to offer criticism, but, we venture to hope that on future occasions some method of dust prevention will be found, that the awning beneath the roof of the great building will be of softer colouring, and that one room or part of the show will be devoted exclusively to the display of new plants and flowers, no matter whence they come. We would also like to see more comfortable arrangements made for the foreign Pressmen, and in making this observation, we are not unmindful of the poor accommodation we at home provide for the Press. For the purpose of encouraging horticultural inclinations, the Ghent Society invites school children to attend early in the morning on several days, and offers especially easy facilities for scholars in the higher schools and colleges to attend. On one morning, Wednesday we believe, many thousands of scholars from elementary schools visited the exhibition and passed out again before 9 a.m.! Ghent Show gave a wonderful demonstration of the length of time flowers and flowering plants will remain in good condition if supplied with water but not disturbed. The British section looked almost as well on April 22 as an April 15, and throughout the whole period it was thronged with admiring visitors. Hundreds of thousands of people visited Ghent Show notwithstanding the raising of the price of admission during the closing days—for instance, from ½ franc to 2½ francs on the closing day. We sincerely hope the takings were satisfactory during the nine days the show remained open to the public; the price of admission on the first day was 25 francs, which was about equivalent to 6s. 3d. in English.

Rose Growing.

All growers of Roses, whether experienced or inperienced, will derive profit from the study of the series of short articles by well-known experts on the preparation of Rose beds on various soils, and published in the *Rose Annual* for 1923. The introductory note by Mr. E. J. Holland, past president of the National Rose Society, contains much wisdom in small space. The optimistic spirit in which it is written is, we are confident, justified, for, like Mr. Holland, we have seen Roses flourishing in soil which the exacting would condemn as unfit for the purpose of a Rose garden. Particularly would we commend his injunction to plant firmly—many a failure with Roses and plenty of other plants being traceable to neglect of this precept. Moreover, firm planting means staking also, for there are few soils and fewer newly-made ones which even when plants are firmly set in it does not shrink and stretch and encourage that "riding" of plants which is so inimical to their establishment. Having read the introductory notes, the student will do well to turn to the last of the series of articles by Mr. H. R. Darlington, not because the others are not equally illuminating from the practical point of view, but because Mr. Darlington envisages the problems of the preparation of Rose beds from a more general point of view—writing, as it were, and very wisely, on the philosophy of Rose-bed making. He points out that the two prime considerations which enter into the preparation of the ground, are depth of drainage and depth at which manure is placed, and that the two go together for the reason that undrained ground means airless ground, and in airless ground manures do not decay properly and yield up beneficial ingredients, but remain sour and do harm and not good. Therefore the manure added to the Rose bed must be at no depth greater than that to which air may freely circulate. Evidently this depth is not absolute, but is determined among other things by the amount of working by hoe and light fork, which the top soil receives. It is determined also in the case of heavy soils by the extent to which lime and manure in the middle layer of the soil keep down the stickiness of the soil. Amateurs are apt to do much harm to their Rose gardens by planting other things which, though delightful in themselves, prevent the working of the top soil at times, e.g., spring, when most good may be done. One of the experienced contributors to the series, Mr. W. E. Moore, who gardens on an exposed site 600 feet above sea level, has to resort to mulching in winter, but most Rose growers will do well to get the soil rough in autumn by careful digging and to leave it to the weather. Many growers mulch too soon and too much. Any mulch on a much compacted soil put on early in the year is likely to do more harm than good, and for our part we prefer to put the manure a little below the surface and to rely on the hoe for making a soil mulch. Nevertheless when wet weather comes, as it sometimes may in summer, a light strawy mulch is of the utmost benefit. The introductory note already referred to rather condemns the use of artificials in the early stage of the Rose bed, but for our part we think it good practice always when adding farmyard manure, to dust it with a little basic slag, a manure which is slow acting, contains lime, and yields up phosphates so beneficial to strong root growth. Of all those who take part in this symposium, Mr. Oppenheimer is the one whose Rose lines appear to be cast in the least pleasant places—three kinds of gravel constituting the staple of his garden soil. After very thorough preparation of the beds, he had high hopes of the Tea Roses, but the hopes were not fulfilled, nevertheless other Roses succeeded admirably, including Red Letter Day, Captain Haywood, Irish Fireflame, Ophelia, Nellie Parker, Lady Alice Stanley and Mrs. John Lang. Growers whose soils resemble those worked by Mr. Oppenheimer, would do well to consult his list of failures and successes. One general observation is called forth by a study of these excellent articles, and that is that none of the writers so far as we have noted, has anything to say of different soil requirements which different Rose stocks exhibit. Yet undoubtedly the different stocks used are distinguished by different soil preferences, and it is probable that the common Briar stock is by no means uniform in its rooting habit. From what we know of fruit trees and Crab and other stocks, it is to be expected that by greater attention to this quesion, stocks specially suitable for Roses on the lighter soils might be discovered and brought into general use.

Imperial Fruit Show, 1923.—The Imperial Fruit Show, which, as we have already announced, will be held in the Belle Vue Gardens, Manchester, from October 26 to November 3, will include special sections arranged to provide local competition within the county of Kent; within the eastern counties, and within the west-midland counties, and general competition in two other sections, *i.e*, the Great Britain section and the British Empire section. New features will be introduced, including exhibits of Potatos, and flowers in season at the time the exhibition is held. A guarantee fund has been opened, and amongst the principal sums

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guaranteed are £500 each from the National Federation of Fruit and Potato Trades Associations; the Association of Fruit Brokers, Manchester; the Manchester and District Fruit Buyers' Association, and the Manchester Markets Committee; £250 from the Manchester Ship Canal Co.; and £100 each from Mr. George Swift, J.P., the Manchester Smithfield Market Tenants' Association, Mr. Joel Goodwin, the Liverpool Wholesale Fruit and Potato Merchants' Association, Mr. F. R. Ridley, Messrs. Dingleys, Ltd., Mr. Wm. Nicholls, the National Federation of Retail Fruiterers, Florists and Fishmongers, Ltd., the London Fruit, Flower and Vegetable Markets' Association, and the Royal Horticultural Society. An appeal is made for subscriptions to the show funds, and also to the prize fund. The following special prizes have been offered: Messrs. Abol, Ltd., two pieces of plate; Messrs. Coupe and Sons, one cup and one bowl; the Humber Fruit Brokers, Ltd., piece of plate valued £25; Messrs. McDougal and Yalding, four cups; Mr. E. R. Roach and London Fruit, Flower and Vegetable Markets' Association, five cups; Messrs. Dingleys, Ltd., gold cup, valued £50; Mr. Geo. Swift, J.P., a cup; and *The Fruit Grower*, medals. The Secretary is Mr. J. F. Tamblyn, 18, Bedford Square, W.C.

North of England Tulip Society.—The annual show of the Wakefield and North of England Tulip Society will be held at the Brunswick Hotel, Wakefield, from May 12-15. The Northern Tulip show, which, until recently, was held at Middleton, is now incorporated with the Wakefield and North of England Tulip Society. The schedule includes nineteen classes, in three sections. A silver challenge cup is offered for the best exhibit of nine Old English Tulips.

"The Gardeners' Chronicle" and the Ghent Exhibition.—Our Continental readers, as well as British friends who remained at Ghent until the closing days of the great exhibition, were surprised to find *The Gardeners' Chronicle* of April 21 at our exhibit on that date, with a report and illustrations of the show. Our Belgian friends were very interested over this rapid transmission of news, and return of printed matter, and appeared to be under the impression that we had used the air service both ways. This was not the case, however, but we had made arrangements which left no margin for errors, and fortunately they were all carried out. The congratulations we received upon this achievement in horticultural journalism were very pleasing, if somewhat embarrassing.

British Tribute to Belgium's Unknown Soldier.—Belgium's "unknown soldier," who fought and fell during the great war in the cause of liberty, has a fitting and noble resting-place in front of the elegant Colonne du Congrès in Brussels. As a token of sympathy and respect, the British horticulturists present at the Ghent International Exhibition contributed to a handsome floral wreath designed and made by Mr. H. Jolis, and this tribute was placed on the grave by Mr. W. G. Lobjoit, Controller of Horticulture, and Mr. J. S. Brunton, Chairman of the Exhibition Committee of the British Section at Ghent, on the occasion of the excursion to Brussels, the Bois de Cambre, the Forêt de Soigne, Laeken, St. Hubert, and Tervueren, on Monday, April 16. Our illustration (Fig. 100) depicts the ceremony. The Dutch and French horticulturists also paid similar homage to the "great unknown."

FIG. 100.—THE GHENT EXHIBITION: MEMBERS OF THE BRITISH DELEGATION AT THE GRAVE OF THE UNKNOWN SOLDIER, BRUSSELS.

Horticultural Club.—The annual meeting of the Horticultural Club will be held at the Connaught Rooms, Great Queen Street, W.C., on Tuesday, May 8, at 6.15 p.m. A dinner will follow the meeting, and subsequent to the dinner Mr. F. Kingdon Ward will deliver an address, illustrated by lantern slides, on his recent plant-collecting expedition in Asia. Non-members desiring to be present at the dinner and lecture are requested to communicate with the Hon. Secretary, Mr. G. F. Tinley, 855, London Road, Westcliff, Essex.

Birmingham Daffodil Show.—Great success attended the exhibition of the Midland Daffodil Society, held on April 18 and 19, in the Edgbaston Botanic Gardens. Competition in the various classes was good, and several fine novelties were forthcoming, four of which received Awards of Merit. The variety Brimstone, illustrated in Fig. 101, received a Preliminary Commendation. The annual meeting of the Society was held on the first day of the show, and on the same evening there was a gathering of Daffodil enthusiasts at the Grand Hotel, Birmingham, when Daffodil matters were informally discussed. A detailed report of the exhibition will be published in our next issue.

Appointments for the Ensuing Week.—Tuesday, May 1.—Cornwall Daffodil and Spring Flower Society's Show; Somerset County Agricultural Association's Show (3 days); Sevenoaks Gardeners' Chrysanthemum Society's meeting; Royal Caledonian Horticultural Society's meeting. Wednesday, May 2.—Lewes and District Horticultural Society's meeting. Thursday, May 3.—Manchester and North of England Orchid Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*The Walcheren Broccoli, or Cauliflower:* This is unquestionably one of the most useful members of all the Brassica tribe, and in these days, when, by the exercise of a little care and judgment, Broccoli may be obtained nearly, if not all the year round, the Walcheren is a most valuable acquisition towards the attainment of this object. From its general appearance this variety is often designated a Cauliflower, and certainly the line of demarcation between Broccoli and Cauliflower is difficult to define. The Walcheren, however, has a hardier constitution, both with respect to enduring drought and frost, than a Cauliflower. I am acquainted with a garden which, during a number of years, seemed incapable of producing a creditable Cauliflower for table; the circumstance was attributed to the fact of its being very old garden ground; however, the same garden produced admirable Walcheren Broccoli side by side with Asiatic and London Market Cauliflower, and had a number of good, close, white heads, three feet in circumference from it, while the latter were little more than half that size. From the third to the fourth week in April has been found to be the best time to begin sowing; from thence a small sowing about every three weeks should be made, until the end of July, which with care will give a supply until the end of January following; and sowings made in the end of August and beginning of September, and wintered in frames or under hand lights, will be found useful both for table or for seed. *J. H. April* 19. *Gard. Chron. April* 22, 1848.

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THE WINTER OF 1922-3.

It is probable that winters like that of 1922-3 have occurred previously, but I cannot say that I recollect one so mild. The thermometer seldom registered less than 40°, and usually was higher by a few degrees, while there was no frost save on one occasion, when the temperature sank to 22° early in the night, but it had risen before morning. Then there was only one snowstorm, which here was over and the ground again black in the course of twenty-four hours. As to rain, it may be said we had practically none in the three months previous to February, when 4 to 10 inches were registered; January 0.90 inch and March 0.60 inch. Generally there has been an absence of sunshine until recently, when the weather has been quite summer-like.

It might have been expected that spring flowers would have been earlier than usual, but for the very early flowers that was not the case. However, we have reached a stage when flowers are coming on with a rush, and the main display of Narcissi will be over much earlier than usual. Apricots again were late, but with plenty of blossom, and Plums, after such an abnormal year's crop as last, are particularly thickly clothed with flowers of good quality. Of Roses there were flowers to be had up to February, when the wet put an end to buds opening. Similarly with Carnations and Dianthus Allwoodii, blooms of which were cut out-of-doors up to the end of January. No progress was made for the next two months, but good flowers of the last-named are again to be had.

When clearing up at the end of the season, a vase furnished with Zonal Pelargoniums and the Ivy-leaved Pelargonium Mme. Crousse was left; the plants remained fresh and have started growing anew. Verbena chamaedraefolia has also survived the winter, and some plants of Teucrium frutescens planted two years ago have come through unscathed, though I have had it killed in a cold pit. These are instances which show that it is worth while to set out tender plants, which may survive moderately cold winters, even though they are killed in hard ones. Iris unguiculata, which in different spots flowered last season continuously for six months, has produced one only flower this, and that at the end of March. Similarly, Laurustinus flowered abundantly for eighteen months on end, winter and summer, yet the bushes produced only a few straggling cymes this year. Many deciduous shrubs retained their foliage through the winter, and of weeds I have found Nettles with last year's growths fresh, and in March Scurvy Grass was in full flower.

But it has been a winter not to be again desired for vegetables. Brussels Sprouts were past quite six weeks earlier than usual, and Savoys have generally been a failure. On the contrary, Globe Artichokes have retained their foliage and even attempted to produce heads, a happening I have never seen previously.

Again, hardy fruits have been exceedingly disappointing, and Pears more so than Apples. It began with William's Bon Chrêtien, which never ripened, but rotted from the centre outwards. The same thing happened with later varieties, Doyenné de Comice being perhaps affected worse than any other variety. It was, indeed, rare to find a fruit that was eatable; small varieties like Winter Nelis were fairly good. Quantities of Apples were lost from the same cause, only it was not so apparent in these as in Pears, because fruit externally to all appearance perfect, when cut, was seen to be rotten internally. Bismarck was perhaps the variety that of all others exhibited this condition the worst, and I think the most of these were lost. Late, hard varieties, such as Northern Greening, have not been affected at all.

Some of the old saws have been somewhat unkindly dealt with. The crop of Haws was enormous, and yet "Many haws, many snaws," has not been verified. Similarly, with Holly berries, believed to be a certain forerunner of a severe winter when abundant. The feathered creation barely touched them until after the New Year. *R. P. Brotherston.*

FOREIGN CORRESPONDENCE.

DIFFERENT SYSTEMS OF GROWING CYCLAMENS.

The greenhouse Cyclamen responds to several different methods of treatment, and just as good plants may be obtained from one method as from another. I have grown plants of Cyclamen in a cold frame on an ash base with excellent results. Some of the plants I grew one year in England, each grown in a six-inch pot, had over ninety expanded blooms at one time. This was at Easter-time. Different soil mixtures may be used for growing Cyclamens. The plants referred to were potted in a mixture of loam, leaf-mould, sand and decayed cow manure: they were potted firmly, and there certainly was no cause to complain of the results.

FIG. 101.—NARCISSUS BRIMSTONE, AWARDED A PRELIMINARY COMMENDATION AT THE BIRMINGHAM DAFFODIL SHOW, ON THE 18TH INST. (SEE PAGE 224.)

It is always interesting to try other methods. Here we have used a mixture of leaf-mould, peat moss soaked in manure, water, sand and a little light soil from decayed vegetable matter. The plants were potted very lightly, and again we had splendid results. These latter plants were grown plunged in a bed of leaves and stable manure having a temperature of 50°-55°. This method is more expensive, but as a compensation the plants grow very quickly, and therefore are in bloom early in the autumn. With careful watering, airing and shading the plants grow large and sturdily.

Another good system of culture is to plant them free in a frame, using light soil and moderate heat; for instance, after a crop of vegetables has been forced in the same bed. I saw a batch of plants last autumn grown in this way. They were potted in September in 7-inch and 8-inch pots, and made splendid specimens. I intend to grow Cyclamen this year by these three different methods, and I shall see that all three batches are treated in the best possible manner. I will write later and state which succeed best. In conclusion, I may state that the most important point in the culture of Cyclamen is to procure seed of the best possible strain and sow it early, *i.e.*, the second week in August, grow the seedlings on without a check until flowering time, and in a temperature of 50° to 55° in winter. We are just potting our seedlings from boxes into 2½-inch pots, and most of the plants have four or five leaves. Care should be taken not to pot them too deeply; in the final potting half the corm should be above the soil, as they are liable to damp in the winter. Syringe the plants lightly three or four times daily in bright weather and shade them lightly. Remove the lights on all fine nights, as the heavy dews are beneficial and natural to the growth of this most useful of winter-flowering indoor plants. *James Page, Sweden.*

THE FERNERY.

A FINE HARDY MAIDENHAIR.

Adiantum pedatum is a North American Fern of much grace and elegance and one that is hardy enough for almost anywhere. But even better than the type is the variety known as A. pedatum Klondike, which will make a bulky mass of about 18 inches in height and prove a free and easy grower in most circumstances.

The beautiful fresh green foliage, which is hardly less fragile in appearance than that of our common Maidenhair, is liable to injury by wind, as is that of most Ferns. A sheltered situation, preferably in shade, should therefore be chosen for A. pedatum, and the soil, well broken to a considerable depth, must be freely drained, yet retentive of moisture. The addition of leaf-mould or fibrous peat is desirable, but established plants that are doing well may be left without attention for years. The foliage of A. pedatum completely disappears in autumn, the new fronds uncurling their black stems in March or April. *A. T. J.*

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The Week's Work.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Antirrhinum.—So soon as seedling Antirrhinums that have been pricked out are sufficiently hardened plant them in their flowering places. Early planting means early establishment, while dwarf, sturdy plants more quickly recover from the check of planting than do big or attenuated specimens. The arrangement of planting the Antirrhinum varies in different gardens, but on the whole the system of placing them in beds of separate colours is the most popular one. Two other methods we have used here with success; the one intermingling them with Zonal Pelargoniums, the other associating them with Pentstemons—in each case the colours of the plants corresponding or blending.

Chrysanthemums.—The root-stocks of border Chrysanthemums that have been wintered in cold frames may, if an increase of stock is desired, be divided and replanted in the border—having first prepared and enriched the ground with well-decayed manure. The young newly-rooted plants of this spring may be also planted when they are sufficiently hardened. The less robust varieties will make a better display arranged triangularly.

Hardening Bedding Plants.—This is necessary for tender summer flowering plants that have been growing in little or much fire-heat during the past months and will be required for planting in a few weeks' time. Cold frames are ideal structures for this purpose; failing this improvise a skeleton frame or place the plants against a wall or fence affording, in both cases, a little protection at nights for some time to come.

Rosmarinus officinalis.—This shrub, popularly known as Rosemary, is a very old favourite and of much interest in early spring when covered with its pale blue blossoms—which are most freely produced on plants growing in light, well-drained soil. Drier soil also reacts on the fragrance of the foliage of this plant, causing its aromatic nature to be more pronounced. Rosemary is not everywhere hardy in the open, in which case it should have the protection of a wall or fence. I have also found this shrub to be most difficult to transplant successfully when it has grown to, say, 3 feet or so. However, cuttings are easily rooted, as also are pieces of growth put down as layers.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Peaches and Nectarines.—When the fruits of the earliest trees of these fruits have passed the stoning stage the temperature of the house may be increased to 65° at night, with a rise of 10° during the day time without sun-heat. The house should be closed, and the trees syringed thoroughly early in the afternoon, when the temperature, with sun-heat, may be allowed to rise to 85° to 90° during the remainder of the day. When the fruits commence to swell for the final tune, any further reduction in the crop that may be deemed necessary should receive prompt attention. Trees carrying heavy crops require adequate moisture at the roots, and the borders must not be allowed to approach a state of dryness. Stimulants should be applied to the roots each time the border is watered. A mulch of half-decayed manure will be beneficial for preserving the moisture in the soil, and attracting the roots to the surface. Pay attention to the stopping and training of the young shoots. The fruits should be exposed fully to the sunshine, pinching off any leaves that overshadow them. It is not a good plan to tuck the leaves behind trellis-work fixed close to a wall, as it is not possible to syringe them properly, and red spider finds harbourage on leaves thus placed. Should the trees be attacked by this pest prompt measures must be taken to eradicate it before the fruits commence to ripen, as during that period it is not safe to use strong insecticides. Maintain a moist atmosphere by damping the paths, borders, etc., frequently, and ventilate the house freely when the weather is warm and bright.

Successional Trees.—Later trees of Peaches and Nectarines that have set their fruits, and the latter now swelling freely, should have all badly placed fruits removed, gradually thinning the crop to the required number. Timely attention should be given to the tying of young growths. Thoroughly syringe the trees when closing the house. Admit air gradually when the thermometer is 75°, but prevent cold draughts. The night temperature may range from 55° to 60°, according to the weather. Trees in late houses are passing out of flower, and when the blooms are over the house should be fumigated after sunset; the following morning give the trees a good syringing. Disbudding will require constant attention; the removal of the shoots should be gradual. The state of the border for moisture should be considered and water applied if necessary. Trees that have set fruits freely may be afforded stimulants in the form of liquid manure, guano water, or a suitable artificial manure. Ventilate the house freely on sunny days, using as little fire-heat as possible.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Onions.—Seedling Onions growing in boxes or frames, provided they have been suitably hardened, are ready for transferring to the open ground. Rake the bed first with a wooden and then with an iron rake, to obtain a fine surface, and tread the soil firmly. Select a fine day for transplanting, when the ground is dry and friable on the surface. Lift the plants carefully with good balls of soil, and do not plant them too deeply; set them about one foot apart, and fifteen inches between the plants in the rows. When planting is finished, rake the bed to present a neat appearance. Should the weather be warm and dry, give the soil a copious watering to settle it about the roots. Afterwards hoe the bed periodically to keep down weeds and promote a healthy growth in the Onions. Give the latter a dusting of soot during showery weather; soot is a fine stimulant for this crop.

Winter Greens.—Sow broadcast on an open border varieties of Kales, Broccoli, Savoys, and late Brussels Sprouts. Cover the seed with fine soil, label each variety distinctly, and net the seed-bed against birds. Water the soil with a rosed can if the weather is dry. Sow thinly in order that the plants may grow strongly and sturdily, and thus be suitable for transplanting direct from the seed-bed.

Celery.—If required for early use, some of the more forward of the seedling Celery should be planted in a frame on a spent hot-bed, where they will make fine specimens by July or August. Keep them well watered, and use weak soot water occasionally, or diluted farmyard drainings. Blanch the sticks by tying bands of brown paper about six inches wide around them as they grow. Celery plants pricked out in frames or boxes should be well watered and kept clean by hand weeding until they are ready for planting out.

Autumn-sown Cauliflowers.—These Cauliflowers may now be planted in well-manured ground, or between Asparagus beds, where they will have slight protection from cold winds. Mulch the plants with half-rotted manure if the weather is dry.

Groundwork.—All ground intended for cropping with Carrots, Beets, Turnips, and other vegetables should be lightly forked over in order that drying winds may break it down and make it suitable for raking to a fine tilth.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Angulos.—These Orchids are developing young growths and flower buds, which appear together. If repotting is required, it should be done as soon as possible after the flowers have faded, as the new roots will then be pushing from the base of the new growths. Use a compost consisting of one-third each of good fibrous loam, peat, and Sphagnum-moss, with a good sprinkling of crushed crocks, all mixed well together. These plants are robust growers, and should have sufficient space afforded them to permit of them remaining undisturbed for at least two seasons. The pots should be well drained. In repotting, be careful not to bury the base of the young growths too deeply, as it may be the means of them decaying; it is advisable to leave about half inch of space below the rim of the pot to allow for watering. These Orchids should be watered sparingly after being repotted, but, when well rooted, they require copious supplies of moisture until the pseudo-bulbs are fully matured.

Odontoglossum.—Any plants of O. crispum, O Pescatorei, and the numerous hybrids of this beautiful genus that are not flowering, and are in need of new material, may receive attention, but none should be disturbed unless absolutely in need of it. Many consider August and September the best time for potting these plants, but in a present-day collection of Odontoglossums, there are some in flower during most months of the year. In view of this fact there are always some that will require repotting at different seasons; hence the necessity of attending to them at different times. The proper time to repot Odontoglossums is when the new growths are about four inches high and about to develop roots. When repotted at this stage the plants quickly recover, the new roots enter the fresh material freely, and receive the least possible check. The pots should be well drained, but not to the extent as formerly practised, although sufficient drainage material should be used to allow water to pass away freely.

Compost.—A suitable compost consists of two parts peat fibre, one part Sphagnum moss, and one part broken leaves, with some broken small crocks added; all the earthy particles should be carefully removed from the fibre. Hard, tough fibres such as Osmunda and A.I. fibres are not suitable for these Orchids, and I find they do much better when grown in material of a softer nature.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Aeschynanthus.—This is a beautiful genus of stove plants which are mostly of a scandent habit and are therefore well suited for filling baskets, teak Orchid baskets being best for the purpose. If grown in pots they should be kept neatly tied to slender stakes. They enjoy a rich, open compost consisting of rough fibrous peat and loam, mixed with clean, coarse sand and charcoal. They are easily propagated by means of cuttings of half-ripened shoots placed in sandy soil in a warm propagating case. A. atrosanguinea, A. Lobbianus, A. tricolor and A. zebrinus are the species commonly cultivated.

Coleus barbatus.—This pretty, blue Coleus is very useful for autumn flowering; it is easily propagated by means of cuttings inserted at this season, the cuttings rooting readily in a close case furnished with slight bottom heat. During its growing season this plant needs an intermediate temperature, and succeeds in any good potting compost. When in flower it stands quite well in a warm greenhouse.

Epacris.—At one time this genus of plants was popular for furnishing greenhouses, but the species are not so generally grown now as their merits deserve, for they are very useful plants for decorative purposes. They grow quite well in the same conditions as those afforded greenhouse Ericas, with this exception that when

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making their growth they need more warmth. When they have finished flowering they should be pruned and placed in a house where they may be kept warm and close, a temperature of 50° suiting them, until they have finished their growth, when they should be given ordinary greenhouse treatment. E. longiflora differs from the hyacinthiflora varieties, as it makes long, straggling growth, which should not be pruned hard back, but trained neatly to suitable stakes. Under good management this plant will make large specimens. The plant may be propagated now by means of cuttings made from young shoots, about three inches long. They should be very carefully trimmed as the bark is easily stripped off. The cuttings should be dibbled into pots containing sandy peat, watered freely and stood under a bell glass in a propagating case, provided with slight bottom heat. When rooted the young plants should be transferred to small pots, in a compost of sandy peat; they should be stopped on frequent occasions to ensure a good habit, potting them on as they require it, and growing them steadily on in a light greenhouse.

Clerodendron fallax.—This species is generally regarded as a stove plant, but it makes an excellent subject for furnishing the greenhouse during late summer and early autumn. It may easily be propagated by means of cuttings made of the young shoots; the cuttings should be inserted singly in small pots, plunging them in a warm propagating case. I, however, prefer to raise them from seed, and seedlings raised from seed sown some time since are ready for potting on. Good specimens may be grown in six-inch or seven-inch pots. They should be grown in a temperature of 55° to 60° until they come into flower. When grown for winter flowering in the London neighbourhood they frequently get spoiled by fogs.

Clerodendron ugandense.—This is a beautiful blue-flowered species, which succeeds under ordinary greenhouse conditions. It is seen at its best when planted out and grown as a bush, or it may be trained to a rafter under the roof of a greenhouse. After the plants have finished flowering the stronger shoots should be partly pruned back. It may be propagated readily from cuttings made of the smaller shoots.

HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

The Fruit Blossom.—As trees of all kinds come into flower constant care must be exercised that the shy setters are artificially pollenised. Cherries are promising well for a large crop, many trees being laden with blossoms. There seems some indication of an increase of winter moth caterpillar, and backward trees may still be sprayed before the blossoms open. Those who afforded protection to trees found it very timely during last week's sudden return to winter conditions. Some of the Peaches and Nectarines will have set their fruits, and the protective material may be removed and transferred to later blooming trees.

Hoeing.—The principal work of the moment is to keep the soil of both top and bottom fruits sweet, by well hoeing it.

General Remarks.—All grease bands should be removed from fruit trees and burnt. Wall trees will need watching, and any shoots which have become detached from the wall should be readjusted. Winter Greens that have occupied ground under orchard trees or near fruit trees should be removed as early as possible, to prevent undue exhaustion of the soil, and the spread of insect pests. From now onward where it is known to be present Woolly Aphis must be immediately dealt with on its appearance. It is not an easy pest to exterminate. The use of a brush dipped in methylated spirit will reduce it. If paraffin is used it should not be allowed to saturate the bark of young trees. The removal of soil infected by hibernating larvae, as previously advised, will do much to check the spread of this pest.

PUBLIC PARKS AND OPEN SPACES.

We learn from the *Glasgow Herald* that the new road through the Glasgow Botanic Gardens with the new bridge over the River Kelvin, which the Corporation of Glasgow have authorised to be constructed, is intended to serve a twofold purpose. It will afford the north-western districts of the city, Maryhill in particular, direct communication to the harbour and docks, and at the same time relieve the congestion of vehicular traffic which emanates from these areas, and, following a long and circuitous route, via New City Road and Charing Cross, falls into Dumbarton Road. Several miles will thus be shorn off the journey between these parts necessitated by the existing conditions. The road in the Botanic Gardens will be 80 feet wide, and will extend from the gateway in Great Western Road to the south bank of the Kelvin, where a new bridge will lead direct into Queen Margaret Drive, North Kelvinside. At its southern end the new thoroughfare will join Great Western Road opposite Byres Road, thus giving an almost straight route between the extreme north-west of the city and the Clyde. The road will pass between the Kibble Palace and Queen Margaret College, a portion of the grounds of which the Corporation have acquired at a cost of £10,000. It is intended to erect a three-arched bridge—a large arch spanning the Kelvin and smaller arches on either side of the river affording access to pathways on its banks. The bridge, it is expected, will be of somewhat similar design to the Kirklee Bridge.

Lord Airlie and Mr. A. J. Kinloch Smyth, of Balhary and Bardmony, joint proprietors, have given Bamff Den to the public of the town of Alyth as a public park. The Bamff Den extends to about eighty acres on both sides of the Alyth town, which forms a boundary line between the estates of Lord Airlie and of Mr. A. J. Kinloch Smyth, which is a favourite resort of the people of Alyth. The scenery is very beautiful and the Den is surrounded by deeply wooded country.

PLANTS NEW OR NOTEWORTHY.

RHODODENDRON OBTUSUM ALBUM.

The accompanying illustration (Fig. 102) gives but an inadequate idea of the beauty of this rare old Azalea, Rhododendron obtusum album. The plant itself is growing in the garden of Professor Sargent, Holm Lea, Brookline, Mass., where for more than sixty years it has been cultivated. The flowers are single, and of the purest white.

This lovely Azalea was one of Robert Fortune's introductions from China to the Royal Horticultural Society. It was received in May, 1846, from Hongkong, and named Azalea ramentacea by Lindley in 1849. On his first journey to China Fortune had found in the Poushan Azalea Garden, near Shanghai, an Azalea with small red flowers. This he sent to the Royal Horticultural Society in 1844, and Lindley named it Azalea obtusa in 1846. Another Azalea was sent to England from Shanghai in 1850 or 1851 by Fortune. This also had small flowers, rich magenta in colour, and Lindley named it Azalea amoena.

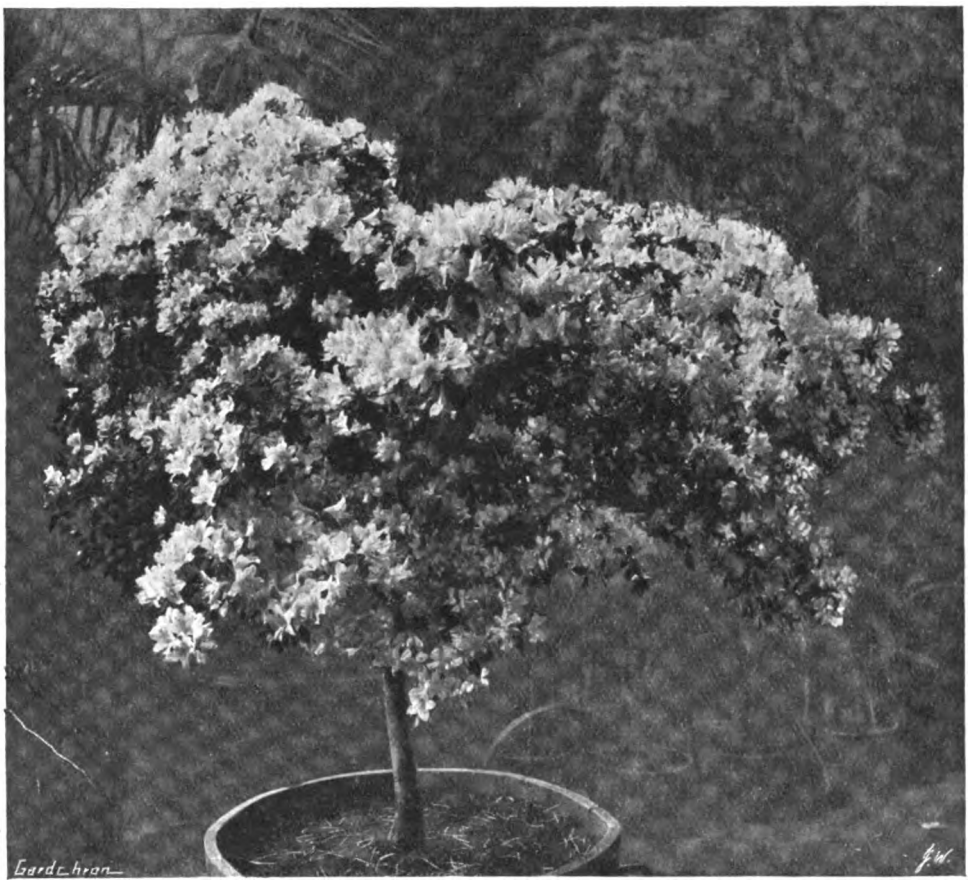

FIG. 102.—RHODODENDRON OBTUSUM ALBUM IN THE CONSERVATORY AT HOLM LEA, BROOKLINE, MASSACHUSETTS, U.S.A.

It is rather strange that the specific identity of these three Azaleas remained unsuspected by Lindley. We now know them to be garden forms of an Azalea which is abundant on Mt. Kirishima and elsewhere in southern Japan. This plant is characterised by its small leaves, its densely twiggy habit and by its small five-stamened flowers of many shades of colour, and is known by the name of Rhododendron obtusum japonicum. From plants of this wildling, by selection and skilful cultivation for a century in the city of Kurume in South Japan, there has been brought to perfection a race of Azaleas having all the exquisite shades of colour found among Sweet Peas. This race—known as Kurume Azaleas—is now finding its way into Western gardens. The three Azaleas introduced some 70 odd years ago by Fortune were simply forerunners of these Kurume Azaleas, and of the same parentage, though where in Japan and by whom they were first grown is unknown. *E. H. Wilson, Arnold Arboretum.*

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WONDERFUL RUBBER.

The present century has seen the birth of a new industry, or rather two new industries, for the growing of rubber, considering the vast capital employed, must be classed as an industry, as well as the manufacture of the raw material into the innumerable articles of our daily use.

So long ago as the year 1500, rubber was being used by the natives of Mexico to waterproof their clothes, and to make balls for use in their games. Introduced into Europe, its first use was for erasing pencil marks, and it thus secured its name of "rubber." The discovery of the vulcanisation method extended its use in many ways, until, by the end of last century, the total consumption of this product had reached about 70,000 tons annually.

The whole of this rubber was obtained from wild trees, chiefly in America, but a certain quantity came from Central Africa. At the beginning of the present century, results obtained from trees sent to the East in 1877, raised from seeds obtained in America, proved the feasibility of cultivating rubber, and large areas were put down to this crop. This development has reached gigantic proportions. Hundreds of thousands of acres are now planted with the South American Hevea brasiliensis, and, besides hundreds of British estate managers and assistants, thousands of natives are employed in the industry. The cultivation of Hevea rubber has brought prosperity to several of our Eastern possessions. This century has seen the principal source of production shifted from the Western to the Eastern Hemisphere, from wild forest trees to cultivated plantations. Whether the demand created the supply, or the supply the demand, there is now an annual production of over 300,000 tons of cultivated rubber, against a production of 70,000 tons of wild rubber twenty years ago. Whilst the production of cultivated rubber increases annually, wild rubber decreases in volume. To-day the amount is probably under 30,000 tons from America, with none at all from Africa.

It will be clear that the uses for rubber have multiplied enormously, to assimilate the greatly increased production. So gradually has this come about that it has been almost unnoticed. Yet if trouble is taken to notice the frequent use we all make of rubber in some form in our daily lives, we cannot but be astounded at its multitudinous uses. In our sports, travels, illnesses, dress, work and offices we constantly handle it. One might almost say that man is now entering a rubber age, as pronounced as the flint and iron ages.

Nor have the uses for rubber been exhausted. In fact, they seem to be only just beginning. Up to the present, raw rubber has been imported in the solid state. The latex (or sap) obtained from the tree is coagulated on the estate where grown, and brought home in sheets. The manufacture of this entails heating and mixing with various ingredients according to the article to be made. Recently, however, wonderful things have been done with the liquid latex, used as it runs from the tree. Professor Kaye has invented a process for incorporating the latex with paper pulp, in its manufacture, and claims that this process will absorb 50,000 tons of rubber annually. Paper may be made to almost any degree of strength and impenetrability. Such paper is now in use commercially as stationery, and experiments to extend its services are opening out an enormous field. Some success has also been obtained in experiments in vulcanising the liquid latex, and doubtless other means of using rubber will thus be discovered. It seems probable that in the not distant future rubber may be imported in its original liquid state, and the oil-tank steamer may have as its congener on the ocean, the rubber-latex tank steamer. These recent developments in the use of rubber are likely to be as epoch-making in their effects as was the discovery of the method of vulcanisation, which may almost be said to have lifted rubber from its limited use as an eraser, to its present-day industrial importance. The illustrations in Figs. 103 and 104 show respectively a plantation of young rubber trees, and an older plantation in which the trees are of a suitable size for tapping. *E. Brown.*

FIG. 103.—PLANTATION OF YOUNG RUBBER TREES.

FORESTRY.

OLD AND NEW CONIFEROUS TREES.

At the time when most of the existing plantations in this country were formed, there seems to have been but little attempt to make use of more than three species of coniferous trees, including the Larch, Scotch Pine and Spruce. Nowadays, three others at least are commonly planted, the Silver or Sitka Spruce, Japanese Larch and Douglas Fir, all of which are being extensively employed by the Government in the present afforestation scheme. The older species, it must be admitted, are capable of thriving over a more extensive area of different soils and situations than the later introductions, there being few tracts of land either at high or low altitudes, where the sturdy Scotch Pine and Larch will not thrive and produce valuable timber. The Spruce for low-lying, damp ground is invaluable, and in conjunction with the others, forms a trio that for extensive planting have few equals. Amongst the later introductions, it would yet be premature to speak in a positive manner regarding the value of the Japanese Larch for general afforesting purposes, though its behaviour so far has caused it to stand high in the estimation of British planters.

The Douglas Fir is a capital tree as I saw it in British Columbia, but fully fifty years' experience of it in this country has almost conclusively proved that it is only suitable for planting in sheltered and preferably maritime situations. On exposed lands, where the Scotch Fir and Larch thrive well, it is a failure, as may be seen on many estates throughout this country. Trees in plantations I have seen have grown rapidly, and promise to produce valuable timber.

The Silver Spruce has much to recommend it for extensive planting, as it will thrive at high altitudes, on the poorest of soils, the only condition being that a fair amount of moisture is at all times provided. The timber is of excellent quality, superior in many ways to that of any other member of the family to which it belongs.

It is certainly far ahead of either the Douglas Fir or Japanese Larch in point of value as a profitable tree for extensive planting in this country.

In the Japanese Larch there is little doubt that we have a good all-round tree, and one that, for a time at least, will be less subject to disease than the commonly cultivated species. That it will ever prove so valuable a timber producer as the common Larch is open to doubt. So far the Japanese Larch seems less liable to disease in this country than the European Larch, but it is as yet only in a comparatively young stage of growth, while the timber appears to be of very good quality and produced quickly.

Regarding the almost inestimable value of the native Scotch Pine for afforesting purposes little need be said, as it succeeds on the poorest of gravelly soils, in rocky situations at high altitudes, and produces a large volume of timber which, for all-round joinery purposes, has few rivals.

In every scheme of afforestation, therefore, the three trees that originally formed the backbone of our woods and forests in this country must on no account give way before the later introductions, the former being in the category of well tried, while the Sitka Spruce, Douglas Fir and Japanese Larch are simply on trial. By all means plant these, but only in conjunction with the older and better tried species.

To some small extent both the Corsican and Weymouth Pines have been used in the formation of plantations, and though the latter is a most valuable timber-producing tree, its peculiarities of requirements have prevented its being widely employed for that purpose. On light, rich soil, where it is not allowed to suffer from drought, it thrives well, as many plantations of the tree in various parts of the country testify, notably in Berkshire and some of the adjoining counties. On the deep, sandy soils around Windsor, the Weymouth Pine has done exceptionally well, having attained to a large size and produced an excellent quality timber. To recommend it for general afforesting purposes,

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as in the case of the Larch and Scotch Pine, would be a mistake, though for certain positions it is well suited. The Corsican Pine, though a most accommodating tree, hardy and fast-growing, has not given general satisfaction in the quality of timber produced in this country. It is comparatively rough, over-resinous and difficult to work under the tools of the carpenter. For planting on barren, heathy soils it is to be recommended, where it grows with great rapidity and affords a large amount of shelter to other less hardy kinds of trees.

All the above trees are available for purely economic forestry, or the quantity and quality of timber they produce, while their all-round accommodating natures, especially in the case of the first six mentioned, have gained for them a place wherever planting operations are being carried out. In connection with this, it is well to know that all may be readily purchased in considerable quantities from the various nurserymen who make a speciality of cultivating for sale the best of our forest trees. Seeds may also be procured at a moderate price, but unless in special cases, it has been found preferable for those who contemplate extensive planting operations to purchase seedling plants of one or two years' growth and grow these on in the home nursery for another twelve or eighteen months. *A. D. Webster.*

HARDY FLOWER BORDER.

HERBACEOUS PAEONIES.

The Paeony is one of the oldest of our cultivated border flowers, and derives its name from Paeon, a physician, who, through jealousy, was secretly put to death by Aesculapius, the god of healing, for curing Pluto of a wound received from Hercules. Pluto, out of gratitude to Paeon for thus saving his life, and to perpetuate his memory, transformed him into the flower known as the Paeony.

It belongs to the Ranunculaceae, and is found wild in many parts of the Northern and Southern Hemispheres; it is a strange fact that the only Paeony found in many cottage gardens is the old double red P. officinalis, which forms large clumps and flowers with great freedom. This plant has a strong, pungent odour. It is a valuable garden plant, and very decorative during May, when it produces white, rose, and deep red coloured flowers. There are also single-flowered varieties in various shades, which are equally showy and decorative.

But the Chinese forms of P. albiflora, with delicately coloured and sweetly Tea-Rose-scented flowers, appeal most to lovers of garden flowers. This type has large, handsome double and single flowers, produced during early June and through July, the varieties ranging in colour from snow-white to blush rose, blush pink, deep rose, scarlet to deep crimson.

These Paeonies are easy of culture, and may be planted with excellent effect in almost any position; they are especially effective when associated alternately with such subjects as Aconitums, Liatris, Delphiniums, Perennial Asters, Tulips, Daffodils, etc., or they may be grouped and massed in oval or circular beds with Lilium auratum, forms of L. speciosum, L. tigrinum, and other Lilies which succeed the Paeonies in flowering. No flower is more effective than irregular groups of Paeonies of one colour, or even when arranged in their various delicately tinted shades gradually running into the deeper tones to scarlet and crimson.

They may be planted in grass, with a background of flowering shrubs or trees, which will protect the Paeony flowers from wind and rain, as well as prolong their flowering season. If sufficient space is allowed in planting between each group to set the spring and autumn flowering subjects already referred to, the effect will be enhanced by the crimson-tinted stems of the young growth of the Paeonies producing an effective contrast to the bright green foliage of the Daffodils, etc.

The flowers are invaluable for use as cut blooms, and may be had in endless shades of colour to suit all forms of decoration. They possess a fragrance equalled only by the Tea Rose. In large gardens, quantities should be specially planted and cultivated for cut flowers for house decoration and other purposes.

The Paeony is also beautiful in its foliage, which is almost as attractive in its young growth and autumnal tints as the flowers; the leaves assume in autumn all tints of bronze, purple, orange, and crimson, and, when cut and placed in vases of flowers, add considerably to the effect.

The cultivation of the herbaceous Paeony is very simple, as almost any soil and situation are suitable, and the plant is extremely hardy. The ground should be trenched from 1½ foot to 2½ feet deep, and enriched with well-rotted manure and leaf-mould. In stiff clay the crowns should not be covered more than 2 or 3 inches under the surface. The root is of fusiform shape, hard and fleshy. These Paeonies may be transplanted any time from early autumn to spring. Spring-planted roots should be well watered, and they need subsequent occasional waterings in dry weather.

In the case of either autumn-planted or spring-planted roots it is advisable to give them occasional waterings with liquid manure, which will result in a larger quantity of bloom and richer colouring in the flowers. In shallow, dry soils it is advisable to apply a mulch of manure or decayed leaves to help to conserve the soil moisture in hot weather.

In planting, it matters little how small the root may be, provided it has a strong eye or two. The plant may be set from 1½ foot to 3 or even 4 feet apart, according to the space available and the effect desired, or they may be inter-planted with other subjects, such as Narcissi, Delphiniums, Aconitums, etc., these to succeed the Paeonies in blooming.

The foliage should be allowed to remain on the plants for so long as the leaves retain their gorgeous autumnal tints.

Varieties are very numerous. A few of the finest and freest-blooming, in their various shades of colour, are:—(Blush pink) Albert Crousse, Achilles, General Bedeau, Caroline Allain, Eugene Verdier, grandiflora carnea, Madame de Vatry, Sarah Bernhardt; (white and cream) Canarie, candidissima, Duchesse de Nemours, Duke of Wellington, Festiva maxima, and Solfaterre; (rose and pink) Arethusa, Lady Leonora Bramwell, Madame Furtado, Madame Geisler, Reine Hortense, rosea plenissima, and Suzette; (deep rose) Coralie Matthieu, E. G. Hill, Fragrans, Germaine Bigot, L'Admirable, and Madame Forel; (deep crimson and purplish) Berloiz, Francois Ortigat, Fulgida, Gloire de Touraine, Isabelle Karlitzky, Lord Salisbury, Louis van Houtte, Monsieur Krelage, Pomponette, and Prince Imperial.

The single Chinese Paeonies should be represented in all collections, more especially where cut flowers are in demand, as the blooms lend themselves admirably for table decoration, having stout, stately stems. The handsome flowers appear during June, and may be had in all shades from snow-white to dark crimson. The best varieties of this type are:—alba grandiflora, Duchess of Portland, Milton, Queen of May and The Moor.

FIG. 104.—RUBBER TREES OF A SIZE SUITABLE FOR TAPPING (SEE PAGE 228).

May-flowering species and varieties precede the Chinese varieties in their time of flowering, and are useful as cut flowers. The foliage shows great diversity, and the habit of growth varies considerably. The plants require similar soil and situation as recommended for the forms of P. albiflora. *W. Logan.*

STYLOPHORUM DIPHYLLUM.

There are few more satisfactory plants than Stylophorum diphyllum for a cool, free soil in half-shade, and it makes a first-rate woodland subject. It might be described as a very superior and enlarged Greater Celandine (Chelidonium majus), for its fresh, green, deeply-lobed foliage and the golden Poppy-like flowers remind one of that familiar native. S. diphyllum grows to about 2 ft. in height and produces throughout the summer a succession of its pretty blossoms, which are some 2 in. across and held on elegant stems just clear of the leafage. This Poppywort is easily raised from seed, which ripens in abundance, and once it is established in a suitable spot it will ask for no further attention. S. diphyllum is the Yellow Celandine Poppy of North America, and was at one time known as Meconopsis petiolata, with which is, I think, synonymous the S. obioense of some trade lists. *A. T. J.*

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STEPHEN SWITZER.

THE two pamphlets of Switzer's referred to on page 101 deserve a fuller notice. They are somewhat scarce and are otherwise interesting, as all that came from Switzer's pen is, and not improbably both served and were intended as puffs oblique for his benefit as a seedsman. *The Compendious Method* contains x—78 pages, of which only 24 pages are devoted to vegetables, the rest being filled with notices of "grasses," Lucerne, Clover, etc., the improvement of land by the burning of clay, and a notice of Mr. Liveing's manure, first brought before the public in Trowell's *The Farmer's Instructor*, and which was merely the waste of salt works. Of this Switzer was an agent, and it might be procured "At the Great Seed Shop opposite to the Common-Pleas Court, Westminster Hall."

In the preface Switzer gives expression to a belief that other seedsmen regarded his association with dislike, and were perhaps angry with him for some remarks he had made regarding their honesty. But he consoled himself with the axiom "That 'tis much easier for a Gardener to make a Seedsman, than 'tis for a Seedsman to make a Gardener." To show that seedsmen were not always to blame for supplying bad seeds he relates how that a bag of seed he himself bought for the new "Brocoli," when it came up "was nothing else but Turnips." The varieties of Broccoli seem to have been similar to our Sprouting Broccoli, and the stems of the Sprouts were peeled, cooked and eaten like Asparagus; hence called Italian Asparagus. Celeriac was strange to our author, but a letter from Thomas Knowlton, a botanist gardener trained in Sherrard's garden at Eltham, describes it. Finochio, too, was a new vegetable cultivated in Lord Peterborough's garden at Parson's Green, that nobleman having introduced it from Italy. Mushrooms seem to have been a very elusive crop. One could never depend upon this "valuable Excrescence" making an appearance. It was indeed his experience, substantiated by that of others, that by utmost care one was always disappointed, while on taking no heed at all, "they grew as it were of themselves." How true in the case of other things as well! They were mostly produced from "Fibres" "dug up out of the ground in the Fairy-Dances," or imported from abroad. Myrrhis odorata was blanched and eaten: and there are also brief notices of a few common vegetables.

The remarks on the various substitutes for grass are very interesting, as showing the awakening of the country to the providing of artificial food for cattle. Several pages are devoted to the impressing on the minds of his readers the value of burnt clay as a dressing to land under cultivation, two plates being given to elucidate the methods of calcination, and a statement regarding Liveing's manure concludes the little volume which, I believe, was sold unbound. The price was 1s. 6d. The other pamphlet was the same price, and extended to 79 pages, and both were printed for Thomas Astley at the Rose in St. Paul's Churchyard. The title page of this, *A Dissertation on the True Cythisus of the Ancients*, is very closely filled with brief statements of the nature of the contents of the little book and with quotations, which Switzer was fond of making, from Latin authors. The ostensible reason advanced for its production was that the author might demonstrate that a letter published by Cowell, of Hoxton, from A. Heron, Bargaly, Dumfries, asserting the Bastard Sena to be the Cytisus was a mistake, and that the plant was Medicago arborea. That gentleman, however, stuck to his colours, and sent a letter to Switzer, published by him, to show that he, the writer, was right. That and personal notes scattered throughout its pages give him an interest which no doubt had a good deal to do with the popularity achieved by the author. Thus he tells us that "Mr. Cowell was late of Hoxton" (1731). The above Mr. Heron cultivated a full collection of hardy shrubs on his estate, an interesting statement regarding the rapid spread of horticultural taste in the North. "The Ingenious Mr. Phillip Miller, Botanick-Gardener at Chelsea . . . .is now going to favour the world with a large and very useful work"—*The Gardener's Dictionary*, published the same year (1731). But Miller disagreed regarding the usefulness of the Medicago. The winter of 1730-1, we are told, was an extremely severe one and hurtful to vegetation. A few pages are allotted to remarks on Lucerne and burnt clay before an *Account of Seeds* is reached. This is a preamble to a catalogue of seeds fruit and forest trees, shrubs, flowers, etc. Sold by S. Switzer, at the Flower-Pot, over against the Court of Common-Pleas in Westminster Hall; or at his Garden on Millbank, Westminster, with the season of sowing and planting, etc.

In *An Account* he is careful to indicate the many reasons why seeds either fail to grow or, if they grow, produce different plants from those they were purchased for. If we may credit Switzer, gardeners were tied to a particular seedsman, and so when seeds were purchased from another firm, "it very often happens that the good Seeds are either changed or spoil'd, that the Odium may be cast on the Seller." He concludes—Tho' I can't take upon me to justify all who follow the Employment I have been mentioning, or say that some of them do not knowingly and willfully sell those Commodities that they are sure will not grow; yet I can solemnly declare that I never directly nor indirectly us'd that practice, *i.e.*, in the buying and selling that which I certainly knew was not good; on which account I have lost the taking of several sums of money. Nor am I ever sanguine enough to vindicate the best things, on the contrary, whenever I have had the least occasion of distrusting the goodness of the commodities, I have told gentlemen, and have publish'd advertisements of it, as soon as I have made discovery of it. And the encouragement which I have met with, even beyond expectation, in my present employment is such, that I can't finish this introduction without returning thanks for it, with a promise that for the future it shall be my endeavour to deserve the favour of my kind correspondents." Which is a very good example of advertising nearly 200 years ago. The catalogue itself extends to 26 pages. It is remarkable, not so much for the number of items included, but as showing that with a few exceptions the same varieties were cultivated as those named in the two catalogues appended to the 1688 and later editions of Worlidge's *Art of Gardening*. If anything, these are more full, and even then Italian Seleree, Italian Fennel, Rocum Bolis, the same sorts of Onions, Melons, Cucumbers, with a larger number of Peas, herbs and annuals are noted. Sweet Pease, Celeriac and Broccoli are absent, and there are fewer seeds for improvements in husbandry.

Switzer offered the following stocks for "Peaches" and Nectarines, viz., Almond, St. Julian, Margaret, Muscle and Norwich; for Apricots, Common Plumb suckers, and Bullace for Brussels. For Pears, Medlar, Quince, Wild Pear, sometimes Whitethorn, and for Apples, French and Dutch Paradise, Royal Wilding and Crab stocks.

Concerning herbs, we are informed that Clary was for pancakes, Sorrel for sauces, broad Brazil for high sauces, "Peppermint is well worth propagating," and Carduus Benedictus an excellent emetick, certain sorts of Radish were grown for the seed leaves, and Hartshorn (Senebiera Coronopus) "keeps longer in the seed leaves than any of the small sallads." Tarragon in those days was "a fine spicy fruit," and one is tempted to think from that and other strange remarks and spellings, such as spurn for spurry, that Switzer had delegated this portion of the pamphlet to someone considerably his inferior in education, or that he had been remiss in correcting printer's errors. The list of fruits extends to about 8 pages. *R. P. Brotherston.*

NOTES FROM A WELSH GARDEN.

In a garden where a considerable space is allotted to Heaths, the soil being a sharply-drained woodland loam, we have had occasion, from time to time, to associate with the Ericas various other lowly shrubs. A few notes on those of the latter which have been the most successful may prove helpful to readers of this paper.

Set in against a low boundary wall, the soil being extremely dry and hot, double Gorse has made an admirable screen and grown freely, giving a fine mass of flower at a season when the broad belt of Erica cinerea rosea and allied varieties adjacent to it is at its most colourless period.

A small colony of Rhododendron Wilsonii and R. hirsutum, shrubs which have not been satisfactory in other situations, have done excellently associated with such Ericas as E. darleyensis, E. ciliaris Stuartii and others, and the superiority in leaf and flower in the Rhododendrons thus crowded up by their companions is very marked when compared with that of those growing in more isolated positions.

Genistas germanica and G. hispanica are first-rate subjects for the purpose in view. Cytisus purgans has also a restrained habit of growth in addition to a fine colour and delicious scent For giving a flash of yellow amid the prevailing purple of later days, C. nigricans Carlieri (pruned hard back in spring) is reliable and good and, where there is space, a drift of Ulex nanus, the native autumn-flowering Gorse of the hills, is often very effective. Genista virgata and Cytisus purpureus in the white as well as the incarnatus form we have also associated with Ericas, but the latter shrub has not the permanence with us of others mentioned.

Barberries are admirable subjects for such a Heath slope as we possess, and those we have established in conjunction with Ericas of low and medium stature, include Berberis Wilsonii, B. Corei, C. Prattii, and several others of the same class. B. sanguinea, B. Sargentiana, B. Wallichiana, B. pruinosa, B. subcaulialata, B. (Mahonia) trifoliata and B. haematocarpa have also been introduced. These Barberries are mainly employed as marginal specimens, or they are set in groups in the "bays" between the various colonies of Heaths.

Some of the Cotoneasters are extremely useful and effective in combination with Ericas, and C. congesta planted with E. carnea makes one of the most charming combinations. Among the taller kinds C. hupchensis ,the blossoms of which are nearly equal in size to those of some shrubbery Spiraeas, C. bullata, C. salicifolia, C. pannosa and C. applanata are among the most noteworthy.

A good word must also be put in for the various Junipers of shorter stature or slow growth, the foliage of which is pleasing in winter. Pinus sylvestris aurea, a miniature Scotch Pine with very golden foliage, is ideal for the purpose, as also is the dwarf and prostrate variety of the same species. Rubus speciosus, with its Fuchsia-like flowers, makes a bold show of brilliant crimson which, for obvious reasons, is most wisely placed in conjunction with white Heaths, and another fine shrub that is equally hardy and which we have grown among our Ericas for years is Diplacus glutinosus.

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In districts where the last-mentioned will survive Cistus (Helianthemum algarvensis, C. halimifolius, C. formosus and the self-coloured form (unicolor) of the last may well be used for sunny foregrounds. Fabiana imbricata is also very suitable, and among the Roses one has a wide choice of suitable species and varieties. Burnet and Scotch Briars are among the best of these for our dry soil. Excellent use may be made of Wichuraiana Roses, which send slender, creeping branches for several yards through any of the Heathers—a delightful species at any season. The little Scotch Rose, William III., Rosa Mundi, Village Maid, Hebe's Lip, Rosa rubrifolia and other sweet old-fashioned Roses are also quite in harmony with the subject in view. Nor can one overlook the best of our own native species, especially good forms of Sweet Briar and R. villosus. *A. T. Johnson, N. Wales.*

INDOOR PLANTS.

EUCHARIS

Eucharis grandiflora (syn. amazonica) is a beautiful stove, bulbous plant, producing pure white, fragrant flowers in great abundance, which are invaluable for the making of wreaths and other floral designs, for which purpose the plant is largely grown. This Eucharis is of easy culture, provided it is given proper treatment. The plants will not thrive well if they are overpotted, grown in a cool temperature, or given an excess of water before the bulbs have made sufficient roots to assimilate much moisture; neither should they be divided or interfered with at the roots when the leaves are in full growth.

The most critical time is the first month or two after the plant has been shaken out or repotted from a smaller receptacle. After potting, the soil should be kept moderately moist until the pots are filled with roots, for if the soil gets sour or sodden from being kept too wet, the plants will not thrive, and ultimately become sickly. Plunge them in a moderate, warm, moist, bottom heat to start them; strong bottom heat or a high temperature is detrimental to them for flowering freely.

After the bulbs are well established, the plants do not require to be grown in bottom heat; they will do as well or better without it. A house having a temperature of 65° to 70° is suitable, in which to grow and flower these plants during the summer. The atmosphere should be moist, and the plants well shaded from the direct rays of the sun; they will not thrive in a dry atmosphere. After flowering and when the young foliage is properly matured, the plants should be rested for a time in a temperature about 55° to 60°, the soil to be kept moderately dry before starting them again. They do not require a long resting period.

When the larger specimens have filled their pots with roots, and the soil is in good condition, they will flower freely for two or three years without being repotted, but with a big root system they will need copious supplies of water, and liquid manure occasionally.

The soil most suitable for growing Eucharis consists of two-thirds rich, turfy loam and one-third fibrous peat, or leaf-mould enriched with a small quantity of decayed cow manure, pigeon dung, or sheep dung, and lightened by adding silver sand. A free drainage is essential to success. This Eucharis needs plenty of water when growing freely and in good condition, but care must be taken that the soil does not become stagnant with moisture, or the tips of the roots will perish.

Of late years there have been many failures with Eucharis from the Eucharis mite. The pest is favoured by allowing the plants to get in a sickly and generally bad condition, which may be brought about by over-watering and not employing sufficient fire-heat when the bulbs are making their fresh growth. If a bulb becomes sickly and does not improve, the mite quickly attacks it; if the pest is not checked in its early stages on sickly bulbs great difficulty will be experienced in getting rid of it. The Eucharis mite is one of the most destructive pests the cultivator of indoor plants has to contend with, but, if the Eucharis plants are grown under clean conditions and kept free from other insects, there is no plant of easier cultivation or that requires less attention to obtain good results. The mite does not usually attack clean, healthy, vigorously growing plants. Some growers recommend that Eucharis infested with mite should be destroyed at once; I do not advise that drastic measure unless they are in a very bad state. As soon as the pest is discovered, shake the soil from the roots, place them on a dry shelf, sponge them daily with a dry sponge until all decayed matter is removed and the plants free from the mite, then transfer them to small pots, and place them in a moderate bottom heat, without water, until they have made fresh roots and foliage. At that stage they should be watered sparingly for a time, but, as soon as they get well established, water may be used more freely. The plants should be shifted into larger pots when necessary.

Mealy bug often attacks Eucharis, and, should there be any of that pest in the house where they are growing, the mealy bugs will soon find their way to them, and once a plant is attacked, the bug is not easily got rid of. The best and safest plan is to keep the houses free from insects. If mealy bug does appear, syringe the plants on frequent occasions with soot water, which is a reliable remedy, whereas insecticides are not always safe to use, as the succulent leaves are porous and tender, therefore very susceptible to injury from strong specifics.

When the roots have become well established in the fresh soil and are filling the pots, flower buds will develop freely. The plants will then require a little liquid manure once a week, also weak soot, cow, or sheep dung water. All these may be mixed together in equal quantities, or may be given alternately with good results.

Shade the plants from bright sunshine.

Many cultivators have endeavoured to obtain two or three crops of flower in one season by resting the plants for a time. I do not recommend that plan. The plants, being evergreen, should not be dried off too much or too often. The attempt to get several crops of flower in one season always has a tendency to weaken the tubers, and at the finish, when they are weakened, the mite soon makes its appearance.

E. candida is a most invaluable species, especially where small white flowers are in request. The flowers are freely produced. The peduncles grow about 18 inches tall, and bear at their summit an umbel of from six to ten pure white flowers, each with a prominent corona. The blooms expand successively, two or three flowers being usually open at one time.

FIG. 105.—WELL-FLOWERED PLANTS OF EUCHARIS GRANDIFLORA.

Other compact, useful species are E. Mastersii, which has stems about 1 foot high and white flowers slightly striped yellowish green, and E. Sanderi, a plant of similar growth to the last, with white flowers striped primrose. These species require similar treatment to that afforded E. grandiflora, but, as they are not such strong growers, they do not require so much pot room to grow them successfully. *John Heal, V.M.H.*

RUELLIA MACRANTHA.

At one time this beautiful indoor plant was common in gardens, but is now seldom seen; it is, however, worthy of more general cultivation. The large rose-coloured flowers are very handsome, and a well-grown specimen is a very decorative subject for the greenhouse or conservatory.

The plant may be readily propagated at this date by means of cuttings, placed in a warm close case. Like those of all members of the Acanthaceae, internodal cuttings root readily. The plant is best grown in a temperature of 55° to 60°, but when in flower it will withstand cooler conditions. *C.*

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MANURIAL TREATMENT OF APPLES, PEARS AND PLUMS.

At the commencement of the present century the subject of the supply of manure for the fruit and vegetable crops in the garden began to occupy seriously the minds of those most concerned; and the question ever present was, "With what can we replace the shortage of stable manure?" That had long been the problem confronting a large percentage of owners and occupiers of gardens large and small, and of many descriptions. Waste products at once had more attention and consideration than they had yet received from the gardener. Even the refuse of his own garden was viewed with more appreciative eyes than hitherto.

In the "rubbish of a garden" is a rich source of plant food; and to prove this a series of experiments were conducted in 1899 with Apples, Pears and Plums, and the usual vegetable crops grown in a garden.

Four plots of nearly ¼ acre each were set apart for these experiments, neither plot being able to affect the other, each being separated by a path left undisturbed at the breaking-up of the land, and not less than four feet in width. The paths were of grass. Across each of the four plots from east to west were planted two Prince Albert Apple trees in bush form, two Czar Plum trees in bush form, and two Williams's Bon Chrêtien bush Pears. They were planted nine feet apart, and the Apple, Pear and Plum alternately on each plot, Nos. 5, 6, 7 and 8.

Plot No. 5, from 1900 to 1920 inclusive, received no other fertiliser than that supplied by the burned and decayed refuse of the whole garden, which, after 1905, was nearly six acres in extent, and therefore much larger than the four plots combined, but at no time after 1905 was the whole supply of that material used on Plot 5, the surplus being used for fruit trees and vegetables not under manurial experimentation. The decayed rubbish was applied in winter under the conditions usual in the application of stable manure, and at the rate of 16 tons per acre.

Plot 6 was manured with stable manure alone, and at the same rate as above-named, viz., 16 tons per acre.

Plot 7 was manured with various inorganic fertilisers, obtainable in almost every town, the combinations varying, as well as their proportions with the kinds of vegetables planted.

Plot 8 was manured with stable manure at the same rate as on plot 6; supplemented by inorganic fertilisers of the same kinds, in the same proportions to the same kinds of crops as upon plot 7. Therefore this plot was the most costly and most heavily manured of the group.

No manure was specially applied to the fruit trees planted across plots 5, 6, 7 and 8; they were deliberately left to forage for themselves, as they are left to do in many gardens of all sizes.

The following are the results, or returns, from the Apple, Pear and Plum trees across the respective plots; the results having been our objectives during the whole of the 21 years, no matter whether they be good or bad, satisfactory or unsatisfactory:—

	Lane's Prince Albert Apples.	Williams's Bon Chretien Pears.	Czar Plums.
	lbs.	lbs.	lbs.
Stable manure and inorganic fertilisers.	2,468 1st Grde.	1,039 1st Grde.	1,386 1st Grde.
Stable manure only.	2,335 1st Grde.	1,121 1st Grde.	1,321 1st Grde.
Garden refuse only.	1,665 2nd Grde.	860 1st Grde.	1,334 2nd Grde
Inorganic fertilisers only.	1 537 2nd Grde.	937 2nd Grde.	522½ 2nd Grde
	8,005	3 957	4 563½

The inorganic fertilisers consisted of nitrate of soda, sulphate of ammonia, mineral superphosphate; kainit, iron sulphate, sulphate of magnesia, and sodium sulphate, the combinations varying with the crop. The combinations invariably were made immediately before application to the respective crops.

The table shows that Apples (Lane's Prince Albert) yielded the best crops, Plums second, and Pears third; that the mixed or combined stable manure and inorganic fertilisers produced the heaviest weight of Apples and Plums, and that garden refuse yielded 863 lb. more fruit of the three kinds than inorganic fertiliser alone.

Of the three kinds of fruit trees manured with four kinds of manure, including decayed manure and garden refuse, those manured with—

	lbs.
Stable manure and inorganic fertiliser produced	4,893 fruit
Stable manure only produced	4,777 ,,
Garden refuse only produced	3,859 ,,
Inorganic fertilisers only produced ...	2,996½ ,,

Two trees of each kind, under the four different conditions of manuring, were left to forage for themselves.

Wood ash, the residue of burned prunings, was preserved apart from other burned refuse of the garden, and applied to certain vegetable crops. *J. Udale.*

VEGETABLE GARDEN.

RUNNER BEANS.

At this date Runner Beans may be sown either in boxes or in the open, the former method being preferable. Boxes about eighteen inches long, fifteen inches wide, and four inches deep, will be suitable, crocking them carefully, and placing some rough leaves or litter on the crocks to facilitate free drainage. Nearly fill the boxes with a good, light compost. Press the seeds edgeways in the soil about two inches apart, and cover them with about one inch of soil, which should be made moderately firm. Water the seeds with a fine rosed can and place them in a cool house or frame.

As soon as they have germinated, allow the seedlings plenty of air, but protect them at night in the event of late frosts occurring. Water the roots with moderation at first, but give them plenty of moisture when the leaves begin to develop.

If the seeds are sown out-of-doors select an open, sunny situation, and rich friable soil. Plant the seeds by means of a trowel, placing each seed edgeways, about three inches deep and one foot apart. Plant the seeds in double rows, about the same distance apart, draw a little earth up to them with the hoe, and place the sticks in position forthwith, as these will serve as a protection if the weather is cold. Prizewinner and Scarlet Emperor are two of the best varieties. *T.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Gardeners' Wages.—I fail to see why *S. H. G.* (page 203) should term it a grievance because we are exempt from paying unemployment insurance. Many of us would consider it a waste of money and a farce were it made compulsory. He remarks we have to live when out of work, but he should remember that generally, although not in every case, the best men get the best chance, and that the scramble for existence, especially in the South of England, is caused by the half-trained gardener of the handyman type. Pre-war gardeners who served their country can look after themselves, but allowances must be made for ex-Service men, whether pensioners or not, that are partly trained and can be utilised according to their abilities, as they have every right to this consideration. *S. H. G.* remarks that by the time a man's family is grown up and when he is usually getting on in years, a reason is found for discarding him for a younger and cheaper man. What class of private service is *S. H. G.* accustomed to? He also remarks he is not aware that unemployed gardeners could draw the dole. I do not know what they can do at the present time, but soldier-gardeners were provided with means for drawing unemployment pay for the first year after demobilisation. *G. W. K.* (page 151) remarks: "It is a pity their former employers do nothing for them in their old age and failed to pay them a fair wage during the time they were having the best out of them." I would tell him, whatever his position in the profession, that it is usual for an English lady or gentleman to treat their gardeners with consideration who have served them well and long. *T. W.*

Copper Sulphate as a Tree Cleanser.—I can fully endorse the opinions of *Market Grower* (page 202) so far as they concern the value of a solution of copper sulphate for cleansing the bark of fruit trees, and agree with him further in preferring handling it to caustic soda washes. In this relation your contributor's remarks remind me of a visit in the neighbourhood of Wisbech some years ago, when the subject of moss and lichen destruction came up for discussion. It was stated that while most growers pinned their faith to caustic soda, there was a small colony in the district which positively refused this specific and used nothing except copper sulphate. Shortly afterwards, I was able to confirm this on the spot. The purest procurable grade of sulphate of copper in crystals was employed at the rate of 4 lb. to 40 gallons of water (exactly the strength stated by your correspondent), and the condition of the trees was a pleasure to see. There was not a trace of moss or lichen, and the bark was bright and clear in colour—in fact, no caustic soda, lime or lime-sulphur solution could have made it more attractive in appearance. I raised the point of scorching, and found that it was so slight as to be negligible, since no injury resulted. The dressing is applied as a part of the annual routine, and the almost total absence of canker in the gardens supported *Market Grower's* contention that copper sulphate will hold this disease in check. I have since tried the wash on my own trees and those of others with completely satisfactory results. *W. Tiplow.*

——*Market Grower* may be interested to know that I have used copper sulphate for the removal of lichen from trees of various kinds. I first discovered its efficacy in this respect quite accidentally. Some years ago, on the outbreak of Coffee Leaf Disease in Uganda, we sprayed largely with Bordeaux mixture in our efforts to combat this disease. I found that the stems of rubber trees growing amongst the Coffee were cleared of lichen wherever the spray reached them. Afterwards I used this discovery in cleaning up the trunks of the rubber trees before tapping them. I also used the specific on lichen-infested trees of Orange, Lime and Lemon, with excellent results. Since then I have used it on Apple trees and Gooseberry bushes. *E. Brown, Hillside, Doddington, Sittingbourne, Kent.*

Wireless Lectures on Gardening.—With regard to the paragraph "Wireless Lecture on Roses" in *Gard. Chron.*, p. 193. I may state that this is not the first time that wireless broadcasting has been used for the assistance of horticulture. Mr. Richard Treseder, of Messrs. W. Treseder, Ltd., Cardiff, gives a short chat on current garden work every Wednesday evening from the Cardiff Broadcasting Station, his first address having been given on April 4. *F. Hemingway, Mountain House, Caerphilly.*

——In the notice in *Gard. Chron.*, p. 193, of a wireless lecture on Roses, it was stated that this was probably the first use of wireless broadcasting for the assistance of horticulture. I broadcasted a horticultural lecture from the Metropolitan Vickers Wireless Broadcasting Station in Manchester, on January 5, 1923. Reports state that the lecture was well received, and was distinctly heard. My subject was "The Call of the Garden." *L. E. Morgan, Stanfield Lodge, Hyde Road, Gorton, Manchester.*

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GHENT INTERNATIONAL EXHIBITION.

(*Concluded from p.* 220.)

In our report of the great Ghent Exhibition our readers will understand that we make no pretence of describing in detail the exhibits in nearly eight hundred classes provided, nor the very many non-competitive displays. A couple of issues of *The Gardeners' Chronicle* would barely suffice merely to catalogue the individual exhibits. In some of the Orchid classes three prizes were offered, but in the majority of classes two only. All the classes were not filled, but in numerous instances there were more exhibitors than prizes. The premier award in the more important classes was generally a work of art presented by some prominent person.

Four works of art, each valued at a thousand francs, were offered as special awards respectively by M. Mayrisch; the President of the French Republic, by the Société Royale d'Agriculture et de Botanique de Gand, and M. Tiller. The winners, in the order given, were M. François Spae, Melle; M. Louis van Houtte, La Pinte; M. P. J. Hartmann, Mont St. Amand; and Sir Jeremiah Colman, Reigate—for the importance and beauty of their exhibits. Messrs. Haarens and Wille, Someghem, received the principal gold medal for their Azaleas.

Gifts of special prizes were also made by the French Government; M. Chevalier G. Roda, president of the Royal Horticultural Society of Piedmont and Turin; M. Beretta, Milan; Dr. Baillon, Ghent; M. A. de Smet, Ledeberg; the Comte de Kerchove, governor of Flanders; Messrs. Sanders, St. Albans; the Comte Chandon de Brailles, Epernay; M. Firmin Lambeau, president of the Royal Linnean Society, Brussels; M. Ch. Dietrich, vice-president of the Cercle des Orchidophiles Belges, Brussels; and Sénateur de Dast, Ghent. There were other generous donors, but enough has been mentioned to indicate the interest Continental horticulturists take in the quinquennial displays at Ghent.

Orchids.

An important omission from our previous notes on the Orchid exhibits was a reference to the beautiful display of Odontiodas and hybrid Odontoglossums, made by M. Chas. Vuylsteke, of Loochristy. This successful raiser and superb cultivator is well known to Orchid specialists in Great Britain, as on numerous occasions he has exhibited a few wonderful and rarely beautiful Orchids at London shows. On this occasion he exhibited about sixty plants, every one in perfect health and each carrying a magnificent spike of the loveliest flowers imaginable. His Odontiodas arrested the attention of everyone, and the ladies as well as specialists, vied with each other in exclamations expressive of wonderment and admiration. Such an exhibit at a Chelsea show would cause equal excitement. Odontioda Vulcan, with scarlet and cream flowers of large Odontoglossum size, appealed to many; O. Etincelante, of vivid crimson scarlet hue, comes close to the scarlet Odontoglossums many growers hope to raise; O. Meteor, white and rich red-brown; O. Titan, rose pink, with rosy carmine shading, and white apex to the lip, is of grand form and size, while O. Crépuscule, white and red-brown, with apricot yellow lip, is an arrestingly beautiful variety of excellent form. O. Princesse Marie José, exquisitely coloured with heliotrope, mauve purple and cream-white, won the admiration of the ladies who thronged the Orchid salons all day long. The hybrid Odontoglossums were scarcely less beautiful than the Odontiodas, but the latter, with their fine form and rich colouring, were the feature of a wonderful display.

Novelties.

There was no "New Plant" table or room at Ghent, consequently the task of discovering novelties not entered in a particular class was no easy one. In addition to plants described in our previous issue the following are deserving of special mention, though not all are new:—

Cytisus Mrs. A. Dorothy Walpole.—A new hybrid raised at Mount Usher, Wicklow, and exhibited by Messrs. W. Watson and Sons, The Nurseries, Killiney, Co. Dublin. It appears to have the somewhat erect habit of C. Dallimorei and the medium-sized flowers are deep rose on the outside, pink within, while the keel is bright brownish crimson. As shown this new Cytisus is very free flowering and attractive.

Chatillon Rose.—A new hybrid polyantha Rose, which may be briefly described as a bushy, polyantha form of the popular American Pillar. The plants are from 2 ft. to 3 ft. high, and carry large heads of beautiful blooms, which mark the variety as suitable for bedding. The individual blooms are almost as large as those of the variety to which we have likened it, but the flower clusters are not so dense. The rich rose pink colouring is most attractive, and enhanced by the paler bases of the petals and the pale yellow cluster of stamens. A few stamens are petaloid, consequently the blooms are not quite single. Nevertheless, they are elegant in form, and the small amount of doubling is useful, inasmuch as it makes the blooms last in perfection for a longer period than if they were quite single. Raised and shown by M. A. Nonin, Chatillon, Paris.

Double Gerberas.—One of the attractions in the French section was a group of Gerberas with double flowers. Although not quite new, they are novel, and we do not remember having seen them grown in England. The doubling is very yellow and the style of the blooms is suggestive of certain forms of Callistephus and Chrysanthemum, or the double Marguerite. The disc florets have developed into ray florets and decrease in length towards the centre. In many of the flowers exhibited the original ring of the ray florets extends well beyond the central group, and in these the likeness to an Anemone-centred Chrysanthemum was suggested. The several varieties shown were of charming colouring, ranging from pale pink, through rose and salmon to yellow and red shades, but none had the intense colouring of the original Gerbera Jamesonii. These double Gerberas were exhibited by M. E. Dubois, Cap d'Antibes, France.

Rose Souvenir de H. A. Verschuren.—A hybrid Tea Rose of good form, but not freely flowered as shown. The blooms are shapely and of Richmond shape, and the colour is soft creamy Apricot. Exhibited by Messrs. Oddebeeke and Sons, Putt, near Malines.

FIG. 106.—GHENT EXHIBITION: GENERAL VIEW OF THE EXHIBITS IN THE LARGE EXHIBITION HALL.

British Section.

To write that we were proud of the British section is to state our feelings as mildly and modestly as possible. When we despatched our previous notes the full list of those traders who contributed unselfishly to the combined central exhibit of the British section, arranged by Mr. A. Jolis, was not available. We now give it

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because it is only fair their generous efforts to maintain the prestige of British horticulture on the Continent should be recorded :—

Cut Flowers.—Mr. W. E. Wallace, Eaton Bray, Carnations; Mr. Guile, Newport Carnation Nurseries, Carnations; Messrs. R. H. Bath, Wisbech, Daffodils; Mr. Walter Hemus, Hampton, Carnations; Mr. H. Mason, Hampton, Carnations; Mr. W. H. Page, Hampton, Carnations, and some fine Liliums; Mr. W. Sherwood, Hampton, Carnations; Messrs. Low and Shawyer, Roses; Messrs. Mount and Sons, Canterbury, Roses; Mr. E. Victors, Hampton, Carnations; Messrs. J. T. White and Son, Spalding, Daffodils; Messrs. Charlesworth and Co., Haywards Heath, Orchids; Messrs. J. E. Poupart and Son, Barnham Junction, Carnations; Mr. Arthur Stevens, Cheshunt, Roses; Messrs. E. Stevens, Ltd., Cheshunt, Roses; Mr. C. Engelmann, Saffron Walden, Carnations.

Plants.—Messrs. Cragg, Harrison and Cragg, Heston, Crotons; Mr. C. Bause, South Norwood, Dracaenas; Messrs. W. Artindale and Son, Sheffield, Primulas; Messrs. P. Ladds, Swanley Junction, Heaths, Genistas, Spiraeas, and Hydrangeas; Mr. Robt. H. Page, Forest Gate, specimen Nephrolepis; Mr. Milton Hutchings, Hillingdon, Genistas, Heaths and Marguerites; Messrs. Sweet and Sons, Ltd., Whetstone, Heaths and Genistas; Messrs. Butler Brothers, Bexley Heath, Cinerarias; and Messrs. Evans and Sons, Sidcup, Genistas.

Fruit.—Messrs. R. Veitch and Sons, Exeter, Apples; Mr. O. Esche, Lea Valley, Cucumbers; Mr. T. Rochford and Son, Broxbourne, Cucumbers; several private growers who do not wish their names to be mentioned also sent dishes of Apples and Pears.

French Section.

Our French friends had a space similar to that provided for the British exhibitors (see Fig. 107). They also had a big annexe, corresponding to ours, but on the opposite side of the main entrance (see Fig. 108). The horticulturists of La Belle France are usually able to give Britishers a few points and then beat them in the matter of artistic display, but on this occasion their exhibit as a whole fell short of what is generally expected, in regard to design and arrangement. Something must have gone wrong somehow, somewhere, because there was an abundance of good material, and many large and interesting plants, which would have served to produce a very fine display had time and forethought permitted.

Carnations exhibited in large vases, grouped in some of the beds, were of excellent size and colour, and although certain varieties were of good form there were many of a slightly rougher build than the best of British raising. In size the blooms reached a high standard, showing that the growers of the Nice district are first-class cultivators. Masses of Ulrich Brunner and Frau Karl Druschki Roses, of fine size, and with long stems, such as are sent to Covent Garden flower market from the South of France, were arranged round specimen Palms and other plants.

Messrs. Vilmorin-Andrieux and Co., Paris, exhibited extensively in this section, and their rather formally arranged display contained very fine examples of early Lettuces, Spring Cabbages, Radishes, Cauliflowers and other salads and early vegetables. These made up an interesting collection of useful produce, but to our mind, the use of Primulas among the vegetables was not a success. This renowned firm also arranged large masses of Calceolarias representing a first-rate strain, but their Cinerarias excited our admiration most of all. There were several hundred plants, perfectly grown, and finely flowered, and although cactus-flowered sorts were much in evidence, the La Parisienne strain, with medium-sized flowers, attracted general attention. The white, pink, rose, soft blue and mauve coloured varieties were charming; for greenhouse or room decoration these Cinerarias are extremely useful, as they combine elegance with a certain compactness of habit, and show a fair range of colours to meet most tastes. This strain reminded us somewhat of the Feltham Cinerarias sent out a few years ago by Messrs. Jas. Veitch and Sons.

The artistic value of many fine Palms sent from the South of France was not taken full advantage of; a giant Phoenix canariensis, for example, would have made a superb centre-piece, while four big Agaves—one a variegated form of A. americana—were more or less hidden by Palms and four huge Furcraea, possibly F. longaeva, would have looked well associated with the Palms and Agaves, to give a rich tropical effect, indicating the lovely climate of Golfe Juan. Groups of Orange trees, in flower and fruit, were much admired by the ladies, to whom the exquisite beauty and fragrance of Orange blossom always makes a sentimental appeal. The graceful and beautiful Genista monosperma, too tender for most British gardens was displayed liberally by M. Guillaud, of Nice, with Oranges and Carnations. The Carnation displays made by MM. La Floride and the Société d'Horticulture, Antibes, were much admired, and two outstanding varieties were the bright red Poilu, and the big pink Baronne de Lassis, both of which were shown in quantity.

Among the Hydrangeas shown by M. Fargeton, Angers, the variety Splendens was of outstanding merit, as it has fine heads of deep pink "blooms" of excellent form and size; it is a lovely variety and of a type that appeals to growers of these plants for market. Near the interesting plants from Golfe Juan, and possibly belonging to them, we noted a large vase filled with the dense pyramidal spikes of Echium fastuosum, each spike carrying hundreds of tiny blue flowers.

M. Rivoire contributed Sweet Peas and many Gerberas, in beautiful shades of colour, and in one corner in the section MM. Lachaume and Co. displayed a small collection of floral designs of great beauty.

Tulips and Amaryllis.

Considering the size of the exhibition and the time of year, bulbous plants were not exhibited so extensively as might have been expected. Reference has been made already to the Daffodils in the British section, and so far as we could observe these were the only representatives of the Narcissus family on view.

In the Dutch section, however, Tulips were grouped effectively and extensively in two great displays, with Hippeastrums in the centre. The flowers were of good quality and disposed in vases and bowls of various sizes, thus making an artistic and effective contribution to the show. The group as a whole occupied a space about as long as the R.H.S. Hall and about a third of its width; there were several thousands of blooms sent by an association of Dutch growers. The varieties which stood out most conspicuously by reason of their colour or the number of their blooms were Prof. Francis Darwin, Pride of Haarlem, Baronne de Tonnaye, Isis, Ariadne, Mme. Krelage, W. F. M. Copeland, Clara Butt, and La Tristesse.

Between the two flanking groups of Tulips, Messrs. W. Warmenhoven and Son, of Hillegom, arranged a brilliant group of Hippeastrums. The scarlet, crimson, orange, salmon and pink varieties, all with flowers of good form and size, made up a splendid exhibit just in the right place, as the plants were admirably disposed and were well set off by a background of Palms and Shrubs. Fortunately, Messrs. Warmenhoven avoided the frequent mistake of crowding their plants. We made no attempt to discover varietal names, as it is more important to general growers to know that a certain strain of Hippeastrums gives finely-formed flowers and good colouring. We would add that the Hillegom firm has a fine series of white-flowered forms and some of the charming old rose shade which is very attractive, but not yet too well represented among Hippeastrums.

Camellias.

A grower with a long-standing reputation for the cultivation of true stocks of Camellia varieties is M. Victor de Bisschop, Tronchiennes, and his exhibit in the main building received the attention it deserved from the many people who love these old flowers for old-time's sake and others who are finding beauty and interest in them. M. Bisschop's collection was not an extensive one, nor were the plants very large, but the lateness of the season for Camellias would account for this. However, he had an abundance of blooms on his examples of Chandleri elegans, Fleur de Pécher, the old Donckelari, and Marguerite Caleoni. Judging from observations made in the Ghent district and conversations with several growers there appears to be a distinct revival in favour of Camellias, which is a little difficult to understand seeing that modern tastes in flowers is in favour of those which have long stems and are suitable for the floral decoration of the home. We freely admit, however, that a fine Camellia bloom, on its little branch, set with deep green, shining leaves, is a charming picture alone in a specimen glass.

Hydrangeas.

Hydrangeas have been referred to incidentally in earlier notes, and in connection with the French section, but it would not be fair to pass unnoticed the very fine exhibits of these popular, if somewhat formal, flowering plants, made by M. Emile Lossy, Mont St. Amand, and M. Francois Spae, of Melle. Both these growers contributed superbly grown plants in quantity; the former had the deep rose pink variety Coquelicot, in fine form, and a smaller flowered, fringed, pink variety named Satinette that is very interesting, but hardly likely to find favour with market growers. M. Spae was particularly successful with the variety Maréchal Foch, which carried large, compact, shapely heads of bloom of a charming shade of soft rose pink.

These and other exhibitors showed white, pale pink, and blue Hydrangeas, and some had given numerous varietal names to blue forms, but we could not find sufficient distinction to warrant this wholesale naming where the differences of form or shade were more imaginary than real.

Anthuriums and Bromeliads.

In former years Bromeliads occupied much more space than in 1923. On this occasion Vriesias were the chief representatives of an interesting group of plants now rarely cultivated outside botanic gardens. H. Spae, M. de Clercq, and Messrs. Van Acker and Maenhout were the principal exhibitors. The last-named firm, of Mont St. Amand, secured an award for an attractive new hybrid of dwarf habit, with broad bracts of brilliant orange-red on the flattened spikes. This was not named, but the label attached gave the parentage as Encholirium Saundersii × Vriesia Regina; it is certainly a very attractive plant.

Most of the Anthuriums were grouped with great effect in one of the Orchid salons, and, as always, when the plants are well flowered, they were the cause of many quaint comments and received considerable admiration. In the majority of the fifteen classes provided for Anthuriums M. Arthur de Smet, Ledeberg, won the premier awards, but he was beaten by M. Jean van de Putte, of Meirelbeke, on three occasions. M. de Smet had an excellent collection of twenty-five varieties of A. Scherzerianum, of varied colouring, and many with rounded or oval spathes, which by their form show that even this old stove plant has not escaped the attention of those raisers who, possessing the old florist's instinct, desire to make every flower a formally round one. A group of rose-coloured forms of A. Scherzerianum was pleasing, but not so effective as groupings of the scarlet varieties or the cream-ground, scarlet marked A. Rothschildeanum. The finest plant of the red A. Scherzerianum carried twenty-eight splendid spathes, while the specimen showing flowers of the highest development in size and form carried eleven spathes of extraordinary size and brilliance, and was a superb example of M. de Smet's skill as a cultivator and raiser; the felicitations of the Jury were added to the award made to this plant. The premier dozen plants of the rose-coloured A. Scherzerianum Mme. Dalliere, shown by M. de Smet, fully merited all the admiration be-

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stowed upon them. The examples of Anthurium Andreanum were not so excitingly attractive as the plants of the A. Scherzerianum section, but probably the green shaded and dull pink spathes of several varieties shown make a more urgent appeal to Continental tastes than to our own. Certain spathes were of extraordinary size, but, to our mind, not beautiful. The best new seedling, A. Andreanum, had a green and rose-coloured spathe, and was shown by M. A. de Smet, while the best new Belgian seedling variety of the A. Scherzerianum type was a variety with an enormous speckled spathe measuring 8½ in. long by 5¼ in. in width.

Cacti.

M. Franz de Laet, of Contich, has a world-wide reputation for succulent plants. This reputation has taken many years to build up, and the war period made it difficult for M. de Laet to maintain his collection. At the present time, however, we question whether such an extensive trade collection is to be found elsewhere in Europe.

At the exhibition, M. de Laet arranged a very large exhibition of Cacti close to the British section; nearly all the plants were bedded in the light soil, with some large stones among them, and thus a somewhat realistic effect of arid Mexican or Texan vegetation was produced. Many of the specimens of Euphorbia and Cereus were from 6 ft. to 8 ft. high, and these erect columns gave rise to considerable excitement among visitors not familiar with these slow-growing subjects. In the foreground were Opuntias, rounded Mamillarias, small Cereus, and a few Aloes, while among some pebbles M. de Laet placed a few of the rarer South African Mesembryanthemums which, as Mr. N. E. Brown has pointed out in our columns, are so like the stones among which they are found in a state of nature as to be scarcely discernible therefrom.

We have only space to name a few of the specially interesting plants which were represented by good specimens: Cereus Ehrenbergii cristata, C. cinerascens, Mamillaria bombycina, M. rhodantha, Pilocereus senilis, and Cereus dubius.

A Dutch Alpine Garden.

Messrs. Alpina, of Wassenaar, arranged a quaint little garden in the great hall, in front of the bandstand. This attracted a great deal of attention, as it was a design suitable for small gardens. A low terrace was assumed—the level of the bandstand served—and the exhibit commenced with a low retaining wall of comparatively small stones, which allowed sufficient space for those Alpine plants which delight or will grow in such positions; for the occasion Messrs. Alpina had planted this wall-garden with Alpine Phloxes, Alyssum saxatile, Iberis, the dwarf New Zealand Veronicas, Alpine Auriculas, Cheiranthus Allioni, and Aubrietias. In the foreground a small paved path led up to the wall-garden, passing between two small lawns and encircling an old-time sundial. Between the paving-stones were Saxifrages, Thymus, and other lowly plants suitable for such positions. On each of the lawns a very low rock-garden served to display numerous interesting Alpine plants. The arrangement of the stones and plants was admirable; it would have been easy to spoil the whole effect by the use of too many stones or those of too large a size, and fairly easy to have used an excessive number of plants in an endeavour to create effect. All this was avoided, however, and the restraint displayed was commendable. Small groups of Gentians, Viola species, alata Irises. Daphne Cneorum, Saxifragas, Primulas. Phloxes and Iberis were among the principal subjects planted, and if the idea the Dutch firm desired to convey was that an amateur with a small garden might cultivate and enjoy beautiful Alpines without a very heavy cost, it succeeded, and doubtless many visitors left the exhibition with a determination to go and do likewise. As costly plants were not used nor those difficult to cultivate, those who endeavour to reproduce such a garden at home need not suffer any disappointment.

Miscellaneous.

Leading Belgian florists gave demonstrations of their art in a series of rooms near the entrance hall. All the designs were attractive, many were extremely beautiful and others were very quaint. In some instances the floral decoration of a dining-room or drawing-room was shown, and there were numerous examples of dinner-table decorations, one being carried out with blooms of the new, white, carmine-edged Azalea Albert-Elizabeth. We are of opinion that floral art in England compares favourably with that demonstrated at Ghent.

To those concerned with economic plants the exhibits showing the various subjects cultivated in the Belgian Congo proved unusually interesting. These were grouped in one large salon, and included Sansevieria, Musa, Landolphia, Hevea, Ficus, Sterculia, Costus, Cordyline, Cyperus, Piper, Coffea, Carica, Arenga, Entada (pods 4 ft. long), Cotton, Sugar, etc.

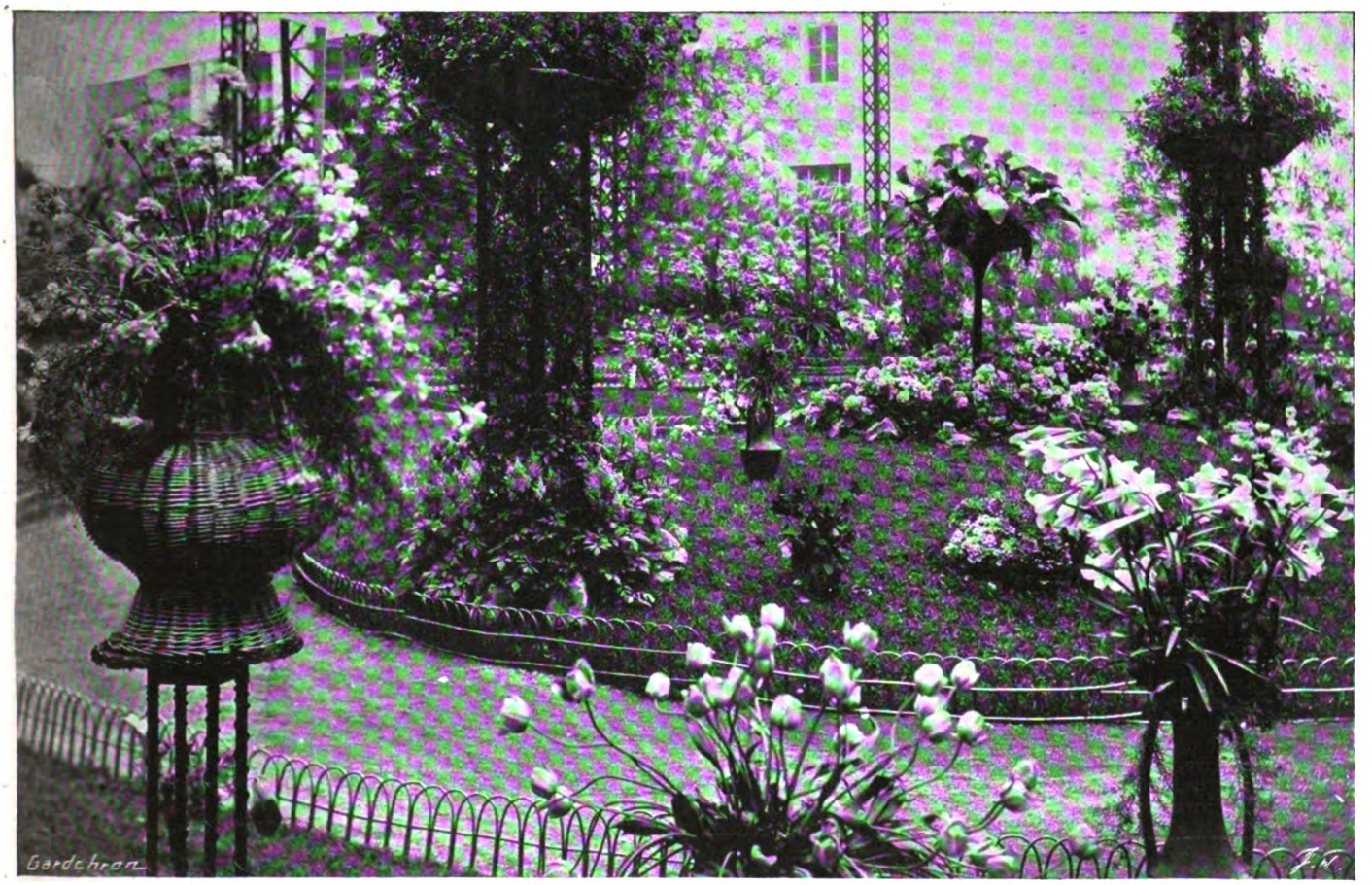

FIG. 107.—GHENT EXHIBITION: VIEW IN THE BRITISH SECTION

Some very fine Gros Colmar Grapes, from Hoylaarte, the famous Belgian grape-growing centre, were superb examples of fine size and finish; the fruits were in excellent condition and cut the day before the show opened, from vines still carrying an abundance of foliage. Belgian Pears were also of high merit and looked very attractive with tin-foil wrapped around their stalks; the chief varieties were Passe Crassane and Bergamotte Hertrich. Near these fruits we noticed a large and instructive exhibit of encased specimens of the principal pests and diseases of fruit crops, showing the life histories of each and giving methods of eradication and control.

The fine group of Clematis shown in the British section, and which the Queen of the Belgians admired so much, was from Mr. L. R. Russell, Richmond, whose name we inadvertently omitted on p. 217.

Outdoor Exhibits.

Collections of Bay trees were displayed outside the buildings, and the enormous pyramids and standards brought by M. J. Hartmann, of Mont St. Amand, were the cause of considerable

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wonderment by visitors unused to the giant specimens to be found before the war in many of the older establishments around Ghent.

The Aalsmeer growers submitted Conifers in great variety, and wonderful collections of clipped trees in Box and Yew. M. Braeckmans, of Wetteren, and Messrs. Hilverda and Co., of Aalsmeer, vied with each other in demonstrating the variety of weird forms into which it is possible to train these evergreens, and there was little to choose between the Belgian and Dutch firms. There were ships of many kinds, church steeples, chairs, tables, stools, tables set with wine glasses and decanter; trees with birds just taking flight, peacocks, pheasants, cocks, hens, turkeys, storks, lions, bears, monkeys, dogs, squirrels, moles, kangaroos, etc., etc.; a curious and extraordinary combination of the fauna of the farmyard, woodland, forest and jungle, with the imitations of the joiner's art "done in Box and Yew."

The prettiest and most attractive outdoor exhibit was a formal garden and an adjacent alpine garden, arranged by M. Jules Buyssens, who is in charge of the trees and open spaces of Brussels, but also carries on a nursery business. The sunk formal garden, with alpine flowers in the walls, beds of Tulips and Violas in the centre, and of Wallflowers, Polyanthuses, Daisies and Violas on the surrounding terrace, was a joyful arrangement, and being placed close to the main entrance it served to create a good impression upon the inflowing multitude of visitors and to raise bright anticipations of the show proper—anticipations which were thoroughly fulfilled. M. Buyssens' alpine garden was equally attractive, and its little seat from whence the whole exhibit could be viewed was cunningly placed in the shelter of choice Conifers. M. Buyssens deserved and won high commendation for his display.

SOCIETIES.

NATIONAL ROSE.

The Spring Show of the National Rose Society, held at the Royal Horticultural Hall, Vincent Square, Westminster, on Friday, the 20th inst., was a crowded function. Pathways were thronged throughout the day; at times the visitors formed a long queue patiently waiting their turn to view the various exhibits, and especially the new Roses. For an early spring show, and considering that all the Roses were grown under glass, the hall was well filled, and the amateur section was productive of much competition. The nurserymen's groups were good and representative, and several new Roses were shown, two Gold Medals and two Certificates of Merit being awarded.

Awards.

Gold Medals.

Deception (H.T.).—This most quaintly named Rose is coloured rose pink, slightly silvery on the reverse. The bloom is deep and very full, with a pointed centre and is Tea-scented. It is a good exhibition variety, and has large green foliage; the stems are uncommonly stout. Raised by Messrs. George Beckwith and Sons, Hoddesdon.

Mrs. Tresham Gilbey (H.T.).—A large exhibition Rose of first-class quality. The bloom is very full, has a pointed centre, and is coloured pale salmon-pink. The stout stem bears deep green, slightly glossy foliage. Raised by Messrs. Chaplin Bros., Ltd., Waltham Cross.

Certificates of Merit.

Mrs. Beckwith (Pernetiana).—This variety attracted a great deal of attention. As shown the colour is creamy citron-yellow, with a deeper tone towards the centre. In the open, however, it should attain much deeper colour. The bloom is long and pointed, a trifle inclined to be loose, with heavy, substantial petals and stout stem; it has a faint Tea scent. The foliage, as with all Pernetianas, is glossy. Raised by Messrs. G. Beckwith and Sons, Hoddesdon.

Lady Charmion (H.T.), Decorative.—An arresting tone of scarlet-red, shading when fully open to cherry-red; the bud is almost crimson. The petals are reflexed, and form a pointed centre to the bloom. It has a faint scent; the foliage is light green. Raised by Messrs. Bees, Ltd., Chester.

Other Novelties.

Hypatia (H.T.).—A Rose of many shades ranging from silvery-pink to apricot, not over full, but very decorative, with slender, wiry stems and large, dark green foliage. Raised by Messrs. Bees, Ltd.

Joan (Polyantha).—A blush-pink variety with double flowers each about two inches in diameter, borne in trusses of about four to five blooms; the foliage is deep green. Raised by Messrs. Bees, Ltd.

Geraldine (H.T.).—A small flower of apricot colour. The foliage is similar to that of Richmond. Raised by Messrs. Pauls, Waltham Cross.

FIG. 108. GHENT EXHIBITION: VIEW IN THE FRENCH SECTION. (SEE PAGE 234).

Groups of Roses.

There were three bold groups, and for the time of the year the quality of the blooms was remarkably good. Messrs. Chaplin Bros., successors to Messrs. W. Paul and Sons, of Waltham Cross, staged the winning group, and it was a fine and well-balanced display. There was a groundwork of dwarf H.T.s in pots with splendid, clean foliage. Amongst the various varieties, Madame Edmund Rostand (orange-yellow), Golden Emblem and Mrs. Tresham Gilbery (shaded salmon) were noteworthy. The centre of the group was composed of tall pillars of Tausendschon, Paul's Scarlet Climber and Seedling White Climber.

Mr. Elisha J. Hicks, Hurst, was placed second for a light and dainty group composed of standards, pillars and dwarfs. Polyantha varieties were conspicuous, and included choice half-standards of Ellen Poulsen, Orleans, and Edith Cavell. Paul's Scarlet Climber, Dorothy Perkins and Shalimar (creamy-blush) made an effective centre of Wichuraianas.

Messrs. W. Cutbush and Son, Barnet, were third, with a group full of unexpected surprises and pleasures, and it greatly appealed to us. Here again, Polyanthas and Wichuraianas predominated. Gruss an Aachan, rosy-pink, blush centre; Rudolf Kluis, cherry-red, were both shown as new polyanthas. There were also clusters of Baby Tausendschon, Pink Delight, besides a goodly central pillar of Tausendschon. Amongst the dwarf bushes were Sovereign, Willowmere and Ophelia.

There were two entries for a group of cut Roses. Messrs. B. R. Cant and Sons, Colchester, were first with an effective and representative display. Pillars of ramblers filled the background—Tausendschon, Fortune's Yellow and several others. In front of these pillars were massed H.T.s; Josephine, a seedling from Isobel, of the same colour but a fuller bloom, was shown for the first time. The cream-coloured Phoebe was good, and Queen Alexandra of exceptionally rich colour.

Mr. George Prince, Oxford, also brought a goodly collection, staging in a very able manner a round mass of Coral Cluster and Edith Cavell, backed by a pillar of Austrian Copper; it made a charming combination. His fine cream-coloured Muriel Wilson was good, also Souv. de Georges Pernet, of pinky-red and yellow colour.

For a group of six pillar Roses, Mr. Elisha J. Hicks won the first prize with magnificent specimens quite ten feet high and profusely flowered, the varieties being Dorothy Perkins, Lady Gay, Excelsa, Paul's Scarlet Climber, Minnehaha and Shalimar.

Messrs. Chaplin Bros., Waltham Cross, also had some excellent specimens which included their new hybrid Wichuraiana The Beacon, which they have entered for the Cory Cup. The colour of this variety is bright scarlet-crimson, with a white eye; the habit and foliage are similar to those of American Pillar. Another excellent variety was Waltham Rival, a small double variety with rosy-pink flowers, borne in large trusses.

Messrs. Frank Cant and Co., Colchester, also staged a group of Wichuraianas not for competition. Their two fine novelties, Yvonne, blush-pink, a full, dense flower, and Snowflake, a semi-double white variety with golden stamens, were shown in good form. Another pleasing variety was Coronation, of cherry-red colour.

Mr. Elisha J. Hicks was placed first for a group of Polyantha Roses in pots, Coral

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Cluster, Glory of Hurst and Lady Reading being especially fine.

In the Nurserymen's section for 24 blooms, not fewer than 18 varieties, Messrs. B. R. CANT AND SONS were first with a fine selection, which included good blooms of Caroline Testout, Phœbe, Constance Casson (carmine and apricot), Mrs. Beatty (new), golden, and Rev. Page Roberts; 2nd, Mr. ELISHA J. HICKS.

For 12 blooms of one variety, Mr. A. T. GOODWIN, Maidstone, again secured the first prize with twelve magnificent blooms of Maréchal Neil, one of which also won the N.R.S. Silver Medal offered for the best bloom in the Nurserymen's section; 2nd, Mr. E. J. HICKS, with Mrs. Henry Winnett, a new H.T. variety, coloured crimson, shading to red, with a pointed centre and sweetly scented.

[*Our remarks on the Amateurs' Classes are held over until the next issue.*]

ROYAL HORTICULTURAL.

APRIL 24 AND 25.—Visitors to Vincent Square on these dates had nothing to complain of in regard to the extent and interest of the exhibits. Rhododendron lovers had a great day as these flowers were displayed in large numbers by private and trade growers and constituted a special feature of the meeting. The members of the Rhododendron Society were very much in evidence and discussed Rhododendrons in most enthusiastic fashion

Roses, Orchids, Daffodils, Tulips, early spring flowers and forced flowering shrubs were also shown freely, consequently the exhibition as a whole was bright and attractive.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. Jas. O'Brien (Hon. Secretary), Gurney Wilson (Assistant Secretary), C. J. Lucas, The Hon. H. McLaren, W. H. White, H. G. Alexander, Arthur Dye, S. W. Flory, Henry H. Smith, Fred K. Sander, H. T. Pitt, Richard G. Thwaites, E. R. Ashton, J. Wilson Potter, Frederick J. Hanbury, Chas. H. Curtis and Sir Frederick Moore.

AWARDS OF MERIT.

Odontoglossum Fabia var. Biddy (*eximium* × *Aglaon*) from C. J. LUCAS, Esq., Warnham Court, Horsham (gr. Mr. Duncan). A grand Odontoglossum, in which the features of O. Aglaon are displayed in an improved degree. The splendidly-grown plant bore a fine spike of large flowers, heavily blotched with claret red on a white ground, the margins and tips being white.

Brasso-Cattleya Apollo var. Majestica (*B.-C. Dighano-Mossiae* × *C. Mendelii*), from Messrs. COWAN AND CO., Southgate. This section of Brasso-Cattleya are all beautiful, and their relative merits are a question of degree. The present variety is of large size, and of typical form, being one of the best of the class; the flowers are coloured blush-rose, the front of the lip purplish, the disc yellow.

CULTURAL COMMENDATION.

To Mr. JAMES PENTON, gardener to General Sir Arthur Paget, Warren House, Combe Wood, Kingston Hill, for a plant of the old Cyrtopodium punctatum, over four feet in height, and bearing a many-branched spike of pretty yellow flowers, the outer segments of which are spotted with red.

GROUPS.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood) was awarded a Silver Flora Medal for a very pretty group, admirably arranged in green Moss and with Kentia Palms at the back, mingled with tall Cymbidiums, Oncidiums, Odontoglossums and other showy Orchids. The central plant was Miltonia Lyoth with sixteen large flowers, and around it were Miltonia Venus dulcies of great beauty, and only surpassed by Mr. PITT'S M. Venus Fascinator, which had previously gained a First-Class Certificate; a grand form of the now rare M. Roezlii, varieties of M. vexillaria and M. Hyeana; M. Bleuana varieties, including the very distinct Hessle variety, and many showy forms of Odontoglossum crispum, including Oakfield Sunrise. The hybrids included the new Odm. Beau Brummell and other novelties. Mr. PITT'S groups are always of botanical and scientific interest, and on the present occasion he showed a well-flowered, white Epidendrum Endresii, the tall, blotched, yellow E. Wallisii and their product, E. Endresio-Wallisii. A fine plant of Epidendrum (Nanodes) Medusae, some good scarlet Sophronitis, a selection of Stelis, Masdevallias and Octomerias; and rare species of Lycaste and Bulbophyllum were also noted.

Messrs. SANDERS, St. Albans, were awarded a Silver Banksian Medal for a small, select group, in which Miltonias were a grand feature. M. Hyeana Wedding Bells bearing three spikes, each with five pure white flowers, with large maroon disc to the lip; M. Westminster, of similar type, with an equal number of flowers; forms of M. vexillaria, of great beauty, M. Butterfly and other Miltonias were included. Other choice plants were Brasso-Cattleya Crofutiana var. Colossa, with noble flowers, and the new and interesting Brasso-Cattleya St. Andre (B. nodosa × C. Dowiana), with lemon yellow flowers, having a broad rose-veined lip. Among the several very rare species was the dwarf Dendrobium arachnites.

Messrs. STUART LOW AND CO., Jarvisbrook, Sussex, were awarded a Silver Banksian Medal for a selection of showy Orchids, arranged with Anthurium Scherzerianum varieties.

OTHER EXHIBITS.

Lady ABERCONWAY and the Hon. HENRY MCLAREN, Bodnant, N. Wales (gr. Mr. F. C. Puddle), showed Cypripedium Psyche, Bodnant variety (bellatulum × niveum), with a good flower in form near C. bellatulum, pure white, densely spotted with purple.

Dr. MIGUEL LACROZE, Bryndir, Roehampton (gr. Mr. Taylor), sent Brasso-Cattleya Cliftonii var. Bryndir, a fine rose-coloured flower with purple front to the lip, and a splendid specimen of Sophro-Laelio-Cattleya Meuse var. Bryndir, with large rose flowers tinged with salmon-red.

Messrs. FLORY AND BLACK, Slough, showed Cattleya Miguelito (Dowiana × Octave Doin) and C. G. T. Walker (Mendelii × Tityus), both of fine quality.

Floral Committee.

Present: Mr. H. B. May (in the chair), Sir W. Lawrence, and Messrs. Sydney Morris, G. Harrow, Hugh Dickson, John Heal, W. B. Gingell, H. J. Jones, C. R. Fielder, Donald Allan, W. Howe, J. Jennings, J. B. Riding, Andrew Ireland, M. C. Allwood, J. W. Barr, Clarence Elliott, W. B. Cranfield, Reginald Cory, H. V. Warrender, W. G. Baker, W. P. Thomson, Chas. E. Pearson, C. Williams, D. B. Crane, G. W. Leak, W. R. Dykes, H. W. McLaren, E. A. Bowles and R. C. Notcutt.

Rhododendrons were shown extensively on this date, and no fewer than fifty-three of the sixty-four novelties before the Floral Committee consisted of Rhododendron species, hybrids and varieties.

AWARDS OF MERIT.

Rhododendron bullatum.—A beautiful, fragrant species (Farrer, 842) that flowers well in a young state. The plant shown was a small one, but it carried a terminal truss of five large broadly campanulate blooms, white with a greenish yellow basal stain. The margins of the flowers are undulate. The ovate-lanceolate leaves are deep green above, with a little cobwebby down, while underneath there is a dense ferruginous tomentum. Shown by T. H. LOWINSKY, Esq.

Rhododendron Penjerrick.—The pink campanulate flowers of this variety are delicately veined with deeper pink. The blooms are roundly campanulate with recurving rim. The truss is loosely formed and the leaves are deep green above and pale green beneath. Shown by LADY ABERCONWAY, Bodnant, North Wales.

Rhododendron Euphrosyne.—One of the handsomest of Rhododendrons, with broadly campanulate flowers of goodly size; the colour is deep pink, veined and spotted with scarlet. The comparatively small leaves are dark green with paler margins, and light green beneath. Shown by LIONEL DE ROTHSCHILD, Esq., Exbury, Southampton.

Rhododenaron ficto-lacteum.—A bold and attractive Rhododendron with seven-lobed campanulate blooms of fair size. The colour is blush white with a deep maroon stain at the base, but a little to one side, and from this blotch extend a few spots of the some rich colour. We counted twenty-two flowers in the large truss. The leaves are large, deep dark green above and rusty beneath. We do not understand the significance of the name of this fine Rhododendron. Shown by Mr. G. REUTHE, Keston.

Rhododendron Gilian.—A superb Rhododendron which appeared in a pan of seedlings raised from a cross between R. campylocarpum and R. Aucklandii. The deeply campanulate five-lobed flowers are wholly of a cardinal red or soft rosy crimson hue, which is very attractive. The individual blooms measure 3¼ inches across the mouth and are 2¾ inches long. The papery calyx is interesting, as also is the purple colouring at the bases of the pedicels. Shown by E. J. MAGOR, Esq., St. Tudy.

Cerasus Hukon.—A very free-flowering Cherry somewhat like the Prunus serrulata flore luteo pleno found in a few gardens. The branches bear an abundance of large blooms, usually in threes, dull white tinted with buff, which gives the flowers a slightly yellow hue that tends to dinginess.

Clematis macropetala.—One of the smaller-flowered species (Farrer, 315), with slender stems, ternate leaves and blue flowers. The latter are composed of many narrow segments, and nearly all of these point forward after the style of certain Cactus Dahlias. Shown by Messrs. INGWERSON AND JONES, Stevenage.

Trillium undulatum.—A pretty and dwarf species with the usual three leaves on a stem and a surmounting triangular flower. In this species the leaves are rich green, often with a ruddy tint The flower is almost 1½ inch across, with three small green sepals and three attractive white petals, each with rosy purple lines at the base. Shown by Messrs. WATERER, SONS AND CRISP.

Anemone St. Brigid, Crowley's White.—A lovely white form of a popular strain of Anemones: the blooms are semi-double, large and shapely. Shown by S. CROWLEY, Esq., Tipperary, Ireland.

GROUPS.

Rhododendrons formed a very important part of the show. It was, we believe, the occasion of the annual show of the Rhododendron Society, but as this body does not court or desire publicity no information is available. No doubt the members met later and made awards. However, non-members were permitted to view the exhibits, and although the general arrangements were decidedly poor, many of the trusses of bloom were worthy of the admiration they received. From the spectacular point of view chief place must be given to Lt.-Col. MESSEL (gr. Mr. J. Comber), who showed that his Rhododendrons could not only be beautiful in themselves, but with tasteful treatment could be most attractive collectively. The chief sorts so well displayed were Gill's Triumph, R. campylocarpum, R. Fosterianum, and lovely hybrids of arboreum and Aucklandii. He also showed profusely flowered sprays of Acacia verticillata (Silver-Gilt Banksian Medal).

A very interesting collection of splendid trusses was displayed by LIONEL DE ROTHSCHILD, Esq., from Exbury. This included a beautiful pale blue form of R. campanulatum, R. neriifolium, a compact truss of deep cardinal flowers; Rose Perfection, Euphrosyne and Griffithii (Silver-Gilt Flora Medal).

At the Gallery end of the hall Messrs. R. GILL AND SON had the most imposing collection of Rhododendrons in the hall. Besides large vases of the various arboreum seedlings, they had a superb blue seedling from R. campanulatum of decidedly better form and deeper colour than any other of its type. The central vase of R. Nuttalli and another of R. Aucklandii were magnificent, and these giants were in direct contrast to the smaller, but vividly coloured tubular flowers of R. Roylei and R. Keysii (Silver-Gilt Banksian Medal).

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Col. Stevenson Clarke had a number of beautiful trusses, which appeared to be chiefly hybrids and seedlings of Aucklandii and arboreum, but by the time the judges made their inspection the blooms had not been named (Silver-Gilt Banksian Medal). Lady Aberconway sent from Bodnant, Tal-y-Cafn, N. Wales, a very interesting collection of Rhododendrons. R. Loderi King George, R. Penjerrick and a lovely pink-coloured hybrid between R. Thomsoni and R. Fortunei of the larger-flowered sorts were very charming. A very representative set of the blue-flowered varieties was shown and these ranged from the goodly sized flowers of R. Augustinii through R. Benthamianum and R. hippophaeoides to the tiniest R. intricatum (Silver-Gilt Flora Medal). A delightful deep blue species, R. rupicolum, was shown by E. G. P. Magor, Esq., Lamellan, St. Tudy, Cornwall, who also staged a great variety of very rare and interesting little species. R. Augustinii, R fastigiatum and R. calostrotum are the names of only a few of these fascinating species (Silver Flora Medal).

In the annexe Sir John Ramsden, Bulstrode, Bucks, had splendid trusses largely of desirable hybrids between Rhododendrons Fortunei, Thomsonii and Aucklandii. He also showed excellent trusses of R. campylocarpum and R. Roylei. G. L. E. Loder, Esq., had a small collection, which included trusses of Rhododendron niveum and R. Baileyi, a small deep rose-coloured variety with spotted flowers. There was also a fine spray of Edwardsia tetraptera. Messrs. C. B. Van Nes and Sons showed good seedling Rhododendrons. Several were suggestive of Pink Pearl. (Silver Banksian Medal). Messrs. L. R. Russell, Ltd., had beautiful plants of Rhododendron Dalhousiae, R. fragrantissima and Columnea gloriosa purpurea.

Excellent plants of hardy hybrid Rhododendrons were delightfully arranged on a large floor space by Messrs. Wallace and Co. The chief varieties were Pink Pearl, Hugo de Vries and Countess of Athlone. Messrs. Wallace and Co. also showed many interesting alpines and floriferous bushes of Daphne Cneorum (Silver Flora Medal).

Roses were well shown by several of the leading trade growers. Messrs. W. Cutbush and Sons had a large floor group of the Polyantha Roses (Silver Flora Medal). Messrs. B. R. Cant and Sons had goodly cut blooms of Padre, Colcestria, Covent Garden and Constance Casson (Bronze Flora Medal). In the collection of Roses arranged by Mr. E. Hicks there were beautiful vases of Columbia, Mrs. C. Sawday, Climbing Lady Hillingdon and the deep pink John Hart (Silver Banksian Medal).

Messrs. Paul, Ltd., had a fine corner group of pot Roses. The climbing varieties included The Beacon, a vigorous single-flowered variety which might be termed a deeper-coloured American Pillar, though the blooms were rather larger than those of that popular variety. (Silver Banksian Medal).

Carnations of great value were shown by Messrs. Allwood Bros. (Silver-Gilt Banksian Medal); Mr. C. Engelmann (Silver Banksian Medal). Messrs. Keith Luxford and Co. (Bronze Flora Medal), and Messrs. Stuart Low and Co. The last firm also arranged floriferous plants of Acacias, Gloxinias, Hippeastrums, Asclepias curassavica and Chorozema cordata (Silver Banksian Medal).

There was a pleasant variety of trees and shrubs, other than Rhododendrons, both as growing specimens and as cut sprays. Mr. R. C. Notcutt had a tastefully arranged group of such shrubs as Japanese Cherries, Pyrus Malus varieties, and Lilacs, with splendid tall standard Brooms, in great variety, rising above them (Bronze Flora Medal). Messrs. J. Cheal and Sons included good flowering examples of Cornus Nuttalli, Corokea Cotoneaster, Drimys Winteri, Ceanothus pallidus, Ulex europea fl. pl. and Cydonia Maulei, with various Pyruses. They also showed a good collection of alpines, Hydrangeas, and the earliest Dahlias (Silver Flora Medal).

In the collection displayed by Messrs. J. Piper and Sons there were various Japanese Maples, Clianthus puniceus, with excellent plants of Primula pulverulenta, Cheiranthus Allionii and Violas (Silver Banksian Medal). Messrs. Cutbush and Sons displayed well-grown little Conifers, Azaleas of several types, and alpines on a well-arranged little rock garden (Silver Banksian Medal). The shrubs exhibited by Messrs. Hillier and Sons included graceful Bamboos, Photinia serrulata, showing its ornamental purplish young foliage, the larger leaves of Azalea chinensis aurea variegata and the uncommon Cotoneaster horizontalis variegata.

The Maytham Gardens contributed many elegant plants of the fascinating Veronica Hulkeana, arranged in conjunction with dwarf early Phlox, and an excellent dark blue Verbena (Bronze Banksian Medal). Some well-flowered deciduous Magnolias, Ceanothus rigidus, and Drimys aromatica were well represented in a collection which was bordered with plants of the dwarf Rhododendron fastigiatum, displayed by Messrs. Waterer, Sons and Crisp (Bronze Flora Medal). Several Tree Paeonies were shown by Messrs. G. Bunyard and Co., who also had early Irises (Silver Banksian Medal).

Amongst the many alpines and border plants shown by the Chalk Hill Nursery Co. was a goodly collection of Mesembryanthemums, Fuchsias of many sorts, Primulas, Polyanthuses and the old favourite Gazania splendens. Messrs. Waterer, Sons and Crisp showed Iris pumila cyanea, I. Hecate in an interesting collection of alpines and border plants (Bronze Flora Medal). Mr. Wm. Yandall had a collection of very good Violas. Messrs. R. Tucker and Sons included a fine plant of Daphne arbuscula in their alpine exhibit. Mr. Clarence Elliott arranged a large quantity of Gentiana acaulis at one end of his collection (Silver Banksian Medal). Messrs. Carter Page and Co. had plants of the graceful little Androsace sarmentosa pimeloides in their alpine collection, and also showed Violas and flowers of early Dahlias (Silver Banksian Medal). Alpines were also shown by Messrs. Maxwell and Beale (Bronze Flora Medal). Messrs. B. Ladhams, Ltd., who had Cardamine lilacina plena and some pretty double-flowered Daisies (Silver Banksian Medal). Mr. W. Wells, junr., showed Gentiana acaulis, Geum montanum and many varieties of Aubrietias (Silver Banksian Medal). Messrs. K. and J. Hill had Aubrietias in large plants. Messrs. Reamsbottom and Co. staged their excellent St. Brigid Anemones (Bronze Flora Medal). Messrs. Bakers, Ltd., showed border flowers and alpines (Bronze Banksian Medals). Mr. G. Miller again staged a fine collection of his excellent Polyanthuses (Silver Flora Medal).

Messrs. Storrie and Storrie had a large collection of Cinerarias and Primula obconica (Silver Banksian Medal). A collection of splendid sprays of winter-flowering Sweet Peas was contributed by J. D. Botterill, Esq. (Silver Banksian Medal).

Narcissus and Tulip Committee.

Present: Mr. E. A. Bowles (in the chair), Miss Willmott, Sir A. D. Hall, and Messrs. W. W. Fowler, G. W. Leak, H. Backhouse, H. E. Hawker, J. W. Jones, H. V. Warrender, W. R. Dykes, Geo. Churcher, G. Monro, W. B. Cranfield, W. Poupart, F. H. Chapman and Chas. H. Curtis, Hon. Sec.

Awards of Merit.

Narcissus Intensity.—This delightful Poet's variety has pure white perianth segments of excellent substance and a small, frilled, solid red cup of great beauty and effect. Raised and shown by Rev. G. H. Engleheart, Dinton.

Narcissus Mainsail.—This is a large-flowered poeticus variety, with a broad, rounded white perianth segments and a dull yellow, red-rimmed cup. Shown by the Rev. G. H. Engleheart.

Narcissus Roland.—A good poeticus variety with very broad, solidly white perianth segments and a flat, orange-coloured, crimson-edged cup. Shown and raised by the Rev. G. H. Engleheart.

Narcissus Opera.—This bright and upstanding poeticus variety attracted a great deal of attention. The broad cup is orange-yellow with a wide red rim, and this is admirably set off by the pure white perianth segments. Shown by W. B. Cranfield, Esq.

Groups.

A collection of Darwin Tulips arranged by Messrs. Barr and Sons included such as Erguste, Sweet Lavender, Valentine and Angelina, of uncommon lavender shades. They also showed many Narcissi of uncommon merit (Silver-Gilt Flora Medal).

A great display of Tulips was made by Messrs. R. H. Bath Ltd., who had Le Grandeur, Artus, Couleur Cardinal and Chamoise Royal (scarlets and reds), Ibis and Fibiola (pinks), King of the yellows, De Wet and Thos. Moore (orange) (Silver Flora Medal).

Messrs. Sutton and Sons had a good collection of tastefully arranged Narcissus, which included Nannie Nunn, Hero, Queen of the North and Golden Sceptre (Silver Banksian Medal). Mr. W. B. Cranfield showed a collection of the elegant variety Venetia (Silver Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. J. Cheal (in the chair), J. Harrison, Geo. F. Tinley, S. B. Dicks, W. F. Giles, P. D. Tuckett, Ed. Beckett, A. Bullock, A. C. Smith, W. Bates, W. H. Divers, H. Markham, F. Jordan, E. A. Bunyard, G. Reynolds, A. Metcalfe and A. N. Rawes.

A few varieties of Rhubarb were exhibited from the Society's gardens at Wisley, and an exhibitor sent sticks of Appleton Red variety, which was stated to be a good market sort. This was recommended for trial in the Wisley Gardens, and the Committee considered that a general trial of varieties to test their merits for forcing and open-air culture would be of value, as well as for deciding the correct and spurious names.

ANSWERS TO CORRESPONDENTS.

Begonia Gloire de Lorraine: *Anxious One.* The trouble with your Gloire de Lorraine Begonias is due to mite, and not rust as you suggest. This pest should be kept in check by fumigating the house on frequent occasions during the early stages of growth. Plants infested with this pest will fail to grow and gradually die. One of the principal details in the successful cultivation of this Begonia is to obtain good basal cuttings from clean, healthy stock; therefore it would not be advisable to propagate from your old plants. Should the plants be attacked by rust only, frequent sprayings with weak soot-water will check the spread of the disease, or the leaves may be dusted occasionally on the under sides with flowers of sulphur. A suitable compost for these Begonias consists of three parts turfy loam, the remainder leaf mould and manure from a spent mushroom bed, the manure to be passed through a fine sieve, and a 3-inch potful of bone meal added to each bushel of soil, with sufficient sand and broken charcoal to render the whole porous. A little peat may be added in the plants' early stages of growth. A minimum night temperature of 60° should be maintained, with a rise of 15° at the time of closing the house. Shade the plants from bright sunshine and fumigate them weekly or spray them with XL-All insecticide.

Horticultural Journals: *E. K.* Both the *Gardeners' Magazine* and the *Journal of Horticulture* have been discontinued. *The Garden* is published weekly at 20, Tavistock Street, Covent Garden, W.C.2.

Name of Plant: *T. A. S.* Probably Pyrus arbutifolia, but specimen too scrappy for correct determination.—*H. B. O.* Spiraea arguta.

Potatos Diseased: *R. T. C.* The tubers are affected with a "soft rot" disease caused by a bacterium. An excellent account of these bacterial rots and how to prevent them is given in the supplement to the *Journal of the Ministry of Agriculture*, on Potato Cultivation and Diseases, price 6d.

Communications Received.—Gardener, Herts—F. B.—M. T.—P. E. C.—A. N.—W. J. H.—S. L. H.—R. W. R.—A. N.—Leicester—E. B.—P. G. B.—W. D.

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THE

Gardeners' Chronicle

No. 1897.—SATURDAY, MAY 5, 1923.

CONTENTS.

Aberdeen University and the teaching of forestry 240
Agricultural research .. 239
Alpine garden, the—
Scilla Lilio-hyacinthus 245
The White Garland flower 245
Books, notices of—
The Primulas of Europe 241
Cultural memoranda—
Holly hedges .. 248
"Gardeners' Chronicle" seventy-five years ago 241
Gardens, economy in private 249
National Tulip Society 239
North of England Pansy and Viola Society .. 240
Oak timber eight and a half centuries old .. 248
Obituary—
M'Hattie, John W. 252
Orchid notes and gleanings—
Odontioda Deltilla .. 247
Stelis tristyla .. 247
Palm Garden at Leipzig 239
Palms of the Riviera .. 248
Paris autumn show .. 239
Peas 249
Poppies for Memorial Day in America .. 240
Primula sinensis and P. calciphila 239
Propagation by cuttings in acidic media .. 244
Purslane, winter .. 249
Scotland, proposed fruit testing station in .. 240
Silver leaf 249
Societies—
Dutch Bulb Growers 252
Falmouth Spring Show 251
Manchester and N. of England Orchid .. 251
Midland Daffodil .. 250
National Rose .. 250
Reading and District Gardeners' 251
Soil acidity 247
Stadium, the playing pitch at the Empire 240
Trees and shrubs—
Some dwarf Hypericums 243
Vegetable garden—
Tropaeolum tuberosum 248
Ward's, Mr. Kingdon, seventh expedition in Asia 246
Week's work the .. 242
Whitton, Mr. James, retirement of 239
Wilks, the late Rev. W. 239

ILLUSTRATIONS.

Cuttings in acidic media, propagation by .. 244, 245
M'Hattie, Mr. J. W., portrait of the late 252
Primula calciphila on the limestone cliffs in the Ichang gorge 241
Rhododendron bullatum 243
Rose Deception 247
Trillium undulatum 249

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 49.7°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 2, 10 a.m.: Bar. 30.3, temp. 64°. Weather—Sunny.

Primula sinensis and P. calciphila.

The so-called wild Chinese Primrose (Primula sinensis) introduced into cultivation both by Henry and by Wilson, has long proved a puzzle to those who grow it. Presenting a passable resemblance to the cultivated forms of the species, it proclaimed its peculiarity by refusing to cross with any of the varieties in cultivation. For a long time those who attempted to make the cross exercised the philosophic patience which the practice of their art begets in them, and tried again; always, however, without avail. Inasmuch as no other wild Primula is known which can claim to be P. sinensis, those who accepted the view that Henry's and Wilson's wild Chinese Primula was that species assumed tacitly that the manifest differences between it and the cultivated varieties so commonly and widely grown are the results of cultivation. Wilson, in an article on the Home of the Chinese Primula (*Gardeners' Chronicle*, Series III, vol. 36, p. 382, 1905.) comments on the fact that the florists' Chinese Primula in colour, size, shape and substance has diverged widely from the type—that is, from the plant, which he describes as the wild species. The characteristics of the charming plant introduced by Henry and Wilson are, and deserve to be, well known. The plant—figured recently in this journal (*Gardeners' Chronicle*, Feb. 24, 1923)—received the R.H.S. Award of Merit on February 13 of this year. This Primula is very floriferous, producing soft lilac to rosy-lilac flowers, and is well worthy of greenhouse cultivation. A careful comparison of the so-called wild Chinese Primula with the cultivated P. sinensis has recently been made by Mr. J. Hutchinson (*Bulletin of Miscellaneous Information*. Royal Botanic Gardens, Kew, No. 3, 1923), with the result that its claims to represent the wild form of P. sinensis must be dismissed and it must be given the status of a distinct species. On account of its habitat on limestone cliffs, it has been named P. calciphila. Apparently the species is of very local distribution. According to Wilson (*loc. cit.*) it is confined almost entirely to the fifteen miles of the Ichang Gorge, where the inhospitable limestone cliffs (see Fig. 110) are covered in January, February and early March with thousands of plants—one mass of delicate mauve-pink flowers, the fragrance of which is delicious. P. calciphila possesses many of the qualities of a first-rate greenhouse plant. Its flowers are of delicate tone, last a very long time and are borne in graceful and numerous clusters rising well above the foliage. The most striking differences between it and the florists' P. sinensis are summarised by Mr. Hutchinson in the article cited. The petioles of P. calciphila become dry and perish, whereas those of the florists' Chinese Primula are fleshy and decay with age. The former has a five-lobed calyx and unlobed or more or less bi-lobed corolla. In the latter the calyx is much inflated, often irregularly ten-toothed, and the corolla varies from that of bilobed stellata type to the much cut form of the sinensis type. Cumulatively, all these small differences would appear to indicate decisively that the two plants are specifically distinct. The mystery of the origin of the florists' Chinese Primula therefore remains unsolved. This plant came to us a century ago. Captain Rawes, who sent living specimens to this country in 1820, obtained them from the gardens at Canton, but what is the wild origin of these plants, which have been doubtless long cultivated by the Chinese, it is still impossible to state. It is difficult to believe that the almost infinite variety displayed by the florists' Chinese Primula since its introduction is due to change of habitat or to cultivation. More probably the plant, long cultivated in Chinese gardens, had already produced there—perhaps by hybridisation—various forms, and several of these varietal forms came in the batch sent by Captain Rawes to his friend, Thomas Palmer, of Bromley, Kent.

Special Grants for Agricultural Research.—The Ministry of Agriculture is ready to receive, up to May 15, applications for grants to assist agricultural research workers in carrying out definite pieces of research work. The sum of £4,000 per annum is available from which grants can be made, and applications will be considered by a Committee set up by the Development Commissioners, under the chairmanship of Sir Daniel Hall, K.C.B., Chief Scientific Adviser to the Ministry. Investigations in respect of which applications are made should be intended to be carried out in England and Wales during the year commencing October 1, 1923. The conditions of grants, which applicants should know before making application, may be obtained from the Ministry of Agriculture, 10, Whitehall Place, London.

National Tulip Society.—The annual meeting of the National Tulip Society will be held under the auspices of the Royal Horticultural Society in the Horticultural Hall, Vincent Square, Westminster, in connection with the R.H.S. fortnightly show on May 8 and 9. The schedule of prizes is the same as last year for Darwin, May-flowering, and Cottage Tulips. Exhibits of Tulip species are invited, and the usual show of florist's Tulips will be held. Particulars may be obtained from the Honorary Secretary, Mr. W. Peters, 6, Union Road, Cambridge.

The Palm Garden in Leipzig.—It is stated in our contemporary, *Die Gartenwelt*, that it is proposed by the town authorities of Leipzig to clear the well-known Palm Garden of the Palm houses and make the grounds into a public park. The journal goes on to deplore this intention, as the Palm Garden has long been a source of interest and instruction to gardeners from all parts of Germany, and to express the hope that if economy is desired, some other way of saving money may be found.

The Late Rev. W. Wilks.—The Royal Horticultural Society has been left the ultimate residue of the estate of the Rev. W. Wilks, which is valued at £28,046, with net personalty £25,180. Mr. Wilks bequeathed £100 to his companion, Mr. Frank M. Rendell, and £800 a year until he marries, and while he resides at the Wilderness, or an annuity of £500 should he reside elsewhere. The residue of the estate is left in trust for certain of the children of his sister, Mrs. Lepard, and, on the death of the survivor, to the Royal Horticultural Society, with the hope that "they will permit the secretary or treasurer to use the Wilderness as his official residence."

Retirement of Mr. Whitton.—Mr. James Whitton, Director of the Parks and Open Spaces of Glasgow, has placed his resignation in the hands of the Parks Committee, with an expression of willingness to serve the department in a consultative capacity. During Mr. Whitton's thirty years of office the public parks and open spaces of the city have greatly increased in numbers, until at the present time they include thirty-one public parks, having an area of 1,536 acres, in addition to the city's Highland estate of Ardgoil; numerous open spaces, playing grounds, including bowling greens, tennis courts, golf courses, etc. He was also responsible for the provision of musical entertainments in the parks under his charge. Mr. Whitton, who is seventy years of age, was born in a garden, when his father was gardener at Methven Castle, Perthshire.

Paris Autumn Show.—The autumn exhibition of the French National Horticultural Society will be held this year from the 26th October to the 4th November, on the Cours la Reine, Paris. There will be classes for Chrysanthemums, flowering plants, Orchids, fruits, trees and shrubs, vegetables, etc., as well as for works of art connected with horticulture, and for horticultural industries. A number of medals and prizes will be awarded, as well as a special prize offered by the Compton Parisien d'Engrais, of the value of Fs. 500, for a group of six Chrysanthemums of one variety. Full particulars may be obtained from the Secretary, Société Nationale d'Horticulture Française, 84, Rue de Grenelle, Paris.

Fruit Structure and Germination of Mare's-tail.—Having found the figures and descriptions of the fruit of the Mare's-tail (Hippuris vulgaris), a well-known British plant, to be unsatisfactory, Dr. Rendle demontrated the structure of the fruit on the occasion of the April meeting of the Linnean Society. He stated that the textbooks or floras overlooked points of detail in structure associated with the germination of the seed. The fruit is a drupe, the upper portion of which around the persistent base of the style, with the seed-coat, is developed in the form of a stopper which is easily withdrawn on soaking the ripe fruit. The embryo ultimately fills the seed, and has the large radicle and hypocotyl so often found in water plants. The speaker had been unable to get fruits of herbarium specimens several years old to germinate, and suggested that Fellows interested in British botany might look out for seedlings during the next season. The radicle was placed directly beneath the stopper, which provided a place of exit on germination.

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Destruction of Weeds by Spraying.—The Ministry of Agriculture's leaflet No. 63 deals with the destruction of Charlock, for which sulphate of copper is recommended. For certain other weeds, especially Corn Buttercup (Ranunculus arvensis—known also as Corn Crowfoot, Starveacre, Watch-wheels and by many other local names) spraying with a solution of sulphate of ammonia has been found useful in destroying or checking their growth. The best time to spray Corn Crowfoot is when it is just coming into flower, and the solution of sulphate of ammonia should be 1½ to 2 cwt. in 50 to 60 gallons of water, which should be applied at the rate of about 50 gallons per acre. Other weeds, such as Ivy Leaved Speedwell, Sheep's Sorrell, Charlock, and Wild White Mustard, have also been effectively checked by sulphate of ammonia sprays.

The Playing Pitch at the Empire Stadium.—It might have been expected that the Football Ground at the Empire Stadium, Wembley Park, would have been ruined by the happenings of last Saturday, when it was over-run by the vast crowd, and mounted police had to be requisitioned to clear the pitch to enable the Cup Tie Final to be played. But we are glad to learn that, considering all things, the damage to the turf was comparatively slight, and was quickly remedied by the staff. As our readers are aware, the turf was laid only last autumn, but when we saw it quite recently it was in splendid condition. The turf was prepared in the grounds by Mr. A. C. Bartlett, of Kew, who is in charge of the horticultural operations at Wembley Park, including the Football Arena, and he treated it with the view to its withstanding hard wear. Its present state shows how well he succeeded. Although a large percentage of the enormous attendance overflowed into the grounds, it says much for their good behaviour that not the slightest damage was done to the many recently planted trees.

Coloured Forms of Lily-of-the-Valley.—In a letter thanking us for our reference to the wonderful Ranunculus and coloured forms of Lily-of-the-Valley he exhibited at the Ghent International Exhibition, Dr. Attilio Ragionieri (Florence) states that his coloured varieties of Lily-of-the-Valley are the result of a very long series of crosses, and that although he has already selected eighty more or less distinct forms, he still has many hundreds of seedlings to select from. Some of his varieties come into flower very early, while others are very late; some are very dwarf, while others have spikes more than a foot high. The size and shape of the spikes and bells also show considerable variation, and in some forms there is a circular disposition of the bells on the spike. The colour range is from the purest white to flesh-tinted pale rose, rosy-lilac, and clear violet. Dr. Ragionieri stated that the soil in his garden is not at all suitable for the cultivation of Lily-of-the-Valley, and he expresses the belief that if his collection could be grown in a more suitable soil and climate it would command a great deal of attention.

Poppies for Memorial Day in America.—The Council of the United States Chamber of Commerce has issued an appeal asking Americans everywhere to wear scarlet Poppies on May 30 "in honour of the men who fell in France." The idea originated with the American Legion, which chose the scarlet Poppy because it blossoms in the fields of Flanders, where so many of their comrades fell and died in the great war. All members of local Chambers of Commerce throughout the United States are being urged to further this movement.

Britain's Part in the Floralies Gantoises.—As everyone knows, the Ghent "Floralies" take place every five years; but, owing to the war, the exhibition of 1918 could not be held. The war almost destroyed the Ghent horticultural industry; but, thanks to the indefatigable efforts of the Belgian cultivators, it is now fast regaining its pre-war standard. The *Indépendance Belge* gives the following vivid picture of the British section at the Floralies:—"This section is superb and forms one of the most admirable parts of the Fair. Organised under the auspices of the English Chamber of Horticulture, the Royal Horticultural Society of Great Britain, the British Florists' Federation, and the Horticultural Trades' Association, this section comprises the flowers sent by about thirty exhibitors, some of whom, notably the Spalding Bulb Growers' Association of Lincolnshire, represent

FIG. 109.—GHENT SHOW: MESSRS. CRAGG, HARRISON & CRAGG'S CROTONS IN THE FOREGROUND, AND "THE GARDENER'S CHRONICLE" AND MISS WALKER'S EXHIBITS BEYOND.

in their turn a large number of horticulturists. The bordered flower-beds and the cut flowers in green vases and artistic baskets of fine gilded osier, combine to give an impression of harmonious and refined elegance. The English section is especially distinguished by its magnificent Carnations, the pride of horticulturists in the London area, and which have won for Mr. Engelmann (to mention only one of the most important exhibitors) many prizes and medals. Second only to the Carnations in importance are the Jonquils and Narcissi, exquisitely fresh, about 30,000 in number, sent by the Spalding Bulb Growers' Association. We must not omit to mention, among the other plants and flowers exhibited, the enormous Daffodils, the majestic yellow Arum Lilies, three thousand Roses, two thousand Tulips, Hydrangeas, Anemones, etc. At the end of the British section are the Alpine gardens, with their rockeries, their Pine-trees, and their modest flowering plants; Broom, Heather, and other wild flowers. A stall of delicious fruits from England, South Africa and New Zealand, the stand of the venerable horticultural journal, *The Gardeners' Chronicle*, and the charming pictures by Miss Winifred Walker, Member of the Royal Academy, complete the British section, and all the visitors to 'the Floralies' are unanimous in agreeing that it has achieved a notable success." The illustration of this latter section (Fig. 109) shows our exhibit, but, unfortunately, the photograph was taken when the Palms had been taken down to be watered in the early morning.

The National Fruit and Cider Institute.—The Annual Tasting Day at the National Fruit and Cider Institute, Long Ashton, Bristol, has been fixed for Thursday, the 10th inst., at 12 o'clock noon, and onwards.

North of England Pansy and Viola Society.—The eighth annual exhibition of this Society will be held in conjunction with the Saltaire Rose Society's show at Roberts Park, Saltaire, on July 10 and 11. Shows will also be held under the auspices of the North of England Pansy and Viola Society at Rivelin, Sheffield, on Saturday, July 21; at Nelson, in conjunction with the Nelson Small Holders' Society on August 11; and at Colne on August 18, in connection with the Colne Horticultural Society's show. The Society's Journal gives the florists' standard for exhibition Pansies and Violas, and there are interesting articles on Fancy Pansies and their Colours, by Mr. Hamish McCunn; The Origin of the Pansy, by Mr. S. Arnott; and Hints for Staging at Exhibitions, by Mr. W. H. C. Tooby Desmond.

Local Horticultural Societies.—Oxted Gardening Society finished the year 1922 with a small balance of 2s. 10d. in hand, and in view of this small balance a suggestion was made at the annual meeting that the exhibition should be discontinued. Several present, however, offered contributions to the prize fund, and the feeling of the meeting was that the show should be continued. It was stated that one of the reasons of the small balance was that in previous years the Society had no expenses to meet for tents. The chairman, Mr. J. F. W. Wheeler, stated that the Society had had a successful career, and during the war had been able to devote considerable sums from the proceeds of the shows to charitable purposes, and he felt confident that in the future they would repeat their good work of the past. He stated that Mr. Collyer Hamlin had generously offered his auction mart for the purpose of holding the show this year.

Proposed Fruit-testing Station in Scotland.—A movement is on foot to establish a fruit-testing station in Scotland, somewhat on the lines of the one recently established by the Royal Horticultural Society at Wisley in conjunction with the Ministry of Agriculture. In a letter to the *Glasgow Herald*, Mr. Wm. Cuthbertson expresses his belief that the Board of Agriculture for Scotland would probably lend financial aid to such a scheme provided fruit growers and nurserymen gave a moderate amount of financial support.

Aberdeen University and the Teaching of Forestry.—Intimation was made at a special meeting of the Aberdeen University Court, over which Sir Robert Horne, the Lord Rector, and ex-Chancellor of the Exchequer, presided, that the Forestry Commission had forwarded to the University a grant of £200 for research work. In making the intimation, the Principal, Sir George Adam Smith, also informed the Court that the Forestry Commission wished that the teaching of forestry, which had hitherto been done by the Aberdeen and North of Scotland College of Agriculture, while the University

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granted the degrees, should be taken wholly in hand by the University. A committee of the Court had been appointed to confer with the College of Agriculture, and the Principal suggested that they should await a report by that Committee, before making any plans with regard to the grant which they had received. The grant of £200 for research is in addition to the £600 a year which the Forestry Commission grants. It must not be inferred from this that the teaching of forestry has not been carried out by the College of Agriculture to the satisfaction of the Forestry Commission. The fact is the reasons for the proposed transfer are purely of a financial nature. Hitherto the main part of the cost of the Forestry Department at Aberdeen has been met by grants from the Forestry Commission, but owing to the curtailments enforced by the Treasury, the annual grant made by the Forestry Commission has now been reduced so much as to involve a considerable annual deficit. The governors of the College had last year to meet that deficit out of College funds provided for capital expenditure. They cannot, however, continue to make such payments, and it is only with the view of provision being made for any deficit from University funds that the governors of the College have to consider the transfer of the department to the University. In the course of the discussion, Sir Robert Horne said he had been in close touch with the Forestry Commission while he was Chancellor of the Exchequer. The Commission was well managed, and any help which the University could give it by good, sound teaching would be welcome.

Appointments for the Ensuing Week.—Tuesday, May 8: Royal Horticultural Society's Committees meet (2 days), Horticultural Club Dinner and Lecture at the Connaught Rooms; National Tulip Society's show (2 days); Jersey Gardeners' Society's meeting. Wednesday, May 9: East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting. Saturday, May 12: Wakefield and North of England Tulip Society's show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*A new method of planting Fruit trees.* The following method of planting fruit trees promises to confer great advantage upon their cultivators, and with this conviction it is offered to the consideration of your readers. The method is as follows: Plant a young fruit tree in a full sized pot; then dig a deep pit in the place selected for the tree, sufficient to allow of an inverted Sea-kale pot being placed in the bottom, and upon it the pot containing the fruit tree. The pit must be of a sufficient depth to bring the edge of the upper pot from six to eight inches below the surface of the soil. The advantages of this plan are—1, perfect drainage; 2, prevention of too rapid extension of roots, especially the tap root; 3, promotion of the growth of fibrous roots growing near the surface of the soil; 4, diminution of pruning, always "a violent remedy though necessary in some degree"; 5, the earlier formation and maturation of woody fibres, and consequently early production of fruit; 6, easy dressing. It is proper to state that several fruit trees, chiefly Pears, have been planted according to this plan, and others at the same time according to the plan most commonly followed, and the difference now between the two sets of trees is such as to strike the eye of the most careless observer. The former are now bearing healthy, well-matured spurs, replete with blossom-buds, while the latter have long lanky shoots, and very few blossom-buds. *E. R. W. and R. W. F., April* 18. *Gard. Chron., April* 29. 1848.

Publications Received.—*British Plant Names and their Derivations.* By R. J. Harvey-Gibson. A. and E. Black, Ltd., 4, Soho Square, W.1. Price 2s. 6d. net.—*The Pears of New York.* By U. P. Hedrick. New York Agricultural Experiment Station, Geneva, N.Y.—*Jottings from a Gardener's Notebook.* By F. W. Miles. Letchworth Printers, Ltd., Norton Way, Letchworth, Hertfordshire. Price 2s. 6d. net.

NOTICES OF BOOKS.

The Primulas of Europe.

Dr. Macwatt is well known as a very successful cultivator of Primulas, and this book on European Primulas* will be welcomed by all lovers of a beautiful family of plants.

True, it treats only of those Primulas which are natives of Europe—and their numerous garden hybrids and varieties—but this limitation has enabled the author to do his work with great fulness. The chapters dealing with questions of cultivation are particularly useful and interesting, as also are those on ancient Primula lore—the history of the evolution of the garden Auricula, and questions relating to the raising of double Primroses and Polyanthuses. We wish that he had given the names of those double Polyanthuses which yield pollen; a piece of information which would be invaluable to would-be hybridists.

The very full descriptions of the numerous natural hybrids of Alpine Primulas will probably appeal more to collectors in and visitors to the Alps than to the average rock gardener. The late Reginald Farrer wrote glowingly of many of these, but what dreadful names most of them have! And Mr. Bowles, too, tells in his fascinating book, *My Garden in Spring*, of their enormous charm as he found them in the Alps. Yet lovely and brilliant though they doubtless are in the wild state, and of some of the species the same may be said, there seems to be a cultural "but" about them in the rock garden. In spite of the tremendous keenness of modern rock gardeners and all the knowledge and skill of the best cultivators, they seem to make little headway in the garden. There is the vaunted Primula spectabilis, but of the specially brilliant forms that have been brought to this country, who has ever seen them in an English garden looking anything but a ghost's shadow of their own word portraits? And the same may be said of P. glaucescens, P. Wulfeniana, P. Clusiana, and a dozen others. Primula marginata, P. hirsuta, and P. Auricula, on the other hand are readily domesticated. P. Auricula will flourish in London gardens, and may even be seen cohabiting in parlour windows with the Aspidistra!

Two good P. marginata hybrids are figured and described in the book—P. marven and P. marginata Linda Pope; both are rare plants of great beauty and distinction, but the rarest and most beautiful marginata hybrid of all, P. Lemoinei, is unfortunately not mentioned. This has the richly scalloped, white-edged leaves of Linda Pope, but the larger flowers are of a bland Lavender blue.

We regret that in spite of the author's generous tribute to the photographer, whose pictures illustrate *The Primulas of Europe*, and the care and time which must have been expended on them, we cannot say that they are wholly good. Primula Auricula var. albo-cincta, whose flowers are clear golden yellow, look, in the illustration, of some dark heavy tone, a fault no doubt of the photographic plate used, rather than of the photographer; and P. Allionii, a species which strongly insists on growing on stark bare rock, is shown here muffled up in a carpet of moss. It is to be hoped that in future editions the eight illustrations in depressing colour will be omitted.

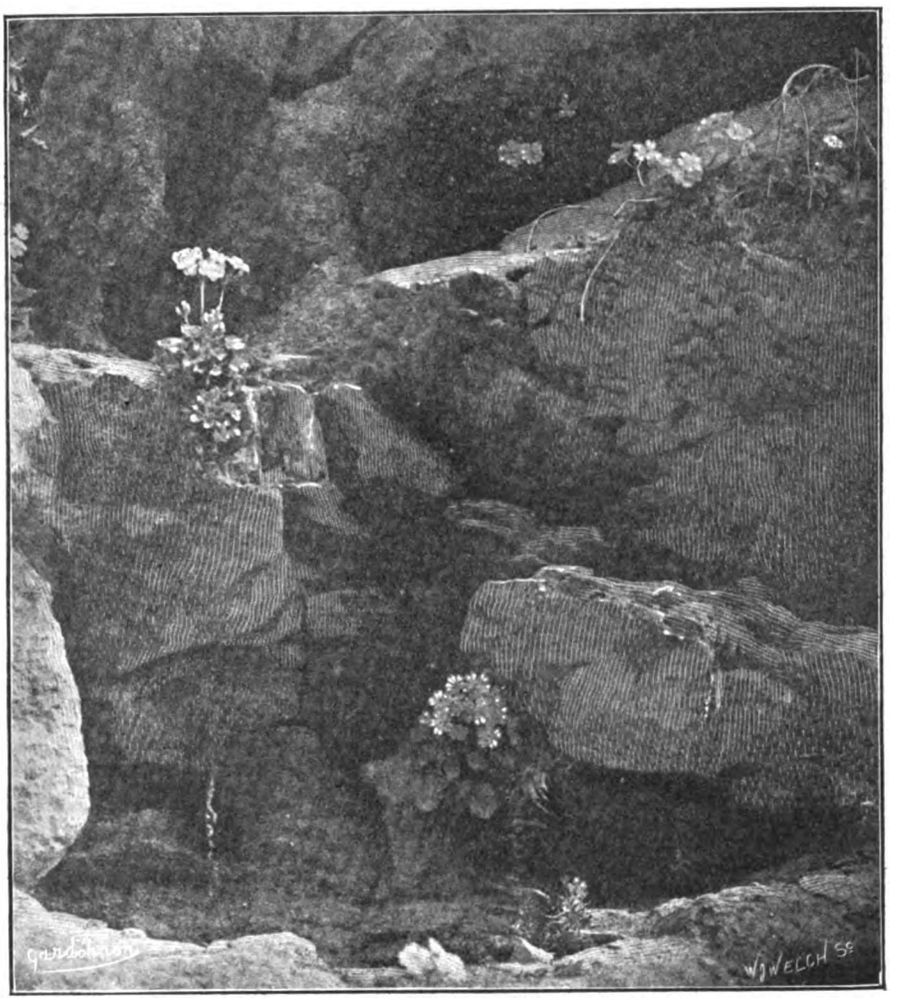

FIG. 110.—PRIMULA CALCIPHILA AT HOME ON THE LIMESTONE CLIFFS IN THE ICHANG GORGE. (SEE PAGE 239.)

* *The Primulas of Europe.* By Dr. John MacWatt. Country Life, Ltd., 20, Tavistock Street, W.C.2. Price 12s. 6d. net.

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The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Hybrid Odontoglossums.—Many collections include home-raised hybrids, and those that have passed the winter in small pots, and are well rooted, will be helped considerably if they are carefully taken out of their receptacles and given fresh material. Those that have made good progress, and are growing freely, may be shifted into larger pots, whilst in some cases the smaller ones may, with advantage, be placed in the same sized pots. Over-potting should be strictly guarded against, for more harm than good will accrue by placing plants in over large pots. It is of great importance that seedling Orchids should, so far as possible, be kept growing actively. Similar compost to that advised for Odontoglossums on p. 226 is suitable for these small plants, but it should be cut into smaller portions, according to the size of the plants.

Plants in Flower.—Where a comprehensive collection of Odontoglossums is grown, the house will be gay for some time to come, but there is always the danger of many of the plants suffering during the flowering season by allowing the spikes to remain too long on the plants. It is not the large-bulbed and thoroughly well-rooted plants that suffer, but generally the best and scarcest varieties, which generally have a weak constitution. Other species of Odontoglossums to which the above remarks apply as regards re-potting, as well as the hybrid Odontiodas, may all be attended to, provided the new growths are in the desired condition. All newly potted plants should be carefully shaded from the sun until they become re-established, and when the new roots have entered the fresh material, they should then be treated in the ordinary manner. Light sprayings overhead and between the pots will be of great assistance to them at this stage.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Tulipa sylvestris.—A small colony of this plant in flower in these gardens merits a passing reference. It is a native of this country, and useful for providing a patch of colour in open woodlands and the fringes of woodland pathways. The soil should be light, and the surface only sparsely covered with moss or grass. The flowers are fragrant. Interest attaches to this plant as regards its method of propagation, inasmuch as the new bulb is produced at the end of a fibre some distance from the parent plant—not joined to the latter as in the cultivated types of Tulips.

Bamboos.—May is the best month in which to attend to the needs of this highly decorative evergreen family of plants. Trim off neatly all marred foliage, cut to the ground dead and dying canes, weed and fork the surface of the bed, then apply a mulch of old manure to the roots. If fresh specimens are to be planted, see that the ground is deeply and richly prepared. Semi-shade suits this woody tribe of grasses better than full sunshine, while the foliage demands some screening from the coldest winds. Existing clumps of Bamboos that have grown too large may be divided now if desired.

Miscellaneous Work. — Grass mowing will occupy much time in most gardens. Except for croquet lawns, and, in a lesser degree, tennis lawns, close mowing should not be practised, because it makes the sward susceptible to "browning," and less able to withstand drought. Almost a necessary corollary of mowing is cutting the grass verges of walks and beds—work that also takes up much time, but repays for doing where tidiness is essential. To keep weeds in check and promote a good surface tilth of soil, the hoe should be employed on the borders from time to time as opportunity offers. Dahlia roots that have not been introduced to heat will be found to be breaking into growth, where they lie in store, and should be planted in their flowering places without further artificial aid. Tubers used for providing cuttings have more tender growth, and must not be planted yet awhile unprotected from frosts. The same applies to rooted cuttings recently potted. In all but the coldest of gardens plants in tubs, such as Agapanthus and Hydrangea, that have been wintered in cold houses may be placed in their summer positions, possible frosts being of little detriment to these plants now. Strive not to get in arrears with the pricking out of annuals requiring such treatment, and duly harden the plants as their progress in growth warrants.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Early Peach-house.—In houses containing established trees of early varieties of Peaches and Nectarines, the fruits will be in an advanced stage, and all of them should be as fully exposed to sunlight as possible. The adjusting of the fruits in position by means of wooden slips needs to be done carefully, or the fruits will be disfigured by undue pressure or by partially resting on the edge of the slip of wood; the latter should be quite 2 inches wide. To obtain large size, perfect finish, and high flavour in Peaches and Nectarines, liberal ventilation must be afforded the trees in their later stages of growth, leaving the house open until late in the afternoon on warm, sunny days; if the weather is mild, the ventilators may be opened a little at night. Less moisture in the air is needed, but there should be no lack of moisture at the roots; borders which are damped frequently on the surface may be dry a few inches down, and it is therefore necessary to test the conditions frequently. Give some form of manurial stimulant when watering the border, choosing one which is quick in its action. It is not advisable to use liquid manure from the farmyard when the fruits are ripening, as it would be liable to taint the fruits. Thoroughly cleanse the trees of insect pests before the final stage of ripening is reached. When the fruits are ready for gathering, the trees should be examined daily, and all fruits which part readily at the stalk should be gathered and stood in a cool room for a few days. To prevent bruising them the fruits should be handled very carefully. Fruits intended to be packed for transit should be gathered when quite firm.

Successional Peach-houses.—The trees in the second Peach-house should be examined, and any badly placed or weakly growths removed. Do not allow the young growths to extend unduly before tying them in position. When the fruits are passing through the stoning stage undue forcing is harmful. The amount of atmospheric moisture should be governed by the weather; in dull, cold weather syringing should be discontinued, as a saturated atmosphere during such time favours the development of weak growth and thin, flimsy foliage. When it is sunny and mild, plenty of air is required, closing the house sufficiently early in the afternoon to render artificial heat unnecessary until late in the evening. Trees carrying full crops of fruits should be afforded stimulants each time the borders are watered. Those in later houses will need attention in the removal of unnecessary growths. Trees with a large crop should have the fruits thinned to two or three of the best-placed specimens on each shoot; a further reduction of the number may be made when it can be seen which are likely to make the best specimens. Air should be admitted freely whenever the weather conditions are favourable, and as little fire-heat used as possible. Syringe the trees thoroughly once daily; but not in dull, cold weather, and damp the borders, etc., whenever the days are warm and sunny.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Beetroot.—Seeds of globe Beet may now be sown on a warm border to furnish a succession to those grown in frames. Draw the drills about 1 foot apart, and sow the seeds thinly, afterwards thinning the seedlings to 1 foot apart, and drawing a little soil up to them with the hoe to keep them steady in the ground. The main crop of Beets can be sown at the same time on an open piece of ground, at the same distance apart as advised for the globe varieties. The soil for Beets should be deep and light, and not recently manured, otherwise the roots will fork and be useless and coarse. If extra good specimens are desired, bore holes with a crowbar, and fill them with fine soil from the potting shed. Sow three or four seeds at each station, and cover them with soil. When the young plants are large enough to handle, thin them to one at each place.

Cabbages.—Cabbages raised from seeds sown in February and pricked out into cold frames should be ready for planting out on well-manured, open ground. Small growing varieties may be allowed a foot between the rows, and each plant, and the larger ones 15 or 18 inches. The ground should be lightly forked over a few days previous to planting, and brought down to a fine surface. Plant each Cabbage by means of a trowel, and make it very firm in the ground. Dust soot around the plants occasionally during showery weather; a little nitrate of soda well hoed in the soil will also be of benefit to the plants. Successional batches may be planted to maintain a supply of fresh, young heads.

Spinach and Turnips.—Make small sowings of Spinach about once a fortnight to maintain a constant supply. The Spinach may be grown between rows of Peas or Beans, or anywhere where it will obtain partial shade. Thin the seedlings to 1 foot apart, dust them with soot and wood ash, and keep the ground stirred with the hoe to promote a quick growth. The same remarks apply to Turnips, as regards sowing and position. Small sowings of this vegetable are much better than one or two large ones. If the Turnip fly appears, syringe the seedlings with Quassia extract, diluted in soft water, and mulch the plants with short grass from the lawn.

Asparagus.—The Asparagus beds are in full bearing, and all stems that are large enough for use should be cut each day. Young plants raised from seeds should be thinned out and given every encouragement to grow by keeping them clear of weeds.

Hoeing.—Take every opportunity to keep the soil about all growing crops well hoed, not only to keep down weeds, but to encourage healthy growth, and prevent the ground from cracking during dry weather.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Clerodendron fragans fl. pl.—This double-flowered Clerodendron is worth growing for its very fragrant blooms, and is easily propagated by means of cuttings made from the young shoots, also by means of root cuttings. This plant grows freely in an intermediate temperature, and when in flower may be placed in the greenhouse.

Humea elegans.—The greenhouse Humea is generally regarded as a difficult plant to grow successfully, but if afforded perfectly cool treatment it presents no difficulty in its younger stages. However, when the plants are transferred to their flowering pots, they need extreme care, for an overdose of water may ruin them. Plants raised from seeds sown last August should now be in their flower pots; if they have been well grown, receptacles ten inches or twelve inches in diameter should be used. As indicated, water should be very carefully given at this stage, especially until the roots get a good hold of the fresh compost. Grow them in perfectly cool, airy conditions.

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Lilium.—Lilies that were potted some months ago and placed in cold frames are well rooted and have started into growth. They may, according to requirements, be taken into a warm greenhouse. Varieties of L. auratum and L. speciosum are best grown under ordinary greenhouse conditions, although the latter may be forced if it is desired to have plants in flower quickly. Lilium longiflorum and its varieties may also be forced, and successional batches should be introduced into a warm house. A sharp watch should be kept for green fly, which is apt to attack Lilies when the flower buds are showing. Such attacks should be prevented by occasional light fumigations. All stem-rooting Liliums should be potted deeply in large pots, or else space should be left in the receptacle for applying a top dressing. Lilium Henryi, although one of the hardiest of Lilies, should be more generally used for conservatory decoration, as it is a very elegant plant, and does very well when grown in large pots. It is a lime-lover, and needs a much heavier compost than the majority of Lilies. L. regale, one of the most beautiful of hardy Lilies, also succeeds exceptionally well under pot cultivation, and, when better known and available in quantity, is likely to be largely grown in pots. This species is easily raised from seed, the seedlings commencing to flower in their second year.

Exacum affine.—This is a free-branching plant, and produces its small flowers with wonderful freedom. It may be treated as a stove annual, but much finer samples may be produced if seed is sown the previous autumn. Its successful cultivation presents few difficulties.

HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Frost and the Fruit Blossom.—Wintry conditions of the past few weeks have caused great anxiety to fruit growers. To find material for the protection of large areas of top fruits, wall trees, and, perhaps, Red Currants and Gooseberries has been a problem. The dry atmospheric conditions will, it is to be hoped, lessen the damage to fruit blossom by frost. The majority of trees have this spring been laden with expanded, and developing blossom, and it is to be hoped that fruit growers in the south, at any rate, have still the promise of good crops.

Spraying.—An examination of flower trusses on Apples reveals the presence of Apple blossom weevil and caterpillar, and the damage by these pests, if combative measures are not taken in time, will soon be evident. An efficacious remedy is to use a combined nicotine and arsenate wash. The arsenate of lead should be dissolved separately to a milky consistency and added to the mixture. Do not use this highly poisonous specific near growing vegetable crops, and it must be borne in mind that this insecticide must not be used if the flowers of the fruit trees have opened. The spraying may be done just before the expansion of the bloom, and after the flowers have set. It is essential that all parts should be dewed over with the spray, selecting a quiet day for the work. Continue to spray Black Currants with paraffin emulsion for the destruction of big bud, having previously picked off all obviously affected buds, which should be burnt forthwith.

Disbudding.—As shoots develop, disbudding should be continued, suppressing all the stronger ones. In the case of some wall trees the wires may have been placed too near to the wall to afford sufficient room for the foliage to develop. In placing new wires on walls, this difficulty should be obviated by allowing 1 inch to 1½ inch space from the wall. A clamp and screw-eye should be fixed at one end to allow of the wire being tightened or slackened at any time.

Mulching.—Proceed with the mulching of all fruit trees on light soil. The thinning of fruits on Peaches, Nectarines and Apricots should be attended to as they develop.

TREES AND SHRUBS.

SOME DWARF HYPERICUMS.

To begin with the least of the dwarf Hypericums, the delicate beauty of H. cuneatum must appeal to all rock gardeners. This tiny, prostrate plant has very slender and most brittle crimson stems sparsely clothed with wedge-shaped leaves, which are pale blue on their undersides. These growths often do not attain the length of six inches before they terminate in a large red bud, which breaks into a golden blossom so big that it seems altogether out of proportion to the size of the plant. This is a most fascinating little alpine, but it does not appear to be quite so robust as many.

Near to the above comes H. nummularium, which is still a difficult plant to obtain true from nurserymen. Like the above, it is prostrate, or nearly so, the shoots being some 6 to 12 inches long, and set with pairs of rather round, grey-green leaves with a paler under colour. This is one of the most distinct of the smaller St. John's Worts and one that seems to enjoy slightly cooler conditions than do most of these sun-loving plants.

H. Coris will always rank among the treasures of the rock garden, for it is easy to grow in any warm, free soil; it comes from seed very readily and lives long under all but the bleakest conditions. The wiry stems of H. Coris rise in great numbers to about six inches, making in a few years a large, bunchy cushion of elegant growths furnished with a multitude of fine grey leaves. These stems bear in early summer bright golden flowers, which continue in bloom more or less the season through. The only species among those commonly grown that is likely to be confused with Coris is H. fragile, but the leaves of the latter are very much broader, thus giving the plant a heavier, greener appearance. H. fragile is as free blooming as and easier to cultivate than the well-known H. reptans, which must, however, claim precedence over both of the above in size of flower and redundancy of growth.

A good form of H. olympicum, which has similar, glaucous foliage and a semi-erect habit, is a plant of the rarest beauty and one that in the poorest soil will produce numbers of blossoms of great size, substance and brilliancy. These are borne in terminal clusters in full summer, and a well-grown specimen, some nine inches in height and nearly twice as much in width, is an object of extraordinary loveliness. H. polyphyllum might be described as a lesser olympicum, being smaller in all its parts. It is one that is specially noteworthy for its habit of blooming later than most of its kindred, and it is, like the foregoing, quite amenable to any ordinary treatment.

H. repens differs from all the above in having fine, Heath-like foliage which covers the soil with a close-set mat. From these prostrate branches ascend in the late summer flowering spikes of about nine inches in height. These send out at intervals flowers of a peculiarly firm texture, and of a less burnished but intenser yellow than those of the majority of its kind.

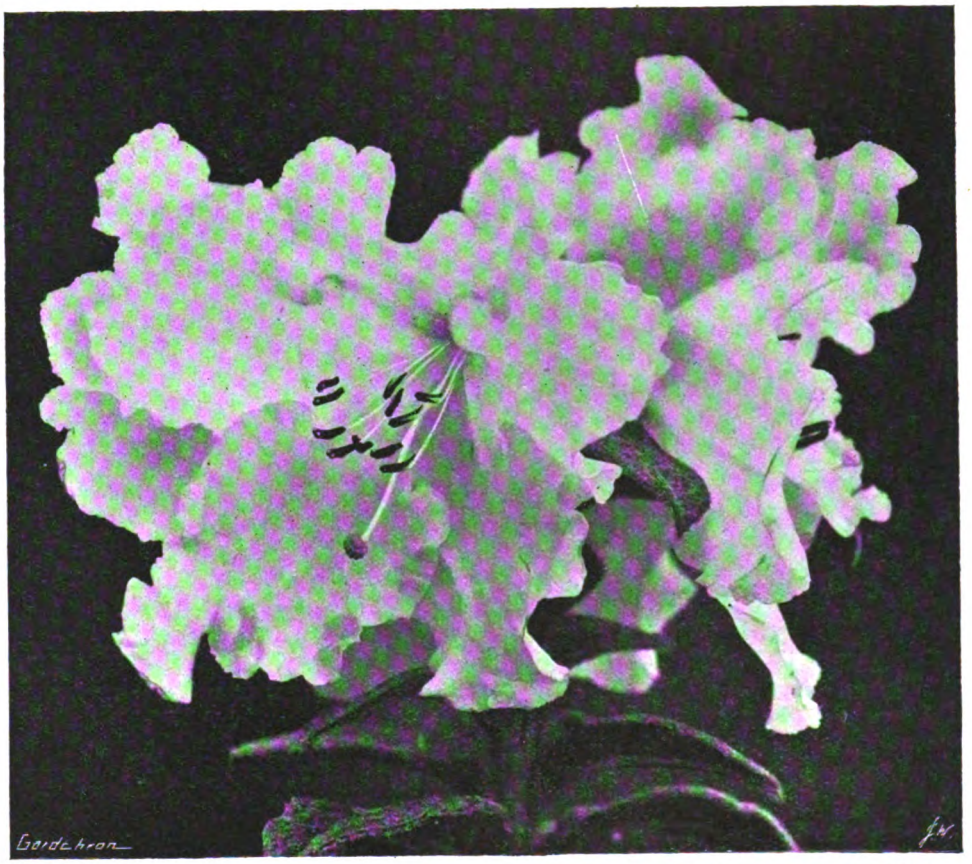

FIG. 111.—RHODODENDRON BULLATUM; R.H.S. AWARD OF MERIT, APRIL 24 (SEE PAGE 237).

Among the downy-leafed members of this numerous tribe, H. origanifolium is perhaps one of the best known. It is a pretty little plant of six inches or so in stature, with small, blunt, grey-green leaves and flowers of average size in the prevailing yellow of the race. H. tomentosum is even woollier than the foregoing, and a species that does not appear to be common in any clearly-defined form. Its somewhat woody branches rise to about six inches, but are semi-prostrate.

H. Kotschyanum is another of the woolly-leafed St. John's Worts with a family resemblance to the above in its bluntly oval leafage and flowers, and the same is true of H. pubescens, which is held to be a superior form of H. tomentosum. All of these hoary-leaved kinds seem to appreciate lime (a partiality which is indeed shared by most of the genus, though its members do not demand it) and they are naturally more averse to wet than other species.

Vast as is the number of Hypericums in cultivation, it is doubtful whether the average amateur gardener need go beyond the above few in making a selection of the choicer kinds for a small rock garden. *A. T. J.*

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PROPAGATION BY CUTTINGS IN ACIDIC MEDIA.

THE propagation of plants by cuttings is carried out in many different ways, and opinions on the merits of the various methods are very diverse. Purely empirical or "rule-of-thumb" methods have been general for centuries, and it was left to the genius of the late Sir Isaac Bayley Balfour to introduce some glimmer of logic into the process.

In spite of the specially persuasive methods practised at Edinburgh, the percentage of Oak cuttings which struck root was very low. The Oak had not previously been propagated in this way, and success with even a few cuttings out of a hundred after some ten or twelve months was something new. After reading that section of the writer's *Textbook of Botany* which deals with acid root and alkaline shoot, the acute and eminently practical professor put the matter to Mr. Lawrence Stewart, Head of the Plant-Propagating Department, in some such words as these:—"If Small be right, we should make the ends of these cuttings acid when we want roots." Then, after some discussion, these two eminent authorities on plant propagation decided to water the Oak cuttings with water in which peat had been allowed to soak for some time. The result was a large increase in the percentage of successes, and a reduction of the time for rooting from ten months to two months or less.

With permission and every encouragement from the Edinburgh workers this investigation of the propagation of plants in acid media has been extended at Belfast by Miss M. J. Lynn, M.Sc., and the writer, with interesting results. We started with a large number of cuttings from plants which are difficult to propagate in this way, but the preliminary arrangements were found to be faulty. We then decided to use plants, cuttings from which are known to strike root freely, and to employ a comparative method. As the action of peat water might have been due to auximones or other substances we used diluted acetic acid. Boxes, 30 inches long, 8 inches wide and 6 inches deep, were filled with coconut fibre and covered with lids of similar dimensions with glass top and front. The top glass was arranged so that it could be drawn out gradually for ventilation, and two elliptical holes in the wooden ends of the lid served as ventilators and handle-holes.

Five such boxes were used in the first tests with 50 Rose cuttings in groups of ten. These were watered periodically with: 1, cold water; 2, hot water, about 60° C; 3, cold dilute acetic acid, 1 in 1,000; 4, cold dilute acetic acid, 1 in 10,000; 5, hot dilute acetic acid, 1 in 10,000. The Rose cuttings were inserted loosely in the coconut fibre which retains moisture well and is very slightly acid in itself. Within three weeks two cuttings struck root, and these were in the set which was being watered with hot acid. Within six weeks eight of the ten cuttings in hot acid had struck root, while the other sets showed not more than from one to four cuttings with roots.

Another test was made with Chrysanthemum cuttings, of which eleven were treated with hot water alone and nine with hot acetic acid, 1 in 10,000. Within one week seven of the nine in hot acid had struck root and the other two struck during the following week. Of the eleven watered with hot water only two struck during the first week and another one during the second week, while the rest failed altogether. This experiment was repeated recently, using cold water and cold dilute acetic acid. Four of the six Chrysanthemum cuttings struck with water, and eight out of eight struck within two weeks when watered with 1 in 10,000 acetic acid used cold. In ordinary garden soil, watered with cold dilute acid (three teaspoonfuls of ordinary white vinegar to the gallon of cold water) we have struck many Chrysanthemum cuttings and have never had a single failure when the acid was used.

Another test was made using the five boxes as before, but at one stage the hot acid was used while still too hot, and all the slips in that box were killed. Ten slips of Rhododendron (species?) in each box gave callused but not rooted cuttings in three months, arranged as follows:—cold water, none; hot water, two; 1 in 1,000 acetic acid, two; 1 in 10,000 acetic acid, five. Ten slips of Privet in each box gave rooted cuttings within six weeks, as follows:—cold water, two; hot water, six (not very healthy); 1 in 1,000 acetic acid, three; 1 in 10,000 acetic acid, six (very healthy). Twenty slips of a small-leaved shrubby Veronica from an old bush gave rooted cuttings in three months, as follows:—cold water, three; hot water, none; 1 in 1,000 acetic acid, none; 1 in 10,000 acetic acid, seven. The cuttings which struck root in cold water and in the 1 in 10,000 acetic acid were transplanted into a box of the same type. Not only did more slips of Privet and Veronica strike root in the acid medium, but in most cases they also developed much larger and healthier root-systems (see Figs. 112 and 113).

After these first experiments had demonstrated that vinegar, at the rate of three teaspoonfuls to the gallon of water, probably acted as an aid to root-production by cuttings, the writer used it with success on ordinary garden

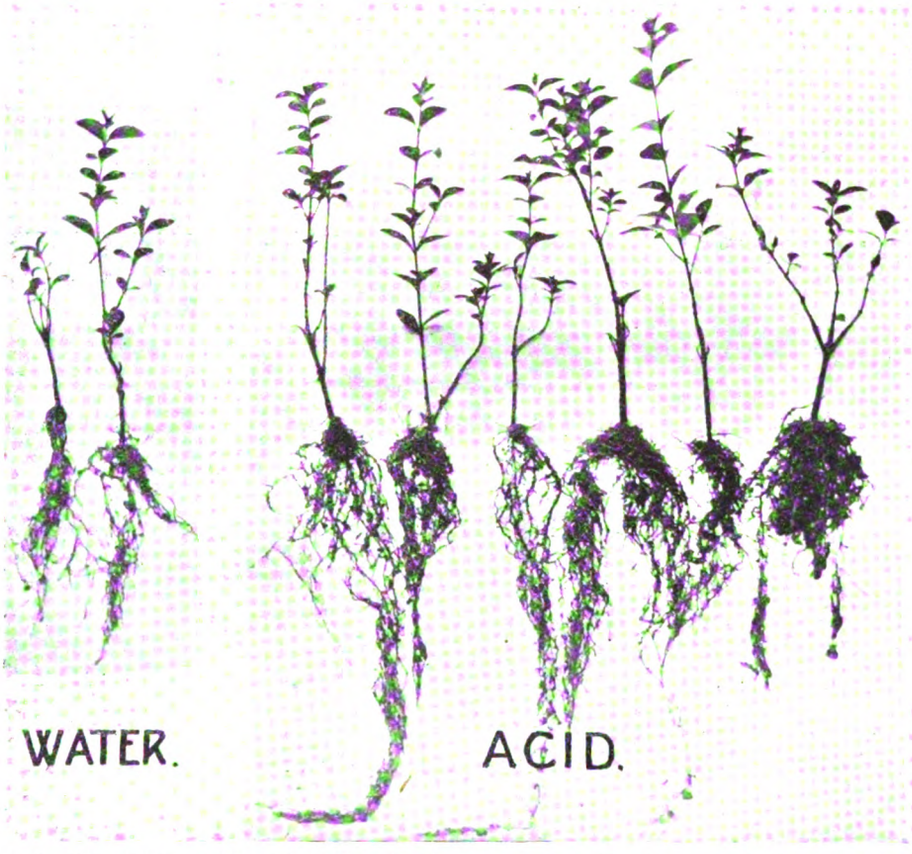

FIG. 112.—LEFT: TWO OF TEN CUTTINGS OF PRIVET WATERED WITH TAP WATER; RIGHT: SIX OF TEN CUTTINGS WATERED WITH 1 IN 10,000 ACETIC ACID (= THREE TEASPOONFULS OF ORDINARY WHITE VINEGAR TO ONE GALLON OF COLD WATER).

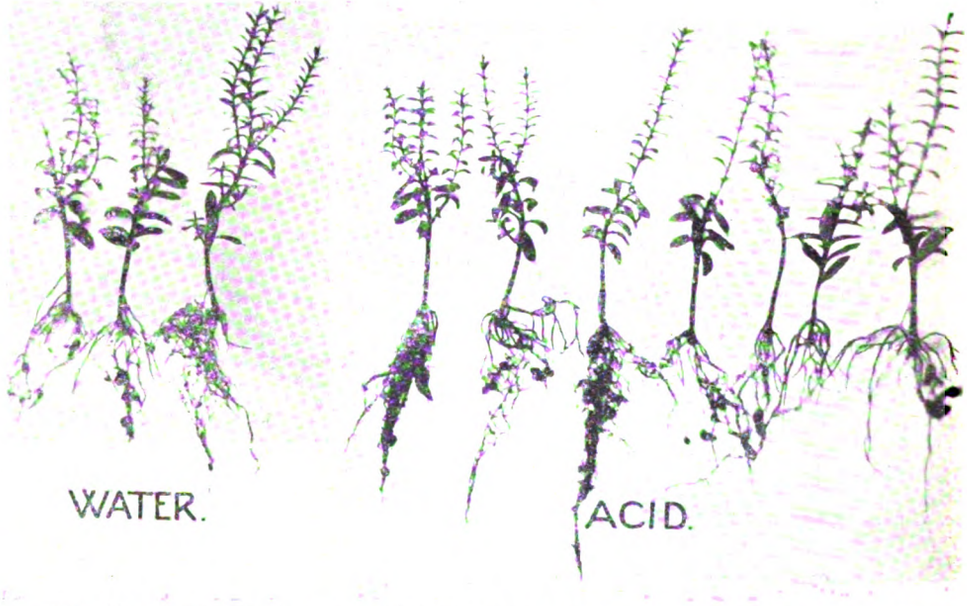

FIG. 113.—LEFT: THREE OF TWENTY CUTTINGS OF VERONICA WATERED WITH TAP WATER; RIGHT: SEVEN OF TWENTY CUTTINGS WATERED WITH 1 IN 10,000 ACETIC ACID.

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soil (Ph. 5.5 to 7, as indicated by the kinds of weeds). Antirrhinums gave 100 per cent. of successes, and Calceolarias only slightly less. Buddleia globosa and Hydrangea sp. were struck in mid-summer while in full blossom. Lonicera nitida and Olearia macrodonta were also struck in mid-summer, as well as other flowering shrubs.

Escallonia langleyensis was experimented with in greater detail. Slips or twigs, one, two, three and four years old were inserted in garden soil which had been well watered with the vinegar fluid, and were watered again with the same acid liquid whenever necessary. There were no failures out of 24 cuttings with the one-year-old twigs. The two-year-olds showed 9 successes out of 12; the three-year-olds 9 out of 12; and the four-year-olds 3 out of 6.

A once sceptical chemist has also reported the following:—"Two dozen 'Japonica' cuttings were put in earth in the open on March 21. One dozen were left to be watered by rain, the other dozen were watered twice with 3-4 parts of ordinary vinegar in 200 parts of warm water. On May 2 the first dozen were all dead, while nine of the second dozen had struck root and seemed quite healthy."

The result of another experiment is still doubtful. Five Apple tree branches from one to one and a half inch thick at the base were treated last spring as cuttings with hot dilute vinegar. Four, after showing the usual prolonged period of vitality, died off during the winter. The fifth, originally seven and a half feet long, died off from the tips towards the one-inch stem. During the present spring five buds on a short lateral branch about four feet from the ground level burst open, but these are gradually withering up. In addition, about half-a-dozen very healthy-looking dormant buds have developed on the main stem, two to three feet from ground level, and these show every sign of further growth. Whether this revival of activity is due to reserves stored in the large stem or to the production of roots, after the manner of the Poplar fence posts of California, remains to be seen.

According to the theory of acid root and alkaline shoot, upon which the acid method of propagation by cuttings is based, this difference in reaction of the opposite ends of the plant is mainly due to the difference in the carbon dioxide balance. The green shoot uses up the acid carbon dioxide gas to make sugars and starch during the day; while the root in respiring below ground is always producing, but never using up, the same acidic gas. It is interesting, therefore, to note that experiments with the Spotted Laurel, Aucuba japonica, show that carbon dioxide alone has a stimulating effect on the production of roots by cuttings. In the first experiments with Aucuba cuttings five out of six callused and two produced four roots when treated with carbon dioxide. The gas was bubbled once a week for four weeks through the water into which dipped the lower ends of the cuttings. A duplicate set treated in the same way with air showed only one out of six with a little callus and two roots; the other five died off. This experiment was repeated later with twelve Aucuba cuttings in each jar. With carbon dioxide "aeration" eight of the dozen struck and developed 24 roots; while in the duplicate set, treated with air only, six of the dozen struck but developed only 14 roots (see Fig. 114).

Other experiments with the American life-plant, Bryophyllum calycinum, have been repeated with similar results. The leaf is cut in two along the midrib, and one half is treated with carbon dioxide, while the other half is treated with air only. More and longer adventitious roots are developed in the first case than in the second, and the shoots which grow in the jars treated with the carbon dioxide show many of the signs of etiolation.

On the whole therefore, although the experimental work with species which are difficult to strike is still in progress, it is reasonable to conclude that vinegar, in the particular very dilute form used, is a useful medium in the propagation of many plants by cuttings. *James Small, D.Sc., Professor of Botany, Queen's University of Belfast.*

THE ALPINE GARDEN.

SCILLA LILIO-HYACINTHUS.

THE Lily-rooted Squill, Scilla Lilio-hyacinthus, has been in flower for some time, but is now almost over. It is a bulbous plant, but little known in gardens, although it is, I believe, so plentiful on the Pyrenees that there is no reason why it should not be imported in quantity if a demand for it arose. It is a very old plant in British gardens and, among others, Philip Miller gave a full description, noting in particular the Lily-like scaled formation of the bulbs, which is exceedingly uncommon among the Squills. It was, I understand, at one time placed in a distinct genus, under the generic name of Lilio-hyacinthus, which was afterwards adopted as the specific name.

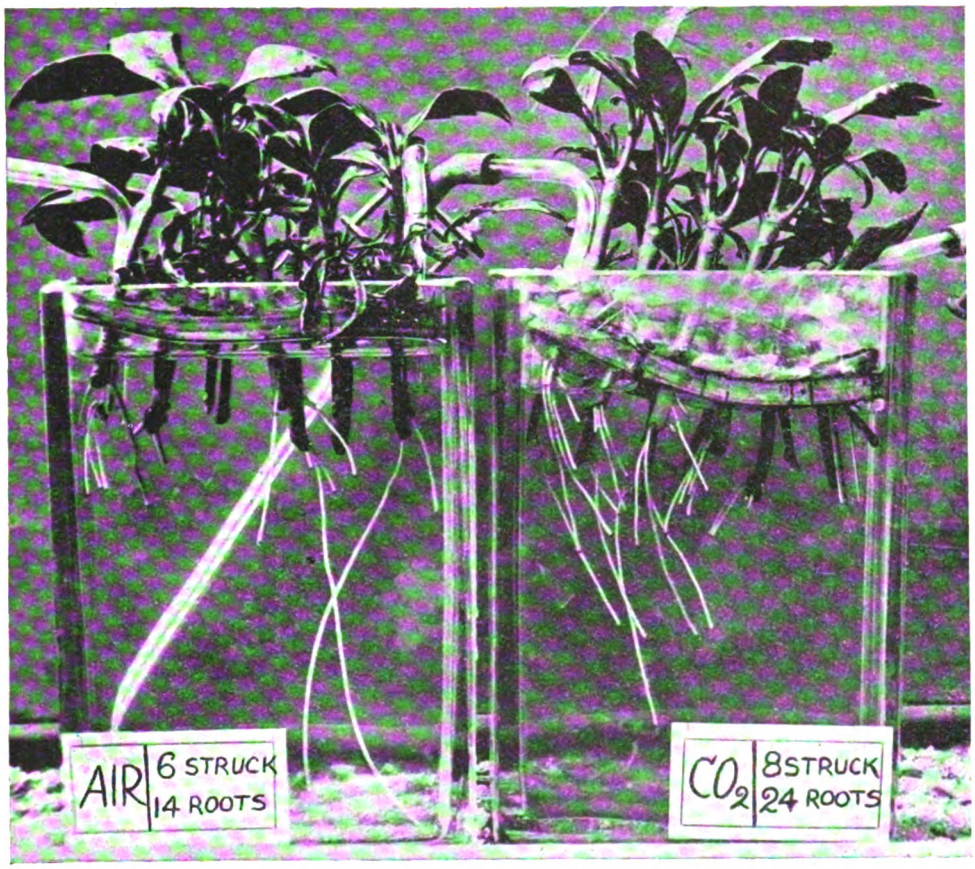

FIG. 114.—GLASS JARS EACH CONTAINING TWELVE CUTTINGS OF AUCUBA JAPONICA. THE JAR ON THE LEFT WAS TREATED WITH AIR AND SIX CUTTINGS ROOTED, DEVELOPING FOURTEEN ROOTS. THE JAR ON THE RIGHT WAS TREATED WITH CARBON-DIOXIDE AND EIGHT OF THE CUTTINGS ROOTED, DEVELOPING TWENTY-FOUR ROOTS.

Many years ago the rather rare white variety, S. Lilio-hyacinthus albus, was grown in great quantity in a very old Scottish garden, where it has been from time immemorial, so far as the family were aware. Its name was unknown, and some of us who were profoundly interested in uncommon bulbs, had a considerable amount of trouble ere we discovered its name. It was thought by some to be one of the Ornithogalums, but it was unlike those plants, and ultimately its identity was determined. This Scilla cannot be classed amongst the best garden plants; its floral racemes appear rather too small in proportion to the fine broad foliage, yet it has certain attractions. The leaves are very broad and glossy, resembling those of one of the larger species of Colchicum, and the flower racemes or trusses, which are a little conical in form, are generally of a good colour, ranging from a light violet-blue to a soft purple. Some have an inclination to pink (Miller speaks of a red one), and I have little doubt but that a search among the wild plants would reveal a greater variety. I have had four or five distinct shades among the plants I have obtained from time to time. The plant's value in the garden is somewhat limited. It should do well in grass in the wild garden where rabbits are excluded; it is not out of place in a border, and it looks a suitable subject on large rockwork. It generally flowers in April with me, but has been in bloom earlier this season. Any good soil seems to suit it. I consider that this bulb, in the hands of the expert, might be evolved into a plant of high garden value. When we consider what has been done with the wilding Hyacinthus orientalis, the original parent of our garden Hyacinth, there seems no reason why the Pyrenean Lily-rooted Hyacinth should not yield excellent results in the hands of a skilled florist.—*S. Arnott.*

THE WHITE GARLAND FLOWER.

THIS very sweet-smelling plant—Daphne Cneorum alba—is rare in nature. When I was a boy I heard of it growing on the limestone cliffs above the Vallée de Joux (Jura Vaudois). I believe it was in the month of June, 1892, that I saw it for the first time on the north side of the Mont Tendre. I took with me one or two branches only, which we grafted upon D. Mezereum. But it did not succeed, as it was in full flower. I never could find it again until 1902, and at that time we grafted it later and had good results. Now we have large tufts of it, flowering in profusion during May and June.

The plant (Farrer insisted that we call it Cneorum alba and not Cneorum album) never grows so high as D. Cneorum, but it seems much more floriferous than the type; it is covered with its pure white flowers in such a manner that one can hardly see the foliage at flowering time. In nature I do not believe it has been found elsewhere than on the very sunny and rocky slope between the Col du Marchairuz and la Vallée de Joux, at 3,000 feet elevation. It never seeds with us at Floraire. *H. Correvon, Floraire, Geneva.*

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. 14.—Damyon.

DAMYON, a rounded hump of porphyry apparently about 21,000 feet high, is the first definite snow peak on the Mekong-Salween divide, north of the Ka-ga-pu massif. Strictly speaking, it is on the Mekong-Wi-chu divide, the latter river being an important tributary of the Salween. I say the first definite snow peak, for there are numerous "dead" glaciers hidden away in the couloirs between Ka-ga-pu and Damyon.

From the village of Ya-ka-lo we descended 1,200 feet into the Mekong gorge, and crossed the river. There was quite a lot of the flabby Nivalis Primula (K.W. 5359) here, on both banks; nothing else of much interest. From the Mekong we climbed 3,803 feet by one of the steepest zigzag paths I have ever encountered, to the monastery of Le-gong, perched on a narrow ridge, with a deep, stony valley immediately behind it. The razor ridge ended in a cliff overlooking the gorge at one end, and rose up to the glaciers of Damyon itself at the other. Absolutely impregnable, you would consider the fortress-like monastery; yet it had been taken with ease during the Tibetan rebellion of 1909, and was, as a matter of fact, in utter ruin; so much more does human courage and resolution count than the accident of position. Consequently, there was not a monk to be seen, and Le-gong now comprises three wretched families living in hovels.

Two roads diverge from Le-gong, one up either valley; that to the north goes to Damyon, that to the south-west goes to the Pi-tu La, and is the main road to Tsa-rong. We chose the former.

On September 1, therefore, we started up the valley, following a very rough path. Here the valley was filled with scrub, chiefly Poplar on the north face, dwarf Oak on the south face, with Rhododendrons by the stream; the latter were familiar species, chiefly R. decorum and R. brevistylum (my "rusty leaf"), or other of the Heliolepis group. In fact, so far, the vegetation was exactly like that of corresponding valleys on Pai-ma-shan. Presently I stumbled on a solitary Primula wedged amongst the boulders. It was one of the Capitatas (the section is now called Sphaerocephala, I believe), just quickening into flower; perhaps P. pseudocapitata itself. If so, the latter, which I introduced from A-tun-tzu some years ago (though I believe it never got much farther than the Edinburgh Botanic Garden), is a much finer plant than I realised.

A little higher up we came upon whole meadows of it; it frilled the edge of the forest with its bald globes, at first very sleek and white, soon to be granulated with violet, as the corollas broke through the crust. When we returned this way on September 6, it was in full bloom, and doubtless it would last through September and into October—a very late flowering species, and one worthy of cultivation for that reason, if for no other. But, as a matter of fact, it is a beautiful species. A mop of violet, vase-shaped tubes, awash in a foam of snow-white meal, the whole hoisted not high above a bunch of sea-green, slightly bullate leaves—that is Primula pseudocapitata, or, at any rate, near it (K.W. 5364).

When discussing the uses of meal in the genus Primula recently, I did not mention that, as in this case, it often affords protection against rain. These plants come up in August, before the heavy rain ceases, smothered in meal. I was surprised, a few months later, to find a Poppy growing at so low an altitude in a soil so dry and harsh. True it was a starveling, prickly in a spiteful way, dissipated. The few flowers near the base were glum and weakly purple; the swart capsules at the top of the scape had hastily opened their pores to emit half-ripened seeds. Not a good feature could I find in the silly plant, which was evidently Meconopsis Prattii of the Aculeatae group, another A-tun-tzu plant. Later I found plenty of it above Tsa-ka-lo, both on granite and limestone; but it is a very poor form of M. Prattii (K.W. 5365).

The next plant I noticed was Primula septemloba, in fruit; an old acquaintance, widely distributed in the north-west corner of Yunnan from Mu-li to Damyon. Another Primula in fruit, not abundant on Damyon, was one of the Muscarioides group—probably P. muscarioides itself. It, also, is a woodland species (K.W. 5381).

By this time we had entered the mixed forest, and were climbing over mounds of boulders piled up by former glaciers. The only tree Rhododendron here was "giant rose" of Mu-li; but the forest belt was very narrow, beginning at about 4,000 feet above the Mekong and coming to an end at 6,000 feet. Towards the upper limit of forest, and extending into the alpine zone, was a Maximowiczii Primula in fruit, probably P. szechuanica, probably, also, identical with the Mu-li plant; it is very like it in capsule and foliage (K.W. 5366).

We halted for lunch on a terrace, at the foot of a fine cascade, where the glacial features became more pronounced; the forest came to an end here, and scrubby bushes of Rhododendron cephalanthoides dotted the slopes with a wiry Intricatum and patches of a larger scrub species. In the afternoon we climbed fast, ascending from terrace to terrace up steep boulder pitches. A heavy mist came rolling up from the Mekong, hiding the cliffs, and presently it began to rain. However, we had seen enough to convince us that Damyon was as dry and barren as the Mu-li country, and that its alpine flora was probably very similar, and still more like that of Pai-ma-shan. Between 15,000 and 16,000 feet we halted, pitching camp just above a chain of glacier lakes.

On September 2, the weather improved, and I climbed up to a pass west of the main valley, and about 1,500 feet above camp. There were many yellow Saxifrages in flower by the stream, with Corydalis, Cremanthodium and Senecio. One of the commonest semi-aquatics on the topmost terrace was a Nivalis Primula, with stiff, leathery leaves, and fat, purple capsules, which were just opening, though the seeds were still green. It is a Pai-ma-shan plant (K.W. 5367).

On the alpine grass slopes, three species of Gentian were in flower, with Primula bella and P. dryadifolia in fruit. Higher still, near the limit of flowering plants, at 17,000—18,000 feet, were woolly white Saussureas, a foot high, Meconopsis speciosa, M. integrifolia (the dwarf hairy form), and scattered plants of Lychnis, Sedum and one or two Saxifrages. Nothing not already found on Pai-ma-Shan.

On September 3 I climbed the main valley—the "Valley of Lakes" I christened it. There were many old friends here, in fruit (old friends so far as I could judge, that is). On the earthen screes, always facing the sun, the terete, crimson-tipped capsules of Primula minor were scattered all over the place. It is a very dwarf form which grows in this poor soil, the whole plant under three inches high (K.W. 5369). Numerous species of Compositae, familiar in form at any rate, were noticed. The most striking were two allied species, each about a foot high, with the terminal, globe-like inflorescence closely enveloped in overlapping papery bracts (like a Brussels Sprout), yellow in one case, purple in the other. There were also two species of Crepis (C. rosularis and another), stemless, yellow-flowered capitula, flush with the ground; and two species of Saussurea, one of which was new to me.

Right at the head of the "Valley of Lakes" was an exceptionally large lake, from which steep, absolutely barren screes swept up to the semi-circle of cliffs. Where the water overflowed from the lake was a wide wet terrace, dotted with stones, and pools, and a network of trickling streams, with sandy intervals. Here grew scores of dome-like Saussureas, and masses of the semi-aquatic Nivalis Primula. My Tibetan guide was so enchanted with the former that he collected a large bundle of it, in the hope that the wool would make good tinder.

From the lake I ascended the scree—really a terminal moraine—to the foot of the glacier, which ended in a sloping, blunt snout at about 18,000 feet. It had snowed in the night, covering all but the end of the glacier, which was formed of two streams, converging a short distance above the ice foot. Snow storms now drove us down to lower altitudes, but in the afternoon it cleared up again, and for an hour the summit of Damyon was visible.

On September 4 we moved our camp down to the cascade terrace, as I had noticed a dead glacier in that direction; and in the afternoon I ascended to the hanging valley, whence the cascade sprang, without, however, seeing any trace of the glacier. So I determined to spend the next day searching for it, and returned to camp with a small Orchid and a Composite. Isopyrum grandiflorum I noticed in fruit, also Diapensia himalaica and Androsace chamaejasme.

On the following day, after strenuous climbing, we reached the extreme summit of the range, but found no glacier. Frightful cliffs baulked us more than once, but here I found a few plants new to me—two species of Corydalis, a couple of Swertias, one with rich violet, the other with cream flowers, and a yellow Cremanthodium. There were masses of Primula dryadifolia—or it may be P. philoresia; and as high as we climbed, about 18,000 feet, there were flowering plants.

Rain and snow in the middle of the day again made climbing uncomfortable, but it passed. Descending a steep couloir, we suddenly came on our glacier, tucked away in a corner; it was "dead," with no snow field to feed it, and would eventually disappear altogether.

On September 6 we returned to Le-gong, gathering a brilliant Cynoglossum from the scree en route, also seed of the horrid Poppy; and I made arrangements to have seed of Primula pseudocapitata collected a couple of months later and sent to England, in case it wasn't P. pseudocapitata; or if it was, in the hope of getting it distributed. *F. Kingdon Ward.*

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17 July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, March 10, 24, April 7 and 21, 1923.

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SOIL ACIDITY.

THE acidity of the soil and its relation to fertility has been the subject of much study in recent years, and there is still room for much research in this direction.

There is a general impression that soil acidity is necessarily harmful, but this is based on a misconception. The acidity which is undesirable in soils is in the nature of a symptom of a diseased condition rather than a direct cause of infertility. Generally speaking a certain degree of acidity is necessary and beneficial in securing those chemical reactions essential to the provision of a supply of nutriment to the plant structure. It may be mentioned in passing that the acid radicles of phosphoric, nitric and sulphuric acids are themselves among the principal sources of plant food, but as they are supplied in the form of neutral salts, this is only indirectly connected with the subject of this article.

The main function of acids in the soil is in promoting the solubility of certain salts necessary as plant food. Carbonic acid is the most common acid present in the soil, being derived partly from the atmosphere, but mainly from the decomposition of vegetable matter. It will be useful to quote one or two experiments illustrating the effect of this acid on the solubility of various salts.

The simplest illustration of the effect of carbonic acid is the furring of kettles. Hard water contains carbonate of lime, held in solution by carbonic acid gas. When the latter is expelled by boiling, the lime is precipitated.

Again, the phosphoric acid radicle is usually applied to the soil in the form of the practically insoluble tricalcic phosphate.

Kloesing found as the result of experiments that, while a litre of pure water will dissolve only 0.7 of a centigram of the acid radicle, it will dissolve 15 centigrams or over 20 times as much when saturated with carbonic acid. Most striking results were obtained from experiments conducted on soils containing sparingly soluble potash salts, the solubility in this case being increased over 60 times. Similar results were obtained from experiments on soils containing calcium and magnesium salts.

Many of the organic acids, such as formic, acetic, butyric, oxalic, etc., are secreted by soil bacteria, and probably play an important part in increasing the availability of various salts as plant food.

Having indicated the benefits derived from useful acidity, it is necessary to consider the problem of harmful acidity. This usually occurs on undrained, peaty soils, and it may be attributed largely to stagnation, due to non-aeration. Under these conditions aerobic bacteria, whose function is to promote oxidation of organic matter, are unable to survive. Their place is taken by anaerobic bacteria, which set up an entirely different putrescent fermentation resulting in the formation of various substances deleterious to plant life. Among these is humic acid, which gives the soil its characteristic acidity, though this substance is not by any means the sole cause of the partial sterility. As suggested earlier in this article the presence of this acid is a sign of a diseased condition of the soil, and the remedy is to remove the cause of stagnation by drainage, which will allow the soil to be aerated in the usual manner.

It will be noted that in acid cases it is not sufficient to add lime. Under conditions of stagnation even a calcareous soil may become acid. This is illustrated by studying the flora of some of our valleys, consisting of one type of soil, often calcareous, yet carrying a very varied flora. On the higher plains aeration is good, and oxidation is carried on without difficulty. Leguminous plants and the finer grasses predominate. Lower, on the lesser drained land, humidity increases; the Legumes disappear and coarse grasses and other forms of vegetation take their place. If a stream runs through the bottom of the valley, and the land adjoining it becomes waterlogged, the grasses in their turn have to give way to rushes and sedges, the characteristic vegetation of stagnated or acid soils. No neutralising agent can reclaim this land to fertility until steps are taken to drain it, and make possible the oxidation of its organic content.

It is, however, necessary to emphasise the fact that on land under intensive cultivation, soils frequently become infertile through an insufficient quantity of lime, and if Leguminous plants in general show signs of starvation, it is a pretty sure sign that lime is deficient. This is particularly liable to occur in soils which receive heavy dressings of organic matter.

The form in which lime should be given may be open to discussion, but in most cases ground limestone is generally preferable to caustic lime. This should be applied after digging in the winter, or early spring months, at the rate of 5-6 cwt. per acre, and at least every second or third year. On soils very rich in humus such as the peats, caustic lime may be used, but it is distinctly disadvantageous to use it on soils not rich in humus, as its action is to destroy organic matter. *W. Auton.*

FIG. 115.—H.T. ROSE DECEPTION; N.R.S. GOLD MEDAL, APRIL 20 (SEE PAGE 236).

ORCHID NOTES AND GLEANINGS.

ODONTIODA DELTILIA.

C. J. LUCAS, Esq., Warnham Court, Horsham (gr. Mr. Duncan), sends the first flower of this pretty, yellow-ground Odontioda, which promises to develop into a very fine and distinct form. It is the result of crossing Odontoglossum Delta (Othello × Rolfeae) and Odontioda Cecilia (Cochlioda Noezliana × Odm. Wiganianum). The Odontoglossum parent is a Warnham Court hybrid with Odm. Othello, which is a favourite, fine results with it having been secured in Odm. Wilchello (Othello × Wilckeanum) and others. Similar good results have been noted in Sir Jeremiah Colman's gardens at Gatton Park, two superb examples being Odontoglossum Maid of Gatton (Odm. Adrianae × Odm. Othello), in which it should be noted that the comparatively small species Odm. Hunnewellianum, with its intricately crimped lip, takes part in both parents; and Odontioda Othello (gattonensis × Odm. Othello). On several occasions we have noted the good effect of Odm. Hunnewellianum in hybrids, giving unexpected results in fixing the yellow ground, and extraordinary expansion of the lip, the theory being that the crumpled lip lends itself to expansion when hybridised.

In the flower of the new Odontioda Deltilia all the segments are broad, and especially the lip, which is perfectly flat, the influence in this organ of Odm. Hunnewellianum appearing only in the fringed margin. The sepals and petals are bright Buttercup yellow, with a large red-brown blotch and some smaller spots in each. The lip is slightly lighter in colour, with small red spots around the yellow crest, and a transverse line of red.

STELIS TRISTYLA.

A SLENDER spray with numerous small purple-tinted flowers taken from a compact specimen with twenty-two racemes of flowers shown at the Royal Horticultural Society, is sent by H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), who has a most interesting selection of rare Stelis, Octomerias, Pleurothallis and allied genera. None of the Stelis has showy flowers, but there is a charm about their compact habit and shining green leaves, producing from their bases these elegant sprays of flowers. The flowers of this species remain closed during the day and flatly expand the equally parted segments at night.

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PALMS OF THE RIVIERA.*

IN all my foregoing articles I have mentioned only those Palms which have proved absolutely hardy in my garden—which offers conditions of situation, soil and climate below the average of the Riviera—and therefore can be planted anywhere here or in similar climates with perfect confidence. Very many other less hardy Palms have been tried by me, and the results have been published in various French periodicals, notably in the *Bulletin de la Société Nationale d'Acclimatation de France*. As most of these delicate Palms succumbed as soon as the winter was not particularly mild, I shall not name them, though several of them might survive on the Riviera to the east of Nice, where the temperature hardly ever falls to freezing point, and nearly always, even in the coldest winter, remains well above it.

Since my purpose in writing these articles is to give only a brief review of those Palms that have stood their trial, I shall content myself with naming those kinds which, though less hardy than those already named, may be cultivated successfully by taking some simple precautions, such as I shall now indicate.

It is well known that a very efficient shelter is afforded by evergreen trees, not only as wind breaks but also as a protection against frost when such trees bear spreading branches, underneath which the delicate plants grow. The difficulty, however, is how to give sufficient shelter without depriving such plants of the sunshine so beneficial and necessary, especially in winter. Thus certain Palms which require the full exposure to sun cannot be advantageously cultivated even in half shade, and though sufficient protection against low temperature might be afforded by shelter trees, they will not succeed. There are other Palms, which, though they may prosper well and also flower and fruit well in the full sunshine, will grow also in half shade, where their foliage may be more graceful and of a deeper and purer green colour, though they may rarely flower. But since, as a rule, the decorative value of Palms depends more on their foliage than their flowers, there is good reason to plant such Palms even where they will succeed only when grown underneath evergreen trees.

A variety of evergreen trees can be used on the Riviera as shelter trees against low temperatures, while for wind breaks many more are efficient, but none surpasses the famous and common columnar Cypress (Cupressus sempervirens) planted so as to form a kind of wall perpendicular to the direction of the cold winds. Two conditions are essential in choosing evergreen trees for protection, namely, that the branches shall be sufficiently spreading to shelter a certain space, and that the foliage should not be so dense as to exclude all rays of the sun. Further, such trees which send their roots along the surface of the soil are to be avoided, since they will prevent the full development of the delicate Palms growing underneath their branches. I shall not here name the many shelter trees which I have tried with more or less success, but shall immediately state that the best, according to my experience, is the well-known Pepper Tree (*Faux Poivrier*—Shinus molle, L.). This tree, though it is common, ought to be even still more so, since it is perfectly hardy, having suffered nowhere even during the great frost of December, 1920—the worst experienced on the Riviera since 1820. It is perhaps the most graceful of all trees cultivated here, and certainly one of the most beautiful, with its gracefully drooping branches and exquisitely fine and delicate foliage. It is a dioecious tree, and the female plants acquire an additional and most extraordinary beauty when they are loaded from the end of autumn to the end of spring with their coral-red berries carried on long, hanging branchlets. These berry-bearing branches are much used for decoration and exported in quantities to Paris, London and elsewhere during the winter. This remarkably beautiful tree with its light foliage does not favour too dense shade, neither do its roots follow the surface of the soil, and its crown covers a reasonably large space, on which can be planted, underneath, those Palms which need its shelter. But as with so many trees, the Pepper Tree branches right from its base, and would thus cover the ground so closely to the surface that there would be no room for the development of the Palms; therefore it is necessary to train the young Pepper Tree on a supporting straight and tall Bamboo stem or similar strong support, and, as the Palms grow, the lower branches should be cut away so as to leave a clear trunk carrying its graceful crown of drooping branches. I have trained in this way Pepper Trees which are now about twenty metres high and have a clear trunk of some twelve or fifteen metres; these form a most beautiful arch above Palms and other plants in need of their protection. *Dr. A. Robertson Proschowsky, Jardin d'Acclimatation, Les Tropiques, Fabron, Nice.*

* The previous articles by Dr. Proschowsky were published in our issues for May 1, June 12, July 10, September 4, November 20, December 18, 1920; March 12, April 30, June 11, October 8, November 19, 1921; January 21, February 11, April 1, June 17, July 29, October 14, November 11, December 23, 1922, and March 10, 1923.

OAK TIMBER.

OAK TIMBER EIGHT AND A HALF CENTURIES OLD.

I HAVE just had an opportunity of examining some of the timbers from the original wooden castle that was erected on Rayleigh Mount, in Essex, in 1066. Having been built on the natural surface of the hill, the timbers became buried beneath about ten feet of soil, at the time the site was heightened to form the foundation of the later stone castle. Around these timbers when found in the carpenter's yard was a thick layer of chips and bark to nearly a foot in depth. On an examination of the timber, some pieces of which are 18 inches through, it was found to be in a wonderful state of preservation, while in many cases the chips were covered with the original bark.

On recently cutting the wood it was found to be as black as bog Oak, solid and firm, some being of the consistency of chalk. The tree stems had been dressed by an adze, and the joints of the beams, though rudely constructed, were stoutly joined by wooden pins. When age is taken into account, this is the best preserved Oak timber that I have seen. The original timber roof of Westminster Hall, which was sent from Ireland by King William Rufus, in 1098, has entirely disappeared, so that the recent find on Rayleigh Mount may be considered as about the oldest, and best preserved Oak timber of which we have an accurate record. *A. D. Webster.*

CULTURAL MEMORANDA.

HOLLY HEDGES.

THE common Holly has few equals as a hedge plant in this country, and, although its growth is comparatively slow in the first year or two, remarkably fine hedges may be had in from twelve years to fifteen years of planting, when attention is paid to the needs of the plant. A well-grown hedge of this tree is more in keeping in a garden than a wall or fence, and is even more impenetrable to intruders.

There is no better time than the end of April and the month of May for planting, as the roots are now very active and begin to grow quickly in the new soil. Plants up to 5 feet or 6 feet high may be used if desired, the distance of planting depending on the size of the plants. Whatever sized plant is used, however, it is essential that it should be well furnished at the bottom and that firm planting should be practised.

If the soil is dry when the hedge is planted, it should be well watered and mulched with rotted manure.

The Holly is not a very exacting plant, and grows freely in almost any position where shrubs succeed, but it likes more than anything a well-drained soil, rich in organic matter. Where such conditions exist, little preparation will be necessary beyond working the ground thoroughly to a depth of 2 feet. Where the ground is poor, liberal additions of partially decayed manure should be incorporated with the soil during this process.

Liquid manure is at all times beneficial, and established hedges which show signs of impoverished conditions may be helped by the application of blood manure.

Hedges carefully planted and trimmed back annually make impenetrable fences in a few years, and, if the roots are fed and the shoots clipped, remain in perfect condition for a long time. *W. Auton.*

VEGETABLE GARDEN.

TROPAEOLUM TUBEROSUM.

AN edible tuber that can resist blight and disease and has all the good qualities of the Potato, and more, is something worth finding and utilising. Not many people outside Peru know the Mayua—the tuber of Tropaeolum tuberosum, though a few individuals in France have made good use of it, growing it under the name of the Capucine or, again, the Mastouche tubereuse. In Peru the Mayua is the staple food of thousands; in particular, throughout the Andean province of Popayan, which rises some 9 to 10,000 feet above the sea. Livestock is particularly fond of the plant.

The Mayua, which is the tuber of Tropaeolum tuberosum, not only remains free of blight and disease, but is a heavy yielder, and may be cooked or eaten raw. It has no earthy smell like the Potato, and keeps well when stored. The plant produces from ten to fifteen tubers to a root, each in size as large as an average Potato, and varying in shape, round, kidney or peg-topped shaped, according to kind. The colour of the tubers is bright yellow, with streaks of reddish-purple or scarlet running from the eyes. In nutritive qualities the Mayua is equal to the best Potato, though with some indications of woody tissue which disappear when the tuber is cooked.

As regards the edible qualities of the Capucine or Mayua, French gourmets who have tasted it have given it great praise. This tuber, apart from its shape and colour, is very easily distinguished from any other when handled, for if slightly rubbed it gives off a faint and very pleasant odour, which, when the Mayua is cut, or peeled, raw, becomes much stronger. Eaten uncooked, cut in thin slices, or dice fashion, as a salad or with meat, the Capucine is delicious. There is first a rich, smooth, full flavour, that lasts for a little, and is succeeded by an agreeable, peppery taste which also passes away.

When this tuber is boiled all the piquant and perfumed flavour goes, but the root itself has an odour rather like the Vanilla Bean, and it is exceedingly pleasing to eat, with a flavour approaching that of a hard-boiled egg. The Mayua is very rich in farina, and affords effective sustenance to the Peruvians, who depend on it as much as the Irish do upon the Potato.

The tuber is grown in the same way as the Potato, and in France is planted in spring after danger from frost is over. It is, however, a slow grower, and is not ripe enough to lift until October. It has to be earthed up, and may be trained to stakes or light branches like Peas, or allowed to run on the ground. When only a few are grown, sticking is preferable, as the trained plant is stronger and bears more tubers.

It has been found that the only enemies which have to be guarded against when growing the Mayua are the larvae of the white butterfly. In other respects it is insect-proof. As an edible tuber Tropaeolum tuberosum is worth the attention of growers in this country. *N. Tourneur. Thundersley, Southend, England.*

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HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Economy in Private Gardens—A recent advertisement in *The Gardeners' Chronicle* for an adviser on garden economics brings to the fore a question which is at present much discussed between employers and their gardeners. The term "garden economy" may be defined as making the most of the advantages, labour and means at the gardener's disposal. The question of profitable work is, I think, distinct from the present subject. The wise employment of labour calls for much forethought on the gardener's part; work should be so arranged that there is no waste of energy. Careful direction will often save much time, and will obviate in many cases the performance of unnecessary work. The employment of up-to-date implements is another important feature in economy of labour; many labour-saving devices are at present on the market which, intelligently used, result in great benefit. The use of the most suitable manures, insecticides, etc., at the proper season and in the proper manner is another great consideration in garden economy. The aids to economical work are so obvious under this heading as hardly to need special emphasis; yet in many cases this branch of garden management does not receive the attention it deserves. The selection of seeds, plants, trees, etc., and the choosing of the best varieties that suit the particular garden is one other point which needs emphasis. The many gardens all over the country are so varied in their situations and requirements that no hard and fast rules can be made to govern all; the employer and gardener must decide what is economy in their particular garden, remembering that economy is a virtue, parsimony a vice. *S. J. Craze.*

Winter Purslane (p. 190).—I gather from Mr. Auton's note that the above name for Claytonia perfoliata is in actual use; could he mention in what locality this is the case? It appears to be a translation from the French, and to have originated in the English translation of Vilmorin's book on vegetables; it may, of course, now be in general use, but it does not appear in the *Dictionary of English Plant-names*, and I should be glad to have a note of its actual popular employment, in view of a possible supplement to the *Dictionary*. *James Britten.*

—In reply to Mr. Britten my impression is that the common name of Winter Purslane for Claytonia perfoliata is in fairly general use, and not peculiar to any locality. If this is not so, it ought to be, for the name well describes the plant. It is closely related to the Summer Purslane, Portulaca oleracea, but whereas the latter requires a fairly high temperature, and can only be produced in frames during the winter, Claytonia perfoliata continues to grow almost as vigorously as Chickweed in all but severest weather. It is possible that the name originated in the English translation of Vilmorin's book on vegetables, but there is considerable other evidence that the Claytonias are known as Purslanes. They are North American plants, and Miss Henshaw's *Mountain Wild Flowers of Canada* classifies them as the Purslane family. Nicholson's *Dictionary of Gardening* also states that Purslane is applied to several species of Claytonia, and Johnson's *Dictionary of Gardening* calls them substitutes for Purslane. There appears, then, to be every justification for the popular name in any possible supplement to the *Dictionary of English Plant-names*. The whole plant is edible, and may be eaten raw as salad, or cooked as Spinach; but it should be used before the inflorescence appears. *W. Auton.*

—I am greatly obliged to Mr. Auton and Mr. Gamble for their replies *re* Winter Purslane. My soil here is cold clay, which, no doubt, accounts for the non-persistence of Claytonia, except as an annual. I am much interested to know that Campanula Rapunculus can also be used. I should have thought the nauseous milky sap of any Campanula would have been sufficient to preclude the edibility (from the human standpoint) of the genus; but I have never met with C. Rapunculus, and it may be different from the usual run in this respect. If Mr. Auton can oblige me with some seeds of Claytonia—my stock died out some time ago—and Mr. Gamble can let me have a few seedlings of the Campanula, I shall be very glad to try both the plants in salad. Is Campanula rapunculoides also suitable for salad? It is rather commoner in gardens than C. Rapunculus, I suspect, as I have seen it several times. *C. Nicholson.*

Silver Leaf.—Whether it is a matter of this fungus in Plums or Apples, my feeling is that sufficient importance is not attached by growers and advisers to root destruction when trees have to be grubbed up. I have seen an area 20 feet square literally smothered with the conspicuous outgrowths of Stereum purpureum on dead, small, and comparatively big roots which had been left on the ground after the removal of a badly diseased tree. The advice to cut out all dead wood is excellent, but it does not go far enough. Growers should be urged, or driven, to remove all roots from the soil and immediately to burn them, and until this is done the eradication of the disease will not be within measurable distance, even if it is possible, which one ventures to doubt. Silver Leaf is, perhaps, the most insidious of fruit tree enemies, and drastic steps ought to be taken forthwith to bring it into some measure of subjection. I have seen grand trees of Lord Grosvenor and Newton Wonder Apples killed by it, and they had not been top-grafted, but were growing on an obviously suitable Paradise stock. All pruning cuts should be dressed, not simply those wounds which follow the removal of strong branches, and even then the spores of the fungus may find admission through overlooked abrasions of the bark, and it is conceivable through punctures caused by insects, but on this point I have no direct knowledge. The growers who are determined to keep abreast of the times in respect of knowledge of diseases and their treatment realise the seriousness of the position, but there are others who simply let such matters drift, and nothing short of compulsion will induce them to make a move in the right direction, whether it be directed towards the subjugation of Silver Leaf or any other enemy of fruit trees. *W. T.*

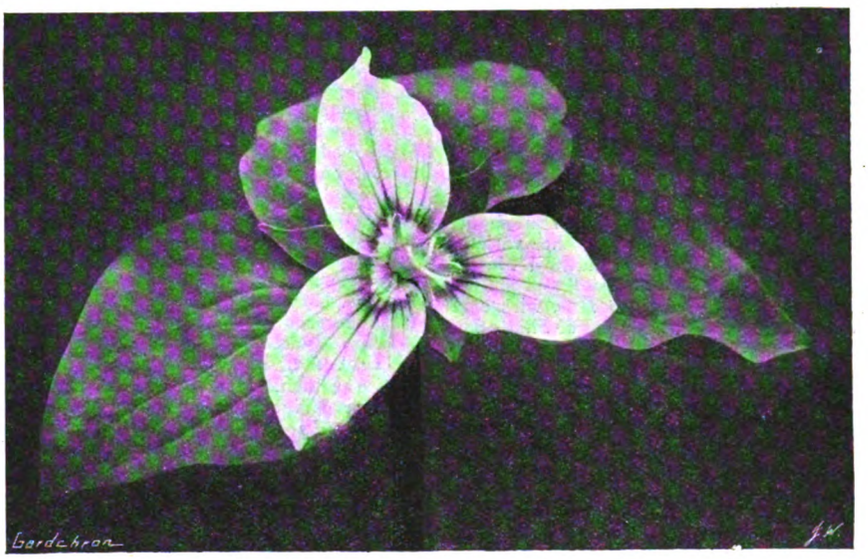

FIG. 116.—TRILLIUM UNDULATUM; R.H.S. AWARD OF MERIT, APRIL 24 (SEE PAGE 237).

Motor Cycle versus Locusts in Durban.—When a locust swarm is reported, over the wires, to be travelling down from the north, the coolie market gardeners, on the coast line above Durban, take steps to try and circumvent the foe. They prepare huge stacks of damp wood and branches, and send motor cyclists out to watch for, and give notice of, the approach of the swarm so that the fires can be set going. A motor cycle properly handled can travel fast, but its speed is trifling compared to the rate at which a locust swarm travels before a following wind. If the swarm overtakes the cyclist he is in for a bad time. No one has yet attempted to even guess at the number of the pests that go to a swarm, but millions hardly expresses it, and the rider's eyes will be blackened from contact with the mass and his head and neck sore for days after; and to add to this he will be blamed for getting left behind. The cyclist has a powerful field glass, and he watches for a little white snowball in the sky. When he can just make out this speck it is time for him to be off. The swarm will be miles away then, but miles mean nothing in this case. If he arrives in time the fires are set going, and the smoke covers the country with a pall of darkness; but this does little good as a rule, for the swarm comes on before the wind, and only a change of wind will make the locusts deviate. Millions of locusts fall victims to the smoke, but the gardens are eaten bare of any vestige of green before the swarm rises again and passes on. The motor cyclists who do this work are coolies. Accidents happen through reckless riding over bad roads and short cuts, and the riders at times come laboriously in at the rear of the swarm. *G. R.*

Peas.—Under this heading, an article by Mr. G. H. Copley on the cultivation and varieties of culinary Peas appeared in *Gard. Chron.*, March 31, p. 176. The writer states: "At the bottom of the trenches place a 6-inch layer of rich farmyard manure, afterwards filling in with soil to which farmyard manure has been added at the rate of 1 cwt. to every 12 feet of trench." Assuming the rows of Peas are placed 6 feet apart, 1 cwt. of manure to 12 feet of trench will work out at the rate of about 30 tons to the statute acre. Double this quantity will be necessary if the dwarf varieties recommended are grown, as these are grown in rows 3 feet apart. This amount of manure is in addition to the 6-inch layer of rich farmyard manure in the bottom of the trenches. Is this sound economic teaching, or is this lavish expenditure of manure on Peas justifiable? Farmyard manure is not by any means a cheap commodity, nor is it easy to obtain in quantity at the best of times. Exception may also be taken to the vague way in which the use of a fertiliser for improving the weight and quality of the Peas is advised, namely, "Superphosphate of lime is a suitable fertiliser to employ, and it may be used weekly, after the flowers have fallen and until the pods are nearly filled." *G. D.*

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SOCIETIES.

NATIONAL ROSE.

(*Concluded from p.* 237.)

Decorative Classes.

The prizes for Roses in baskets were awarded as follow:—Three baskets of cut Roses: 1st, Mr. Elisha J. Hicks, with Lucille Barker (apricot-yellow), Mrs. H. Winnett and Evelyn (pink). One basket of cut Roses: 1st, Mr. A. T. Goodwin, Maidstone, with Maréchal Neil; 2, Messrs. Bees, Ltd., Chester, with Evelyn Thornton, a blush rambler, with large semi-double flowers.

In the Nurserymen's class for a decorated table, Mrs. A. R. Bide, Farnham, was first; 2nd Mrs. Tisdall, Woodford Green, and 3rd Miss Janet Prince, Longworth. All three competitors employed Rose Mme. Butterfly.

Mr. Elisha J. Hicks was first for a bowl of cut Roses, showing the variety Lady Hillingdon, decorated with Rose foliage; 2nd Mrs. Tisdall, Woodford Green, with Melody.

Amateurs' Classes

Although rather early in the year for many, it was surprising to note the creditable display made by amateurs.

E. J. Holland, Esq., Sutton, Surrey, was the only entrant in the class for a group of cut blooms. He showed first-class blooms of many different varieties, conspicuous sorts being Mrs. J. Laing, Frau Karl Druschki, Augustus Hartmann and Mrs. Foley Hobbs.

Mr. Holland was also first for 12 blooms in six varieties shown in exhibition boxes, and he also won the Silver Medal of the N.R.S. for the best bloom in the Amateurs' section with Mrs. Foley Hobbs. Amongst his other varieties, Mrs. Charles Lamplough, Mr. Edward Mawley, and William Shean were especially good; 2nd, G. A. Hammond, Esq., Burgess Hill, with excellent blooms of W. Shean, Countess of Shaftesbury and Nita Weldon.

For six blooms in four varieties, C. S. Gordon Clark, Esq., Leatherhead, was first, his outstanding blooms being of La France, Richmond, and Frau Karl Druschki; 2nd, L. P. Roberts, Esq., Westcott, Dorking, his most notable varieties being Dean Hole, Lady Plymouth, and Double Pink Killarney.

Mr. Holland excelled in the class for six blooms in one variety, with Mrs. Foley Hobbs; 2nd, G. A. Hammond, Esq., Burgess Hill, with Mrs. Amy Hammond.

The best bowl of Roses in this section was shown by Miss Ethel Jones, Abingdon; she employed the variety Richmond; 2nd, Mrs. Colston Hale, Warminster, with Golden Ophelia.

Mrs. Courtney Page had the best vase of Roses in Ophelia; 2nd, Mrs. Charlton, Yiewsley, with Mme. Butterfly.

Mr. E. J. Holland, was awarded the first prize for a basket of Roses, one variety, with William Shean, of more than usual merit; 2nd, Mr. Hammond, with Mrs. Amy Hammond, who was first in the class for a basket of Roses in variety.

Mrs. Courtney Page was successful in securing the premier award for a decorated dinner table with a most artistic display. The variety employed was Ophelia, interspersed with sprays of Acer Negundo; 2nd, Mrs. Colston Hale, Warminster, who employed two varieties, Sunburst and Mme. Butterfly, together with sprays of Adiantum; 3rd, Mrs. Oakley Fisher, Sudbury.

MIDLAND DAFFODIL.

April 18 and 19.—Owing to the early season, accompanied by very heavy rain-storms, this Society's annual exhibition, held at the Edgbaston Botanical Gardens, was not so extensive as on some previous occasions. It was, however, a good show, there being a great variety of Daffodils of first rate quality, especially among the red cupped varieties which were shown in greater numbers than usual. One of the outstanding features of the show was the new seedling Daffodils. At the annual general meeting, held on the first day of the show, Dr. N. Y. Lower was re-elected President for the year 1923. Mr. G. B. Cope and Mr. Herbert Smith were re-elected Hon. Treasurer and Hon. Secretary respectively. Subsequently a few Daffodil enthusiasts met at the Grand Hotel, Birmingham, where an informal talk on Daffodils took place, which was much appreciated. We were glad to see the Reverend Joseph Jacob, the Society's genial and energetic Chairman, who has just recovered from a very long illness, taking an active interest in the welfare of the Society he has so much at heart.

Open Classes.

It was very satisfactory to find three good exhibits (one more than last year) in the leading class, which was for thirty-six varieties, representing as far as possible the different types of Daffodils. The schedule required three flowers of each variety; 1st, Mr. W. B. Cranfield, Enfield Chase, whose collection was noteworthy for strong, clean flowers; a few of the best varieties were Helmet, Roundle, Queen of Hearts, Opera, Venetia, Brimstone, White Knight, Bedouin, Pilum, Solleret and Wavelet; 2nd, Dr. N. Y. Lower, Presteign, whose flowers were wonderfully fresh and nicely arranged, he showed Ringdove, Mrs. Debenham, Miss Willmott, Hypatia, Mandalay, Crœsus and John Peel, in good condition; 3rd, Mr. John S. Arkwright, Presteign.

Mr. Guy L. Wilson, Broughshane, Co. Antrim, was the only exhibitor of a dozen Trumpet varieties, and he was deservedly awarded the first prize for strong-stemmed, bold, clean flowers, which included Honey Boy, Moira O'Neill, Mrs. E. H. Krelage, Bulwark and White Dame. The same exhibitor excelled in the class for six yellow or lemon-coloured Trumpet varieties, which included delightful specimens of Bulwark and Golden Flag; 2nd, Mr. W. B. Cranfield, whose best flowers were The Wanderer and Cleopatra.

Mr. Cranfield was the only exhibitor in classes for, (a) *Six Bicolor Trumpets*, with Miss Clinch, Mrs. E. H. Krelage, Cumulus, White Knight, Catriona and Kotick; (b) *Six Yellow Incomparabilis*, with superb flowers of Jambart, Tace, Roundle, Leontes, Strigil and Kukri. Mr. F. Herbert Chapman, Rye, won first prize for *Six Bicolor Barrii Varieties*, with exquisite examples of Dark Eyed Susan, Kaffir, Firetail, Bonne Bouche, S. H. 20 and Debutante; 2nd, Dr. N. Y. Lower: 3rd, Mr. W. B. Cranfield.

Mr. Guy L. Wilson beat Mr. Cranfield in a class for *Six Leedsii, Division 4a.*

Mr. F. W. Mitchell, Claverdon, was awarded first prize in the corresponding class for *Six Leedsii, Division 4b*; his best flowers were Baldock, Bentham, White Lady and Berkeley.

Mr. Cranfield showed the only half-dozen *Triandrus hybrids*, which were pleasing specimens of Maid Monica, White Coral, Waterfall, Wavelet, Wistful and Venetia.

The best exhibit of *six Poeticus varieties* came from Dr. Lower, whose blooms were large, substantia', and of great purity; 2nd, Mr. F. W. Mitchell; 3rd, Mr. F. H. Chapman.

Single Blooms.

Competition was good in most of these classes. *Yellow Trumpet*: 1, Mr. F. H. Chapman, with Yukon; 2, Dr. Lower, with Royalist. *White Trumpet*: 1, Mr. F. H. Chapman, with a pleasing flower of Savonarola; 2, Mr. F. W. Mitchell, with White Knight. *Bicolor Trumpet*: 1, Mr. F. W. Mitchell, with a strong-stemmed Lewes; 2, Mr. F. H. Chapman, with B. 136/14. *Yellow Incomparabilis*: 1, Mr. F. W. Mitchell, with Basilisk; 2 Dr. Lower, with 908. *Bicolor Incomparabilis*: 1, Dr. Lower, with a delightful flower of Beauty of Radnor; 2, Mr. J. Mallender, Scrooby, Bawtry, with C. 152. *Barrii*: 1, Mr. F. H. Chapman, with a dainty specimen of Dinkie; 2, Dr. Lower, with Harpagon. *Bicolor Barrii*: 1, Mr. J. Mallender, with an extra fine bloom of Jessie; 2, Mr. B. Robinson, Spilsby, with Lady Superior. *Leedsii 4a*: 1, Mr. W. B. Cranfield, with Seashell; 2, Mr. J. Mallender, with Megan. *Leedsii 4b*: 1, Mr. W. B. Cranfield, with Puck. *Triandrus hybrid*: 1, Mr. F. H. Chapman, with 1/1/54; 2, Mr. W. B. Cranfield, with Venetia. *Jonquilla hybrid*: 1, Mr. W. B. Cranfield, with Solleret, intense yellow; 2, Dr. Lower, with Gold Mohur. *Tazetta or Tazetta hybrid*: 1, Mr. W. A. Watts, with Xerxes. *True Poeticus*: 1, Mr. F. H. Chapman, with perfect flowers of Grand Opera; 2, Mr. H. G. Hawker, Ivybridge, with Dulcimer. *Double*: 1, Mr. Herbert Smith, with Marken.

Seedlings and New Varieties.

These are encouraged by the Midland Daffodil Society, and the blue riband of the Birmingham show is the Bourne Challenge Cup, which was won by Mr. F. H. Chapman, who staged twelve exquisitely beautiful specimens of his own raising, viz., Enamel, Corona, Grand Marnier, Gilt Edge, Motley, Organdie, Cavatina, 6 L. 35, Cordon Rouge, Lustrous, Immortal and 8 N. 21; 2nd Dr. Lower, who held the cup for two years. He showed some very dainty flowers, which included Royalist, Mrs. Lower and Redpole. In a class for *six varieties* not in commerce, raised by the exhibitor, Mr. F. W. Mitchell was awarded first prize. In a similar class to the last named, Mr. W. B. Cranfield, Mr. G. B. Cope, Albrighton, and Miss Pope, Kings Norton, were placed as named.

The Cartwright Challenge Cup, offered for twelve varieties, in not fewer than four divisions, was won by Dr. Lower, who had excellent blooms of Crucible, Beauty of Radnor, King Craft and Delhi; 2nd, Mr. Guy L. Wilson, who had grand flowers of Rosary, Hexagon, 6/33 and Honey Boy; 3rd, Mr. F. H. Chapman.

The first and second prizes in a class for three seedlings, raised by the exhibitor and not in commerce, open only to those who have never won a first prize for seedlings (single bloom classes excepted), were won by Mr. W. B. Cranfield and Mr. G. B. Cope respectively. The Walter Ware Challenge Cup, offered for nine obvious Triandrus seedlings, was awarded to Dr Lower, for a choice set of flowers all under numbers.

The White Daffodil Trophy offered for six varieties of White Trumpet Daffodils, one stem of each, was won by Mr. Guy L. Wilson, who showed remarkably fine flowers of White Dame, White Emperor, 11/7, 3/25, Beersheba and White Knight; 2, Mr. W. B. Cranfield, whose best flowers were Miss Clinch, White Knight and Cumulus; 3, Dr. Lower.

Mr. F. W. Mitchell took the lead in a class for a bowl of Daffodils.

Amateurs' Classes.

Although the classes reserved for amateurs were poorly contested, the two exhibits in a class for twenty-four varieties made a good show. Mr. Harold Lee, Wolverhampton, who was placed first, had beautiful flowers of Whitewell, Horace, Weardale Perfection, Mrs. Robert Sydenham, Admiration and Aveline; 2nd, Mr. B. Robinson. The last named exhibitor was awarded first prizes for (a) *six Trumpet varieties*, (b) *six Incomparabilis varieties*, (c) *six Barrii varieties*, (d) *six Leedsii varieties*, (e) *three Tazetta or Tazetta hybrids* and (f) *three Poeticus varieties.*

The silver vase offered by Messrs. Cartwright and Goodwin, for three varieties of Daffodils, was won by Mr. W. B. Cranfield; 2 Mr. Harold Lee; 3 Mr. B. Robinson.

Mr. E. J. Keeling, Small Heath, was awarded first prize in a class for twelve varieties of Daffodils, and in another class in which the flowers had to be selected from certain cheap varieties like Emperor, Empress, Barrii conspicuus, Albatross and White Lady.

The Birmingham Botanical and Horticultural Society's medals were awarded as follow: Classes 1-29: Silver Medal to Mr. W. B. Cranfield, with 88 points; Bronze Medal to Dr. N. Y. Lower, with 78 points. Classes 15-29 and 30-38: Silver Medal to Dr. N. Y. Lower, with 80 points; Bronze Medal to Mr. F. H. Chapman, with 47 points. Classes 15-29 and 39-46: Silver Medal to Mr. B. Robinson,

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with 96 points; Bronze Medal to Dr. N. Y. Lower, with 40 points.

Awards of Merit.

Narcissus Honey Boy.—A rich yellow Trumpet variety, raised from Madame de Graaff, crossed with King Alfred. The flower is of good form and high quality. Shown by Mr. Guy L. Watson.

Narcissus Tenedos.—A giant Leedsii of a lovely cream or pale primrose colour, which gradually changes to almost white. Shown by Mr. Guy L. Wilson.

Narcissus Alban.—Another handsome very pale cream coloured Leedsii of great purity. Shown by Mr. W. B. Cranfield.

Narcissus Opera.—A bicolor Barrii variety with a smallish, perfectly round, flat, pure white perianth, and a rich orange crown. Shown by Mr. W. B. Cranfield.

Preliminary award of merit to *Narcissus Brimstone* (see Fig. 101, p. 225). A shapely flower, with a striking lemon-coloured trumpet and a stout perianth. Shown by Mr. W. B. Cranfield.

Honorary Exhibits.

Gold Medal to Messrs. Barr and Sons, Covent Garden, for an extensive collection of Daffodils, in which Golden Sceptre, Opera, Alcida, Fantin Latour, La Victoire, Alban and Socrates were conspicuous.

Silver-Gilt Medals were awarded to Messrs. J. R. Pearson and Sons, Lowdham, Notts, for Daffodils; Mr. Guy L. Wilson, for seedling Daffodils; Messrs. R. and G. Cuthbert, Southgate, for forced flowering shrubs; Messrs. Bakers, Wolverhampton, for a miniature rock garden and hardy plants; Messrs. Hewitt and Co., Solihull, for Daffodils and forced flowering shrubs.

Silver Medals: Mr. W. A. Watts, St. Asaph, for Daffodils; Messrs. Cartwright and Goodwin, Kidderminster, for Daffodils.

Bronze Medal, Mr. Robert Berkeley, Spetchley, Worcester, for Polyantha Primroses.

Mr. R. A. Schoot, Hillegom, Holland, sent by aeroplane three bunches of a new double flowered Poetaz Narcissus named Cheerfulness.

FALMOUTH SPRING SHOW.

This spring flower show was held in the Gyllyngdune Gardens, Falmouth, on April 4 and 5. The outstanding features of the competitive classes were the Rhododendrons and flowering shrubs. Owing to the mild climate of the Cornish Riviera it is possible to grow a wide variety of shrubs in the open which in most parts of the country can only be successfully cultivated under glass.

For the best group of Rhododendron blooms not exceeding 30 vases, R. Barclay Fox, Esq., Penjerrick (gr. Mr. S. Smith), gained premier honours with a highly meritorious exhibit of magnificent trusses. Particularly noticeable were Glory of Penjerrick, Barclayi, Robert Fox, Trebahana, Cornish Cross, R. sutchuenense, R. calophytum and R. arboreum varieties. Mrs. Charles Hext, Trebah (gr. Mr. Day) was 2nd, and H. Hodge, Esq., Trevarrick House, St. Austell, 3rd. The flowers which gained 1st prize for R. Barclay Fox, Esq., in the class for six cut blooms (from outdoors) were perfect trusses of Lilianii, Weiri, Robert Fox, Barclayi, Cornish Cross and R. calophytum. The first five named are all hybrids raised in the exhibitor's garden by his very able gardener, Mr. S. Smith. Mrs. Charles Hext was placed 2nd, and Captain Tremayne, Carclew (gr., Mr. Merton), 3rd. Mr. Fox also gained the 1st prize in the three classes for (1) six indoor Rhododendron blooms, (2) a single truss of an outdoor Rhododendron, with Cornish Cross, and (3) a single truss of an indoor Rhododendron, with a beautiful truss of R. Nuttallii.

For a group of cut sprays of outdoor flowering shrubs and creepers, excluding Rhododendrons (in a space of 24 square feet), the president of the show, Mrs. Charles Hext, was placed 1st with a most interesting display. Prominent subjects were Prostanthera rotundifolia, Datura sanguinea, Pittosporum eugenioides variegata, Drimys Winteri, Clematis indivisa lobata, Camellia reticulata, Banksia verticillata, Cytisus proliferus and Rhaphitamnus cyanocarpus. C. Phillips, Esq., Menehay, was a close 2nd, and R. Barclay Fox, Esq., 3rd. For 12 distinct kinds, G. N. Carne, Esq., Garras, was placed 1st with Brachyglottis repanda, Acacia juniperina, Gravillea sulphurea, Pittosporum Tobira, etc., R. N. Rogers, Esq., Carwinion, 2nd, and R. Barclay Fox, Esq., 3rd. For six vases, G. N. Carne, Esq., Captain Tremayne, and R. Barclay Fox, Esq., were placed in the order named. The President (Mrs. Charles Hext) won the premier award for six vases of Acacias, with A. dealbata, A. juniperina, A. riceana, A. armata, A. retinodes, and A. melanoxylon.

The first prize collection of Daffodils and Narcissi was contributed by F. G. Lawson, Esq., Claremont, Truro. Notable blooms in this exhibit were Cleopatra, King Alfred, Lady Margaret Boscawen, Heroine, Bernardino, and Weardale Perfection. Of almost equal merit was the 2nd prize collection of Mr. J. C. Martin, Bosvigo Gardens, Truro. Prominent in this group were two double varieties, Great Leap and Mrs. E. Martin, which elsewhere in the show were given Awards of Merit by the judges.

The Falmouth Corporation (gr. Mr. R. Gill) had the best group of decorative pot plants, occupying an area of 100 square feet. The best table decoration arranged by a lady was shown by Miss May Earthy, Marlborough Cottage, Falmouth. The schedule comprised 44 classes.

For a special collection of blooms of three seedling Rhododendrons, Mr. Barclay Fox was awarded a Gold Medal. They were Glorious (Thomsonii × J. C. W. 1911), Cornish Cross (Thomsonii × Aucklandii), and Barclayi (Glory of Penjerrick × Thomsonii.).

Numerous trade exhibits added very considerably to the interest of the show. Messrs. R. Gill and Son, Falmouth, had a large group in which Rhododendrons and cut flowers of their noted strain of Giant Anemones predominated. Rhododendrons Ernest Gill, R. Nutallii (a lovely truss on a plant in a pot), R. calophytum, R. Augustinii, A. argenteum, Pink Pearl, R. ciliicalyx and R. arboreum seedlings were noteworthy, also Primula The Jewel (Gold Medal).

In a miscellaneous group staged by Robert Veitch and Son, Exeter, prominent in flower were Rhododendrons Keysii, R. Hodginsii, Dr. Stoecker and Princess of Orange, Camellia Mrs. Sander (pure white), Clematis indivisa lobata, Vaccinium ovatum and Pyrus purpurea (Gold Medal).

The outstanding feature of the Carnation group staged in their well-known style by Allwood Brothers, Haywards Heath, was a large bowl of their 1923 novelty Chintz, a large blush mauve flower, the ground flaked and speckled claret (Gold Medal). Messrs. Stuart Low and Co., Enfield, had White Pearl, Arnos Grove, Eileen Low, Lord Lambourne and British Triumph prominent in their tastefully arranged group of Carnations (Gold Medal). A Gold Medal was also awarded to Messrs. W. Ruse and Sons, Falmouth, for a miscellaneous group of pot plants and cut flowers.

READING AND DISTRICT GARDENERS'.

Mr. H. Goodyer presided over a large attendance of members at the last meeting of the Spring Session of this Association, when Mr. A. E. Barnes, Lecturer in Horticulture to the Berkshire County Council, gave an interesting address on "Fruit Growing in Berkshire." A lengthy discussion followed Mr. Barnes' remarks.

In the competitions the judges' awards were as follow:—Three Broccoli: First, Mr. J. Wynn, The Gardens, Hammonds, Checkendon; second, Mr. H. Wynn, The Gardens, Quern's House, Goring Heath. Six plants of Polyanthus: First, Mr. C. J. Howlett, The Yews, Earley; second, Mr. H. W. Sopp, The Lodge, St. Peter's Hill, Caversham.

In the non-competitive section a First-Class Certificate was awarded to Mr. F. Townsend, The Gardens, Hillside, for splendid blooms of eight varieties of Daffodils.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Thursday, April 5.—*Committee present*: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, A. T. Cussons, J. Cypher, J. Evans, J. Howes, J. Jackson, W. M. Jackson, A. Keeling, J. Lupton, D. McLeod, J. Thrower, E. W. Thompson, J. Whitham and H. Arthur (Secretary).

First-Class Certificates.

Brasso-Cattleya Imperiale B.-C. Cliftonii × *C. Mossiae*), a large flower of fine shape; *B.-C. Joan, Westonbirt var.*, one of the best yellow varieties of this hybrid; *Cattleya Irene*, a snow-white variety; *Odontioda Colinge var. Redwing*, a flower with richly coloured blotches on a white ground. From S. Gratrix, Esq.

Odontioda Mena rubra (*Odta. Lambeauiana* × *Odm. eximium*), a beautiful flower with a very narrow white margin to the segments; *Odontoglossum Leander* (*parentage unknown*), the sepals and petals are heavily blotched on a blush-white ground. From P. Smith, Esq.

Odontoglossum crispum West Point Beauty, a round form of O. crispum, having large reddish-brown blotches on each segment. The ground is pure white. From Mrs. Gratrix.

Cymbidium Alexanderi Crompton Hall var. The sepals and petals are white with rosy-purple lines around the edge of the lip, From Jas. Whitham, Esq.

Dendrobium nobile Keeling's var. The sepals and petals are heavily tipped with magenta on a white ground; the lip has a dark-coloured centre. From Messrs. A. J. Keeling and Sons.

Awards of Merit.

Cypripedium Cappa Magna var. Paschalia (*Cardinal Mercier* × *Nubia*); *Cyp. Caractacus var. Parasceve* (*Beryl* × *Earl of Tankerville*); *Cymbidium Seamew* (*I'Ansonii* × *Pauwelsii*). From Rev. J. Crombleholme.

Odontoglossum Rosina · West Point var. (*eximium* × *Lady Pirrie*); *Odm. crispum Duchess of Athlone*; *Lycaste Skinneri Zeus*. From S. Gratrix, Esq.

Odontoglossum St. Nicholas violacea (*eximium* × *promerens*). From Mrs. Gratrix.

Groups.

The following medals were awarded for collections:—Gold Medal to S. Gratrix, Esq., Manchester (gr. Mr. J. Howes); Silver-Gilt Medal to F. Hardy, Esq., Ashton-on-Mersey (gr. Mr. C. Branch); Silver Medals to the Rev. J. Crombleholme, Clayton-le-moors (gr. Mr. E. Marshall), Jas. Whitham, Esq., Crompton Hall (gr. Mr. E. Greaves), and Messrs. Cypher and Sons, Cheltenham.

Thursday, April 19.—*Committee present*: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, A. Coningsby, D. A. Cowan, A. T. Cussons, J. Cypher, J. Evans, W. M. Jackson, A. Keeling, E. W. Thompson, J. Whitham and H. Arthur (Secretary).

First-Class Certificates.

Dendrobium Florence var. Wilps. A white flower with a rich purple eye; *Odontoglossum promerens var. albens.* An exceptionally large flower, the lip being broad and flat with a few spots. From P. Smith, Esq.

Odontioda Earl of Chester (*parentage unknown*). The flowers are of bronzy-red colour, the segments being a shade lighter. From Mrs. Gratrix.

Odontioda majestica (*Odta. Coronation* × *Odm. majesticum*). A scarlet-crimson flower with a white lip. From S. Gratrix, Esq.

Odontoglossum Hardyanum (*parentage unknown*). A heavily blotched, reddish-brown flower with a broad white margin. From F. Hardy, Esq.

Brasso-Cattleya Apollo var. Duke of York. An exceptionally large flower of rosy-mauve colour. From J. Evans, Esq.

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AWARD OF MERIT.

Odontoglossum crispum Princess Yolanda. From Mrs. GRATRIX.

GROUPS.

Silver Medals were awarded to J. WHITHAM, Esq., Crompton Hall (gr. Mr. E. Greaves), and Messrs. J. CYPHER AND SONS, Cheltenham, for collections.

DUTCH BULB GROWERS' OF HAARLEM.

THE Dutch Bulb Growers' Society of Haarlem has made the following awards:—

FIRST-CLASS CERTIFICATES.

Eranthis Tubergeni.—Soft yellow, very large flowers; the result of crossing Eranthis cilicica with E. hyemalis.

Narcissus (*Ajax*) *Dawson City.*—Uniform dark yellow, with a long trumpet, somewhat notched; wide petals well shaped.

N. (*Ajax*) *Golden Harvest.*—Wholly dark yellow.

N. (*Incomparabilis*) *Red Cross.*—Soft yellow perianth of good shape, with large, dark yellow cup, bordered with orange; very strong grower.

N. (*Poeticus*) *Actaea.*—Pure white, well-shaped perianth, with orange-red cup.

AWARDS OF MERIT.

N. (*Ajax*) *Geertruida Carelsen.* — Uniform golden-yellow, with widely open trumpet, very much notched.

N. (*Ajax*) *Golden Giant.*—Wholly clear, golden perianth; regularly formed, large trumpet, fantastically notched.

N. (*Ajax*) *Hortulanus E. Th. Witte.*—Uniform golden-yellow, widely opened trumpet.

N. (*Ajax*) *Lord Wellington.*—Wholly dark yellow, very strong grower.

N. (*Barrii*) *Eyebright.*—Pure white perianth of good form, with orange-red cup and very large.

N. (*Barrii*) *Lady Moore.*—Creamy-yellow perianth with citron-yellow cup bordered bright orange-red; widely opened.

N. (*Barrii*) *Sanguine.*—White perianth, well shaped, with uniform orange-red cup.

N. (*Barrii*) *Vara.*—Well shaped white perianth, with small, deep orange-red cup.

N. (*bicolor*) *La Vestala.*—White perianth, with very soft yellow trumpet, small flower.

N. (*Double*) *Stromboli* —Segments sulphur-yellow, stained with vivid orange-red.

N. (*Incomparabilis*) *Corinna.*—Shapely white perianth, with soft yellow cup.

N. (*Incomparabilis*) *Dorina.*—Perianth citron-yellow, well shaped; cup deep orange-red, large and frilled.

N. (*Incomparabilis*) *Orange Glow.*—Perianth soft yellow, white shaded; the strongly notched cup is bordered with orange-yellow.

N. (*Leedsii*) *Lovenest.*—White perianth, with creamy-yellow cup, border passing to light apricot; raised by Mrs. Backhouse.

N. (*Leedsii*) *Mrs. R. O. Backhouse.*—White perianth, trumpet apricot-rose.

N. (*Leedsii*) *White Whirl.*—White perianth, with small cream-yellow cup, somewhat frilled.

N. (*Poetaz*) *Xenophon.*—Citron-yellow perianth, with large, deep orange cup.

N. (*Poetaz*) (*Double*) *Cheerfulness.*—Perianth creamy-white; crown double, white with citron-yellow; strong stems carrying about five flowers each.

CERTIFICATE OF THE HAARLEM TRIAL GARDEN.

Double Blue Hyacinth President Grant.—Dark violet-blue.

Obituary.

John W. M'Hattie.—The news of the sudden death of Mr. J. W. M'Hattie, which occurred on Sunday last, came as a great shock to his numerous friends, both in Scotland and in the South of England. Mr. M'Hattie was a native of Morayshire, and commenced his gardening career at Moy, in the gardens of the Mackintosh of Mackintosh. He subsequently served at Altyre, Raith House, Oxenford Castle, and as gardener to the Marquis of Lothian, to the Duke of Wellington at Strathfieldsaye, Berkshire, and to Sir Whittaker Wright. He was a highly successful cultivator and a thorough all-round gardener, consequently his appointment in 1901 as Superintendent of the Parks and Gardens of the City of Edinburgh caused no great surprise. Soon after his appointment, Mr. M'Hattie effected a great change in the appearance of Princes Street, Edinburgh, commencing those operations which have made the Princes Street gardens famous wherever public gardening is practised. During his long term of office he improved the city parks and gardens and superintended the laying out of many golf courses close to the City of Edinburgh, and one of the schemes he recently carried through was the construction of new golf courses on the Braid Hills; during the war period he put a considerable portion of the old golf course on this estate under food crops, but this area was recently reclaimed under the large improvement scheme carried out. The improvements at Portobello and Craigentinny were also carried out under his guidance, as were the putting greens on Bruntsfield Links. Of amiable disposition, Mr. M'Hattie was universally liked, and his views were always listened to with the greatest respect by the Parks and Open Spaces

THE LATE JOHN W. M'HATTIE.

Committee of the Corporation of Edinburgh. Our readers will remember that Mr. M'Hattie was on the eve of his retirement, but had been requested by the Corporation to remain in office for another year, so that a successor could be appointed to carry on the duties and responsibilities of the office with Mr. M'Hattie for some months. Although Mr. M'Hattie was unwell a short time ago, he appeared to have quite recovered from his indisposition, and during last week was giving full attention to his duties. Shortly after rising on Sunday morning last he collapsed, and it was found that he had passed away. His only son predeceased him, but his widow remains to mourn her great loss. To her we offer the deepest sympathy of ourselves and the many readers who have known and appreciated Mr. M'Hattie over a long period of years.

TRADE NOTE.

MESSRS. Carter and Howard, horticultural builders and heating engineers, have recently removed their offices and works to larger and more convenient premises at Kingston Road, Raynes Park, S.W.20. The removal has become necessary by reason of the continually increasing amount of business, and especially the erection of greenhouses. Founded at Kingston in 1909, the progress of the firm was interrupted by the war, the two partners serving abroad from November, 1914, until they were demobilised in April, 1919, but the business was recommenced in August of that year, and, in spite of the difficulties attending the re-establishment of a business of this nature at such a time, the firm has made such progress that the original establishment has been found to be inadequate for the volume of trade now being done by it.

ANSWERS TO CORRESPONDENTS.

A NEGLECTED YEW HEDGE: *J. R.* April or the beginning of May is the best season to deal with an old Yew hedge that needs to be cut hard back. Cut where possible immediately above a branched growth, as at this point the greatest number of nodal buds are to be found. The wood of the Yew is very hard and buds from old growths do not break very freely, therefore every encouragement should be given to the cut hedge to cause dormant buds to break. This may best be achieved by hanging a band of old tiffany or similar material immediately in front of the hedge, and keeping it moist. If this is not practicable, the hedge should at least be heavily syringed every evening. When growth has become active, light dressings of nitrate of soda in showery weather will greatly accelerate the refurnishing of the hedge.

BAMBOOS: *J. R.* Unsightly growths of Bamboos may be removed in their entirety at any time of the year without injury to the plant, hence the best method is to thin the old growths in the spring and afterwards remove any which become weather-stained, and those which impede the development of young growths.

INSECT ON OAK LEAVES: *A. J.* The insect on the Oak leaf is Tetraleurodes stanfordi, Bemis, of the family Aleurodidae. The family is represented in Britain by the well-known "white fly" of Tomatos and "snow fly" on the Cabbage tribe. In the British insects the eggs are laid on the leaves, and the young larvae settle down and suck the juices. The larval form resembles a young scale insect, and the family has close resemblance to the Coccidae or scale insects. The adult insect is a fragile creature, somewhat resembling an aphis in several forms. The wings have, however, a very simple venation, and are covered with a characteristic mealiness, giving rise to its name of white or snow fly. Many members of the family are injurious to fruit trees, and thus the action of the Californian authorities may have been taken owing to its possible injurious effect on economic plants. There does not, however, appear to be any record of this species ever having done any serious injury, and it certainly seems unreasonable that such a high charge should be made for work done without the consent of the owner of the property. We advise the owner to take the matter up with his authorities, and ask them whether they can quote any instance of this insect having caused serious damage, and, if not, why he should pay for a useless service.

NAMES OF PLANTS: *Hurstwood.* Trillium sessile var. album.—*T. J. H.* Serapias Lingua.—*M.T.* We have named as many of the plants as possible, but some of the specimens were much too small to identify correctly; 5, Viburnum plicatum; 8, Olearia Haastii; 10, Daphne Cneorum; 11, Prunus japonica var. rosea; 14. Euonymus japonicus var. ovatus variegatus; 15. Berberis Darwinii; 16, Pyracantha Lelandii; 17, Cotoneaster microphylla; 19, Berberis Aquifolium.

TOMATOS DYING OFF: *G. R.* The specimens have been subjected to very careful examination, and we find the plants have been attacked by wireworms, and the damage caused has, in one or two instances, allowed entrance to the fungus Fusarium. Use every possible means of trapping the wireworms.

Communications Received.—J. O. M.—Dr. A. R.—C. W.—J. H.—Reader—J. A. M.—A. G.—C. H. H.—T. B. A—J. W. E.—Lycopersicum—A. F.—W. T.—A. T. J.—C. B. U.—S. W.

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THE
Gardeners' Chronicle
No. 1898.—SATURDAY, MAY 12, 1923.

CONTENTS.

Agett, Mr. W. H. .. 254
Alpine garden, the—
Plants for the moraine 257
Birch logs and silver-leaf disease of Plums 262
Botanic illustration, history of 253
Durian, the 259
Flower border, hardy—
Eschscholzia .. 258
Kirengeshoma palmata 258
Viscaria 258
Fruit garden, the market 261
Fruit, the testing of new varieties of 254
"Gardeners' Chronicle" seventy-five years ago 255
Gardeners' wages .. 263
Grape growing — exploded fallacies .. 258
Greenwich Park, new superintendent at .. 254
Hampton Court, spring flowers at 259
Kew Guild annual meeting and dinner 254
Marloth, Dr. 254
National Auricula Society 254
Obituary :—
Jordan, F. W. .. 265
McNicol, Edwin .. 265
Orchid notes and gleanings :—
New hybrids .. 258
Masdevallia deorsa 258
Painters, early botanic 260
Plants, new or noteworthy :—
Primula erythrocarpa 255
Rhododendron phoeniceum var. Tebotan 255
Sap, the ascent of .. 253
Societies :—
Cornwall Daffodil and Spring Flower .. 263
Newcastle Horticultural 263
Royal Horticultural 264
Tulips, Darwin .. 263
Vegetable garden :—
Manurial experiments at Droitwich .. 262
Week's work, the .. 256
Wolverhampton Floral Fête 253
Wood and carpentry, old Egyptian at Luxor 263

ILLUSTRATIONS.

Agett, Mr. W. H., portrait of 254
Durian: fruits of the, 259; a tree bearing fruits of the 259
Narcissus Opera 257
Potato plant, the earliest known portrait of the .. 260
Primula erythrocarpa 261
Rhododendron phoeniceum var. Tebotan 255
Tulips in the formal garden at Mountain House, Chepstow 263

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 51.5°.

ACTUAL TEMPERATURE :—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 9, 10 a.m.: Bar. 29.95, temp. 57°. Weather—Dull.

The Ascent of Sap.

In the whole domain of plant physiology, no subject is of more fascinating interest than that of the ascent of sap. From the birth of the seedling to the death of the great tree which arises from it, the water stream, on which all vital activity depends, from root to leaves, is continuous; rapid during periods of fine growing weather, slow during times of cloudy skies and rainy weather, but unceasing. Even in winter, when vegetation rests, woody plants may still give off some water to the air and replenish their supplies by drawing a corresponding amount from the soil. It is in the case of great trees with large, leafy crowns that the phenomenon assumes its most imposing aspect; for then the quantity of water lifted from the earth and passed to the air by leaves as vapour is vast, and the height to which it ascends may be one hundred yards or more. It is therefore not surprising that, since the earliest days when men took an interest in natural phenomena, the problem of the ascent of sap should have engaged their attention. As the result of the numerous inquiries which have been made into the nature of the mechanism of this hydraulic system, the view that has gained widest acceptance is that which ascribes the lifting power of the leaves to the osmotic pressure of their cells. Exposed to the air, these cells, when full of water, offer little resistance to evaporation from their surfaces, and the water vapour which they lose diffuses through the leaf spaces and stomata into the air. But in losing water, the cells regain automatically the power of absorbing more from surrounding cells and neighbouring stores of water in the woody vessels. For, as water passes from these cells, their sap becomes more concentrated, and since the sap consists of substances such as sugar, which are able to exercise osmotic pressure, water will be drawn from any near source. Thus, in the course of a sunny morning, all the cells of the leaves will lose some water and in all the sap will be concentrated. In that state the leaf must wither unless its cells can replenish their supplies of water. This they do by absorbing some of the water contained in the fine vessels of the veins of the leaf. So far the mechanism is fairly easy to understand, but now the question arises—what happens when water is withdrawn from the fine vessels of the veins. The leaf which we are considering may be at the top of a tree more than three hundred feet high, and therefore any difference of atmospheric pressure set up between outside air and that in the vessels will not suffice for water to rise to such a height. If the vessels which extend in unbroken connection from the leaves to the roots could be kept full of water, the suction exerted by the leaves would be sufficient to lift the water to great heights, for measurements made of the suctional force exerted by the concentrated sap of the cells of leaves have shown that it may exceed ten atmospheres. But how may the vessels be kept full of water? The root absorbs water with such avidity that a pressure may be set up which in certain cases may express itself in bleeding at cut surfaces. This pressure, however, is relatively small, and will not suffice to drive water to the leaves of the tree. Two alternative hypotheses have been put forward to account for the keeping full of the vessels. One imagines a series of cellular pumping stations in the stem, each engaged in absorbing water from regions below and passing it into the vessels. No evidence of such a regulated system of auxiliary pumping stations acting in unison with the leaves has yet been discovered. The other alternative is to believe that the continuous or well-nigh continuous water column of the vessels from leaf to root when subjected to the sucking force of the leaves, is hauled up bodily. Although this would at first sight seem a fantastic hypothesis, there is this to be said for it: that it can be demonstrated experimentally; that a water column in a tube may be subject to a considerable pull without breaking. There the matter remained until recently, when Sir J. C. Bose, already distinguished by his contributions to physiology, took it up afresh.* As the result of numerous experiments and ingenious apparatus, he has reached the astonishing conclusion that the ascent of sap is brought about by a pulsating mechanism consisting of cells which extend throughout the whole length of the plant. He holds that the cells particularly engaged in transferring water upwards one to another are those which immediately surround the central cylinder of woody tissue, and that it is through this jacket of cells that water ascends when the leaves are transpiring but little. In these circumstances, the water passes up from cell to cell and surplus water is injected from the pulsating cells into the vessels, which abut on them. Thus a reserve of water is always at hand to meet the needs of increased transpiration. When the sun shines and the temperature rises and the leaves begin to lose water rapidly, the pulsating cells reabsorb the water which they secreted into the vessels and pass it on to the tissues of the leaf. It is interesting to note than an hypothesis not dissimilar to that now put forward by Sir J. C. Bose was suggested long ago by Herbert Spencer, who imagined a kind of peristaltic contraction of the tissues of stems to account for the ascent of sap. It is not easy to understand what is the precise meaning which Sir J. C. Bose attaches to the term pulsating cells. Presumably it is that these cells have the power of decreasing in volume by ejecting or excreting water, and that others near them have the power of absorbing this water, and in turn contracting. There does not appear to be any essential difference between this view or that of pumping by osmotic pressure. The difference between current theory and that put forward by Sir J. C. Bose, would appear to be that in the former all pumping is done by the leaves, and in the latter that it is done by the cells of root, stem and leaf. To decide between these views it will be necessary to repeat the critical experiments made by Strasburger and others, which purport to show that transpiration may go on although the stem of a plant is killed, provided that the leaves remain alive. The value of Sir J. C. Bose's work is by no means confined to that of the hypothesis which he has put forward. With his well-known genius for experimentation, he has devised numerous new methods for measuring the rate of water loss and water absorption by plants, and even those who are not able to accept his hypothesis will be full of gratitude and admiration for the methods of precision which he has introduced into this branch of experimental science.

* *The Physiology of the Ascent of Sap.* By Sir J. C. Bose. Longmans, Green and Co., 1923. Price 16s. net.

Wolverhampton Floral Fete.—The thirty-first Wolverhampton Floral Fête will be held in the West Park, on July 10, 11 and 12, when cash prizes to the value of over £1,000, in addition to silver cups, gold, silver and bronze medals, will be offered in eighty-eight classes. Several new classes have been provided for Roses, Antirrhinums, Lupins, Delphiniums, hardy garden flowers, Sweet Peas, and for cottage and allotment holders. The principal class is for a display of miscellaneous plants and flowers arranged on a space not exceeding twenty-five feet by twelve feet, and here the prizes are £40, £30, £20 and £10 respectively. Other interesting classes are those for a group of flowering plants, one kind only; a group of hardy annuals; a group of bedding plants, one kind only; and a display of cut Carnations. Sections are also provided for floral designs, for various florists' flowers, and for vegetables.

History of Botanic Illustration.—Rather more than three years ago Dr. Daydon Jackson lectured before the Linnean Society on "The History of Botanic Illustration during Four Centuries," but owing to the difficulty of illustrating coloured plates by means of lantern slides, he excluded colour work from his lecture. Subsequently many friends requested Dr. Daydon Jackson to give an account of colour work as applied to botanic plates, and to this request he acceded at the April meeting of the Society. Alluding to the methods of producing by printer's ink, representations of plants in general, he grouped the main methods into three: (1) where the design was in relief, and received the ink, which by pressure was transferred to paper, as in wood-engraving; (2) where the design was cut or bitten into plate of metal, as copper-plate engraving, etching, mezzotint, etc.; (3) where the design did not differ much in level from the stone on which it was drawn, but depended upon the antagonism of grease and water, the stone receiving either and then re-

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fusing to receive the other. Examples were then shown of early herbals with artless colouring, most of them apparently due to the work of private possessors, but with later years, as in a copy of Fuchs's *Stirpium historia*, 1542, printed at Basel, the character of the work pointed to a trained colourist, such as Plantin of Antwerp employed at a later period. During the prevalence of woodcuts during the early years of printing, copper-plate engraving began to make its way, and was employed in providing outlines for hand-colouring until the last century, when it was ousted by lithography. The method of printing from engraved plates was briefly described, and the application of mezzotint restricted to leaves and stems was pointed out, also Redouté's method of semi-stipple for coloured prints, each colour being separately applied to the plate and cleaned off, before finally heating the plate and pulling the print. A simpler method was also shown, where an ordinary engraving was printed in green ink, and other colours, as red or yellow, applied in water-colour. After explaining how artistic use of pigments varied, and always must vary, from theoretic statements as to primary colours, chromo-lithography was touched upon, and its greater permanence (if lasting colours are employed) to hand-coloured plates, some showing deterioration in less than a century, which was startling. Next, the three-colour process was touched upon, and the preparation of three (or four) half-tone blocks to print its own colour to be combined by the eye into a complete colour scheme. The weakness of the process lay in this, that it almost demanded a paper coated with baryta or china-clay, which could not be guaranteed as permanent; in addition was the temptation to use inks made from aniline dyes which were fugitive.

New Superintendent at Greenwich Park.—Mr. R. Findlay has been appointed superintendent of Greenwich Park in succession to Mr. D. Campbell. Mr. Findlay was gardener to A. K. McDouall, Esq., of Logan, Stranraer, from 1908-1919, and to the Rt. Hon. Earl of Stair, D.S.O., at Castle Kennedy, Wigtownshire, from 1919 to his present appointment.

Kew Guild Annual Meeting and Dinner.—The annual general meeting of the Kew Guild will be held at the Imperial Hotel, Russell Square, W.C.1, on Wednesday, May 30, at 6.30 p.m. The President-elect of the Guild, Mr. John Masters Hillier, will preside at the annual dinner, following the general meeting, at 7.15 p.m.

The Testing of New Varieties of Fruit.—Good progress is being made with the scheme for the testing of new varieties of fruit trees, which is being administered by a joint committee of the Ministry of Agriculture and the Royal Horticultural Society. The committee has decided that forty trees of each variety of top fruit sent in shall be tested. Up to the present time 21 varieties of Apples, two varieties of Pears, three Plums, three Cherries, eight Black Currants, five Raspberries, and three Gooseberries are under trial.

National Auricula Society (Northern Section).—This Society has published a *Jubilee Report*, 1873-1923, containing much interesting matter and several good illustrations of the Auricula. There are also several portraits of prominent growers and exhibitors of this flower, and excellent groups showing members photographed at the Botanical Gardens, Old Trafford, on Saturday, April 26, 1896, and at Middleton Free Library on May 2, 1914. The 1896 portrait is exceedingly interesting, and includes excellent portraits of such well-known men in the Auricula world as Mr. Ben Simonite, Mr. J. W. Bentley, Mr. Frank Simonite, Mr. Richard Gorton, Mr. Joe Edwards, Mr. John Lees, Mr. Thomas Lancashire, Mr. John Clements, Mr. Thomas Buckley, and Mr. Geo. Geggie. Biographical notices of the Rev. Francis Horner, Mr. Geo. Lightbody, Mr. Samuel Barlow, and Mr. Richard Hedley will be read with great interest by lovers of florists' flowers, and the notices are accompanied in each case by portraits of these Auricula pioneers. Mr. Geo. Lightbody settled down to the peaceful pursuit of flower growing after having served for many years in the Navy, including the defence of Cadiz, and he served through the American war from the beginning to the end, during which time he was twice taken a prisoner. The portrait shows him with a medal, which was bestowed for capturing a French vessel in the Mediterranean. He was for forty years a raiser of seedling Auriculas, and it is stated that he considered himself well rewarded if he obtained one good seedling in a thousand.

Mr. W. H. Aggett.—The recent retirement of Mr. W. H. Aggett from the office of Garden Superintendent of the Borough of Bermondsey was made the occasion of an interesting function of a semi-civic character, on Friday, the 20th ult., when his colleagues and numerous friends assembled at the invitation of the Mayor of Bermondsey, Councillor Mrs. Ada Salter, in the Council Chamber, to wish him God speed, and make several presentations. Beside the Mayor, there were present Dr. A. Salter, M.P., Aldermen and Councillors of the borough, local clergy, officials and members of the garden staff, Mr. T. Hay, superintendent of Hyde Park, and many others. The pre-

MR. W. H. AGGETT.

sentation included a gold-mounted coin from Mr. Elliston, the first chairman of the Gardens Department; a pair of silver Grape scissors, the gift of Mr. J. H. Hart, ex-mayor; an umbrella from the staff of the Gardens and Open Spaces Department; a salmon rod with tackle and waders from members of the old staff; silver dessert spoons, forks and tea spoons from the staff of the Town Hall, and a cheque with which to purchase two arm chairs, from various friends. We also understand the nursery trade is making a presentation to Mr. Aggett in appreciation of his efforts to popularise gardening in the Bermondsey district. Mr. Aggett has served the Bermondsey Corporation for thirty years. At the time of his appointment he had charge of three public gardens and a few street trees, but the gardens were quite unworthy of the name. During his tenure of office the gardens and open spaces have been increased from three to nine, and the staff from five to upwards of twenty. One of the principal works undertaken by Mr. Aggett has been that of street tree planting, and during the past three years no fewer than 6,000 street trees have been planted in the borough, making Bermondsey one of the most sylvan districts in the metropolitan area. Mr. Aggett commenced his gardening career at "Indio," Devonshire, the residence of Lord Chas. Bentinck, and subsequently he was appointed foreman at Delamore Gardens, Ivy Bridge, Devon, and from thence he went to Kew as a young gardener, where, he states, he spent the happiest period of his life. He left Kew to lay out a garden for Mr. J. H. Hopkinson at Wimbledon. His first appointment as head gardener was to Sir Herbert Jekyll, Oakdene, Guildford, and the appointment proved a very happy one, for his employer was a great garden enthusiast, and spent all his leisure time amongst his flowers. This estate was, however, sold, and Mr. Aggett found employment in the public gardens at Lambeth, where he remained only three weeks, when he applied for the post of gardener to the Bermondsey Council, and was successful. His new office was no easy one, for, according to Mr. Aggett's own account, the three small parks were a disgrace, the lawns were covered with rank weeds and very little flower gardening was done. But Mr. Aggett agitated for greater facilities with the result that so far back as twenty years, the number of bulbs planted amounted to seventy thousand annually and five thousand Dahlias were grown. Bermondsey's public gardens soon gained notoriety for their beauty, and thousands of people came from all parts of the metropolis in the season to enjoy the floral displays. Some seventy miles of roads have also been furnished with trees, and in this way one of the most densely crowded districts of London was made so attractive that the *Daily Telegraph* published a leading article, entitled "Beautiful Bermondsey." During the war period, Mr. Aggett arranged for the cultivation of all vacant land in the Borough as allotments, and his Council gave every encouragement to the scheme, supplying manure and water free, and seeds and plants at cost price. Mr. Aggett was untiring in his efforts in assisting the allotment holders, and contributed articles on gardening to the local press, and visited and advised the allotment holders, who were scattered from London Bridge to Deptford. The Public Parks were turned into market gardens, and Guy's and Princess' Hospitals, and six local institutions were supplied with vegetables. In another direction, that of holding flower shows, Mr. Aggett has done much in contributing to the brightening of the rather drab district of Bermondsey by encouraging the planting of forecourts, window boxes, etc., with flowers. Mr. Aggett deserves the thanks of all gardeners in his battle for the recognition of a town's Public Parks Department as a separate concern from that of, say, the engineer's department, and the success obtained by Mr. Aggett is testimony to the value of placing it under a qualified man who understands his business. How well he has satisfied the Council was shown at a recent Council meeting in their expression of appreciation of his zeal and ability and by establishing a precedent in adding five years to his services to augment his pension.

Dr. Marloth.—We learn with pleasure that the University of Stellenbosch has conferred the honorary degree of Doctor of Science on Dr. Marloth, whose contributions to botanical science, particularly his *Flora of South Africa*, have gained for him a universal and well-deserved reputation.

Local Horticultural Societies. — Finchley Chrysanthemum Society, in addition to possessing assets of considerable value, finished the year 1922 with a credit balance of £4 11s. 1d., notwithstanding the fact that more was paid in cash prizes at the 1922 exhibition than ever before. The membership continues to be satisfactory, and the subscriptions from honorary members, ordinary members, cottagers, and allotment holders amounted to £64 10s. 9d. Mr. J. J. Ward has been re-elected President, and the committee have placed on record their sincere thanks for his continued interest and assistance. Mr. Fisher has offered a challenge bowl for competition at the next exhibition, Mrs. R. W. Jay a challenge cup for decorative varieties, and Mr. T. Bailey a challenge cup and two miniatures in the amateurs' classes for Japanese blooms. The early autumn show held on September 30 last year was a great success, but the later exhibition

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suffered owing to many of the exhibitors failing to get their blooms to perfection on the date of the show through the season being unsuitable for taking the buds or stopping the plants at the usual time.—Horticultural exhibitions will be held in conjunction with the Yorkshire Agricultural Society's show at Sheffield on Wednesday, Thursday, and Friday, July 25, 26, and 27; the Royal Lancashire Agricultural Society's show at Liverpool on August 2, 3, 4, and 6, and the Kent County Agricultural Society's exhibition at Gravesend. The last-named society is arranging a horticultural exhibition for the first time.

Appointments for the Ensuing Week.—Monday, May 14.—United Horticultural Benefit and Provident Society's meeting; Bath Gardeners' Society's meeting. Tuesday, May 15.—Association of Economic Biologists' meeting; Winchester Horticultural Society's meeting. Thursday, May 17.—Manchester and North of England Orchid Society's meeting; Bath and West and Southern Counties Society's exhibition at Swansea (5 days). Friday, May 18.—Royal Gardeners' Orphan Fund's dinner at the Hotel Victoria; Eastbourne Horticultural Society's meeting. Saturday, May 19.—Wakefield and North of England Tulip Society's show (4 days).

"Gardeners' Chronicle" Seventy-five Years Ago.—*The Open Gate.* In the Easter of last year I gave you some account of Mr. Masters' nursery, at Canterbury, and his doings there, and the good he had effected in planting the public walks with beautiful shrubs and trees and filling the borders with flowers, and his zeal for the diffusion of knowledge at the public institute; and I ventured to hope that among the leading men of the town the dean and chapter would come forward and put a shoulder to the wheel. I have some hopes that the seed did not fall on soil quite barren, and that my expectations in some one quarter at least are nearer being realised than when I wrote. "Time and patience work wonders." This year my holiday was spent in Devonshire, and my first object was to see the two celebrated nurseries of Lucombe and Pince and of Veitch. A very cursory inspection of these quite surpassed my expectations. At Mr. Veitch's there was a succession of new or rare plants at every other step. Everything was growing in the most vigorous state, but what struck me most was the marvellous specimens of Orchidaceous plants; and I think, with reference to the size of the collection, I never witnessed so many fine specimens—so much flower and such good treatment. Pince's nursery even surpassed those at Mr. Veitch's, whilst I think the Orchids at Mr. Veitch's exceeded in beauty those at the othery nursery. Mr. Veitch leaves his gates open—all walk at free will throughout his grounds and collections, and I understand that the public has given him no reason to repent of his liberality. *Dodman. Gard. Chron., May 6, 1848.*

Publications Received.—*Pathological Herbarium Notes.* No. 6. Issued by the United States Department of Agriculture, Bureau of Plant Industry, Washington.—*Text-book of Pomology.* By J. H. Gourley, Macmillan and Co., Ltd., St. Martin's Street, W.C.2. Price 12s. net.—*Allotment Gardening for Profit.* By E. T. Ellis. James Clarke and Co., Ltd., 13, Fleet Street, E.C.4. Price 2s. net.—*Handbook of the Larger British Fungi.* By John Ramsbottom. British Museum (Natural History), Cromwell Road, S.W.7. Price 7s. 6d. net.—*A Note on the Several Species of Araucaria Cultivated in South Africa.* By J. J. Kotze. Bulletin No. 6. Forest Department of the Union of South Africa. Chief Conservator of Forests, Union Buildings, Pretoria. — *The Ferns (Filicales).* Vol. 1. By F. O. Bower. Cambridge University Press, Fetter Lane, E.C.4. Price 30s. net.—*International Review of the Science and Practice of Agriculture.* Vol. 1. No. 1. International Institute of Agriculture, Rome.—*Dates and Date Cultivation of the 'Iraq.* Part III. By V. H. W. Dowson. The Agricultural Directorate of 'Iraq. W. Heffer and Sons, Ltd., Cambridge.

PLANTS NEW OR NOTEWORTHY.

RHODODENDRON PHOENICEUM VAR. TEBOTAN.*

THE Japanese have a keen love for old and curious plants, and especially for dwarf plants, those with variegated foliage, or with double and otherwise anomalous flowers. In fact their gardens are largely museums filled with living plants of strange and unusual appearance. From time to time some plant or another overlooked by the many plant collectors who have visited Japan, comes to light. Such is the subject of this note. It is an old plant—how old there is no telling—and nowadays very rare in Japanese gardens.

FIG. 117.—RHODODENDRON PHOENICEUM VAR. TEBOTAN.

In 1917 and 1918 I devoted much time in Japan to the study of Azaleas, wild and cultivated, and made an effort to secure all the forms not known to have been introduced into the Occident. In the work I was greatly helped by my friend, Mr. H. Suzuki, and it was through his efforts that I secured Azalea Tebotan, the Small Paeony Azalea. The plant was an old one, rough in appearance, and in indifferent health, but it was the only one obtainable. On its arrival in 1919, the Paeony Azalea was added to the famous Holm Lea collection, and the gardener in charge, Mr. Charles Sander, with skill and patience has nursed it into vigorous health, as the photograph (see Fig. 117), taken on April 3, shows. The striking thing about this Azalea is the colour of its flowers, which is the same as that of the bracts of the well-known Bougainvillaea glabra. Such a colour is quite unique among Azaleas. The flowers are borne in clusters, and the opening buds suggest those of a Noisette Rose; the fully expanded flowers show small green leaves in the centre. In habit and general appearance it is just an ordinary Indian Azalea. This interesting plant will be hardy only in the more favoured parts of the British Isles, but on account of the remarkable colour of its flowers is worthy a place in any conservatory where Azaleas are grown.

So far as I am aware, I was the first to introduce the true Paeony Azalea into Western gardens, but under the name "Tebotan," another Azalea is sold by Japanese nurserymen. This substitute, known round Tokyo and Yokohama as Fuji-manyo and round Osaka as Murasaki-botan-tsutsuji (purple Paeony Azalea), was introduced into English gardens as early as 1819, and is figured in the *Botanical Magazine*, t. 2509, under the name of "Azalea indica var. plena." Its proper name is Rhododendron mucronatum f. plenum, and it has rose-purple, fragrant flowers, quite double or only partially so, and in the centre of the flowers there may or may not be green rudimentary leaves showing. *E. H. Wilson, Arnold Arboretum, Harvard University.*

* Wilson in Wilson and Rehder. *Monograph of Azaleas*, 64 (1921).

PRIMULA ERYTHROCARPA.

WHEN better known, Primula erythrocarpa (Fig. 122) is likely to prove a very useful garden plant. At the present time it is reported to be flowering well in the rock garden at Edinburgh Botanic Gardens, where many Primulas from the Far East are cultivated with marked success. So far as I can ascertain, very little has been published about this species. It is a native of Bhutan, and is obviously of the denticulata section. From its rosette of rather narrow leaves arise long, slender stems bearing ball-shaped heads of pale mauve flowers. It is a rather fragile-looking species, and is certainly much more graceful than the well-known P. denticulata which it resembles. *Herbert Cowley, Tunbridge Wells.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Phaius.—Although not cultivated so extensively at the present day as their merits deserve, these highly decorative Orchids should be grown for their splendid foliage. In most of the species the foliage is so large as to necessitate considerable room for the plant, and the spikes on well-grown specimens are of considerable height; but the length of leaf and spike has been reduced by hybridising P. simulans with the tall growing species, such as P. Blumei, P. Wallichii, and P. grandifolius. The best of these hybrids are P. Cooksonii, P. Norman, and P. amabilis. Many of the P. Humblotii hybrids are also desirable plants, and these, together with the secondary hybrids, comprise a most beautiful class of Orchids, suitable for exhibiting, for beautifying the houses, and also for furnishing cut spikes for room decoration. They are also suitable for growing with a general collection of plants, where there is no pretension to grow Orchids; and especially where houses with a warm intermediate temperature are available.

Repotting Phaius.—The best time to repot these Orchids is when their flowers are over, and if they are to be kept in robust health, this should be done each year. A suitable compost consists of two parts good turfy loam to one part each of peat and leaf-mould, mixed with a liberal quantity of soft red brick, broken about the size of small Walnuts, which is helpful in keeping the soil porous, as during their season of growth these Orchids require copious supplies of water. In potting, make the compost very firm, and it is advisable to shake away as much as possible of the old material, as, being strong feeders, the plants soon exhaust the material in which they are growing. If plants are left for two seasons without repotting, they assume a sickly hue in their foliage, and the strength of the spikes and the size and substance of the flowers are considerably reduced, this being caused by the compost having become decomposed and sour. Most of these plants are of easy propagation, as they constantly break back into growth without cutting them, and in potting it is well to remove back breaks, and pot these separately in small pots; they will soon make flowering specimens. Both the species and the hybrids of Phaius require shading from strong sunshine during the summer months, as their thin leaves are easily scorched, which means the deterioration of the plants. P. simulans, which is also known as P. tuberculosus, delights in a high temperature, and should therefore be grown in the warmest house.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Salvia patens.—This rich blue-flowered Sage should be grown in every garden where good plants are desired and appreciated in the flower border. If a vote were taken it would be placed high among the first half-a-dozen blue-flowered plants used in outside beds, while it makes no undue demands in its cultivation beyond the preservation of its tuberous roots in winter. Roots treated as suggested in a previous note will have made strong shoots 2 inches to 5 inches long, and the plants will be in a suitable condition for present planting. An effective colour scheme may be secured by carpeting a bed or patch of this blue Sage with a pale Primrose-yellow Viola.

Calceolaria amplexicaulis.—This species is one of the best of the Calceolarias, its lemon-coloured flowers showing to advantage on stems about 18 inches high. A striking effect in its use may be obtained by planting it among or near to plants of Verbena venosa. It is questionable if the Gem section are so much used as they were, say, two decades ago—nevertheless they give a good account of themselves when planted in a semi-shady position, and not allowed to suffer for want of moisture. These Slipper-flowers may be put in the outside beds and borders now.

Canna.—These noble-leaved plants may be planted at this date. Make the ground moderately rich, and arrange for some slight protection from rough winds by planting where existing shrubs or trees will answer this purpose. Cannas, however, planted too near trees or in glades, as they sometimes are, have a tendency to make an excessive amount of foliage—albeit this is greatly to be admired—whereas when planted in beds in the open the growth is shorter and the flowering more free.

Supporting Plants.—Some of the more forward of border plants will need the support of stakes to prevent the shoots breaking or becoming deformed. Staking should be adequate and calculated to suit the particular growth of a plant. Do not bunch a plant to one stake where three or four may be necessary, also avoid the besom-like method of tying plants. If available bushy Pea-sticks make excellent supports for many types of plants, preserving their natural appearance and rendering much tying unnecessary.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Cucumbers.—Cucumber plants raised early are growing vigorously and fruiting freely. The stopping and tying of the shoots should receive prompt attention. Allow the shoots ample space for full leaf development, and remove all superfluous growths. Guard against over-cropping, thinning the number of fruits where necessary. Light top dressings of soil should be applied to the roots according to requirements; weak stimulants given at frequent intervals will materially assist in keeping the plants healthy and vigorous. Provided plenty of atmospheric moisture is maintained, very little ventilation will be required. During bright weather lightly shade the plants to prevent flagging of the foliage.

Cucumbers in Frames.—Seed may now be sown to raise plants for growing in cool pits or frames. Where available, fermenting material should be prepared, and a hotbed made in readiness for the young plants; the pits or frames should also be cleared and thoroughly cleansed in advance. The method I favour is to make the hotbed, place a ridge of suitable soil on the bed at the back part of the pit and cover the remainder of the hotbed with a thin layer of soil. The plants should be inserted and treated in the same manner as advised for those growing in houses.

The Orchard House.—Trees which have set their fruits freely in the orchard house will require early attention in thinning of the fruits, which should be done at short intervals until the crop is reduced to the required number. This remark applies equally to stone fruits and Pears. Apples are later in developing, and the final thinning of these fruits should be deferred. Growths arising from the spurs should be pinched back to four or five leaves, reserving in their entirety the leading shoots of the main branches on undeveloped trees. Watering will now require more attention, and on no account should a tree be allowed to approach dryness at the roots. Soot water and weak liquid manure may be given occasionally with good results, and an occasional application of Peruvian guano will prove beneficial. When the trees have passed out of flower the syringe should be used freely and forcibly to keep the foliage free of insect pests; if insects are detected use a suitable insecticide. Air should be afforded freely when the weather permits. With the advent of warmer nights damp the paths and other bare spaces late in the evening to create a cool, moist atmosphere.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Brussels Sprouts.—The earliest plants of Brussels Sprouts that were pricked out in frames or in a sheltered place have made sturdy specimens and may be put out in their permanent quarters, which should be an open part of the garden, and yet not too exposed to high winds. At Carlton Park we plant Brussels Sprouts in rows 5 feet apart, and grow second early Potatos between the rows. When the Potato tubers are dug in the early autumn, the stems of the Brussels Sprouts are earthed up to keep them upright Plant them with a trowel at 2 feet apart, and make the roots firm in the soil. When the work of planting is finished, give the roots a good watering. When the plants are about a foot high draw a little soil to them with the hoe, and also aerate the soil about them occasionally by stirring it with the Dutch hoe.

Vegetable Marrows.—As fast as the frames on hotbeds are cleared of crops fill them with young Marrow plants, placing one in the centre of each light. Small and quickly maturing varieties may be grown entirely in the frames, pinching out the points of the growths about every fourth leaf, and allowing them plenty of air. Keep the roots well watered and fed with liquid manure, and the plants will produce an early crop, which will be much appreciated. The larger varieties, such as Moore's Cream and Long Green may also be planted in frames or under handlights, and as soon as danger of frost is over remove the frames and allow the Marrows to grow freely as they will. Vegetable Marrows should never be allowed to become very large before they are cut, unless required for some special purpose.

Tomatos.—Plants in bearing should be fed liberally and top-dressed with rich soil. The plants should be lightly tapped every morning to distribute the pollen. Spring-sown plants should be placed in their fruiting pots or boxes as the case may be. Use a good, rough compost consisting of two parts loam, one part leaf-mould, and one part manure from a spent hotbed, with a good sprinkling of wood ash. Place the plants low down in the pots, leaving almost half the pot space to allow for subsequent top-dressings. Water the roots sufficiently, but do not apply any fertiliser or other manurial stimulant until the plants have set two or three trusses of fruit.

Potatos.—Keep a watchful eye on the Potato patch, and where the tops are seen to be coming through the soil draw a little earth over them to protect them from night frosts. Earth the rows where the plants are forward enough for this to be done. Continue to plant late varieties, and rub off all the shoots except those at the top of the tuber. Those in the store should be examined on wet days, the shoots rubbed off, and the tubers moved to allow the air to reach them.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Exacum macranthum.—Seedlings raised from seeds sown last autumn are, under the influence of increased sunlight, growing freely, and plants in small 60-sized pots should be ready for transferring to 48-sized pots in which they will flower. Over-potting of this beautiful plant must be guarded against, and very careful watering is also essential to success with it. Employ a compost consisting of good mellow loam to which one-third its bulk of good fibrous peat and clean, coarse sand should be added. Plants raised from seed sown early in the New Year should be repotted as they require increased root-room. During the plant's season of active growth a stove temperature of 60° to 65° is necessary, but when in flower a lower temperature is suitable.

Coleus thyrsoideus.—This Coleus is one of the most beautiful of blue-flowering greenhouse plants for the winter decoration of the plant

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houses, and a stock may be raised either from seeds or cuttings. If large specimens are required, the plants may be propagated at this season, while small plants suitable for the decoration of the plant stages may be propagated later. Very fine examples may be produced from plants rooted late last autumn and kept over the winter in small pots. Such plants are now growing freely, and should be potted on as they require more rooting space. Cuttings inserted at this season root readily in a warm case. In the younger stages this plant should be pinched several times, and is best grown in an intermediate temperature, with slightly cooler conditions as the season advances. It is by no means an easy plant to cultivate successfully, and seems to resent sudden changes of temperature.

Primula sinensis.—In gardens where large quantities of Chinese Primulas are grown, and successional batches required, a pinch of seed should be sown now. For decorative purposes and freedom of flowering the stellata varieties are to be preferred to the large-flowered type for their elegant habit. The seed should be sown in a light, rich compost, standing the pots in an intermediate temperature. The seed pots should be kept for some time as the seed germinates at irregular intervals. The young plants should be grown on in a light, rich compost mixed with a little old mortar rubble. During the summer the plants should be grown in low pits, or cold frames. Very fine specimens may be obtained by growing on plants for a second year; plants for this purpose are best selected from those raised from a late sowing of the previous year. Although any of the numerous varieties may be used for this purpose I find that the stellata varieties give the best results.

Primula kewensis.—Seeds of this useful variety may be sown towards the end of the present month. The seedlings vary somewhat, a proportion of the plants showing the mealy-leaf character of the parent P. verticillata. The original type of P. kewensis does not, as a rule, produce seed, and should be propagated by division. It is scarce in cultivation, which is to be regretted, as it is a much more elegant plant than the seed-producing form.

HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Strawberries.—It is not too late to give a dressing of superphosphate to Strawberries, especially as the ground is moist. Two ounces per square yard of surface is a moderate dressing. This fertiliser may be mixed with sulphate of ammonia (1-2 oz.). After applying artificial manure of this nature the ground should be hoed, and, if necessary, the stimulants watered into the soil. Fish guano is very suitable for Strawberries if the soil is deficient in organic manure.

Raspberries.—All suckers not required should be removed from the Raspberry rows, and the soil should be kept hoed to obtain a fine tilth if a mulch of manure has not been applied. This should also be done in the case of Blackberries, Wineberries, Loganberries, and similar fruits.

Gooseberries and Currants.—The fruits on Gooseberry bushes may require thinning, and early varieties thus treated may advance a crop earlier for cooking purposes. Give attention to the stopping of lateral shoots both on Gooseberries and Red Currants. Pinch them to the second or third leaf. It is a mistake to leave them until the stems harden and a knife has to be used. Reserve all shoots useful for the development of the bush; any of undue length may be stopped at a later period. Much may be done to rejuvenate the older bushes by encouraging the development of younger shoots with the view to cutting away the older and useless wood the following winter. Remove protective material, as previously advised, as soon as the blossom of fruit trees is set, to enable the foliage to develop properly. Keep the soil about all trees free from weeds, which are always liable to harbour insect pests.

THE ALPINE GARDEN.

PLANTS FOR THE MORAINE.

The moraine differs from the rock garden in its construction only, and practically every rock garden may be made to include a moraine. In forming a moraine in the garden select a position for preference facing south-west. Excavate the soil to the depth of 1½ foot to 2 feet to the dimensions desired, and place at the bottom six inches of rough, peaty turves, and on these small limestone or granite chips, small portions of bricks or well washed gravel, mixed with one part of sandy loam and sifted leaf-mould. So long as the bed is made thoroughly porous to allow of free drainage of moisture, there is little fear of failure. It is also advisable to have stepping stones, to be better able to attend to the plants when necessary, also to prevent trampling on other plants during garden operations. A moraine constructed in this manner will retain moisture for a long time, but in the event of long periods of drought during the spring and summer, water should be given once or twice a week, when the plants will succeed perfectly.

Avoid so far as possible all plants of vigorous or rampant growth, reserving for the moraine those of the rarer species.

The following plants are suitable for growing in a moraine: Androsaces, such as A. carnea, rose; A. Chumbyi, brilliant rosy-red; A. lanuginosa, rich rose; A. pyrenaica, white; A. sarmentosa, rose; A. (syn. Douglasia) vitaliana, golden yellow; Armeria caespitosa, pink; Asperula suberosa, pink; Campanulas, such as C. Bellardii Miranda, one of the late Mr. R. Farrer's introductions, with flowers of a silvery blue; C. cochlearifolia, soft blue; C. Allionii, C. acutangula (syn. arvatica), delicate violet: C. pulla, rich purple (the forms of C. pusilla are very pretty, but are strong growers). C. Tommasiniana and C. Warley White. A number of Dianthuses are suitable, including D. alpinus, D. Fosteri, D. neglectus, D. microlepsis, and D tymphresteus.

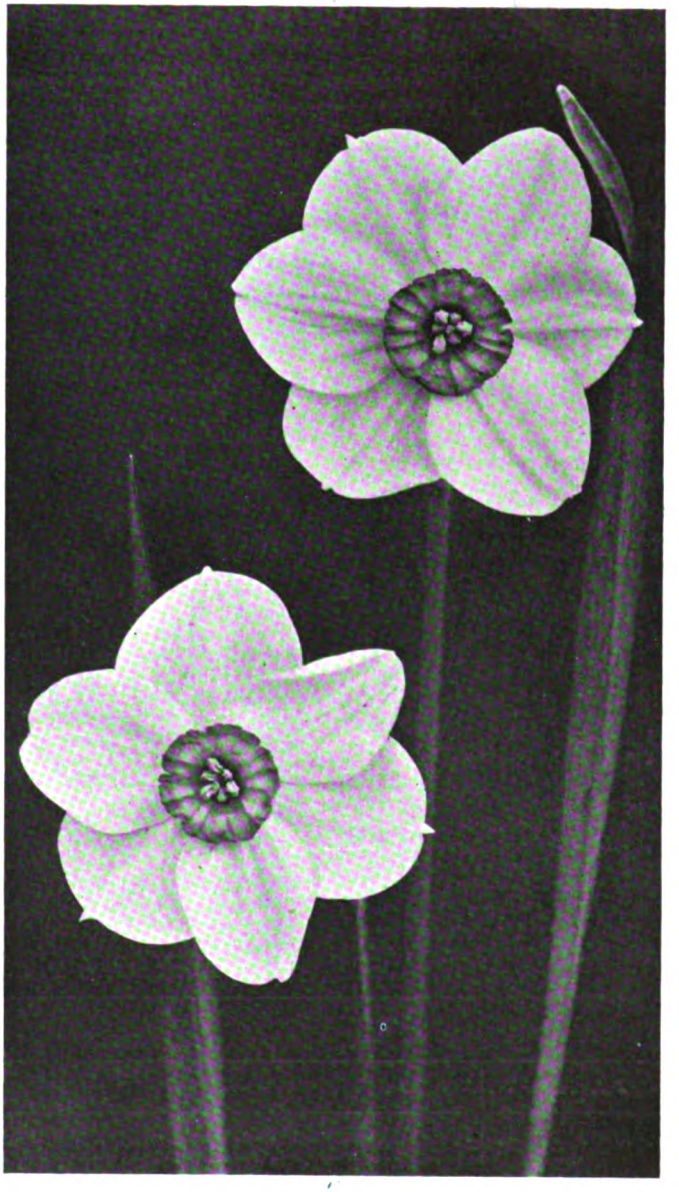

Fig. 118.—Narcissus Opera: R.H.S. Award of Merit, April 24 (see p. 238)

Drabas are well worthy of inclusion, such as D. Aizoon, D. diversifolia, D. Kotschiyi, and D. bruniaefolia. Other plants that may be employed are Dryas octopetala (the Mountain Avens), a charming plant with large white flowers; Saxifragas such as S. caesia, forms of S. burseriana, S. Boydii, S. Boydii alba, S. Dr. Ramsay, S. Elizabethae, S. apiculata, S. apiculata alba, S. retusa, S. Irvingii, and S. valdensis.

The plants I have enumerated are amongst the best for the purpose, but there are very many others that are suitable. Although spring is the most suitable time for planting these charming floral gems of the alpine regions, a moraine may be formed and planted almost any time, as the plants are obtainable from nurserymen in pots. When the planting is finished, cover the surface with chips of granite or limestone. *W. Logan.*

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ORCHID NOTES AND GLEANINGS.

MASDEVALLIA DEORSA.

It is interesting to note that this very remarkable species is flourishing in Sir Jeremiah Colman's gardens; a specimen was included in his group of Orchids at the Ghent Quinquennial Exhibition.

B. J. Beckton, Esq., also showed a specimen at the meeting of the Manchester and North of England Orchid Society on March 1 last.

The species was collected by the late Mr. F. C. Lehmann, in Colombia, and a few plants were imported alive in 1894, one of which flowered with the late Sir Trevor Lawrence, and another at Glasnevin, the latter plant gaining an Award of Merit at the Royal Horticultural Society's meeting on July 17, 1909. A remarkable feature of this species is that it grows downwards, consequently it is best accommodated in a suspended raft, shallow basket or pan.

M. deorsa is of the Coriacea section, but it differs from the others in its pendulous habit, the flower scape also drooping like the foliage. The leaves are eight to twelve inches in length, thick in texture, greyish green above and generally purplish on the under side. The scapes are short and bear showy flowers of wax-like substance, coloured yellowish blotched with dark purple. The short perianth tube has spreading sepals, and the small petals are greenish and the papillose lip deep purple. The structure of the plant with its long, heavy leaves on slender stalks explains why it persists in growing head downwards in like manner to Cattleya citrina, whose heavy pendulous flowers render the drooping habit desirable, although the short, stout pseudo-bulbs seem quite capable of growing erect, but instinctively the growths lean forward.

The declinate habit of many tropical Orchids is essential to ensure that excessive moisture does not lodge in the centre of the plants and cause loss of the tender, young leaves. Most of the Phalaenopsis are found in that position in their native habitats and under cultivation thrive better and are less liable to damage when they are tilted forward.

In Masdevallia deorsa the declinate habit is so fixed that the first specimen at Burford in 1895 had the leaves tied upright, yet the young growth turned downwards into the compost and the leaf decayed. The position of the plant was afterwards reversed, and it grew satisfactorily.

Masdevallia deorsa is illustrated in *Bot. Mag.* tab. 7766, and in *Gard. Chron.*, December 1, 1900. Fig. 121, the latter illustration from a drawing by the late Mr. Worthington G. Smith, of Sir Trevor Lawrence's plant.

HARDY FLOWER BORDER.

VISCARIA.

This hardy annual is a member of the Pink family, and is a most beautiful and graceful plant. The seeds may be sown at this date in a sunny situation and just covered lightly with fine soil. The seedlings should be thinned as soon as practicable to 6 inches or 7 inches apart, and will then have room to grow into strong plants a foot or so in height.

The colours of the flowers vary and include blue and crimson shades; there is also a good white Viscaria. The flower is somewhat similar to that of the Flax and the plant deserves more prominence in our borders than it apparently receives, as it is not at all fastidious in its requirements.

ESCHSCHOLZIA.

This brilliantly coloured hardy annual is generally known by the more euphonious name of Californian Poppy. It will thrive almost anywhere, but seems to succeed best in the full sun. The seedlings should be well thinned, for they need plenty of room to develop their ornamental foliage. The blooms are very useful for cutting provided they are cut before they have expanded. They may be placed in water and exposed to the sun to fully expand. A row of Eschscholzia flowers opened in the sunlight presents a gorgeous spectacle, and I had more pleasure from these plants last year than from any other annual. The flowers may now be obtained in many rich shades and variations of crimson, yellow, blush, and white. A packet of mixed seed will prove quite satisfactory, and the seed should be sown any time now in a light but not too rich soil. *T. D. T.*

KIRENGESHOMA PALMATA.

For a cool, semi-shady spot where the soil is deep and good, this comparatively new Japanese plant is an admirable subject. In manner of growth and broad, palmate leaves it suggests a general resemblance to some herbaceous Spiraea, but the smooth ebony stems bear the handsome foliage to a height of some 3 feet. The flowers, also, are curiously unique. In the later summer these appear in loose clusters at the ends of the growths, and the long, creamy-yellow rays, which never open wide, but keep their shuttlecock shape to the end, afford a bold contrast to the dark and glossy stems. A succession of flowers is usually maintained until the late autumn, when the fine leafage turns a brilliant yellow, and the plant dies down to the base. The new growths usually appear in April or earlier, and slugs will go far for these. Once established, K. palmata is best left undisturbed. *A. T. J.*

NEW HYBRIDS

(*Continued from March 24, 1923, page 160*).

Name.	Parentage.	Exhibitor.
Brasso-Cattleya St. Andre	B. nodosa × C. Dowiana aurea	Sanders.
Brasso-Laelio-Cattleya Boadicea ...	C. Mendelii × B.-L.-C Queen of the Belgians	Flory & Black.
Brasso-Laelio-Cattleya Euclid ...	B.-L. Helen × L.-C. Luminosa	J. P. Mossman, Esq., U.S.A.
Cattleya Dawn	Mendelii × intertexta Juliettae... ...	Sanders.
Cymbidium Canary	Butterfly × Pauwelsii	Sanders.
Cymbidium Lady Paget	insigne × Butterfly	Gen. Sir R. Paget.
Cymbidium Madeleine	insigne × Pauwelsii	Mons. Ch. Maron.
Cypripedium Cardemona	Carola × Desdemona	P. Smith, Esq.
Cypripedium Edwin S. Webster ...	Aisne × Gaston Bultel	Stuart Low.
Cypripedium Shamus	Earl Cankerville × keighleyense	Mrs. Bruce and Miss Wrigley
Cypripedium Villorma	villosum × Maudiae	Mrs. Bruce and Miss Wrigley
Cypripedium Windsor	Eurybiades × Chardwar	S. Gratrix, Esq.
Laelio-Cattleya Beauty	C. Whitei × L.-C. Britannia alba	Sanders.
Laelio-Cattleya Dowibel	L.-C. Mabel × C. Dowiana	J. P. Mossman, Esq., U.S.A.
Laelio-Cattleya Dolomite ...	Domos × Aphrodite	Stuart Low.
Laelio-Cattleya Elaine	L.-C. Hadrian × C. Mendelii	McBean.
Laelio-Cattleya Enidonia	C. Enid × L.-C. Clonia	J. P. Mossman, Esq., U.S.A.
Laelio-Cattleya Gwendolen Leach .	L.-C. Capulet × L.-C. Merciana	F. J. Hanbury, Esq.
Laelio-Cattleya Nancie Gamble ...	L.-C. Hyeana × C. Trianae	F. J. Hanbury, Esq.
Laelio-Cattleya Narcissus	G. S. Ball × Mercia	Flory & Black.
Laelio-Cattleya Nora	C. Nortia × L.-C. Dominiana	Cowan.
Miltonia Westminster	Memoria Baron Schröder × vexillaria G. D. Owen	Sanders.
Odontioda Brilliant	Joan × Chantecler	McBean.
Odontioda Daffodil M. Mackenzie	Odm. crispum × Oda. Leeana	F. J. Hanbury, Esq.
Odontioda Deltilia	Odm. Delta × Oda. Cecilia...	C. J. Lucas Esq.
Odontioda Ilona	Oda. Cocksoniae × Odm. crispo-Harryanum	R. G. Thwaites, Esq.
Odontoglossum Alethea	amabile Electro × King Arthur...	McBean.
Odontoglossum Beau Brummel ...	Maillardeanum × crispum...	H. T. Pitt, Esq.
Odontoglossum Muriel	Dido × illustrissimum	Cowan.
Odontoglossum Orosum	Orosius × crispum	R. Gerrish, Esq.
Rolfeara Queen Nefertiti	S.-C. Thwaitesii × B.-C. Ilene	Mrs. Bruce and Miss Wrigley

GRAPE GROWING—EXPLODED FALLACIES.

It is curious that many mishaps have been attributed to wrong causes in calendars and guide books, apparently without any question as to whether the stereotyped opinions would bear investigation. It is many years since I showed the absurdity of some of these wrong conclusions, but they still hold their ground.

One of the most noticeable of these is in regard to what is called "scalding" of Grapes. It is attributed to the sun acting on the berries while the dew is on them in the early morning when ventilation has been too long delayed. Although tardy ventilation is responsible for many evils, this is not one of them. Scalding occurs during the stoning period, which commences 4 to 5 weeks (more or less, according to the different varieties and the average temperature afforded) from the commencement of flowering. During this period it is well known that there is no perceptible enlargement of the berry, although its diameter up to this time has been expanding at an average rate of 1-16 in every 48 hours. The skin will not expand at all for nearly four weeks, but everybody knows that water when heated will increase in volume. The grape berry is largely composed of water, probably to the extent of 90 per cent., and I would ask, what is to prevent this water expanding when the temperature rises from 50° to 90°? Do not imagine there is any vacant space to accommodate this increased volume; our text books tell us that unless the cells are tensely filled, growth cannot proceed. We know what would happen to a tightly corked and completely filled glass bottle when the temperature of the water was raised from 50° to 90°! I think, therefore, I have made it plain that the mishap to the berry is a rupture and the scalded appearance shows afterwards. It does not take place in the early morning, but during the hottest part of the day, and if the temperature is kept somewhere between 50° and 80°, it will not occur at all

It is difficult to keep to this maximum when the outside temperature approaches 90°, but by ventilating abundantly and early, damping wall and floor surfaces frequently during the middle of the day, not only inside the house but outside, near open doors and ventilators, and shading temporarily, it is possible when a day of such tropical weather occurs to create a lower temperature than that prevailing outside. When there is the slightest sign of the second swelling or of colouring, all danger is past.

I once had occasion to go away while painters were at work on the roof of a vinery, and it was at the critical time of stoning. Ample ventilation was provided on the opposite side. I was delayed, and on returning found the men shifted from one side to the other. They had closed the ventilators to accommodate the ladders and had neglected to open those on the opposite side. The consequence was that almost every bunch in the house was injured.

I have known the so-called scalding take place at night when the pipes had been made very hot to create sulphur fumes for the destruction of mildew. Certain growers might imagine that the sulphur was the cause of the mishap, but I have proved that it does not take place excepting during stoning time, although something else may happen if this sort of fumigation is done while the berries are quite young.

There is sometimes a case of real scalding with white Muscat Grapes when they are ripening. If they have been grown under the shade of leaves, and are suddenly exposed to fierce sunlight by tying back those leaves, they are liable to become very much disfigured. When the fruit has been grown in the light all the time this disfigurement is not likely to happen. It is totally different from the mishap which occurs at stoning time.

The so-called scalding or scorching of leaves and shoots is really a chill produced by rapid evaporation. When the sun shines suddenly on a closed house, moisture is rapidly condensed on all cold surfaces, including the shoots and leaves of plants, which take much longer to be

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come warmed than does the atmosphere. If the house is kept closed, as a Cucumber house frequently is, the so-called scalding is not likely to take place, though the sun temperature may rise to 120° or more, but if ventilation is given at the top after it has risen 10°, such unskilful treatment will probably leave its marks.

Rust on Grapes is caused in the same way, and generally occurs when the berries shoot their caps off and are consequently very tender. Old writers tell us that the mishap is caused by rubbing the berries with the hair of one's head during thinning (what an advantage the baldhead has!), and this tale is still told by modern writers, who do not take the trouble to observe the rusted berries where neither hair nor hand could have possibly touched them.

I repeat, ventilate early on a bright morning before any rise of temperature has taken place, but remember that rust may also be produced by sulphur or nicotine fumes while the berries are quite young. *Wm. Taylor.*

THE DURIAN.

The Durian grows on a large and lofty forest tree (Durio zibethinus) somewhat resembling an Elm in its general character, but with a more smooth and scaly bark (Fig. 119). The fruit is round, or slightly oval, about the size of a large Coconut, of a green colour, and covered all over with stout spines (Fig. 120), the bases of which touch each other and are consequently somewhat hexagonal, while the points are very strong and sharp. It is so completely armed that if the stalk is broken off

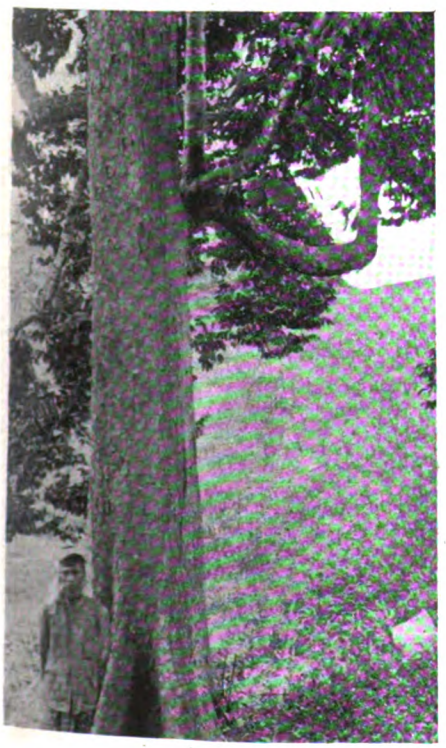

FIG. 119.—A DURIAN TREE BEARING FRUIT.

it is a difficult matter to lift one from the ground.

The outer rind is so thick and tough that from whatever height it may fall it is never broken. From the base to the apex five very faint lines may be traced, over which the spines arch a little. These are the sutures of the carpels, and show where the fruit may be divided with a heavy knife and a strong hand.

The five cells are satiny white within, and are each filled with an oval mass of creamcoloured pulp, imbedded in which are two or three seeds about the size of Chestnuts. This pulp is the eatable part, and its consistence and flavour are indescribable: a rich, butterlike custard, highly flavoured with Almonds, gives the best general idea of it, but intermingled with it come wafts of flavour that call to mind cream cheese, Onion sauce, brown sherry and other incongruities. It is neither acid, sweet, nor juicy, yet one feels the want of none of these qualities, for it is perfect as it is. In fact, to eat Durians is a sensation worth the voyage to the East to experience. When the fruit is ripe it falls to the ground, and the only way to eat Durians in perfection

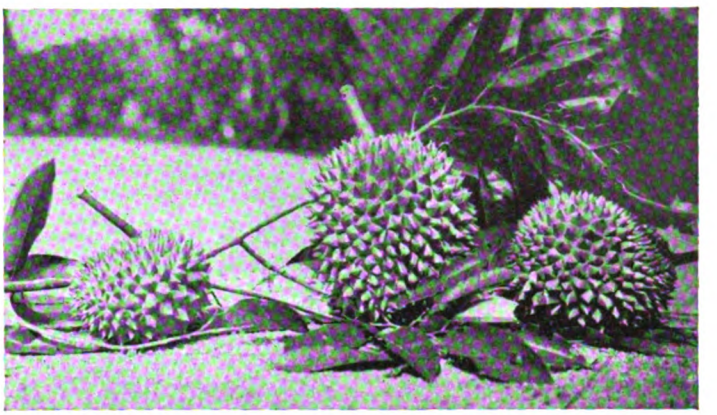

FIG 120.—FRUITS OF THE DURIAN, DURIO ZIBETHINUS.

is to get them as they fall, and the smell is then less overpowering.

The Durian, however, is sometimes dangerous. When the fruit begins to ripen it falls daily almost hourly, and accidents not infrequently happen to persons walking or working under the trees. When a Durian strikes a man in its fall, it produces a dreadful wound, the strong spines tearing open the flesh, while the blow itself is heavy, but from this very circumstance death rarely ensues, the copious effusion of blood preventing the inflammation which might otherwise take place.

The area in which the Durian is indigenous has not been determined with certainty. The species is generally believed to be a native of Borneo, and other islands of the Malay Archipelago.

The region in which the tree is commonly found extends from the Northern Federated Malay States through the Dutch East Indies, and up into the Philippines so far as Mindanao. A single tree is known to have fruited in Hawaii, and another in Dominico, British West Indies. The species is seen occasionally in Ceylon and other tropical countries, but outside of the Malayan region its cultivation is limited mainly to botanic gardens. *C. B. Ussher.*

SPRING FLOWERS AT HAMPTON COURT.

A lovely May day with brilliant sunshine and blue sky showed the flowers at Hampton Court in perfection on Friday, the 4th inst. Tulips have been planted plentifully for this display, and are dotted in the large beds about one foot apart, over a carpet of dwarfer subjects. This is an excellent arrangement, if the colours are chosen carefully, as it gives a distinct change in the whole garden when the Tulips commence to flower; one of the best arrangements is a bed of Myosotis Royal Blue dotted with Tulip Loveliness. The dark rose colour of the Tulips and the blue of the Forget-me-not associate well. Another bed which attracted many visitors had a groundwork of Primula malacoides with the black Tulip La Noire above it. The latter arrangement would only be possible in private gardens, where there are ample glass facilities, as the Primula needs protection during winter, and is planted out-of-doors in the spring. A few thousand plants of Primula malacoides, however, present no difficulties to the garden staff at Hampton Court. Another bed of this Primula was associated with the dark rose Tulip Pride of Haarlem, and this bed was even more appreciated by some people. Paler colours were provided with double white Arabis planted with Tulip Margaret, also giant pink Daisies with Tulip Rev. H. Ewbank, but this type of Daisy cannot compare with the variety Alice or the darker variety known as Joyce, both of which are far more refined in appearance.

Probably no one would object to the beds of Aubrietia Dr. Mules and single white Tulips Le Candeur. Aubrietias are more difficult to cultivate than Polyanthuses, Myosotis and others, but the result amply compensates for the care and attention required. The plants provided a wide range of colour from the pink of A. Moerheimii to the dark crimson of A. Fire King, also the dark blue A. Lavender to the dark purple of A. Hendersonii. Many other varieties equally good might be mentioned. None of the Aubrietias come true from seed, and that is probably the reason why the fine crimson variety A. Leichtlinii is so seldom seen; as first sent from Baden Baden by Max Leichtlin it is still one of the best sorts.

Some of the beds contained Wallflowers solely, and these were very good, especially Eastern Queen, pink, and Fire King, orange.

An old favourite that was not flowering well was Anemone fulgens on the long border. This plant is not suitable for late planting or transplanting; but if treated according to its requirements it is a most successful subject for a spring display. The small sunk garden near the vinery containing the celebrated Vine was in fine condition with similar plants to those named above, and enough Stocks to give a waft of delicious perfume. Jasminum primulinum was flowering well on a wall.

The double Cherries in the shrubbery were almost over, also some good plants of Magnolia Soulangeana. The shrubs in this part of the garden have now recovered from their severe pruning of a few years ago, and the effect is much improved. Mention may be made of the wilderness with Bluebells and white Bells, interspersed with Narcissus poeticus. In some parts this wild garden is exceedingly pretty, in others much choked by the tiresome woodland weed Chaerophyllum sylvestre, which is very difficult to eradicate when it gets possession of such a large area of ground. *W. H. Divers.*

The Roots of Fruit Trees.—The distance apart at which fruit trees should be planted depends on many factors—kind and variety, soil, etc.—but among these factors the natural length of roots must be included. Observations made by Mr. Peren* at Long Ashton indicate that roots of Apples may have a lateral extension of so much as 25 feet. Wide planting, with the not too belated removal of "fillers," would, in the light of the facts recorded by Mr. Peren, appear to be good practice.

* *Journal of Pomology and Horticultural Science*, III., 2, April, 1923.

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EARLY BOTANIC PAINTERS.

No. 5.—PAINTING IN RELATION TO THE PRINTED BOOK.

THOSE interested in the history of book-production in general, or of the sixteenth century herbals in particular, should not neglect an opportunity to visit the Plantin-Moretus Museum in Antwerp. There, in the mind's eye, one may see revivified the producers of the herbals of Dodoens and Clusius, and gain a fuller idea of the infinite labour and patience that were required to produce their fine folios. Each room has been kept as nearly as possible in its original state; there is the quiet little room where the proof-readers worked, and one of its walls bears the names of all the "correctors to the press"; the long printing-room with its line of now silent presses; the room where the types were cast, with the old appliances, and types, matrices and punches all stored in strict order. Even the little office at the entrance to the old printing-house retains its ancient simplicity, and one almost expects the sudden appearance of the limping form of old Plantin! However, this unique and precious heritage from the past is more than an old printing-house that has ceased work—it is now a museum of the greatest interest, containing objects which make a wide appeal.

My special purpose in visiting it last summer was to examine the famous painting of the Potato plant; and Monsieur Maurits Sabbe, the courteous conservator, at once had the painting removed from its showcase and placed before me for closer examination. To him also I am indebted for some interesting facts connected with the production of herbals by the Plantin press, as, for instance, that the names of two women employed by Plantin solely to hand-colour copies of the herbals had been found recorded in the Museum archives. These archives are particularly interesting, and contain much as yet unpublished. They include many letters from Clusius and other famous men; and I was shown one from Clusius in which he encloses a list of wood blocks he was getting cut in Frankfurt-a-Main, naming "the son of Virgilius Solis" as the woodcutter; he also complains of the charges made by painters, and adds that though he himself could manage to outline some of the plants, he could not paint them (*comme je ne suis pas paintre*).

The Museum possesses a considerable number of the old botanic wood-blocks, including that of the well-known portrait of Dodoens. A representative collection of early printed books, including some incunabula, together with modern works dealing with many subjects, form the library; and the walls of some of the rooms are hung with paintings by many of the famous artists of the Flemish School.

The painting of the Potato plant (Fig. 121) is of unique interest as the earliest-known depiction of the species. It was found among some of the archives, which perhaps accounts for its remarkably good preservation; the rough-grained paper on which it is painted being still fresh and of a whitish colour. It measures about 8½ inches by 12½ inches, and shows the plant at about natural size. As is well known, this painting was sent to Clusius in 1589, and bears an inscription in his handwriting, recording that he had received two Potato tubers from Phillippe de Sivry in the previous year (It reads: "Taratoufli, received at Vienna from Phillippe de Sivry, 26 January, 1588.—Papas of Peru of Petrus Cieca"; *i.e.*, Pedro Ciaza de Leon, a Spanish soldier who spent many years in Peru, and published an account of the country in 1553.) The painting was also received from the same donor, and is mentioned by Clusius in his *Rariorum plantarum historia*, 1601. It is very true to nature, both in form and colour, and is probably the work of an unknown painter of Mons, of which de Sivry was Prefect. It has traces of an ink outline, which has now faded to sepia colour; its colouring is a somewhat thick water-colour wash, supplemented by body-colour; and its technique retains traces of the traditional method of accentuating the forms by definite coloured outlines, the flowers being thinly outlined in red. An excellent hand-coloured engraving of this painting, the work of a talented young Belgian artist, Arthur Sterck (who unfortunately died soon after its execution), appeared in Ernest Roze's *Histoire de la pomme de terre*, Paris, 1898.

FIG. 121.—THE EARLIEST KNOWN PORTRAIT OF THE POTATO PLANT, FROM THE PAINTING IN THE PLANTIN-MORETUS MUSEUM, ANTWERP.

The missing links in the chain of evidence as to the origin of the Potato plant are either lost for ever, or only to be found by a long and arduous search among Continental archives (perhaps those of Spain). The known facts were admirably summed up in Ernest Roze's book mentioned above, and by Dr. B. Daydon

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Jackson in *The Gardeners' Chronicle*, ser. 3, vol. 27, 1900, pp. 161, 178-80 (with a half-tone from Sterck's engraving). It is now held as a reasonable certainty that the Potato plant originated in Chili, since only there has it been found in an undoubtedly wild state. In connection with Gerard's share in the matter, the following point has escaped notice, so far as I am aware—namely, that Gerard's portrait, in which he holds a stem of the Potato plant in flower, which appeared in the *Herball* (1597), actually bears the date 1598 in its inscription!

The presence of this botanic painting in the workshop of a famous printer naturally leads to a few considerations of the relation between the botanic painter and the printed book. Clusius did not use this fine naturalistic painting for the woodcut of the plant in his book of 1601; but, as he himself tells us, he gave preference to two other paintings made under his direction, one of which showed the roots of the plant. A comparison between the Plantin Museum painting and any of the contemporary woodcuts shows how great must have been the loss when similar paintings were copied as woodcut illustrations. In fact, the whole history of botanic book illustration is more or less that of the frustration of the original painters' work.

Even during the long era of the Manuscript Herbals, the original painter's designs were soon copied by inferior artists, to the detriment of both form and colour. The crude woodcuts of nearly all the earliest herbals were based upon degraded botanic paintings. Again, we must conclude that even the woodcuts of the best period of the herbals (about 1530-1580) failed to do full justice to the naturalistic paintings from which undoubtedly they were copied. The later line-engravings, also based upon paintings, were too often the interpretations of inferior artists. It can be safely said that, in their varying degrees of merit, the botanic painters produced work which usually suffered degradation when interpreted by the producers of book-illustrations; and in the colouring, where it is found, the fall in artistic merit is very marked. It is, indeed, not surprising that the hand-colouring was usually a failure, as even a sixteenth century printer could not afford to pay a good artist to colour hundreds of woodcuts in each large folio volume. Only in isolated instances are well-coloured copies found, and these no doubt were the results of private artistic effort. A striking example of a finely hand-coloured book is the British Museum copy of the English version of the *Hortus Floridus*, 1614: this, however, was undoubtedly the work of a skilful painter.

In connection with the early, hand-coloured work in the printed book, I may mention an interesting point recently noted in connection with a very fine copy of the earliest printed herbal, the *Herbarium Apuleii Platonici* (Rome, circa 1483). The crudely-coloured illustrations proved, upon careful examination, to be most skilfully covered with pieces of exceeding fine lawn, the mesh of which broke up the hardness of both outlines and colours. Its exact purpose (? perhaps to protect the colouring), or the date of its employment in this instance, I do not know.

It has often been a matter for surprise that the illustrations in the early printed books should have been of such an inferior character when compared with much of the work of contemporary picture-painters, whose noble representations of human beings and animals are often unsurpassed. The explanation is a somewhat involved one, but not so surprising when it is remembered that the early printers, who were regarded with some scorn both by the calligraphers and artists, merely endeavoured to reproduce the illustrations found in MSS. (just as the early types were but copies of the book-hands of the period); and further, that the earliest illustrations in printed books were meant for popular use, which contributed to keeping woodcuts on a lower level of merit. It is evident also that the early printers put up with inferior woodcuts because they could not afford to pay for better ones. What is surprising is that although we find them using red in printing some of their texts, the idea of printing their woodblocks in colours (practised from earliest times in China and Japan) never seems to have occurred to them.

Attempts in the first half of the 18th century to reproduce botanic paintings by printing in colour from the engraved copper-plate were failures, owing to the limitations of the processes used, and it was not until towards the end of that century that any real success was achieved. The co-ordination of effort and artistic merit apparent between Redouté ("the Raphael of Flower Painting") and his colour engravers

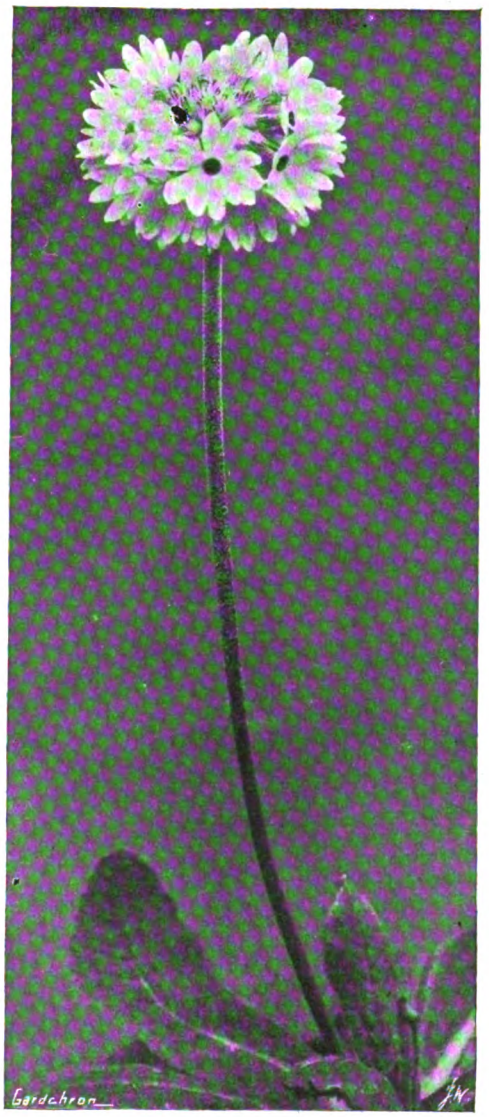

FIG. 122.—PRIMULA ERYTHROCARPA (SEE PAGE 255).

was a rare phenomenon in the history of botanic iconography, and to it we owe a series of the most beautiful botanic illustrations yet produced; and only by a similar co-operation can such works be produced again. In the absence of these high qualities (to say nothing about the enormous cost of production), what is wanted at the present time is a reliable process of reproducing the painters' work in facsimile, at a moderate cost. A colour reproduction cannot hope to equal the original painting in every respect, but at least let it be in facsimile and not by the interpretation of an inferior artist. Some doubt is cast on the permanence of some of the present-day colour reproductions; and it would be interesting to know whether, in their higher grades, the producers would be ready to guarantee the permanence both of the colours and the papers used. The whole subject deserves the investigations of some able chemist. *S. Savage*, 122, *Foxley Lane, Purley, Surrey.*

MARKET FRUIT GARDEN.

WEATHER of many kinds was experienced during April: sunshine, rain, gales from the east and the south-west, frost, snow, and thunder. A month of more unsettled weather could hardly be imagined. Growers are naturally waiting with some anxiety to see how the fruit bloom stood the ordeal. Personally, I am hopeful, because there were fine intervals during which bees were busy amongst the trees; and conditions, though often unfavourable for pollination, were seldom actually dangerous. There were several ground frosts, but only on one occasion did the thermometer 4 feet from the ground register 3° below freezing point, that being on the night of the 9th, following a very slight fall of snow. At that time Pears, Cherries, and the latest of the Plums were in bloom, but Apple blossom had not opened. The worst features of the month were the gales and frequent rain. The total rainfall, 2.64 in., is not excessive, but it was spread over sixteen days. The early-blooming Apples had to stand the worst of this; but, as they were still open at the close of the month, they may yet have a chance to set. What is badly needed now is a continuation of sunshine and warmth

APPLE AND OTHER FRUIT BLOOM.

There is a good show of Apple bloom. The earliest opened on April 20, but the weather hindered development, so that blooming was hardly general at the close of the month, several varieties being still in the advanced bud stage. Varieties blooming, or about to bloom, profusely with me are: Beauty of Bath, Mr. Gladstone, Lord Grosvenor, Norfolk Beauty, Allington Pippin, Domino, Warner's King, Worcester Pearmain, Golden Spire, Duchess of Oldenburg, James Grieve, Cox's Orange Pippin, and Lane's Prince Albert. Bramley's Seedling is patchy, the bloom being almost confined to trees that did not crop last year. Newton Wonder, Early Victoria, Queen, Early Julyan, and Blenheim Pippin are very light indeed.

Cherries bloomed freely, as they nearly always do, but Pears made a poor show. The bush fruits are looking remarkably well, red and black Currants and Gooseberries carrving a lot of bloom.

INSECT PESTS.

Growers who grease-banded their trees predicted a big caterpillar year. With me caterpillars are not, so far, particularly numerous, but it is rather an aphis year. By far the most serious pest is the leaf-curling Plum aphis. In spite of spraying the leaves are now badly curled, and the only hope lies in rapid growth, which should come with warm weather, as there is no lack of moisture. In one plantation where spraying was left until the fall of the bloom the pest appears hardly to have been controlled at all. In another, where nicotine was added to the winter wash applied shortly before blooming, the trees are not nearly so badly infested.

Apple aphides were plentiful; but these are comparatively easy to control. Spraying has been very successful against them, and the Apple sucker, which was not so much in evidence as usual. Every tree on the place has now been sprayed with a mixture of nicotine, arsenate of lead, and casein spreader. Previously, I have always left the arsenate of lead until after blooming, but last year caterpillars injured so much of the newly-formed fruit almost before the petals dropped, that I decided to use arsenate of lead at the first spraying this time, so as to leave a dose of the poison on the trees for any caterpillars that escaped the nicotine or hatched out later. As arsenate and soap should not be mixed, a casein spreader was substituted for the soap. This combined wash seems to have worked well, at any rate, on Apples. I do not think it kills aphides so quickly as when soap is included, which is only to be expected, considering that the soap is itself a good insecticide; but if the trees are examined three days after spraying very few insects can be found. Rain followed quickly after almost every day's spraying, but some, at any rate, of the arsenate is still visible on the leaves. This chemical was certainly very well spread by the casein.

The spraying machine is now idle whilst the trees are in bloom. After the fall of the petals will come the first application of Bordeaux mix-

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ture to prevent scab, with casein spreader again, and the addition of nicotine or arsenate of lead (or both) where the presence of insects shows the need.

Dry Spraying.

Dry spraying or dusting is on the increase amongst market growers. They find it attractive because of the lighter work and saving of labour, though the materials cost more. Many of them consider it more effective than wet spraying against aphides, including American blight. In America also the dusting method is spreading, although in trials it has seldom given such good results as wet spraying. The absence of heavy water carting is a great advantage.

Some excellent power dust distributors are in use in this country, but the hand machines have generally left much to be desired. I have, however, now purchased a handy little "cloud gun," which enables me to try the effect of some of the dusts on a small scale. A dust consisting chiefly of nicotine and slaked lime is now obtainable; and this is certainly deadly to aphides on Apples and Peaches (under glass). I find dusting handy for quite young trees, or where only a few trees need to be done, and it is not worth while to get out the sprayer and have water carted to the spot; but I want further trial of it before giving any opinion as to its value as compared with wet spraying. The chief drawback is that an absolutely still day is necessary for the process. Generally, it is best to work in the evening, or even with the help of a lantern after dark.

Mixed Spraying Fluids.

The experience of *W. Tiplow* (p. 203) that lime-sulphur and lead arsenate both lose in value if mixed is, I think, quite unusual. It is common practice amongst market growers to add lead arsenate to lime-sulphur at summer strength and to Bordeaux mixture, and I have never found that there is any disadvantage. As both the fungicide to prevent scab and the arsenate to kill caterpillars must be used within a short time after the fall of the petals, a grower with many trees to spray is almost obliged to combine the two in one application. A fine misty spray is right for both lime-sulphur and lead arsenate; so I cannot see why either should lose value, unless there is some chemical reaction. As a matter of fact, the addition of lead arsenate has sometimes been suggested as likely to act to some extent as a spreader of the fungicide. On reference to a report of the experiments with summer fungicides carried out at the East Malling Research Station, I find that the addition of lead arsenate considerably increased the action of lime-sulphur as a "scabicide," but "may reduce its value in the control of mildew."

Pollinators for Cox's Orange Pippin.

The last piece of land I have to plant with fruit, a small meadow of 2½ acres, is being bare fallowed in preparation for planting in autumn. I want to make a plantation mainly of Cox's Orange Pippin, but it is essential to have a proportion of trees of another variety for the sake of cross-fertilisation. I have been looking round the place to see which kinds bloom at the same time as Cox's Orange Pippin. There are several which seem to come near enough. Allington Pippin and Mr. Gladstone were open at exactly the same time this year, but I do not want more of these. Others that are elegible are King of the Pippins, James Grieve, Bramley's Seedling, Newton Wonder, Golden Spire, and Blenheim Pippin. The best variety for the purpose would probably be James Grieve, because it blooms profusely every year, and soon comes into bearing; but I have not found it a good market Apple. Blenheim Pippin is too slow to come into bearing, and Bramley's Seedling and Newton Wonder are nearly as bad. Golden Spire does not sell well. The choice will probably fall on King of the Pippins, a poor thing, but apparently liked by the public. It is quite essential to have a pollinator, as there have been cases of plantations of Cox's Orange Pippins alone which have cropped very lightly indeed.

The Sugar Duty.

The disappointment of the Budget, from the fruit-grower's point of view, is the retention of the sugar duty. Dear sugar makes an enormous difference to the demand for fruit. Many times last year people said to me: "Plums are cheap enough; but we can't afford the sugar." Much less jam is made in the home, and the factories make little because they know that there will not be a big demand for dear jam, and they cannot make it cheaply. *Market Grower.*

VEGETABLE GARDEN.

MANURIAL EXPERIMENTS AT DROITWICH.

Various vegetable crops were grown at Droitwich on the different plots across which Apple, Pear and Plum trees were planted, and whose total crops during 21 years were recorded in the *Gard. Chron.* of April 28 last.

The Potato occupied a prominent position in these experiments. The results were very similar to those obtained from the fruit trees in nearly every case.

In 1899 three varieties of early kidney Potatos were planted on the four differently manured plots, in two sizes of 3 oz. "sets" and 2 oz. "sets" respectively. The following were the results per acre :—

	Sets. Oz.	EXPRESS. Tons.	cwts.	lbs.	MYATT'S EARLY PROLIFIC. Tons.	cwts.	lbs.	ASH-LEAVED KIDNEY (Webb). Tons.	cwts.	lbs.
Garden Refuse	3	7	11	76	8	15	2	7	7	88
	2	7	7	88	8	7	26	7	3	12
Stable manure	3	9	2	89	9	16	45	9	6	76
	2	8	1	42	9	6	76	6	8	17
Inorganic fertiliser	3	7	9	82	7	13	70	6	16	14
	2	6	2	57	7	5	5	95	8	10
Stable manure and Inorganic fertiliser	3	10	11	109	10	8	8	8	7	36
	2	7	5	56	8	18	101	7	3	101

The fact appears to be established in this case that 3 oz. "sets" are more productive than 2 oz. "sets" when grown under similar conditions; many other experiments have proved the same. Also it appears that stable manure plus "inorganic" fertiliser produced the best crops; that stable manure alone produced the second best with 9 tons 16 cwt. 45 lb. to its credit; followed by garden refuse with over eight tons of tubers per acre—8 tons 15 cwt. 2 lb., to be precise. Inorganic fertiliser occupied the lowest position with 7 tons 3 cwt. odd to its credit or discredit.

The varieties of Potato named are well-known early sorts of good flavour, and fair croppers. The question of the natural deterioration of the Potato physically is not yet disposed of, but the flavour of the Potato appears in recent years to be almost entirely overlooked, provided the tubers are outwardly beautiful.

In 1898 Potato Sutton's Ringleader was planted in the experimental garden and subjected to a long trial under normally fair conditions extending over two periods of time totalling 20 consecutive years. The first period was 1899 to 1905 inclusive. The second period 1906 to 1920 inclusive. As the garden was enlarged in the first part of 1906, this gave opportunity for extended trials. A new stock of tubers was obtained in 1906, and "seed" from this stock was saved and planted every year to 1920 inclusive. The results were as follow from "seed" 2½ to 3 oz. in weight each :—

Year.	Tons.	cwts.	lbs.	Year.	Tons.	cwts.	lbs.
1899 ...	8	19	38	1910 ...	*6	6	0
1900 ...	14	19	53	1911 ...	*5	5	64
1901 ...	13	5	78	1912 ...	11	1	0
1902 ...	11	13	0	1913 ...	5	9	84
1903 ...	10	10	0	1914 ...	9	3	0
1905 ...	4	13	0	1915 ...	6	11	32
(new seed)				1916 ...	6	17	83
1906 ...	12	5	60	1917 ...	7	1	97
1907 ...	*5	3	5	1918 ...	9	18	42
1908 ...	*6	15	0	1919 ...	5	8	27
1909 ...	*7	13	0	1920 ...	8	13	21

A new supply of "seed" of Ringleader was obtained in 1905 because a larger area of land was planted with that variety, and it was desirable that there should be no possibility of the old and new stocks becoming mixed.

The apparently small crops marked with an asterisk in the years 1907, 1908, 1909, 1910, 1911 were dug, weighed and sold as young Potatos; therefore, the weights recorded for those years do not represent the weights they would have attained if they had been allowed to grow to maturity, as was demonstrated in 1912, when the crops were allowed to attain maturity.

This is a suitable point at which to introduce the subject of an experiment with—

Flowers of Sulphur on Potatos.

Ringleader was the variety chosen for this purpose, the "seed" tubers being of equal size: this was in 1918. The objective was to discover the effect, if any, upon the skin of Potatos with regard to scab principally, and any other diseases incidentally, or upon the weight of the crop. The following were the results :—

	Tons.	cwts.	lbs. Per acre.
Ringleader, sulphured, crop at the rate of	9	18	42
Ringleader, not sulphured, crop at the rate of	9	12	41

The sulphur was placed in a piece of cheese cloth and dusted lightly over the tubers and along the small furrows in which they were planted. Not only did the sulphured tubers produce the slightly heavier crop, but they were perfectly clean, bright, and free from blemish of any kind. Those not sulphured were free from disease of any kind, but not so clear nor free from blemish.

Having grown good crops of Magnum Bonum Potatos in clayey soil in the years 1880 to 1885 inclusive, and afterwards being unable to obtain the variety until 1912, that year we obtained a small supply of seed from an old and highly reputable firm. It was duly planted in a corner of the garden under unfavourable conditions as to position and time. Its behaviour, commencing 1912 and ending 1920, may not be without interest, and possibly one or two lessons. The following is its record for the eight years ended 1920 :—

Year.	Tons.	cwts.	lbs.	
1912 ...	5	3	80	per acre.
1913 ...	18	10	0	" "
1914 ...	17	2	52	" "
1915 ...	14	8	51	" "
1916 ...	7	6	9	" "
1917 ...	8	17	106	" "
1919	14	0	32	" "
1920 ...	7	12	51	" "

One lesson obviously is "Be not hasty in condemnation." Magnum Bonum was a deservedly popular favourite more than forty years ago; is it still with us under another name? *J. Udale.*

BIRCH LOGS AND SILVER-LEAF DISEASE ON PLUMS.

Last autumn I bought a quantity of Birch logs for winter fires; from lack of other accommodation these were stacked under and close to a Victoria and another Plum tree. On walking round the garden with Mr. Goaman about the end of November, we observed that the ends of these logs showed abundant white and lilac excrescences of Stereum purpureum; as he remarked, in regard to the Victoria especially, "it was inviting trouble." As it was impossible to move the two tons of logs at once, a blow-lamp was passed over the growths and ends, followed by swabbing with fairly strong copper acetate. This stopped the local appearance, but the fungus then began to show up on the sides, so the logs were removed into a dry shed and some formalin sprayed over them.

I am told that Birch is a very favourite nidus for the fungus, and this note is to warn others of its danger, whether, as I had it, in exposed logs or for staking trees or bushes. A friend tells me that he lost two Victoria Plum trees through Silver leaf, near which Birch logs had been stacked and which further suffered from grazing by a wheelbarrow laden with the logs, but he had not connected the two together.

Perhaps some more enlightened contributor would detail the susceptibilities of various woods to the fungus, so that they may be avoided. Hereabouts Birch is often used for Pea sticks. Should no trouble arise in my garden it may be a negative tribute to the value of the sulphur-oil which I have advocated as a dressing for cuts on trees for many years. *H. E. Durham.*

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HOME CORRESPONDENCE.

Darwin Tulips.—The value of Darwin Tulips for the decoration of the flower garden in the month of May cannot be over-estimated, and although it is understood by very many garden lovers, there remain many to whom the elegance, beauty of form and colouring of these flowers is as yet a closed book. Certain varieties are somewhat expensive, but even in these days of economy in gardens there are plenty of fine varieties obtainable at a comparatively trifling cost, and if orders are placed with the numerous British firms who grow their own bulbs, the purchaser has the satisfaction of knowing that he or she is patronising a home industry. British-grown Darwin Tulip bulbs are second to none in quality, and there is no need to make purchases outside Great Britain and Ireland. In his garden at Myddleton House, Waltham Cross, Mr. E. A. Bowles annually demonstrated the garden value of Darwin Tulips before the war in a series of beds close to the New River, and probably he continues so to grow them, as he is a garden lover not likely to discontinue the use of May-flowering Tulips until he finds some better subject for the "merrie month." It is an excellent sign of the times that these late-flowering Tulips are being grown more extensively in public parks and gardens than was formerly the case, because such popular use is of distinct educational value. Garden scenes in which Darwin Tulips figure have been published in *Gard Chron.* from time to time, and the accompanying illustration, Fig. 123, shows a planting in the formal garden at Mountain House, Chepstow. *C.*

FIG. 123.—DARWIN TULIPS IN THE FORMAL GARDEN AT MOUNTAIN HOUSE, CHEPSTOW.

Gardeners' Wages.—This discussion seems likely to do good in more ways than one. Comparisons are odious, and we have heard more than enough of the difference between the man who went to the war and him who stayed at home. Gardeners as a class did their duty with the best, and, as *S. H. G.* states on p. 203, very few of them had high wages during the war. Not many were engaged in munition-making. Farming was their job as well as gardening; seven days of twelve hours daily at 6d. an hour was a quite common remuneration. On the question of a combination or union of gardeners, or whatever else it may be named, I would remind those interested that in 1903 the British Gardeners' Association was formed for the purpose of "raising the status" of gardeners It was expected that, when this was accomplished, wages would improve. That is twenty years ago—and a combine of gardeners is still advocated. *W. M.* (p. 166) does some grumbling, but he has had three increases in three years, which is not bad. This brings me to a point I should like to emphasise—when a man is worth more than 50s. per week he will get more. For, if his employer once recognises his worth, he will pay him accordingly; but it is up to the gardener to prove it, and very likely he will have to ask for it. Our old profession is the best yet, and there is more than money value to be got from it; but he who works for money only will get just that, and certainly not so much as he expects. *H. Arnold, Bedgeonry Park, Goudhurst.*

—— With regard to gardeners' wages, I was better off when a foreman than during my first appointment as head. I passed through several gardens, good and bad, and at wages I am ashamed to tell. I have had charge of one of the so-called big places, miles from a town, so my children fitted themselves for something better than gardening; two are now earning very much more than I am. But wages are not everything; peace and contentment, with encouragement from one's employer, are worth a great deal. Some gardeners consider wages more important than anything else, and look more like the owner of the garden than the employee. A few of my gardening friends after a term of years in private gardens have started a nursery or market garden on their own, just because they wanted to be independent. I myself hope to do the same before many years have passed. Some of us have to thank our wives for helping us on with a cheery word when we have been downhearted. *J. M'C.*

Wood and Carpentry at Luxor.—To those who are interested in timber and carpentry, it would be of the greatest possible utility if some one who resides in the district, and with expert knowledge, would communicate the identity of the wood and also the style of carpentry that was made use of in the construction of the various objects that have been found in Tutankhamen's tomb. Ancient writ tells us of Cedar, Fir, Almug and Gophir woods. The sizes of timbers, how they were jointed, whether treated with a preservative, and the condition when found, would all be information of the greatest value. Perhaps your paper can assist? *A. D. Webster.*

SOCIETIES.

CORNWALL DAFFODIL AND SPRING FLOWER SHOW.

MAY 1 AND 2.—The exhibition of the Cornwall Daffodil and Spring Flower Society was held on these dates in the Market Hall, Truro. It was the finest show of the series, the one of this year being the eighteenth, and the first to be held since the war. The dates were later than those of the previous shows, and Daffodils were over and there were few exhibits of Tulips. But other spring flowers were shown in greater variety, and in finer condition than hitherto. The greatest attractions were Rhododendrons and other flowering shrubs, the exhibitors including such keen cultivators of Rhododendrons and rare and choice shrubs as Rev. A. T. Boscawen, Ludgvan, Major H. L. Dorrien-Smith, Tresco, Mr. J. C. Williams, Caerhayes, Mr. R. Barclay Fox, Falmouth, Captain G. H. Johnstone, Trewithen, Mr. E. J. P. Magor, Captain Tremayne, Carclew, Mr. P. D. Williams, Lanarth, and Mrs. Powys Rogers, Tregye. The outstanding features of the show were the collections of shrubs staged by the Rev. A. T. BOSCAWEN, and of Rhododendrons from Mr. J. C. WILLIAMS' gardens. Major H. L. DORRIEN-SMITH brought rare and choice plants from Tresco, his two outstanding plants being Metrosideros diffusa and Isopogon latifolius, natives of New Zealand and Western Australia respectively. The Rev. A. T. BOSCAWEN was awarded a First-Class Certificate for Telopea oreades; Mr. G. H. JOHNSTONE a First-Class Certificate for Pieris Veitchii, and Mr. J. C. WILLIAMS a First-Class Certificate for Rhododendron haematodes. The premier prize for a group of Rhododendrons was awarded to Mr. J. C. WILLIAMS.

The judges were:—Rhododendrons, Col. Stephenson Clarke, C.B., Cuckfield, Sussex, and Mr. P. C. M. Veitch, Exeter; shrubs, Messrs. John and C. Nix, Tilgate, Sussex; herbaceous plants and Tulips, Messrs. E. A. Bowles, Enfield, and Reginald Cory, Cardiff.

The following are the principal classes with the chief prize-winners:—

Not fewer than ten varieties of Daffodils: 1st, Mr. F. G. LAWSON, Truro; Cottage Tulips: 1st, Miss ROGERS, Tregye; Collection of twelve hardy spring flowers, excluding shrubs: 1st, Mr. C. PHILLIPS; 2nd, Mrs. POWYS ROGERS; Collection of six hardy spring flowers, excluding shrubs: 1st, Mr. C. PHILLIPS; 2nd, Miss C. C. ROGERS; Group of hard-wooded flowering shrubs or climbers, excluding Rhododendrons: 1st, Rev. A. T. BOSCAWEN; 2nd, Mrs. C. H. HEXT, Trebah, who also excelled in the class for Acacia (Mimosa) grown in the open; New Zealand hard wooded shrubs: 1st, Rev. A. T. BOSCAWEN; Australian hard-wooded shrubs: 1st, Mrs. POWYS ROGERS; Twelve trusses of hybrid Rhododendrons (distinct): 1st, Mr. J. C. WILLIAMS; 2nd, Capt. TREMAYNE; Large-leaved Rhododendrons of the R. Falconeri type: 1st, Miss DAUBUZ.

Polyanthus three varieties: 1st, Mr. G. H. FAIRBROTHER, Roskrow, Penryn. Collection of Primula species (hardy): 1st, Miss ROGERS; 2nd, Rev. G. T. C. PEARCE, Creed Rectory. Collection of 12 Alpines in pots: 1st, Miss C. C. ROGERS. Collection of 6 Alpines in pots: 2nd, Miss C. C. ROGERS.

Non-competitive exhibits were contributed by Messrs. G. SHARPE, Truro; Mr. HENRY HODGE, St. Austell; Messrs. W. RUSE AND SONS, Falmouth; Messrs. ALLWOOD BROS., Wivelsfield, and Messrs. TRESEDER AND CO., Truro.

NEWCASTLE HORTICULTURAL.

MR. R. E. RICHARDSON presided at the monthly meeting of this Society, held on the 24th ult.; a very large company was present to hear a lecture, by Mr. J. N. Kidd, secretary of the Northern Apple Culture Society, on "The Future of Apple-Growing in England." Mr. Cook, representative of the Ministry of Agriculture in Durham County, made a special appeal to the members to support the Four Northern Counties Apple Congress, which is hoping to hold a show about October at Durham, and the Imperial Fruit Show, which will be held at Manchester.

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ROYAL HORTICULTURAL.

May 8 and 9.—The Royal Horticultural Hall was well filled with exhibits on these days, but there was scarcely such a crowd of visitors as on recent occasions. Tulips, Roses, Irises, Orchids, flowering Shrubs, Carnations, Rhododendrons and Anemones were among the principal attractions. The Floral Committee had a busy time again, as there were about forty novelties and nearly forty groups to be dealt with; many of the plants which received awards were interesting and beautiful.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson (assistant secretary), C. J. Lucas, R. Brooman White, H. T. Pitt, Arthur Dye, Fred. K. Sander, Henry H. Smith, H. G. Alexander, A. McBean, E. W. Ashton, W. J. Kaye, R. G. Thwaites, J. Wilson Potter, Stuart H. Low, Frederick J. Hanbury, Chas. H. Curtis, and the Hon. Henry D. McLaren.

First-Class Certificate.

Odontioda Naomi (*Oda. Vuylstekeae* × *Odm. Nathaniel*), from R. Gerrish, Esq., Milford Manor, Salisbury (gr. Mr. W. Sorrell). The plant shown was a perfect specimen bearing a stout spike of fourteen large and well-formed flowers of a deep ruby-red colour, with a terra-cotta tint. The lip is showily displayed, the yellow crest having red markings in front.

Awards of Merit.

Ondontoglossum Tagus Gerrish's var. (*Othello* × *Doris magnificum*), from R. Gerrish, Esq. A most beautiful variety, the plant bearing four flowers of perfect shape, coloured violet purple, with slight white margin and markings between the blotches of colour. The lip, as in some other Odm. Othello crosses, is large and broad, white in front, with violet blotches around the yellow crest.

Odontoglossum Gorizia var. Imperial Purple (*Jasper* × *President Poincare*), from J. J. Bolton, Esq., Claygate Lodge, Claygate (gr. Mr. S. Lyne). The plant bore a spike of six flowers each four inches across, the sepals and petals being mauve purple, with a white margin; the petals are prominently toothed on the upper side. The lip is white with violet blotching.

Other Exhibits.

Messrs. Stuart Low and Co., Jarvisbrook, Sussex, were awarded a Silver Banksian medal for an effective group of Cattleyas, Laelio-Cattleyas, and Odontoglossums, with slender Epidendrums and well-flowered Dendrobiums at the back. The varieties of Cattleya Mossiae were specially good, C. M. grandis being one of the largest and best in form yet shown. Several new Laelio-Cattleyas and Sophronitis crosses were also shown, and among rare botanical species Cirrhopetalum Collettii, with elegant umbels of yellow and red flowers; Bulbophyllum barbigerum, with its feather-like lip, which always attracts; Vandas and Cypripediums were also included.

R. Gerrish, Esq., Milford Manor, Salisbury (gr. Mr. W. Sorrell) showed a richly coloured variety of Odontoglossum St. Elmo (Admiral Sturdee × Empress of India).

Pantia Ralli, Esq., Ashstead Park (Orchid grower, Mr. Farnes) showed Odontoglossum Imperial (Colossus × gandavense) with a spike of three deep claret-red flowers with white markings.

Messrs. Flory and Black, Slough, showed several fine hybrids, Cattleya Duchess of York (Empress Frederick × Rhoda), a large, rosy mauve flower with ruby-crimson lip and yellow disc; and C. Sohma (Empress Frederick × Mossiae) being specially attractive. The white-flowered C. Irene was also shown by this exhibitor.

Messrs. Cowan, Southgate, showed Cattleya Tityus var. Duchess of York, a very handsome form with richly coloured lip.

Floral Committee.

Present: Mr. H. B. May (in the chair), Sir W. Lawrence, Messrs. D. B. Crane, R. W. Wallace, M. C. Allwood, W. B. Cranfield, W. B. Gingell, W. Howe, C. R. Fielder, W. P. Thomson, G. Reuthe, H. J. Jones, John Heal, Geo. Harrow, Donald Allan, J. B. Riding, Thos. Stevenson, W. H. Page, Jas. Hudson, J. Jennings, A. Turner, C. Williams, W. J. Bean, H. D. McLaren, Sydney Morris, H. V. Warrender, Clarence Elliott, G. W. Leak, R. C. Notcutt, Reginald Cory, E. A. Bowles, Gerald Loder, J. W. Barr, and W. R. Dykes.

Novelties.

Awards of Merit.

Hydrangea Maréchal Foch.—A very fine variety producing huge heads of large "flowers" which shade from bright majenta rose to almost blue. A handsome and apparently easily grown Hydrangea, as the specimen shown was in a 32-sized pot, and carried ten heads of bloom. Shown by H. J. Jones, Lewisham.

Cytisus Dorothy Walpole.—A beautiful Cytisus of more or less erect habit, with rich rose-coloured standard, much paler on the inner surface; the inner segments are rich, brownish velvety crimson, and the golden anthers show between them. The keel is rose-coloured. A very free flowering seedling, and one that should show up well in the garden under bright sunshine. Raised in the gardens at Mt. Usher. Shown by Messrs. Watson and Sons, Killiney Nurseries, Killiney.

Rhododendron decorum var. Mrs. Messel.—In this fine variety the broad, flattened flowers are pure white, seven-lobed, and carried on long foot stalks, in a large truss of a dozen flowers. The blunt pointed leaves are dull green above and grey-green beneath. Shown by Lt.-Col. Messel (gr. Mr. J. Comber), Nymans, Handcross, Sussex.

Rhododendron Sargentianum.—A small and interesting species of dense twiggy growth, with small glossy, deep green leaves that are slightly ferruginous beneath. The greenish cream-coloured flowers, half an inch broad, are borne in terminal clusters of from three to five; faintly fragrant. Shown by Lady Aberconway (gr. Mr. Puddle), Bodnant, North Wales.

Cytisus Cornish Cream.—A free flowering Broom, with fair-sized cream coloured flowers. It should prove very useful for massing. We understand it was raised by Mr. P. D. Williams, Lanarth. Shown by Mr. R. C. Notcutt, Ipswich.

Viola hybrida Haselemere.—A bold and strong growing hybrid, with almost Pansy habit, and producing an abundance of medium-sized lilac coloured flowers, prettily lined with blue around the golden eye. Shown by Messrs. Thompson and Morgan, Ipswich.

Rose David Lloyd George.—A very fine H. T. Rose, raised at Uxbridge. It is not only good out-of-doors, but excellent under glass, where it will produce flowering growths so much as 4 ft. and even 5 ft. high. The flowers are of the finest size and form, with the margins of the broad petals slightly revolute. The colour is rich pink, salmon tinted; slightly fragrant. Shown by Mr. Elisha J. Hicks, Hurst, Twyford.

Iris Douglasiana Merton.—This is a delightful little Iris, growing about 2 ft. high, slender and beautiful. The flowers are nearly four inches across, pale blue, with deeper, richer blue on the broad part of the falls, where the base is yellow, feathering into white. The standards are narrow and have the deeper blue shading at base and centre. Raised and shown by Mr. W. R. Dykes.

Iris, tenax purpurea.—Another charming Iris of fine form, and rich rosy purple colouring that lights up wonderfully in sunshine. The broad falls have a deeper hued centre and a gold and white feathered base. Shown by Mr. W. R. Dykes.

Groups.

Rhododendrons, though not in such large quantities as a fortnight ago, again formed an appreciable part of the general floral exhibits. Mr. J. H. Lowinsky brought a collection, mostly of single trusses, of his own seedlings. These were of superlative merit and attracted a deal of well-deserved admiration. They appeared to be chiefly hybrids of R. Aucklandii and R. arboreum, and were characterised by delicacy of colouring and individual flowers of exceptional size. The trusses were distinctly more compact than is usual with these half-hardy types (Silver-Gilt Flora Medal).

In the annexe Messrs. R. Gill and Son had a small, but very interesting collection of Rhododendron seedlings and named varieties (Silver-Flora Medal). Mr. J. Reuthe included quite a considerable number of half-hardy Rhododendrons in his customary group of trees, shrubs and alpines (Silver Banksian Medals).

On a floor space Messrs. Wallace and Co. showed some particularly well-flowered bushes of Rhododendrons in such sorts as Pink Pearl, Mrs. C. C. Stirling, and Hugo de Vries, with densely flowered plants of Mollis Azaleas, which provided glowing masses of rich colour. They also included vases of very good Darwin Tulips (Silver Banksian Medal). Messrs. L. R. Russell, Ltd., also had an attractive group of flowering shrubs which included Azaleas in variety, various Clematises, Cytisus and some very good Hippeastrums (Silver Banksian Medal). Azaleas of the several types, together with double-flowered Viburnums were shown by Messrs. R. and G. Cuthbert (Silver Flora Medal).

Particularly well-flowered examples of Cytisus Dallimorei were prominent in an exhibit of Mr. Amos Perry, who also showed a well-flowered batch of the Golden Geum Borisii, and such Irises as I. Souvenir de Zwanenberg and I. florentina (Silver Banksian Medal). At the end of a pleasantly disposed little alpine garden Messrs. Cutbush and Sons displayed a good variety of Azaleas (Silver Banksian Medal).

In a corner group Mr. R. C. Notcutt displayed excellent standard Brooms with well-flowered examples of Eremontia californica, Ceanothuses and Lilacs (Silver Banksian Medal). The Donard Nursery Co. brought over a small collection of uncommon shrubs, which included flowering sprays of Pittosporum Mayi, P. Buchananii, Tricuspidaria lanceolata and Cytisus daurica, with a number of Cytisus albus varieties of considerable interest (Bronze Flora Medal).

Roses of merit were shown by Mr. Elisha J. Hicks, who gave the central position in his collection to a large quantity of the new variety David Lloyd George, and this was especially effective, with Columbia, Premier and Mrs. Hy. Wimmett; the last-named is a medium-sized bloom of deep pink colour (Silver Banksian Medal). Mr. George Prince included Pax, Coral Cluster, C. E. Shea and Souv. de Claudius Pernet in his collection of Roses (Silver Banksian Medal). Messrs. Frank Cant and Co. had an attractive collection of exhibition and Polyantha Roses (Bronze Flora Medal).

Carnations in great quantity were staged by Messrs. Allwood Bros., who include very large stands of Enchantress Supreme and Edward Allwood, and in another place showed their useful Dianthus Allwoodii varieties (Silver-Gilt Banksian Medal). Mr. C. Engelmann had a good collection, chiefly of varieties useful for providing quantities of cut blooms (Silver Banksian Medal). Messrs. Stuart Low and Co. showed Carnations in quantity, Acacia pulchella, Erica Cavendishii and other greenhouse plants (Silver Flora Medal).

Mr. H. J. Jones had a fine group of large-headed Hydrangeas growing in relatively small pots. These include Maréchal Foch (see Awards of Merit), Mme. Chantaud and Mme. Truffaut, rich blues, and Lancelot, an elegant deep pink (Silver Flora Medal). Messrs. Peed and Son staged Streptocarpus in quantity, which illustrated a desirable strain and good cultivation. They also included Hippeastrums bearing large spikes of bloom (Silver Banksian Medal). Messrs. Jarman and Co. again showed a good collection of trusses of single and double-flowered Zonal Pelargoniums (Geraniums) and some beautiful Violas. Messrs. Carter Page and Co. also had a praiseworthy collection of Violas, with well-arranged alpines and early flowers of Dahlias (Silver Banksian Medal).

The Chalk Hill Nursery Co. had a splendid collection of their most desirable strain of Giant Pansies and also showed pleasant batches of Primula japonica, P. Lissadel hybrid and other sorts, with Cheiranthus hybrids, which embraced

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a wide range of charming colours combined with freedom in flowering (Bronze Flora Medal). Mr. M. PRICHARD had a large quantity of interesting alpines and hardy border flowers, including densely flowered plants of the double-flowered Welsh Poppy of rich orange colour, and the blue Meconopsis Prattii (Silver Flora Medal). Prominent in a collection arranged by Messrs. W. H. ROGERS AND SON was a batch of well-flowered Incarvillea grandiflora. They also showed Primula Cockburniana and Leptospermum Chapmanii (Silver Flora Medal).

The MAYTHAM GARDENS contributed deep blue coloured Hydrangeas, Darwin Tulips in variety, including La Merveille of gorgeous colouring, with other decorative plants, making a highly attractive exhibit (Bronze Flora Medal). In the annexe Mr. W. WELLS, Junr., staged Lithospermum prostratum Heavenly Blue, Trollius Fire Globe and other useful hardy plants (Bronze Flora Medal). Mr. F. G. WOOD had a large quantity of a very good yellow Polyanthus in his exhibit (Silver Banksian Medal). Orchis Morio was associated with Gentiana acaulis by Mr. CLARENCE ELLIOTT (Bronze Flora Medal). Messrs. REAMSBOTTOM AND Co. again showed flowers of their excellent strain of St. Brigid Anemones (Bronze Flora Medal). Various free-flowering Brooms and border flowers, including Trollius, were staged by Messrs. BAKERS, LTD. (Bronze Flora Medal).

A pleasant arrangement of hardy flowers, including alpines, was made by the Misses HOPKINS. Messrs. MAXWELL AND BEALE also showed many alpines and border flowers (Bronze Flora Medal). Dahlias, both as cut blooms and dwarf plants, shown by Messrs. J. CHEAL AND SONS, served as a reminder that it will soon be the time to plant out these indispensable autumn flowers. The plants were of the very dwarf and free-flowering Mignon type. They also had various hardy Daphnes, Cytisuses and Azaleas (Silver Banksian Medal).

Irises of good quality and great interest were staged by the ORPINGTON NURSERIES Co. There were many seedlings of Iris pallida, which produce long spikes of bloom rather earlier than the type and carry, on an average, three fully opened flowers simultaneously with plenty of buds. The various Reglio-cyclus hybrids were dwarfer, but carried beautifully marked flowers (Silver Banksian Medal). The very dwarf blue flowered Iris cristata was well shown by Messrs. WATERER, SONS AND CRISP in a group which also included other Irises, the dwarf Phlox B. E. C. Chambers, and a variety of border flowers (Silver Banksian Medal).

A large collection arranged by Messrs. B. LADHAMS, LTD., contained a well-flowered branch of Edwardsia (Sophora) grandiflora, many hardy Primulas and Cytisuses (Silver Banksian Medal). The lovely and fragrant Moutan Paeony La Lorraine, which received an Award of Merit in 1913, was shown by Messrs. J. PIPER AND SONS in association with the free-flowering Genista sagittalis. They also had many useful Violas (Silver Banksian Medal).

Mr. PHILIP LADDS staged plants of Zonal Pelargonium Gloriation, a large truss of scarlet flowers and P. Ellangowan, magenta; two very useful single-flowered Bedding Geraniums.

Narcissus and Tulip Committee.

Present: Sir A. D. Hall (in the chair), Mrs. Brodie, and Messrs. E. A. Bowles, W. W. Fowler, G. W. Leak, J. Jacob, W. F. M. Copeland, J. W. Jones, H. V. Warrender, J. D. Pearson, W. B. Cranfield, C. W. Needham, Reginald Cory, W. Poupart, H. Smith, and Chas. H. Curtis (Hon. Sec.).

AWARD OF MERIT.

Tulip Alcemene.—This is a large and handsome Cottage Tulip, its broad segments making up a big cup-shaped flower. The colour is rich cerise, with a brighter shade on the interior surface of the segments. The flowers have a white base, prettily margined with bright blue. The variety grows about 20 inches high, and was raised by Mr. E. H. Krelage, Haarlem. Shown by Messrs. R. H. BATH, LTD.

GROUPS.

A magnificent effect was obtained by Messrs. DOBBIE AND Co., with their collection of Tulips. A bold style of arrangement was adopted, large stands and vases being filled with generous quantities of excellent flowers, and these, raised at the back, made a huge bank of glowing colours. It was the quaintly-shaped showy Parrot Tulips that first attracted attention, and these represented more varieties than we remember having previously seen at any show. The best of this type were Markgraaf, lutea, Fantasy, Sensation, Cramoisie Brilliant, and Perfecta. The highly decorative and popular Darwin Tulips were present in great variety, and included Inglescombe Pink, King George, Faust, Philip de Comines, Triton and Velvet King. A large stand of rich golden-yellow flowers of Walter T. Ware also attracted a deal of admiration. At one end of these splendid Tulips there was a small collection of very good Sweet Pea blooms. (Gold Medal).

On the opposite side of the entrance Messrs. BARR AND SONS staged an exceptionally complete collection of Tulips. Long-stemmed Darwin varieties in many shades of colour predominated, but while this collection was of the most interest to the specialist, it was not so spectacular as some others. The chief Darwin varieties were Sophrosyne, The Bishop, Suzon, Farncombe Sanders, Negro, Clara Butt, Zulu, Velvet King, The Giant and Hippolyta. Besides these and very many more Darwins, there were Cottage, Parrot and Old English Tulips in considerable variety, and of good quality. (Gold Medal).

A very pleasantly arranged collection was shown by Messrs. J. R. PEARSON AND SONS, LTD., and this contained in the association of the brown-gold Dom Pedro and the pale mauve Erguste a charming colour blending. The deep rose-cerise Andromaque presented colour difficulties but, alone, it was glorious in its vivid brightness. The yellow varieties Mrs. Moon and Gesneriana lutea and the rich Orange King were also very charming. (Silver-gilt Banksian Medal).

Many beautiful Tulips were artistically staged by the WELSH BULB FIELDS Co. These included Orange King, Moralis, Farncombe Sanders, Marcella, Louis XIV., and Loveliness (Silver-gilt Flora Medal). Near by Messrs. R. H. BATH, LTD., had a fascinating collection amongst which special attention was directed to such varieties as La Merveille, Isabella, Artemis, Nauticus, Psyche, The Sultan, Le Nigre and La Tulipe Noire. (Silver Flora Medal).

A large vase of the brilliant deep rose-pink Tulipa Gesneriana spathulata was very prominent in the collection arranged by Messrs. G. BUNYARD AND Co. The lilac-tinted Melicette and the purple and gold Turenne were also of especial merit. (Silver Banksian Medal).

In the annexe Mr. B. PINNEY had a very pleasing collection of Tulips, associated with Aquilegias, Irises and Lily-of-the-Valley. The Tulips were well grown and included the best varieties. (Bronze Banksian Medal).

Fruit and Vegetable Committee.

Present: C. G. A. Nix (chairman), J. Cheal, W. Poupart, A. H. Pearson, T. Smith, S. B. Dicks, W. F. Giles, Geo. F. Tinley, P. D. Tuckett, A. Bullock, A. Metcalfe, G. Reynolds, H. Prince, T. Pateman, E. Neal, J. Basham, W. Bates, W. H. Divers, W. J. Lobjoit, A. N. Rawes, H. S. Rivers, F. Jordan, E. A. Bunyard and H. V. Taylor.

Messrs. SUTTON AND SONS were awarded a Silver-Gilt Knightian Medal for a collection of early vegetables. The various kinds were not of large size, but all the dishes were of excellent quality, the more notable being Cabbages April, Favourite, and Flower of Spring; Lettuces Golden Ball and Matchless; Carrots Scarlet Horn and Inimitable Forcing; Marrows Table Dainty and Pen-y-byd; and Broccoli, Latest-of-All. There were also Potatos, Mushrooms, French Beans, Mustard and Cress, Radishes and Cucumbers.

Messrs. LAXTON BROS. made a very attractive exhibit with their new Strawberry, The Duke, and were awarded a Silver Hogg Medal. The Duke is a roundish-wedge shaped fruit, a very heavy cropper, especially in pots, and, being early, is very suitable for forcing. The exhibit also included a few fruits of the second early variety, Lord Beatty, which is pronouncedly wedge-shaped and of a brighter colour than The Duke.

Obituary.

F. W. Jordan.—Fellows of the Royal Horticultural Society and exhibitors at the R.H.S. Hall will learn with regret of the death of Mr. F. Jordan, late caretaker of the hall from its erection in 1904, until 1921, when he retired owing to failing health. Mr. Jordan was a willing worker, and a busy man, but he was always ready to help exhibitors and visitors in any way he could. The esteem in which he was held in the horticultural world was evident on the occasion of his retirement, when a testimonial fund was opened, and liberally subscribed to. He died at Crofton Park, where he resided after leaving Vincent Square, and was buried at Ladywell Cemetery on May 3. The wreath from the R.H.S. was inscribed "With deepest sympathy and with kind remembrances from all at Vincent Square." Mr. Frank Reader was present on behalf of the Society. The late Mr. Jordan was 69 years of age.

Edwin McNicol.—After a long and painful illness borne with great fortitude, Mr. E. McNicol died at Leigh-on-Sea, on Saturday, April 28, at the comparatively early age of 49 years. He was a baker and confectioner by trade, but was greatly interested in gardening; he was born at Hodnet Hall, where his father, Mr. J. McNicol, was gardener to Algernon H. Percy, Esq.

TRADE NOTES.

THE following is the exact wording of a statement issued by the Commercial Attache to the Netherland Legation (London), April 21, 1923: "A number of complaints having been made recently regarding the manner in which orders for bulbs and flowers sent to firms in Holland have been executed, the Netherland Legation desires to warn the British public against sending such orders either prepaid or cash on delivery, to any dealer of whom they have not satisfactory experience, or whose references they have not been able to obtain and verify. The great majority of Dutch bulb exporters are trustworthy, but there are several among those who send price lists to private persons in the United Kingdom who are unreliable. It is, therefore, advisable to avoid dealings with any except well known firms." For the information of our readers, we add that when the produce is unsatisfactory, a British firm may be sued in our own courts, whereas a Dutch firm can only be sued in a Dutch Court—a matter of considerable trouble and expense.

A HAMPSHIRE correspondent writes: "I have used Semanthracite for the past two seasons with great success, and find it ranks next to anthracite for general heating. As supplied by Messrs Webb Bros., Battledown, Cheltenham, Semanthracite is far superior to either hard furnace or gas coke, or steam coal, for horticultural purposes, as it is cleaner burning, does not clinker, and makes very little ash, while it is far more reasonable in price. I have two Rochford tubular boilers, 9 feet 6 inches long, and there is just over 4,000 feet run of four-inch pipes in my eight greenhouses, each one hundred feet by eighteen feet and twelve feet high. My experience of Semanthracite is that it is the best fuel to use, failing anthracite. You are at liberty to make what use you like of this letter, if it is of interest to readers of your valuable paper."

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REPLIES.

In answer to inquiry by *J. A. K.* in the *Gard. Chron.* of May 5, I would remind him that mice and rats destroy bulbs as readily as pheasants do, but no matter which of these causes the trouble a wineglassful of paraffin or creosote well mixed with two gallons of water, and the beds well watered with the mixture will soon stop their depredations. This mixture will not injure the bulbs, but the beds must be watered weekly with it, as the odour as well as the flavour will by that time be quite lost. Guys made to represent a man and placed at intervals would be likely to keep the pheasants away, but they would have greater effect if something was arranged to make a continual movement and noise, such as a light strip of tin placed so as to strike some hard substance during the smallest breeze. *W. Miller, Mill House, Warley, Essex.*

J. A. K. should have the pheasants shot. If this drastic treatment is not possible—pheasants destroy material far beyond their value—try deep planting. But there would need to be a period between now and then when no Tulips were grown, so that the birds may lose their taste for the bulbs. Many years ago a large collection here was destroyed similarly, so I can sympathise with *J. A. K.* With regard to deep planting, it is pursued here with various crops—Peas and Beans, for instance—and I think were *J. A. K.* to set the bulbs 7 or 8 inches under the surface and apply dressings of soot, that would have the desired effect. For a few years past pheasants have destroyed quantities of blooms of Narcissus ornatus outside the garden proper. This year those inside have also been eaten and trumpet sorts have been picked for the first time. Pheasants are a strange folk! Some seasons they feed on Winter Broccoli, and last year they reduced Cabbages to stumps. This year neither of these crops has been touched to any extent. I have known them to destroy Rhubarb; and once they commence on hardy fruit it is impossible to stop them. The only way to save Strawberries is to net them before maturity or while the fruit is still green. *R. P. Brotherston.*

ANSWERS TO CORRESPONDENTS.

Adiantum pedatum Klondike: *E. G. E.* We believe you will be able to obtain Adiantum pedatum Klondike from Mr. Amos Perry, Hardy Plant Farm, Enfield, who specialises in hardy Ferns.

Ampelopsis Veitchii: *P. E. C.* This climber nearly always fails to cling to a painted surface, as the paint kills the young root-like tendrils (hausorium), which cling to the wall or other surface, though the plant itself usually suffers no damage. Wire netting attached to the wall is a suitable medium for the plant to cling to, and will not be apparent when the plant is covered with its foliage.

Arum Lilies: *T. S.* There is no reason why your Richardias (Arum Lilies) should not flower satisfactorily, as these plants usually flower quite well, either when planted out-of-doors during the summer, or grown continuously in pots. If the plants are weak it is best to plant them out in a well-manured trench, lifting and potting them in the autumn. They are gross feeders, and should be potted in a very rich, free compost. When well established in their pots they may be fed liberally with dilute liquid manure and soot water. Guano is also an excellent manure for these plants. When well established in their pots they need almost unlimited quantities of water at the roots, as they are more or less aquatic plants.

Corrections: *Narcissus Dainty Maid.* Owing to a clerical error Mr. Watts was credited with an Award of Merit for Narcissus Dainty Maid on the occasion of the London Daffodil show (see p. 220). We are informed that the award should have been credited to Messrs. R. H. Bath, Ltd., Floral Farms, Wisbech.—*Cerasus Ukon.* Mr. R. C. Notcutt writes:—"I am very sorry that owing to an accident the new Cherry, for which I got an Award of Merit on Tuesday, April 24, appears in your issue of the 28th as Hukon instead of Ukon. If you could possibly correct this in another issue I should be greatly obliged." (We readily publish Mr. Notcutt's note on this subject, but we cannot accept any blame for "the accident."—Eds.)

Cultivation of Celeriac: *E. K.* The seed of this vegetable should be sown about the middle of March in gentle warmth, and the seedlings pricked off into boxes and hardened off ready for planting permanently in May. Rich soil is essential to produce good roots: the surface should be raked finely, and the young plants put out at 18 inches apart, allowing the same distance between the rows. Keep the ground clean by hoeing between the plants, and water the latter copiously in dry weather. When the foliage turns yellow in the autumn, with frost, lift the roots and store them in fine soil or sand in moderately dry conditions, when they will keep good for a considerable time. The edible portion is the thick root, and the small roots may be trimmed off when lifted. Celeriac is not used so extensively as a vegetable in this country as on the Continent.

Failure with Muscat Grapes.—*P. J. M.* The Muscat of Alexandria vines are suffering from a bad attack of mildew. Last season this complaint was very prevalent on account of the cold, wet and sunless weather. Mildew on vines spreads very rapidly, and where the vines have been attacked by the disease the previous season extra care should be taken in watering the roots and ventilating the vinery in cold weather. If the water pipes are kept just warm in damp, dull weather this is generally sufficient to keep the atmosphere sweet and counteract the evil effects of sudden changes in the weather. Mildew generally follows careless watering and ventilating during the vine's early stages of growth, and if allowed to spread is difficult to eradicate. Wash the vines, when they are dormant, with Gishurst compound, and coat the walls with hot lime-wash mixed with sulphur. Dust the leaves and bunches with flowers of sulphur on the first signs of mildew, and pay careful attention to the general management of the house.

Gooseberry Berries Eaten by an Insect: *H. S. T.* There is little doubt that the embryo Gooseberry fruits are eaten by grev slugs, which are known to eat the base of the calyx in this way. As they work at night they are not seen or suspected. Spreading one of the proprietary soil fumigants under the bushes should act as a deterrent to the slugs, or you might spray the bushes with a strong-smelling wash, such as lime-sulphur, at summer strength: Most of the damaged blooms will drop and set no fruit.

Grubs Attacking Seedlings: *D. R.* The "caterpillars" sent are the larvae of the Daddy Longlegs, commonly called "Leather Jackets," owing to their tough skin. When present in numbers they are capable of doing extensive damage, both in frames or in the open gardens. Their natural food is grass roots and decaying vegetation generally, and in this case almost certainly the source may be found in the rotted leaves. When making such heaps in the autumn care should be taken that they are not made an ovipositing place for the adult fly. To prevent this the heaps could be covered with a layer of lime, so that weeds would not grow on the surface or in case lime is not wanted the heaps should be occasionally weeded during the growing season. Grass especially must be destroyed, as the habit of the female is to deposit her eggs on grass roots. In the case of heaps already attacked it will be necessary to riddle the leaf compost through a quarter-inch sieve. As a temporary expedient one of the proprietary soil fumigants containing naphthalin should be pricked into the soil where seedlings are growing, in accordance with the manufacturers' instructions.

Lime Sulphur: *Puzzled.* You should not mix soap with any wash containing lime, because the soap curdles and blocks the spraying nozzle. If you wish to use lime-sulphur wash, which is a fungicide, buy it ready prepared, as the factory-boiled liquid is better than any that can be made at home.

Musk Melon or Canteloupe: *P. G. B.* The Canteloupe Melons are distinguished from the lace or netted Melons by the surface being marked in sections (as in a peeled Orange); they are also in general more hardy and amenable to frame culture; some people consider them superior in flavour. There are many varieties, some earlier in season than others, but we have not met with the particular one mentioned. The seeds should be sown at once in warmth in a pan, or singly in pots; when the seed leaves are well formed the seedlings may be potted off singly, say in 5-inch pots; there they may remain till the growth has made four or five leaves, when they should be pinched to the third leaf, two eyes only being left, and planted out in a frame. A second pinching is usually done, to produce fruit-flowers, at two or three leaves. Until well established keep the frame fairly moist with the lights closed, though in general not much ventilation is needed. Fertilisation is needed for the blossom. It is unlikely that the summer season in England would be suitable for these Melons in the open. In a Melon house they could be treated like the laced Melons and trained upwards. Canteloupes should be more grown in this country, as in frames they need little attention. An article on this subject appeared in *Gard. Chron.*, April 1, 1916, p. 181.

Manure for Pelargoniums: *D.* You may feed your Pelargoniums with dilute liquid farmyard manure or soot water. Or, if more convenient, with any good artificial manure, such as Clay's Fertilizer, used according to directions. Guano is also one of the best all-round manures, and a little may be sprinkled on the top of the soil twice a week and watered in, or one ounce may be mixed in one gallon of water for watering. Never apply fertilisers when the plants are dry at the roots, but water the soil with clear water first.

Names of Plants: *J. S.* 1, Picea excelsa; 2, P. alba; 3, P. ajanensis; 4 and 9, Pseudotsuga Douglasii; and 8, Abies Nordmanniana; 6, Abies nobilis; 7. Picea orientalis; 10. P. nigra; 11, Abies concolor; 12, Abies nobilis var. glauca.—*L. A. H.* Ranunculus Ficaria.

Old Corms of Cyclamens: *T. S.* As your Cyclamens pass out of flower they should be stood in cold frames, gradually withholding water as the foliage dies down. The plants may then be kept quite dry for a few weeks. Towards the end of July or beginning of August they should be shaken out of their receptacles and repotted in pots of a suitable size. They should then be stood in a cold frame, watering them very carefully until they have made fresh roots, and have started to grow. They may also be planted out in a bed of prepared soil in a cold frame, from which they may be lifted during the autumn and placed in pots. This latter method often proves more successful than when they are grown in pots.

Tomatos Diseased: *F. B.* The fruits are suffering from "blossom-end" rot, which is the result of a sudden check to the plants during the growing period. If plants are growing rapidly and the tissues are soft, the brown spot on the fruits may be produced by giving the roots too little water. As you state that the Tomatos are grown in pots, it is probable that you have kept them too dry. Careful attention to watering, taking care not to allow the pots to dry out, will prevent the occurrence of this malady.

Communications Received.—E. C.—E. S. G.—D. M. W. H.—L. H.—C. W.—R. H. H.—A. M.—L. McC. W. —R. B. B.—J. H.—J. P.—W. J. B.—H. D.

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THE
Gardeners' Chronicle
No. 1899.—SATURDAY, MAY 19, 1923.

CONTENTS.

Apple stocks from woolly aphis, immunity of 267
Benlow, Mr. Joseph .. 268
Books, notices of—
Flowering plants of South Africa .. 268
Bulb garden, the—
Puschkinias 271
Tulips 271
Campanula Rapunculus 277
Chicago, beautifying and clearing up the city of 267
Chrysanthemums in France, the best .. 268
Confessions of a novice, more 273
Disease resistance and a copper hypothesis .. 276
Fairchild lecture, the .. 267
Fream memorial prize .. 267
"Gardeners' Chronicle" seventy-five years ago 269
Hardy flower border—
Erodium chamaedryoides 272
Geranium atlanticum 272
Geum rivale Leonard's var. 272
The coloured Astilbes 272
Holland, Horticulture in 268
Indoor plants—
Browallia speciosa major 272
Indoor Plants, cont.
Solanum Wendlandii 272
Streptocarpus .. 272
Kirstenbosch, new South African plants at .. 268
Lilies 274
Linnean Society's anniversary meeting .. 268
Parks and open spaces, public 273
Peas 277
Polyanthus, reversion in 269
Royal Academy, floral pictures at the .. 267
Rubber 277
Societies—
Deeside Field Club .. 279
Horticultural Club .. 277
National Tulip .. 278
Royal Horticultural .. 279
Stones, prevention of decay in building .. 267
Sulphur and Black Currant mite 268
Town refuse 267
Trees and shrubs—
A fine Amelanchier in a Cumberland garden 269
Cytisus purpureus incarnatus 269
Vegetable garden—
Beet 276
Week's work, the .. 270

ILLUSTRATIONS.

Benlow, Mr. Joseph, portrait of 268
Cytisus Dorthy Walpole 269
Iris Douglasiana var. Merton 271
Irrawaddy river, the headquarters of the 278
Lilium Stewartianum 275; L. Tenii 274
Muli monastery, on a limestone plateau east of the Yangtze 277
Odontioda Naomi 272
Rose David Lloyd George 273
Salt wells at Tsa-ka-lo, on the Mekong river .. 277

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 53.1°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 16, 10 a.m.: Bar. 29.7, temp. 46°. Weather—Cold rain.

Immunity of Apple Stocks from Woolly Aphis.

Attacks of Woolly Aphis on Apple although susceptible of control in gardens are a serious and not easily combated source of loss to the orchardist. It is therefore important that efforts should be made to ascertain whether it is possible to find stocks which are resistant to the disease. For, as is well known, Woolly Aphis occurs both on the stem and the roots of Apple trees, and obviously, attack on the root is more difficult to deal with than attack on the stem. Investigations into this subject are being made by Mr. Staniland, of the Department of Entomology, of the Imperial College of Science, in association with the East Malling Fruit Research Station. Although the inquiry is not yet complete, it has already led to useful results. A comprehensive test of all the various Paradise stocks isolated at the East Malling Station shows that none of them is immune. Among the most susceptible of these stocks so far as top is concerned are broad-leaved English Paradise and Doucin, two of the stocks in most common use. Among the less susceptible is French Paradise, and the only dwarfing stock the "tops" of which have proved resistant is an unnamed, layered Crab stock (H) of French origin. With respect to resistance below ground, this same stock and Type XVI. of the East Malling dwarfing stocks alone are resistant. Although broad-leaved Paradise and Doucin are susceptible, it is noteworthy that their roots offer greater resistance than do their stems to infection by Woolly Aphis.* Among Crab (seedling free) stocks, no less than among dwarfing (layered) stocks, the degree of resistance varies. Nevertheless of one hundred tested four were found to be either immune or highly resistant. All these were wildlings and present appearances very similar to the layered Crab (H) stock referred to previously, which also is resistant. Tests with Northern Spy confirm the conclusion reached by previous observers that it is immune from attack by Woolly Aphis. Unfortunately, however, there are reasons why it is unlikely that this stock will become of general use in this country. Nevertheless the author and his colleagues do not intend to neglect the possibility of making use of this immune variety. Experiments are already in progress in which Northern Spy has been crossed with the Doucin stock, and the first generation has already been raised, and is ready for testing. Should immunity prove a dominant character and should the hybrid possess the other qualities which go to the making of a useful stock, a great advance will have been made. The nature of immunity is also under investigation. In the case of resistance to Woolly Aphis, as in that of resistance to other diseases, this quality appears to be unrelated with vigour or dwarfness, and to bear no relation with type of root system — whether fibrous or coarse. This problem is, however, engaging the attention of Mr. Staniland, and it is greatly to be hoped that his researches will be no less successful in resolving the scientific problem of the nature of immunity than in providing—as they promise to do—an Apple stock at once of general utility and immune from attack by Woolly Aphis.

Beautifying and Clearing up the City of Chicago.—Three days after he was installed as Mayor of Chicago, Mr. Wm. E. Dever issued a proclamation ordering the time from April 23 to May 5 as a period in which the city should be cleared up and attempts made to beautify it. His action was endorsed by the Association of Commerce, by the Board of Education, and many civic and industrial clubs. The particular part of the proclamation to which we draw attention was as follows: "Every citizen should show his personal pride, as well as civic pride, by cleaning up his house and property so as to avoid fire risk, to clean up his front and back yard, to paint his premises, to abolish fly and mosquito breeding places, to help clean up vacant lots, to make flower and vegetable gardens, plant grass seed, shrubs and trees, all of which will tend to increase the healthfulness of the citizens, as well as increasing the beauty of our city surroundings." We admire the pluck of the Mayor of Chicago, and endorse his action, but we suggest that a little editing would have improved the style and force of his proclamation.

Town Refuse.—According to the Ministry of Agriculture, town refuse might be put to better use than burning, by converting it into a fertiliser. It is estimated that 10,000,000 tons per annum of refuse is produced in England and Wales, the production of London alone amounting to 1,500,000 tons yearly. The material is valuable for adding to soils of a heavy nature, as it improves the texture of such ground, and any manurial value it may have is to be attributed to the animal or vegetable matter present. Inspections of samples during the past season show that the winter delivery contained a larger percentage of cinders and a smaller percentage of animal and vegetable matter than the summer deliveries, and hence the latter have a rather higher value to the cultivator. Dressings of about ten tons per acre have proved very useful on heavy land for root crops, Cabbages, etc. As compared with stable manure at 12s. per ton, it is estimated that town refuse would be worth about 6s. per ton. In some of the northern towns, it is found possible to add a considerable amount of night soil in addition to street sweepings, cattle market manure, slaughter house refuse and stable manure, and this type of refuse forms an excellent fertiliser, containing one or more per cent. of nitrogen.

Prevention of Decay in Building Stones.—The question of the deterioration of stonework in buildings is a matter of general economic importance, but in the cases of historic buildings and ancient monuments, prevention of the serious decay and gradual demolition of tooled surfaces and main structures constitutes a special problem which has engaged the attention of many investigators for a considerable time without, however, any generally satisfactory solution. The investigation involved is very complex and needs the help of wide scientific knowledge. Accordingly, it has been decided to set up under the Department of Scientific and Industrial Research a special committee of the Building Research Board to report on the best methods by which decay in building stones, especially in ancient structures, may be prevented or arrested. The chairman of the committee will be Sir Aston Webb, and the other members will be Mr. R. J. Allison, Professor C. H. Desch, F.R.S., Mr. A. W. Heasman, Mr. J. A. Howe, Sir Herbert Jackson, F.R.S., Dr. Alexander Scott, F.R.S., and Mr. H. O. Weller, M.I.C.E. All communications on this subject should be addressed to the Secretary, Department of Scientific and Industrial Research, 16, Old Queen Street, S.W.1.

Fream Memorial Prize.—The Fream Memorial Prize, which is annually awarded by the Ministry of Agriculture and Fisheries to the candidate who obtains the highest marks in the examination for the National Diploma in Agriculture, has been won this year by Mr. Douglas H. Findlay, a student of Glasgow University and the West of Scotland Agricultural College. The value of the prize in 1323 is about £17 10s., which is devoted to the purchase of books.

The Fairchild Lecture.—The Master and Wardens of the Worshipful Company of Gardeners, being desirous of continuing the historical connection of the Company with Thomas Fairchild's lecture, which is delivered annually at Shoreditch Parish Church, have made arrangements for the attendance of the Company in state to hear the lecture delivered by the Rev. Ernest W. Barnes, D.Sc., Canon of Westminster, on the Wednesday in Whitsun week, the 23rd inst., at 5 p.m. The members of the Company and others will assemble in the Church Room, adjoining Shoreditch Church, at 4.45 p.m., where they will be met by the vicar, the Rev. F. E. Birch, and enter the church in procession.

Floral Pictures at the Royal Academy.—Flower pictures are not well represented this year at the Royal Academy, the redeeming point being, that the styles of floral art are most varied. One lifelike and convincing picture is the painting by Melton Fisher—showing masses of Paeonies of cream and pink shades, grouped in glass vases, and with the colours well arranged. Commencing with the first gallery, No. 4 claims attention—a glowing picture by Davis Richter, with pottery of various tones, and French Anemones. The next flower study is one of Roses (67)—a beautifully executed group in a glass vase, against an old Chinese screen. No 76 is a large painting of a London flower girl, the blooms in her basket being wonderfully brilliant—clusters of Marigolds, Wallflowers, Cinerarias, Narcissus and Lilac. No. 86, by Ruth Latter, is a lovely work of Delphiniums, Campanulas and Erigeron, in an ornamental white vase; these are pictured on a window seat with plenty of sunshine, and a view of green trees through the curtains. Near this, is a collection of blooms grouped and painted in the style of the old Dutch masters. An Oriental effect is gained

* "The Immunity of Apple Stocks from Attacks of Woolly Aphis. Part I.: The Relative Resistance of Different Root Stocks." *Journal of Pomology and Horticultural Science.* Vol. III., No. 2. April, 1923.

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in No. 103, by a highly decorative vase, holding Tulips and Laburnum, with a Chinese plaque as background. No. 200 is a very clean study of a group of Roses, Campanulas and Anchusas, reflected in a mirror. A good out-of-door effect is gained in a field of Gorse, in No. 207. A child carrying a bowl of bright flowers is a pleasing work, and a large picture of glowing colours, red flowers in a yellow pottery vase, Apples and Oranges, and blue drapery, makes a striking painting, in No. 308. A few flowers are introduced into a tea-table study in No. 321, and close by is a rich picture of Hydrangeas, in combination with foreign pottery, a Chinese mat, and a glittering plaque. A flower shop comes next, showing girls at work in an interior, arranging bowls and vases of Lilies, Fuchsias, Azaleas, Cinerarias, etc. Smaller pictures in oils show a group of African Marigolds, Stocks (very impressionist, on black ground), and a flat study of Tulips, Anemones and Narcissus. No 438 is a riot of colour, with fruit in the foreground, and then is displayed a showy group of spring flowers, with mauvy blue background, and farther on, an interior with pierced silver tray containing Peaches, and a china epergne with Grapes, also a flat impression of Carnations, Anemones, etc., in a blue vase, on blue check cloth. A charming study of single Stocks, against a muslin curtain, is bright and sparkling. Mr. Hayward has one of his little gems in "Sloes and Snowberries," and E. Wilkinson a charming little picture of Polyanthuses and Violets in a glass mug. There is not much to record in the water-colour room—a miniature of Marigolds by Mary Perrott; two wet studies of Hydrangeas and Mountain Clematis, by James Gray; a group of Carnations in a tall-stemmed vase, and Honeysuckle against a very blue ground. There is also a delightful picture of a garden with Hollyhocks, Phloxes, etc., an old blue gate, a lovely lawn and some Yew trees.

Linnean Society's Anniversary Meeting.—The Anniversary Meeting of the Linnean Society of London will be held at the Society's rooms, Burlington House, Piccadilly, at 5 p.m., on May 24, when the Fellows will proceed to elect the Council and officers for the ensuing year. Other business will include the presentation of the Linnean Gold Medal and the delivery of the presidential address.

Glasgow Parks Superintendency.—A sub-committee of the Parks Committee of the Glasgow Corporation has unanimously decided to recommend Mr. Edward Matthews, Assistant Parks Superintendent, to be appointed superintendent in succession to Mr. Whitton, who retires during the present month. Mr. Matthews was appointed to his present position in 1920, and was previously gardener to the Duke of Wellington, at Strathfieldsaye, and to the Dowager Countess of Wilton.

New South African Plants at Kirstenbosch.—The great interest South African horticulturists and botanists are taking in the National Gardens at Kirstenbosch is indicated in the *Annals of the Bolus Herbarium*, a periodical publication, which will be published with greater facility when the Bolus Herbarium is established at Kirstenbosch. In a recent issue Mrs. F. Bolus describes several new plants sent to Kirstenbosch by enthusiastic collectors. These are Agapanthus pendulus from Lydenburg, Transvaal; Nerine Frithii, from Riverton; Strumaria Watermeyeri and Mesembryanthemum Watermeyeri, from Nieuwoudtville; Tritonia Mathewsiana, from Graskop, Pilgrim's Rest; Mesembryanthemum Peacockiae, from near Darling; Impatiens Duthieae, from Kynsna; Watsonia Pillansii, collected by Mr. N. S. Pillans in the Montagu Pass; and Dolichos Peglerae from the Enkazini Forest in Natal, which bears trusses of pink and mauve flowers in late summer.

Sulphur and Black Currant Mite.—Wide differences of opinion exist as to the value of sulphur and lime-sulphur in the control of Black Currant Mite. Recent experiments carried out by Mr. Lees at Long Ashton Research Station appear to leave no doubt of the lethal effects of both sulphur and lime-sulphur on the mites; but the difficulty of controlling the pest by these means lies in the length of time during which the mites are migrating. In the open migration goes on during two-and-a-half or three months, and clearly no single application of a spray is likely to prove effective throughout that time. Moreover, as the leaves develop, the spray material is less likely to reach the buds. The author is of opinion that if ready means of developing a sulphur cloud could be invented, they might be successful in ridding Currants of this pest.

Mr. Joseph Benbow.—We have just been informed that Mr. Joseph Benbow is retiring from the superintendence of the famous La Mortola Gardens, Ventimiglia, about the end of June. Mr. Benbow, who is an old Kewite, has held his present post since 1903, previous to which he was gardener at Abbotsbury, near Dorchester. Founded by the late Sir Thomas Hanbury in 1867, the gardens at La Mortola soon became famous for their beauty and the wealth of sub-tropical plants grown there, and for many years now have been probably the finest and most interesting gardens on the Continent. Since the death of Sir Thomas they

MR. JOSEPH BENBOW.

have been maintained in their old splendour by his son, Mr. Cecil Hanbury, to whom, and to Mr. Benbow, the gratitude of thousands annually who visit them, is due. Mr. Benbow, who retires on a pension, is coming to live in England, having been generously furnished with a house by Mr. Hanbury on his estate near Dorchester. He will be succeeded at La Mortola by his present assistant, Lieut. S. McLeod Braggins, also an old Kewite.

Flowering Plants of South Africa.—The issue for April, 1923, being No. 10, Vol. 3, of the *Flowering Plants of South Africa*, contains illustrations and descriptions of ten plants. Lachenalia Roodeae, tab. 91, is a very ornamental species, the inflorescence forming a many-flowered spike of purplish flowers with exerted stamens. The plant is said to be common in the Van Rhynsdorp district; it is near to, but distinct from, L. carnosa, Baker. Brunia Stokoei, tab. 92, is a plant of very curious appearance, the stems and foliage suggesting a Conifer. The flowers are produced in globose heads of small reddish flowers. The Bruniaceae comprise about fifty species, all confined to the south-western portion of the Cape Province. Hoodia Bainii, tab. 93, is a showy Asclepiad with glaucous-blue, succulent stems furnished with prickles, and the stems bear at their apices large yellow blooms with a dark corona standing out in sharp relief in the middle of the saucer-shaped corolla. In common with those of most members of this genus, the flowers have a disagreeable odour. Tritonia Mathewsiana, tab. 94, differs from all other members of the Iridaceae family in having brown spathe valves. The plant has the long, narrow, characteristic leaves of the genus, and produces racemose inflorescences bearing orange-red flowers. Leucospermum cordatum, tab. 95, is a decumbent member of the Proteaceae with long, trailing branches bearing very pointedly cordate foliage with a reddish margin. The flower heads are solitary and not very ornamental. Aloe saponaria, tab. 96, is an old plant in cultivation; it was introduced into Europe in the eighteenth century. The colour of the flowers varies; there are three well defined varieties of the plant, with salmon-coloured, red and pale lemon-yellow flowers respectively. Synnotia Metelerkampiae, tab. 97, is a very charming Irid, with violet-blue flowers. It forms a glabrous herb some 16-25 cm. high, and produces a corm. The racemose inflorescence bears some nine to twelve almost erect flowers with long tubes, and lip marked with reddish-orange. Chrysophyllum magalismontanum, tab. 98, is a very successful colour reproduction, the plate showing foliage and fruits, together with floral details. The fruits are oval, about the size of Bullaces. Cyrtanthus helictus, tab. 99, is a bulbous plant with narrow, spirally twisted leaves, and a solitary inflorescence. The bloom is tubular with faint stripings of rose on a white ground. Protea Stokoei, tab. 100, is allied to P. speciosa, but differs in certain characters, the chief of which are the long hairs on the involucral bracts forming a fringe or beard. The plant is a spreading bush about six feet high.

"Horticulture in Holland."—The publication issued by Bendien's International Commercial Intelligence Bureau, Amsterdam, under the title of *Horticulture in Holland*, is obviously an advertising medium, but, nevertheless, contains much that is of particular interest to bulb importers. Dr. W. J. Franck deals at some length with the work of the Dutch Seed-Testing Station at Wageningen, and there is a lengthy article on the Phytopathological service in the Netherlands. Dr. W. F. Wery discusses the plant export trade in Holland, with particular reference to the Boskoop district; he states that in 1921 the exports to foreign countries amounted to 12,989 tons of plants. The concluding article is one on Dutch bulbs by Mr. W. van der Laan, secretary of the Dutch Bulb Growers' Association. The whole publication is freely illustrated.

The Best Chrysanthemums in France.—The French National Horticultural Society has appointed a Committee of its members to go each year into the question of the best Chrysanthemums, and a report is made after careful observation of the habits of growth of the varieties under review. A list has been made each year from 1919, and observations taken in the year 1922 have resulted in the following six varieties being chosen as the best for French gardens:—Andre Rigollet, Chrysanthémiste Paul Oudot, Louisa Pockett, Majestic, Mrs. Geo. Monro and Vice-President Lionnet.

Local Horticultural Societies.—The Saffron Walden Horticultural Society has recently been revived. The Mayor of Saffron Walden, Mr. D. Miller, has been elected chairman, and a committee appointed, and an exhibition has been arranged for Thursday, July 26, to be held by permission of C. W. Rolfe, Esq., in the grounds of Farmadine. Money prizes to the value of £125 are offered, and there are numbers of special prizes, including two cups offered by Messrs. C. Engelmann and J. Vert and Sons respectively. Prizes of £10 and £5 respectively are offered for the best exhibit of flowers in a class open to the trade outside the borough of Saffron Walden.—Ulster Horticultural Society has arranged to hold a show at the Botanic Gardens, Belfast, at the end of August or early in September. A series of lectures has been arranged by the Society, and the second of the series was delivered by Mr. Edward Cowdy on April 11, his subject being "The Sweet Pea and How to Grow it."

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Dutch Bulbs in the Tuileries Gardens.—Visitors to the Tuileries Gardens, in Paris, have enjoyed this spring a lovely display of flowering bulbs, 200,000 of which were presented to the gardens by an association of Dutch Bulb Growers. The bulbs—Tulips and Hyacinths—were offered to the French Government through the Dutch Government, and were planted last autumn by two Dutch horticulturists in that part of the gardens traversed by the Avenue Paul Déroulède. In order to preclude the idea that any direct advertisement was intended on the part of the Dutch bulb growers, no encouragement has been given to French amateur horticulturists to attempt to obtain supplies of bulbs direct from Holland. Nevertheless, the growers naturally hope that the beautiful display they have provided will encourage the planting of bulbs in masses in French gardens and their purchase through the medium of French bulb merchants.

Reversion in Polyanthus.—A correspondent sends an inflorescence bearing both coloured Polyanthus-like flowers and yellow flowers of Primrose colour; a rare occurrence. Nevertheless similar sports are known. For example, Potatos with coloured flesh may give rise to plants bearing white-fleshed tubers. Such phenomena are sometimes regarded as examples of vegetative segregation, but it would seem more probable—having regard to the fact that colour only is the character affected—that the agents which give rise in the plant to flower colour are discrete bodies which undergo division in the cells of the plant at a rate which may be independent of that of cell divisions. On this view it is to be inferred that the antecedents of pigment in the cell or cell group which by its division gave rise to a yellow flower divided irregularly so that none of them passed into the cells of the tissues from which the corolla arises.

Appointments for the Ensuing Week.—Thursday, May 24: Royal Botanic Society's meeting. Friday, May 25: French National Horticultural Society's show at Cours-la-Reine, Paris (ten days).

"Gardeners' Chronicle" Seventy-five Years Ago.—*Expeditious Culture of the Manchester Hero Cucumber.*—From two seeds sent me under this name I grew two plants, and on March 29, I made a bed and planted them out in a small two-light pit, having metallic lights. On April 19, I cut three fine Cucumbers; one sixteen inches long, another fourteen, and one thirteen. On April 26, I cut one eighteen inches long; on the 27th do., one thirteen inches long; and on the 29th do., seven Cucumbers, in order to strengthen the plants, measuring altogether four feet two inches. On May 2, I cut one fruit twelve inches long, and one fourteen inches. The plants were turned out of five inch pots; they showed fruit at the time, and swelled at the length of three or four inches. I cut them off, thinking they would weaken the plants. The pit is eight feet by four-and-a-half, and close boarded three feet from the lights, to prevent steam from entering. I placed rough boards about four inches above the close boards, and on the rough boards I put about fifteen inches of dung; I then soiled the bed, and turned out the plants without waiting for the soil to get warm. The pit is worked by linings, and the soil was warm by the morning; the pit stands on piers about three-and-a-half feet high. I once gained a first prize for Cucumbers in the beginning of April, and a short time after, I threw the plants away, and planted out Melons, which gained a first prize on June 30, at Cirencester. I adopted the same plan with my Cucumbers, throwing away plants that had been growing all the winter; I then took the soil and dung out of the pit and put in fresh, planted out the plants, and the above is the result. I have used the pit for nearly twenty years, and have found it answer well in every respect; it is also an excellent place for striking cuttings in, plunged in sawdust or coal-ashes, near the glass. *Thomas Pollington, Bradwell Grove, Oxfordshire, May 5. Gard. Chron., May 13, 1848.*

TREES AND SHRUBS.

A FINE AMELANCHIER IN A CUMBERLAND GARDEN.

The June-berry (Amelanchier canadensis) is perhaps not so much planted in these days as it deserves. It has, of course, to compete with an ever increasing number of newer Rosaceous flowering trees and shrubs. In its small state it may not be very striking, but it may make quite an imposing, wide-spreading, flowering tree. Surely Nicholson, in his *Dictionary of Gardening*, is in error in limiting its height to 6-8 feet!

FIG. 124.—CYTISUS DOROTHY WALPOLE: R.H.S. AWARD OF MERIT, MAY 8. (SEE PAGE 264).

The tree which is the subject of this note is about 22 feet high, and its branches extend outwards to a circumference of 30 or more yards. It is probably about 100 years old, and is now beginning to show signs of failing vigour. It is growing on a lawn at an elevation of 200 feet and eight miles inland from the Solway Firth.

The June-berry is especially attractive at two seasons of the year—in spring, when it never fails to be a sheet of bloom, and in autumn, when it glows with crimson. The blossom is accompanied by the bronzy-red young foliage, which for a time after the petals have fallen renders the tree strikingly beautiful. In its vernal combination of white and bronze it is in some degree matched by our wild Cherry, but the two trees do not compete with one another, as the Amelanchier flowers two or three weeks earlier, usually in Cumberland about the middle of April. It also, like the Cherry, reddens in autumn, but its tints are more vivid and telling. The small purple-red fruits it bears cannot be regarded as a conspicuous feature, but they are highly flavoured and much sought after by birds.

Considering that this tree is a native of the Atlantic side of North America and so belongs to a marked Continental climate, it is a little surprising that it should grow so well in this part of England. Not only does it flourish, but it is capable of naturalising itself to some extent, for a few plants have sprung up in the adjoining hedges and thickets, evidently from seeds carried by birds from this tree or its companion. There happen to be two specimens in this garden, probably planted at the same time. Hence if cross-pollination be necessary for the setting of fruit, it can take place. *J. P. Carlisle.*

CYTISUS PURPUREUS INCARNATUS.

Mr. A. T. Johnson seems to imply (p. 230) that this Broom is not so permanent as the others, *i.e.*, C. purpureus and C. p. albus. I grew the three somewhat closely together for a long number of years, and found no difference in their duration either in flower or in life. I am wondering if Mr. Johnson's plants of C. incarnatus were on their own roots or grafted or budded. I like C. p. incarnatus both for its colour and habit. *S. Arnott.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Phalænopsis.—These handsome Orchids commence to make new roots at this season, and will therefore require attention. Whatever kind of receptacles the plants are grown in, they should be well drained; the old material should be carefully removed, cutting away all decayed roots and cleansing those that remain by immersing them in clean, tepid rain water. Only a thin layer of clean, live Sphagnum Moss is necessary as compost, which should be made moderately firm, especially around the base of the plants. Having finished the potting, water the plants liberally with tepid rain water, allowing them then to become dry before renewing the supply. Shade the plants rather heavily after they have been disturbed at the roots. A stuffy atmosphere is harmful to these Orchids at all times; by maintaining the necessary amount of warmth, and a genial, humid atmosphere in the house, the growth will be free, healthy and strong. Even these heat-loving plants need fresh air, if strong, satisfactory growth is to be expected, and the cultivator may safely assume if the temperature of any house feels oppressive to him, it is the same to the plants.

Odontoglossum. — Odontoglossums of the grande and Insleayi section require a slightly higher temperature than that provided for O. crispum. They are best grown during the winter in the cooler end of the intermediate house, and kept comparatively dry, but during the summer they should be placed in the warmer end of the Odontoglossum house. Many of these Mexican Odontoglossums have commenced to grow afresh, and when their growths are fairly started, and before they push roots, should, if necessary, be potted. I do not recommend the practice of top dressing, for the reason that it makes the application of water to the compost most difficult, as the compost at the top will be in good condition, whilst that beneath may be sour and decomposed. These plants will succeed in similar compost to that used for other Odontoglossums having thicker leaves and roots; they are capable of withstanding more sunlight than the thin-leaved species, and the compost should be used in a coarser and rougher condition. Whilst these plants need a fair amount of direct light, the two extremes must be avoided, as too much light or too much shade will both lead to unsatisfactory growth. These Odontoglossums constitute a most useful and interesting class of plants which produce their flowers at a season when they are most acceptable. As plants of Odontoglossum Rossii majus and O. Cervantesii pass out of flower, they should also be given the necessary attention at the roots. These plants, being small in stature, are best grown in plain, shallow pans suspended from the roof rafters. In repotting them it is always advisable to remove the old parasitical back pseudo-bulbs; three or four behind each lead are sufficient to retain. Members of O. grande section are best grown in ordinary pots.

HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Apple Scab.—This is one of the commonest diseases of the Apple, but is easily combated, for which reason compulsory measures are advised, and should be dealt with by local authorities, for it is unfair that growers, either commercial or private, should be put to yearly expense and probably loss because their neighbours fail to deal with the pest. Bordeaux mixture is fairly cheap to make, and two applications, one immediately after the blossom has fallen, and a second when the fruit has well developed, will probably prove sufficient. The disease is easily detected by the appearance of brown, sooty blotches on the leaves. If the disease was present the previous year, it is very necessary to give the first spraying the following season.

Strawberry Beds.—Strawberry plants need considerable attention at this season to ensure a good crop. A liberal dressing of soot, applied before the blossoms open, will be helpful to the plants. Besides acting as a fertiliser, the soot, in conjunction with constant hoeing of the soil, will serve to keep slugs and other pests in check.

Wall Trees.—Following the reduction of growth on wall fruit trees, thinning of the fruits will be necessary, more particularly in the cases of Peaches and Nectarines. In determining the crop a tree should carry, it is a general practice to allow one fruit to every square foot of surface covered by the tree.

Mulching.—It is to be recommended that trees, and especially those growing on hillsides and in light land, should be mulched with stable manure where possible. Failing this, deep hoeing of the soil should be done as frequently as possible to obtain a fine tilth to the depth of one inch. To merely scratch over the surface is useless beyond the suppression of weeds.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Primula verticillata.—Seed of this fine species should be sown during May, as it requires a rather long season to produce really good plants. This Primula succeeds under similar treatment to that afforded the sinensis varieties. It is, apart from its individual merits, interesting as being one of the parents of Primula kewensis.

Cineraria.—Where Cinerarias are required to flower early, a little seed should be sown at this time; for decorative purposes the intermediate types should be selected in preference to the large flowered, so-called florists' varieties. The intermediate varieties include some fine blue-flowered strains, which come true from seed. Cinerarias need cool, moist conditions, and during the summer are best grown in cold frames. They are very subject to attacks of green fly, which must be guarded against by lightly fumigating the house or frame in which they are grown. By raising successional batches plants may be had in flower over a long period.

Euphorbia fulgens.—This plant should now be propagated by means of cuttings made from young side shoots. Make the cuttings with a very thin portion of the old wood when the shoots are about 3 inches long. Insert the cuttings in pots containing sandy soil, and plunge the pots in a warm propagating case with plenty of bottom heat, taking care that the cuttings are never allowed to flag. Many cultivators find a difficulty in rooting this plant from young cuttings. If the old stems are cut into pieces about 3 inches long, there should be little difficulty in rooting them successfully; although I do not consider that plants raised in this way ever grow with the same freedom as those raised from young cuttings. This plant is by no means easy to cultivate in pots, and requires to be watered carefully at all times. It is seen at its best when it is planted out on a raised bed in a low house, and the long, slender shoots tied to wires under the roof-glass.

Winter-flowering Begonias.—This type of Begonia, as represented by such fine varieties as Optima, Exquisite and Mrs. Heal, should be propagated as suitable shoots for use as cuttings become available. The cuttings may be inserted when they are three to four inches in length. They root readily in a warm case, and are best inserted singly in small pots in a light, sandy compost. When rooted, grow the plants on in a house having an intermediate temperature.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

China Asters.—A second or late sowing of this annual made now will furnish plants suitable for supplying cut flowers until the advent of frosts. In warm and southern gardens the seeds may be sown out-of-doors, but in colder districts the sowing should be made under glass. Backward plants from this sowing will be useful, if put in pots for indoor flowering.

Autumn-sown Seedlings.—These have made excellent progress, and in some places are too thick and need thinning. A few of the surplus plants may be transplanted in bare places. This work is best done on a dull day, or after a shower.

Roses.—As the growth of Roses proceeds, it is advisable to examine the plants occasionally, with a view to keeping down the enemies which attack Roses in some degree every year, the three worst being grubs, aphis, and mildew. Many a fine Rose bloom falls a prey in its bud stage to the Rose grub, which should be sought for and destroyed by hand, a somewhat tedious business where many beds of plants have to be dealt with. Syringing with suitable specifics will help to suppress this pest, but, once the caterpillars have secluded themselves in the leaf or bud, hand-picking is the only sure remedy Green fly and mildew may be fairly successfully combated with special solutions sold for the purpose, while tobacco powder and powdered sulphur are old, valuable remedies for destroying these two foes. Any growths that may already have lost their buds may be cut back to promote the development of fresh shoots. A few weakly growths may also need removing where the plants look congested with growth, and a few buds may be taken off where they are so thickly placed as to prevent good flowers developing. Keep the surfaces of the beds trim and fresh-looking by an occasional use of the hoe, and see that newly planted Roses against walls or pillars are not too dry at the roots.

Flower Seeds.—Although practically all hardy perennials are amenable to increase by division, it is good practice to raise a few of them from seed from time to time to obtain fresh, strong stock and additional variety. Sow the seeds in shallow drills in the open ground, and, when the seedlings are strong enough, transplant them elsewhere as convenient. These latter remarks apply, also, to the treatment of what are usually termed biennials—Wallflowers, for example. The sowing of seeds of such plants may follow that of perennials by the end of the present month, excepting in warm, southern gardens, when nine to fourteen days later will be soon enough.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Melons.—Fruits on the earliest Melon plants will be in a more or less forward state according to the variety and the conditions under which they have been grown. It is very necessary to encourage healthy root action up to the time the fruits are ready to cut, for once the plants receive a check they seldom recover sufficiently to mature their fruits properly. To ensure this it is advisable to place a small quantity of compost over the roots when they show through the soil. The compost should be warmed to the temperature of the house. The first batch of plants will not require mulching, as the amount of sun-heat will not dry the soil as in the case of the later batches. Cracking and splitting of the fruits are brought about by an excess of humidity in the atmosphere, with a sudden rise of temperature. When the fruits commence to change colour, damping should be discontinued, as a warm, dry atmosphere is necessary to develop a rich flavour in the fruits. The common practice of drying off the plants by withholding water from the soil is wrong; afford sufficient water to keep the soil moist. The earliest plants will need very little feeding; an application of a suitable artificial

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manure, with one or two waterings with liquid manure, will suffice. The fruits of certain varieties of Melons separate from the stem much more readily than others; these should be closely watched and cut on the first signs of separation. Fruits of this type are best kept in the house for two or three days to mature, after being cut. Sow more seed to raise plants for succession of fruiting as circumstances may require. From seed sown now the plants should yield ripe fruits in fourteen weeks under normal conditions.

Vines.—Vineries in which the Grapes are ripening should be ventilated freely whenever the weather is suitable, for a dry, buoyant atmosphere is one of the principal factors in perfecting the colouring of the berries, other essentials being healthy root action and strong foliage. Vines which are not over-cropped will continue to develop lateral growths, and where space permits these may be left intact; gross lateral growths should, however, be pinched. Crowding of the foliage should be strictly guarded against; each leaf should be fully exposed to full light of the sun. If the vines are free from red spider and thrip, they will probably remain so until the bunches are cut, when the vines may be cleansed thoroughly. A cool night temperature tends to promote good colour in the berries. On mild nights leave the top ventilators open a little, and gradually increase the amount of ventilation as the outside temperature increases. The night temperature may range from 60° to 65°; when the temperature of the vinery during the day reaches 80° full ventilation should be given. During the period the berries are swelling and colouring the roots should be fed liberally with liquid manure; whilst an occasional application of soot water will materially assist the colouring of the berries.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Radishes.—Make a sowing of Radish about once a fortnight to maintain an unbroken supply. Choose a partially shaded border for growing Radishes from now onwards. Sow only a few drills at a time, as fresh, young roots are much the best. Net the seed against birds, and water the soil well if the weather is dry. Radishes in frames should be kept well watered or the roots will become tough.

Celery.—Celery plants raised from seed sown in February are ready for transferring to trenches prepared as advised in a previous calendar. Lightly fork the bottom of the trench, and rake the soil to obtain a fine tilth. Use a board to stand upon, and in planting work backwards. Where the trenches are made to accommodate double rows, plant the seedlings one foot apart alternately in the rows. Plant firmly, using a trowel, and water each trench with a large rosed can as it is completed. If the weather is dry, give the trench a good soaking with water every other day, and the plants will soon make good progress. Dust the tops with old soot during showery weather. Watch carefully for the Celery-leaf miner, and pick the affected parts off by hand. This pest is soon detected, as it causes the leaves to turn brown. Periodical dustings of soot will act as a preventive, and there is no finer stimulant for Celery than soot. Later batches may be put out in the trenches as they become ready. If extra fine plants are desired for early exhibitions, plant in single rows, and blanch the stems with brown paper bands tied around them as growth proceeds. Mulch the plants with half-rotted manure. By this method much better attention can be given the plants, as regards watering, etc., and no more labour is involved than by earthing up. Later batches must be earthed up to withstand the winter. Sutton's Solid White and Carter's Solid Ivory are two good early varieties.

Lettuces.—The soil about young Lettuce plants growing on Celery ridges should be kept hoed and watered, especially if they have been planted out from seedling beds in frames. The plants of outdoor sowings need thinning as soon as they are large enough to handle.

THE BULB GARDEN.

PUSCHKINIAS.

We generally meet with the pretty Puschkinias in groups of from half-a-dozen to a dozen bulbs, planted closely together, and we cannot then realise the true charms of this fairy-like little flower, allied to the Scillas but of softer and more delicate colouring than the most of these flowers.

Its bane is the slug, but if planted in quantity this arch enemy of the gardener appears to come to the conclusion that it is "too common" for him to make a dainty morsel of, and does not crop it to the ground as he will do with one or two bulbs. But even a goodly number of Puschkinias will not cost very much for a considerable number, and I have just looked up the list of a reliable firm which offers P. libanotica or scilloides at 5s. 6d. per 100 or 53s. per 1,000. What has specially induced me to pen this note was seeing recently a lovely group of irregular form of P. libanotica in a northern garden, where about a hundred or so had been planted about an inch apart. Among numerous other bulbs, the Puschkinia was charming and fully justified the choice of its owner, one of high taste in floricultural affairs. P. libanotica is said to be synonymous with P. scilloides. The variety compacta has more flowers in a truss, but they look rather too close together to suit every one. The flowers are a pleasing light blue and white. P. libanotica may be purchased in early autumn and planted about an inch apart at a depth of one or two inches, and will flower about March. *S. Arnott.*

TULIPS.

May is the chief month of the Tulip, for although the early bedding varieties flower in April they usually last in beauty until the early days of May, when they are followed by the much more beautiful late flowering varieties of the Cottage, Darwin, Bizarre and Parrot types. The graceful foliage and long stalks, holding their large, cup-shaped flowers, often 2 feet above the ground, give them many advantages over the early-flowering section.

FIG. 125.—IRIS DOUGLASIANA VAR. MERTON: R.H.S. AWARD OF MERIT, MAY 8.
(SEE PAGE 264.)

Used with such dwarf-growing plants as Aubrietias, Arabis, Myosotis, Pansies and Violas as a carpet, they are invaluable for the adornment of the formal garden and pergola bases.

Such popular varieties as Clara Butt and Gustave Doré, carpeted with double white Arabis; vitellina, Golden Crown and Bouton d'Or, carpeted with Aubrietia or Myosotis; La Merveille and Caledonia, carpeted with white or yellow Violas make a very effective colour scheme, and the scope for variation is sufficiently wide to meet all conditions and suit every taste.

Very striking colour effects may also be obtained in the less formal part of the garden by planting Darwin Tulips in combination with Azalea mollis. The soft tones of the Azaleas harmonise perfectly with the Tulips, and produce pictures of surpassing brilliance and beauty. *W. Auton.*

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INDOOR PLANTS.

BROWALLIA SPECIOSA MAJOR.

SEED of this interesting greenhouse plant should be sown at once, and the plants therefrom will make a useful addition to the conservatory subjects during autumn, provided they are not grown too quickly in their early stages.

If the seedlings are raised in very open soil in a greenhouse, they will be ready for transferring to small 60 sized pots in about a month. As roots form quickly, the plants should not be allowed to remain too long before they are finally placed in their flowering pots, which may be either 4 inches or 6 inches in diameter. Use a good, open loam mixed with rotted manure and leaf-mould. Water the plants carefully until the pots are filled with roots, after which liberal supplies of manure water may be given. Watch carefully for aphis, and fumigate the house on the first appearance of this pest.

Grow the plants on a shelf of the greenhouse or in a frame, and they will give a succession of delightful blue flowers. *J.*

FIG 126. — ODONTIODA NAOMI : R.H.S. FIRST CLASS CERTIFICATE, MAY 8.
(SEE PAGE 264)

SOLANUM WENDLANDII.

IT is to be regretted that Solanum Wendlandii is so seldom included in the general collection of greenhouse plants in private establishments—and I do not remember it being shown on any large scale since the time when Messrs. James Veitch and Sons used to exhibit it. This firm grew it well and showed it with enormous heads of blue flowers in 4½-inch pots.

Propagated from cuttings inserted in sand the plants make fine specimens quickly, if potted on in good loam, into 48-sized pots. Such plants will flower during the late summer. As an alternative they may be grown on as specimen plants by pinching the leading growths early, and repotting them into larger receptacles. In all cases firm soil is of the utmost importance.

The best use to which this plant can be put is, however, as a greenhouse climber. Planted out in rich soil, it will in a year or two make a very grand plant. Taken up a pillar and then trained along a wire or chain, it will flourish splendidly, and is a rich feast of colour when in full bloom, its pendulous clusters of flowers being the admiration of all who have grown it.

The roots should be fed liberally with weak liquid cow manure and soot water whilst the plant is actively growing. The leaves and shoots should be syringed with a weak insecticide on frequent occasions. All decaying growth and all the old shoots that can be dispensed with should be removed, training in the young growths for extension where possible.

STREPTOCARPUS.

A VERY general impression prevails that this lovely greenhouse plant needs a high temperature, and I believe more failures arise from this than any other cause. With such delightful strains as are now procurable, it is a pity that more cultivators do not grow a good batch of plants. Their culture is easy, and if kept clean they will more than repay a trial.

The best time to sow the seed is, speaking generally, the early part of June. Sow in pans of very light gritty soil, taking care to first mix the seed with fine sand, for it is of very small size.

Press the seed into the soil, cover the seed-pan with a sheet of glass and place it in a shaded pit, having a temperature of about 60°. Turn the glass every day—or, if necessary, twice daily.

Gradually accustom the seedlings to the light, shading them from direct sunshine, and prick them off, as soon as they can be held with a split match stalk, into a light, peaty mixture. The pace at which they grow is remarkable, and a second pricking off into boxes is soon needed—after which they may be placed in small 60-sized pots, still using a mixture that is rather on the light side, but not adding much peat. At that stage the plants may be grown in a shady frame or pit, but strict attention must be paid to syringing them to keep them free of aphis—their great enemy.

By September the plants will be ready for transferring to pots in which they will flower, those of 48-size being suitable; if room is not available for them during the winter they will not take much harm if not repotted until March. Such plants should be given manure-water on one or two occasions during September.

The soil for the final potting should consist of very fibrous loam, mixed with a generous amount of leaf-mould, a little peat and sand. Do not pot too firmly; water the roots and grow the plants in a moist, close atmosphere; after that a temperature of 50°, with shady conditions, will be suitable.

The newer strains of Streptocarpus provide flowers with lovely shades of pink, red and blue, many being quite self-coloured. The flowers are larger and the stems such longer than in the older type. *J. S. D.*

HARDY FLOWER BORDER.

THE COLOURED ASTILBES.

THE coloured Astilbes are not always easy to place where their hues will be in harmony with those of other flowers. In some places their clouds of pink or red of various shades do not associate with other plants so as to give unalloyed pleasure. A few years ago, about the time the Arendsi hybrids were first introduced, I saw a nice effect produced by groups of Venus and some others in the wonderfully beautiful rock garden at Carnell, Ayrshire, where Mrs. Findlay Hamilton created such a magnificent rock and water garden. Down near the water these were superb. As single plants in large borders in other places I have never cared for them after seeing how well they were adapted for waterside treatment. At Argaty, Perthshire, a good number have been planted in the lower levels of the charming Dene, and last year these were glorious when seen from above, or when looking up the lovely glen, with its babbling stream and the tracery of branch and leaf. In addition to some of the Arendsi varieties of the Venus type, coloured ones of the astilboides class and the tall Salland and others have been employed at Argaty in groups of one variety, associated with the others, however, and planted irregularly with a plant or two straying from the main mass in a pleasing fashion. This is one of the most successful ways of employing these coloured Astilbes.

GEUM RIVALE LEONARD'S VARIETY.

THIS beautiful Geum is named after the late Mr. H. S. Leonard, of Hitherbury, Guildford, the founder of the Guildford Hardy Plant Nursery, who, in his day, was one of the pioneers of alpine plant propagation and distribution. The plant is also known as Geum rivale Guildford Variety. Our wilding looks dull indeed beside this fine variety, which if I recollect aright, Mr. Leonard once told me he had found in Norway. This Water Avens has old-rose-coloured blossoms, a replica of the wild Water Avens with brighter coloured flowers, and the same graceful habit of the wilding. It makes an excellent border plant, and increases quickly, necessitating division and replanting every two or three years. This Geum also makes a capital subject for the waterside *S. Arnott.*

GERANIUM ATLANTICUM.

THOUGH by no means a new plant, Geranium atlanticum is still uncommon in gardens, which is the more remarkable since it is not only distinct, but a species of much merit. It sends up flower stems to the height of rather less than a foot in spring, and these bear violet blossoms, slightly shaded with red. At this season, the deeply-cut leaves might be mistaken for those of a Wood Anemone, since they rise direct from rhizomatous stems, and make a dense carpet about half the height of the flower spike. These die away in summer, when the plant undergoes a rest, to reappear with the autumn rains.

G. atlanticum does well in any ordinary, well-drained loam, but it often takes some time to become established. The probability is that this is due to transplanting when the plant is in active growth, whereas the better way would be to move the roots as soon as the foliage dies down in summer.

ERODIUM CHAMAEDRYOIDES.

ALSO known as E. Reichardi, this is a very delightful little carpeting plant for any cool, but free soil, with open exposure. It makes a prostrate mass of dark green, scalloped leaves above which the milk-white flowers rise on one-inch stems in spring. Though hardy and free growing, it is not a trespassing plant. It may be trusted among the choicest species, and its mat of foliage makes an admirable setting for dwarf Narcissi, species of Crocus, and other tiny bulbous plants.

There is a form of the plant known as rosea, which differs only in the colour and size of its flowers, these being a clear rose-pink, with veinings of a deeper hue, and they are considerably larger than those of the type. *A. T. J.*

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PUBLIC PARKS AND OPEN SPACES.

THE official opening of new bowling greens at Preston Park on May Day provided numerous Brighton residents with an opportunity of viewing many improvements carried out under the direction of Mr. H. B. MacLaren, superintendent of the Parks and Gardens.

Near the southern entrance to Preston Park, an old hut and its surrounding derelict shrubs have been cleared away to allow spectators a clear view of the bowling greens and the tennis courts, of which latter there are now nineteen, eight having been made recently.

In the south-eastern corner of the Park a fine new pavilion has been erected from designs by Mr. MacLaren. It contains rooms for bowlers and for tennis players and accommodation for both ladies and gentlemen. Here also are a Rose pergola and Rose-clad verandahs, the whole being surrounded by dwarf walls and low rockwork, in which the numerous bright alpine plants find a congenial home and natural setting. This new playing centre at Preston Park has cost the Brighton Town Council about £3,000, but it is estimated that the revenue from the new greens and tennis courts will soon cover this outlay.

THE Corporation of Eastbourne has bought the Manor House, near the Royal Eastbourne Golf Links, for the extension of Gildredge Park. The property was offered by auction last summer, and the Corporation now becomes the owner at a cost of £19,000. The Manor House was formerly a vicarage, being erected by the Rev. Henry Lushington, who was vicar of the Parish in 1735; it became the Manor House in 1792. The gardens have an area of nearly nine acres, and include a summer house built by the brothers Adam, much of whose work is contained in the interior of the house.

THE Glasgow Botanic Gardens are under the administration of the Parks Department of the Corporation. They are situated on the western fringe of the city, and on undulating ground, with numerous shady walks and pleasing vistas. From the high ground above the Kelvin the view is extensive, and semi-highland in character, including within the range of vision the Campsie Fells, the Kilpatrick Hills, and Ben Lomond.

There are many features of interest in the garden, including an enclosed herb garden, with medicinal and culinary herbs, parallel herbaceous borders flanking the promenade extending from the main range of glasshouses, a hardy Fernery, and a water garden, consisting of twin ponds, the overflow from the upper feeding the lower pond, the overflow from the latter trickling across one side of the rock garden, which is contiguous. The shelving banks of the dry bed of a stream are gay with Cytisus kewensis, C. Ardoinii, Ranunculus amplexicaulis, Cardamine digitata, Primula pubescens, P. frondosa, Draba aizoides, and Saxifraga decipiens in variety. On the slopes around the ponds, Kingcups and Primula lichiangensis, P. saxatilis and P. Juliae are flowering. A gently sloping bank is planted with dwarf shrubby Veronicas, V. Guthriana, V. Haastii, V. Kirkii, V. Matthewsii, V. amplexicaulis, V. cupresoides, V. diosmifolia, and other kinds, several plants of each being massed together.

The Kibble conservatory is an imposing-looking structure, circular in outline, and furnished with groves of tree-Ferns and Bamboos, and broad borders of choice shrubs. Bauera rubioides, Drimys Winteri, Fremontia californica, Staphylea colchica, Philadelphus Lemoinei, Decaisnea Fargesii, Leptospermum scoparium, Choisya ternata, and various Rhododendrons, are flowering in the Kibble.

In the greenhouses are many interesting plants. A large specimen of the Vanilla covers a roof space 40 feet by 6 feet. I also noticed a large flowering form of Medinilla magnifica with racemes 2 feet in length, and foliage considerably larger than in the typical species.

Cochliostema odoratissimum is an uncommon plant with flowers of quaint structure and coloured deep blue.

Toxicophlaea spectabilis, the greenhouse Winter-Sweet, is also flowering. Orchids in flower include Cattleya Schröderae, Laelia Ithone, Vanda tricolor, Lycaste aromatica, Masdevallia coccinea, and Cymbidiums "Glasgow" and "James Whitton," two seedlings raised in the gardens.

The collection of economic plants, tropical aquatics, pond weeds, and aquaria plants are extensive. *Fred W. Jeffery.*

MORE CONFESSIONS OF A NOVICE.

LONG ago—in a pre-war existence—I enjoyed the privilege of confessing my gardening sins of omission and commission in the pages of this journal, and found much solace for my frequent failures and encouragement of my occasional successes in the generous help and advice which—true to the tradition of their order—gardeners who scanned the intermittent confessions extended to me. Then came the harsh years, when ploughshares were turned into swords and lawns into market gardens, and wireworms showed alien sympathies by devouring the crops sown in patriotically turned-up pasture. My novitiate as a gardener was ended and such hope as I cherished was that when the turmoil was over and it came my way to resume the peaceful art of gardening, I should then be able to speak as one in authority, and not as a novice, writing articles of pontifical or professorial certainty, no longer confessing my ignorance, but alleviating that of others.

Alas, when recently the opportunity came to tend and watch plants again, I found that my ignorance was still as spacious as ever it was, and that if I were to resume my intercourse with fellow-gardeners it could only be on the old terms and by way of more confessions. In spite of doubts whether the garrulousness of age can meet with the same sympathy as that with which the cheery impertinences of my youth were tolerated, I make the venture, encouraged thereto by the reflection that there must be many another like myself who intermitted the practice of gardening and who has now resumed it. My own gardener is one of these.

He spent his war years in Mesopotamia and India and fever hospitals. Five years he was away, and when he returned, the British flag which he had run up on the tallest tree of the garden in which we worked, though still flying, was so torn and tattered and riven to shreds that he mistook it for an ineffectual scarecrow. After the peace we hauled it down and, compelled by force of circumstance to remove from the delectable sandy soils of Surrey to a heavier land and harsher climate, we set forth in August, 1920, to make a new garden on the side of a hill, just where green sand runs out and Kimeredge clay comes in; sandy above, progressively heavier below, and all rough pasture. The furrow marks and "lands" showed that it had once been cultivated, but as the ancient man who hedged and ditched in those parts averred—not within the memory of the oldest old-age pensioner.

So, with a large spade and the stoutest heart I have ever known in a man, my gardener inquired his way one day in August, over two years ago, to where the garden was to be; when I joined him two days later, he looked up for a moment from his labours, remarking: "I have had five years in digging trenches, and it looks as though I shall have five years more" Now, two years since, those who come to see us are pleased to say that some day we shall have a beautiful garden.

Though I am old, I like to be beguiled by the courteous mendacity of friends, and so I am gratified by such remarks; but they, after having been caused to make a meticulous inspection of the length and breadth of the garden, not infrequently regret their good breeding and wish they had been more truthful. Returning to the upper terrace and sinking into a garden chair, they generally confine any further remarks they have to make to the subject of the view—which from the terrace is indeed beautiful—in front, meadows and beyond them scattered rows of Elms, a farm house, and at one point the glint of the river; away in the distance a line of hills, dim in the blue haze; to the left and right, flanking the garden, two hilly slopes running down crosswise to meet that of the garden. Very beautiful they are, with great groups of Gorse, wild Roses, and Thorns backed by woodlands and strangled by all-pervasive Bramble. Between these lateral hillocks and the hillside of the garden, a streamlet runs—it is really a ditch, but we like to speak of it as a stream.

Such is the place. Only a novice could believe that out of it a garden could quickly be made, and even he might have been less confident had he but known.—*A. N.*

FIG. 127.—ROSE DAVID LLOYD GEORGE, AS GROWN UNDER GLASS FOR MARKET: R.H.S. AWARD OF MERIT, MAY 8. (SEE PAGE 264.)

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LILIES.

FORTY years charged with interest alike to botanists and horticulturists have passed since Franchet published his observations* on such of the Lilies of China and Tibet as came under his notice in the herbarium of the Jardin des Plantes. New species have been found in Western China by Dr. Henry, Mr. Wilson, Mr. Forrest, and others; old species have been introduced or reintroduced to cultivation, and before his death Mgr. Léveillé alone had added 10 names to the list of Western Chinese species.

In the *Monograph of the Genus Lilium* (1881)—the only scientific work on the genus of modern times—L. Davidi figured as the sole representative of Western China, though Mr. Henry Elwes, the author of the *Monograph*, hazarded the opinion that Western China would prove to be the home of such Lilies as still remained to be discovered in the temperate regions of the globe. It was a shrewd forecast, for, as we now know, there are more Lilies in Western China than elsewhere.

But notwithstanding the accumulation of new material during the 30 years which have elapsed since Franchet's paper was published, no serious attempt at a much-needed revision of Chinese Lilies has been made till 1919, when Mr. E. H. Wilson commenced the investigation and enumeration of the Asiatic species for the writer's Dictionary of the genus. Descriptions of new species, or species regarded by their authors as new, have been published from time to time, as have observations and fragmentary notes on the Chinese species in general; but, as was perhaps inevitable, the nomenclature of this remarkable group has gradually become more and more involved. In these circumstances, the publication of the first scientific digest of some sections of the Western Chinese Lilies to be published since the date of Franchet's paper will be doubly welcome.

The Lilies now passed in critical review† by Prof. W. Wright Smith, who recently succeeded the late Sir Isaac Bayley Balfour as Regius Keeper of the Edinburgh Botanic Garden, are in four groups:—(1) L. taliense, French, and its allies, L. ochraceum, and L. Stewartianum, a new Forrestian species from Yunnan; (2) L. Davidi, Thayerae, sutchuenense and Fargesii; (3) L. Duchartrei, papilliferum, lankongense, Forrestii and Farreri; (4) L. Bakerianum and Lowii, both Burmese plants, yunnanense and Delavayi.

Prof. Wright Smith also surveys the Lilies of Mgr. Léveillé, whose herbarium material came into the possession of the Edinburgh Botanic Garden some years ago, incidentally rejecting the claims to specific rank of all but two—L. Tenii (Fig. 128) and sempervivoideum—

FIG 128.—LILIUM TENII FROM THE SPECIMEN IN THE HERBARIUM OF MGR. LÉVEILLÉ.

and leaving L. Pyi doubtful. Those reduced to older species are:—L. Bonatii, Cavaleriei cupreum, Feddei, linceorum, Mairei, and majoense, a formidable list.

Of the first group, L. taliense is not in cultivation, nor, so far as the writer is aware, is L. Stewartianum (Fig. 129); but, as Western China seems to hold few secrets now for the explorer, we may hope eventually to handle them all. Thanks to Mr. Forrest, L. ochraceum has been in cultivation for some years, and, though interesting to the student of the genus as showing that, even in a highly developed race such as Lilium, there exists a primitive, undeveloped plant, it makes no appeal to the cultivator.

The author's interesting consideration of the relationship between L. ochraceum and the older L. nepalense of the Central Himalaya leads him to the conclusion that they may be kept distinct. But the dividing line is assuredly thin, and it is possible that further consideration of these Lilies in the field may lead to the conclusion that L. nepalense, ochraceum, and possibly primulinum as well, are geographical forms of one species.

Of more general interest to the cultivator are the author's conclusions as to L. Davidi, sutchuenense and Thayerae, a trio he considers should be reduced to one species. It will be remembered that the beautiful figure of L. Davidi in the *Monograph* was reconstructed by the artist from David's dried specimen, and the nature of the reconstruction may be gauged by anyone who compares the photograph of the type specimen, recently published in the *Gard. Chron.*,* with that of the finished drawing. As Prof. Wright Smith observes, the material was far from good, but the artist did his best.

Deterred, perhaps, by the sacrilegious notion

* "Les Lis de la Chine et du Thibet," dans l'herbier du Museum de Paris. Delavay, Farges; par Adrien Franchet. *Jour. de Bot.*, VI., 1892, pp. 305-21.

† "Notes on Chinese Lilies," by Prof. W. Wright Smith. *Trans. and Proc. of Bot. Soc. of Edinburgh*. XXXVIII., Part III.

* February 10, Figs. 37, 38, pp. 78, 79.

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that such a beautiful plant could be the figment of an artist's brush, experts have hesitated to throw doubt on the existence of L. Davidi, hoping against hope that this Lily might eventually be found. Most appropriately, however, it has remained for Mr. Wilson, who searched David's locality in vain for this yellow-flowered species, and remained justifiably doubtful as to its existence, to make the interesting and important discovery that L. Davidi of the *Monograph* is his L. Thayerae in disguise. Prof. Smith has no more qualms in accepting Mr. Wilson's conclusions than others who have examined the problem in the light of his discoveries and have seen the type specimen. It only remains now to give decent burial to what some regard as the most delicate drawing in the *Monograph*, and bear in mind that L. Thayerae of Wilson takes its place and its name. Mr. Wilson has rendered signal service to the cause of botany by this laying of a ghost which has perplexed students of the genus for so many years.

Prof. Smith holds the view that L. sutchuenense, Franch, must be merged into L. Davidi The latter, "not uncommon in the wild state, is a widely spread, cultivated Lily, showing many divergences in habit and in villosity. Typical Davidi shows pronounced villosity and little or no rhizomatous growth. But it varies to forms with glabrous perianth and creeping rhizome. The form with glabrous perianth is the Lily called sutchuenense by Franchet This is not more than at most a variety of Davidi. The variety is a variable Lily, including Thayerae, Wils., and sutchuenense. Franch., these forms showing a transition from marked villosity to glabrousness in the perianth."

Villosity and the creeping stem peculiarity have come to be regarded as such good characters in Lilium that the cultivator has a natural reluctance to throw them over, especially as, if they are jettisoned, as other so-called characters have been jettisoned from time to time, there is not very much left in the way of definite features to which he, as distinct from the scientific botanist, can cling. L. Davidi, as we must now call L. Thayerae, is an excellent example of the difficulties confronting the amateur in the specific determination of a plant. There is no doubt that in the garden, typical Davidi is a distinct Lily, with pronounced and definite characters which have been faithfully reproduced during several generations of seminal propagation. It is an elegant, upright-growing Lily, with flowers showing refinement and an unmistakable colour, the rouge minium of the *Repertoire de Couleurs*. There is much persistent white tomentum about the bud and the stem, which exhibits no wandering tendency, but grows erect from the bulb. In adult specimens (four years old) the latter will often be as much as 2¼ inches in diameter, and ivory-white, gradually becoming tinged with purple at the points on exposure to the air. In normal seasons the plant bears an abundance of fertile seed

In Prof. Smith's view, this Lily is no longer to be separated from the very different-looking plant known hitherto as L. sutchuenense of the *Botanical Magazine* (t. 7715). The habit of that comparatively puny plant, which looks like a "poor relation" of the other, resembles that of L. Leichtlinii. The stem is slender, and creeps about underground before pushing through; the foliage, instead of being crowded as in L. Thayerae, is sparse. The plant usually bears from 1 to 3 flowers only, occasionally 4, and the bulb is but little larger than a Walnut; moreover, it remains small, and, unlike that of typical Davidi, does not yield to cultivation. The writer has not known this Lily to produce seed.

There is just the possibility that some farther probing of the relationship between these two Lilies—L. Thayerae and Franchet's sutchuenense—may result in some modification of the conclusions arrived at by Prof. Smith from his examination of the ample material at his command; it may be that Franchet's inclusion of Prince Henri d'Orleans' Tatsienlu specimen and the Tchen-keou-tin specimen of Farges as con-specific may prove untenable. But the Professor's citation of numerous field specimens showing leanings, in one example to L. Thayerae, in another to L. sutchuenense, and in a third to both, render it improbable that his deductions will be seriously disputed.

Meanwhile the cultivator will welcome some simple method of identification of the two Lilies, synonymous and yet to the eye so different. If we apply the varietal names, L. Thayerae and sutchuenense to the strong and weak growing forms of L. Davidi, it will at least provide the cultivator with a simple handle for each, while retaining something of sentimental and historical interest as well.

In the absence of material Prof. Smith does not deal exhaustively with that very distinct looking plant, L. Willmottiae, of Wilson, except through hazarding the suggestion—untenable to the cultivator—that it may be synonymous with the Lily (L. Thayerae) figured in the *Gard. Chron.*, August 16, 1913, Fig. 47. Nor, for the same reason, is the position of L. Biondii, chinense, or Rosthornii determined; but Prof. Smith views L. Fargesii as a good species. It is one of several Chinese Martagon species not yet in cultivation.

In his consideration of L. Duchartrei and its allies, L. papilliferum, lankongense, Forrestii and Farreri, Prof. Smith expresses the view that while L. papilliferum stands as a good species, the last three should be reduced to L. Duchartrei, a conclusion in which, as regards L. Farreri, the cultivator will agree.

The author's final group includes L. Bakerianum, Lowii, Delavayi, yunnanense and sempervivoideum. Except the last two, these are familiar to cultivators, who know that neither L. Bakerianum nor Lowii—a form of it—is in any sense a garden Lily.

Prof. Wright Smith has made a contribution to the literature of Chinese Lilium as important as it is worthy of the high traditions of the office he holds. It will be welcomed by those interested in the genus, as throwing light on points which have for long needed illumination. The

FIG. 129.—LILIUM STEWARTIANUM ; REPRODUCED FROM A DRAWING OF THE DRIED SPECIMEN IN THE HERBARIUM OF THE ROYAL BOTANIC GARDENS, EDINBURGH.

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elucidation of the Lilium material in the herbarium of Mgr. Léveillé alone entitles the paper to a place in the annals of Lilium, and we cannot be too grateful for the wise foresight which led the late Sir Isaac Balfour to arrange for the acquisition of the Léveillé herbarium for the nation.

The illustration of L. Stewartianum * (Fig. 129, p. 275) is reproduced from a drawing by L. Snelling from a dried specimen in the herbarium at Edinburgh. That of L. Tenii (Fig. 128) is from a photograph of a dried specimen in the herbarium of Léveillé. It illustrates the peculiar resupinate character of the fruit. Both illustrations are published by permission of Prof. W. Wright Smith, M.A., F.L.S. *A. Grove.*

DISEASE RESISTANCE AND A COPPER HYPOTHESIS.

Botanists unfortunately are rather apt to use the words immune and immunity where merely non-specific resistance to disease is present; zoopathologists are more careful in their language, and limit immunity to specific protection. A true acquired or passive (specific) immunity amongst plants does not appear to have been determined so far, though resistance and the inheritance by resistant stocks have occupied much attention.

Lately, attention has been attracted to the records of the finding of minute though measurable quantities of copper in the most varied assortment of plants and plant products. Wheat, Potatos, Tomatos, fruit of various sorts, Peas and Beans, Cocoa Beans, etc., etc., all show the presence of this metal in their tissues, roughly more or less than about one part per million. In the case of the Pea and Bean (Maquenne), it has been shown that in ripening the copper in the pod diminishes, whilst that in the seeds increases, contrary to the movement of calcium in the same plants.

In many cases the finding of copper is independent of applications containing the metal to the plants and their surrounding soil, but it is curious to note that several observations on Bordeaux-sprayed Grapes, Potatos and Tomatos have failed to show greater proportions of copper than have unsprayed samples. Thence it would seem clear that such of the metal as appears in the plants has gained access through the roots; and here it may well be that some general, species or varieties have inherently greater powers of absorption for copper than others. It is well known that other mineral constituents are absorbed in different degrees by different kinds of plants—for example, the great faculty of the Tobacco plant in regard to potash. But it is especially in regard to varieties or strains—that is, resistant ones—that the matter may have special importance, and the object of this note is to suggest that inquiry should be instituted into the mineral constituents, including copper, of a number of strains of resistant and non-resistant (so-called immune and non-immune) character. When analyses have been made, it should be possible to judge whether, or how far, resistance may be due to an enhanced power of absorbing copper salts from the earth, where apparently it is very widely distributed in minute quantities.

Further, it should be kept in mind that other constituents should not be neglected. Thus we know, both in laboratory and in technology, that soda and potash are by no means interreplaceable in copper reactions, hence correlations of such elements to copper findings must be accorded their significance. In spraying experiments against Potato Phytophthora, it has been stated that the Bordeaux wash (lime and copper) is more efficient than "Burgundy" wash (soda and copper); whether a potash-copper wash has been used, I do not know; though I intended to try it many years ago, the project was not carried out. Anyway, the trial of the three mixtures on plots could well form the basis of an interesting experiment in conjunction with analyses.

Again, the statement noted above that often the use of a copper spray wash makes but little difference in the copper content of parts of a plant, may rest on some adjuvant or inhibitive factor; as already suggested, potash may play a part; further, we have a potent agent in ammonia and its salts, whilst lastly, the formation of the highly insoluble sulphide may take a restricting share. There can be little question that varying soil conditions may make very great differences in the amount of copper that might be in absorbable condition, quite apart from any specific coefficient of absorption on the part of the plant.

Another point which does not appear to have been as yet established is in what form the copper exists in the plant, for recorded analyses seem based upon ash determinations; is it in a free ionised state, or it is locked up in some organic complex, as in the haemocyanin of the lobster's blood; or does it exist in both states? "Rare" elements are extraordinarily widely distributed, as for instance the gold in the ocean and vanadium in some jellyfish, so that a hunt for copper alone does not necessarily bring the weary toiler to the end of the road.

There has been some correspondence in these pages lately concerning the value of copper sulphate washes on fruit trees. Just ten years ago I visited a number of fruit growers in northern France; they were then much addicted to the use of iron sulphate instead of copper, and stated that for scab and cleansing it seemed to act as efficiently as copper, and that it was very much cheaper; again, where trained trees and galvanised wires or supports were in use the iron salt was less destructive than the copper salt. It was used in a strength of 5 to 7 per cent. It may be added that the late Mr. Spencer Pickering used the salt as a means of making colloid emulsions for spraying. *H. E. Durham.*

* *Lilium Stewartianum Balf. f et W. W. Sm. Sp. nov. Species sectionis Martagon et affinis L. ochraceo, Franch. et L. taliensi. Franch.; ab hoc habitu graciliore, caulibus glabris laevibusque, floribus semper solitariis flavidis differt; ab illo habitu graciliore, foliis gramineis, floribus solitariis inter alia recedit.*

Planta 45-50 cm. alta ex collectore. Bulbus circ. 2-3 cm. longus, ovatus, squamis ovato-lanceolatis tenuibus in sicco flavidis, radicibus basi sat bene evolutis. Caulis erectus glaber epapillosus; pars hypogaea 5-8 cm. longa haud repens radicibus destituta; pars epigaea basi nuda mox foliis bene vestita. Folia plus minusve 20, erecta et vix patentia, 5-8 cm. longa, circ. 2 mm. lata, acuta, ad insertionem vix angustata, omnia sparsa, plana, tantum sub lente valida margine scabridiuscula, glabra; infima nonnunquam breviora et ad 5 mm. lata; supremum saepe ad basim floris solitarii attingens. Pedunculus 6-7 cm. longus flore nutante fragrante. Perianthii pars tertia tubulosa; segmenta subrevoluta, fere 4 cm. longa, medio circ. 9 mm. lata, oblonga, obtusiuscula, saturate olivaceoflava, maculis atrokermesinis densissime ornata; sulcus nectariferus nudus glaber. Staminum filamenta 2.5 cm. longa, glabra; antherae 8-9 mm. longae, in sicco brunneae. Stylus in flore bene evoluto dissecto tantum 1 cm. longus ovario 1.5 cm. longo brevior, nonnunquam ovarium subaequans, certe duplo vel triplo haud superans ut apud L. taliense vel. L. ochraceum. Fructus deest.

"West China.—Mountains in the N.E. of the Yangtze Bend, Yunnan, on open stony pasture. Lat. 27° 45′ N. Alt. 11,000 feet. Plant of 18-20 inches. Flowers, ground colour, deep olive-yellow, but almost black, with deep crimson-maroon markings, fragrant. July, 1913." G. Forrest. No. 10,647.

"Mountains of the Chungtien plateau. Lat. 27° 30′ N. Alt. 12,000. July, 1914. Duplicate of 1913." G. Forrest, N. 12,734.

The following, with less darkly spotted perianth, is the same species.

"West China.—N.W. flank of the Lichiang Range, Yunnan, on ledges of limestone cliffs and stony pasture. Lat. 27° 35′ N. Alt. 12,000 feet. Plant of 2 feet. Flowers greenish-yellow, profusely spotted maroon, fragrant. July 1913." G. Forrest. No. 10,659.

VEGETABLE GARDEN.

BEET.

In an article on Beets in *Gard. Chron.*, Sept. 23, 1922, p. 182, Mr. F. J. Chittenden stated: "The large variety of Beets growing in the gardens of the Royal Horticultural Society, at Wisley, remind us how small is the use to which this vegetable is put in England compared with its multitudinous uses in America and Europe."

At the completion of the trials referred to by Mr. Chittenden, members of the sub-committee appointed to adjudicate upon the Beets tested proposed that the R.H.S. Fruit and Vegetable Committee should suggest to the Council the desirability of making, in the near future, a trial of Beets which should be submitted to a cooking test to decide which were the most suitable varieties to be used as a table vegetable. The committee unanimously adopted the proposition, and the Council agreed to have it carried out in 1924. As stated by Mr. Chittenden, the round varieties are the most suitable for use as a vegetable, and it is desirable that the test should include the zoned as well as the deep coloured varieties. The prejudice in favour of the latter is so pronounced that the tasting body might be asked to submit to being blindfolded while making the test; the results would be most interesting and possibly surprising. The yellow-fleshed, Turnip-rooted variety and the large, pale-fleshed Bassano should not be omitted from the trials.

As regards the methods of preparing Beets for the table, Mr. Chittenden suggests that "it would be wise to go to French and American sources with their long experience for recipes to start with," and having had a fairly extensive acquaintance with the use of this vegetable in both countries, I availed myself of the presence of Mr. W. R. Atlee Burpee, jun., of Philadelphia, in London, to obtain from him the necessary information.

In reply to my request Mr. Burpee writes: "Probably the best but the most extravagant way of eating Beets is to pull them when they are no bigger than a Radish, wash them thoroughly, cut off the top and bottom, boil them for the usual length of time, and serve them whole, placing on top of the Beets a piece of butter and a little salt and pepper. This is what is known with us as buttered Beets, and is the common way of serving them, although it is very seldom they are used so small; however, to my mind the flavour is far superior at this age to what it is when the Beets are fully developed. When older Beets are used they are sliced into convenient pieces (after cooking). I shall send you a copy of a little cook book which we issue, in which you will be able to find more definite information."

The "cook book," which I have since received, is one specially prepared by Messrs. Burpee, from recipes furnished by Mrs. Anna B. Scott, a famous cooking expert on the staff of the Philadelphia *North American*. Under the heading "The Best Way to Cook Beets," Mrs. Scott writes: "The Beet is a root having a high food value, in this particular ranking almost with string beans, and, while its leaves or tops are commonly thrown away, when cooked like spinach these make delicious 'greens.' If the tops are young, boil with a piece of bacon, the same as kale or spinach. 'Pickled Beets'—wash six medium-sized beets and boil until tender; cool in cold water. Remove skins and cut into half-inch cubes; cover with half cup vinegar, one teaspoon salt, dash of pepper, and one tablespoon sugar. 'Beets and Horseradish Relish'—One quart boiled beets, one cup grated horseradish, half cup finely chopped onion, one cup vinegar, half cup brown sugar, two teaspoons salt, and one-eighth teaspoon pepper. Wash the Beets and boil until tender. Skin in cold water and chop very fine: then mix with the other ingredients and put in a glass jar. This is very nice with cold meat, fish or oysters, and will keep a long time."

As the present month is a good time to commence the sowings of Beets, I suggest that those who are interested in this matter should put the recipes set out above to the test, taking care not to sow the seed too thickly. As soon as the seedlings are strong enough to handle thin them to four or five inches apart; later, when the roots are about the size of a Walnut, every alternate plant may be carefully drawn out and used for buttered Beets; the remainder of the roots will then develop sufficiently to be used as pickled Beets. Make successional sowings until the middle of July, using a good globe variety, and do not let the roots get over-developed. Lastly, do not forget to utilise the leaves. *S. B. Dicks.*

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HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Campanula Rapunculus.—At one time I grew this Bell-flower for the roots, which were eaten at dinner at intervals from October till April. The seeds should be sown now, as the plants flower the same year when sown earlier. As the seeds are minute, the lines should be marked by pressing a strong piece of string into the surface soil and the seed sprinkled quite thinly therein, finishing by patting the ground over with a spade. The plants need not be thinned to more than two inches apart. *R. P. Brotherston.*

Peas.—The criticism of my article on Peas by *G. D.* in *Gard. Chron*, May 5, page 176, appears to be economic. He does not question the cultural advice tendered. I will at once confess that I penned the notes without any thought of a balance-sheet. My object was to briefly describe the culture of Peas as I have seen it successfully practised in private gardens and allotments since my childhood. Within the last three months I have assisted in the preparation of ground for Peas at several centres on precisely the lines indicated in my notes. It is my opinion that the question of profit and loss is not of serious moment in a private garden. The production of good fruit, flowers and vegetables is the aim. If every operation had to be justified as a commercial proposition, many would stand condemned. It is impossible to answer the question "Is this sound economic teaching, or this lavish expenditure of manures on Peas justifiable?" Obviously everything would depend upon the season, and the type of market available. It is true that a large quantity of manure would be required for an acre of Peas grown in the manner I suggested. It is also true that the yield would be large, and the produce of excellent quality. Given the right market, such produce should make a good financial return. I respectfully suggest to *G. D.* that it might be profitable. The most successful market gardens I know are those which receive ample dressings of farmyard manure. The least successful are the manure-starved holdings. I regret that *G. D.* should take exception to the manner in which I recommend the use of superphosphate of lime. This chemical fertiliser is now so very well known to professional gardeners that I thought it unnecessary to labour the matter. But I am happy to do so if it will serve an educational purpose. I recommend the use of superphosphate of lime for Peas, because it is a medium through which phosphates can be supplied to the crop. Phosphates render invaluable assistance to a fruit-bearing crop, and we cultivate Peas for the sake of their fruits, *i.e.*, the pods. In my judgment the time to commence the application of a phosphatic manure is when the fruit is set, a process which coincides with the fading of the flower. The period which should intervene between the applications cannot be open to misinterpretation. I meant the ordinary week of seven days. I regard the pods as being nearly full when the Peas occupy approximately three-quarters of the space within them. The rate of application advised is the usual one per lineal yard of drill. *Geo. H. Copley, N.D.H.*

—— Experience over several years has convinced me that the placing of manure in the trenches of both Peas and Beans, as recommended by Mr. Copley in his article on p. 176, is thoroughly justified by the results. I am aware that text-books teach us that nitrogenous fertilisers are unnecessary for Leguminous crops, and this may be true, but apart from the manurial properties of the dung, the latter serves what is probably a greater use, *i.e.*, the providing of a moist medium for the roots in dry weather. Peas and Beans, and especially the former, are essentially summer crops, and the plants have to endure hot sunshine and very frequently long periods of rainless weather. It is for this reason that the moisture-retaining manure is so valuable to these crops, and it is well known that Beans fail to set their pods if the roots cannot obtain sufficient moisture. Mr. Auton (p. 247) pointed to the value of carbonic acid in the soil, derived from decaying vegetable matter, in promoting the solubility of certain salts necessary as plant food, whilst humus must be present as a medium for the well-being of beneficial soil bacteria, and in these and other directions animal manure has a direct bearing on fertility. I have seen crops of Runner Beans grown on adjoining allotments in which conditions of soil, situation, etc., were equal, the one instance planted in a trench with manure at the bottom, as in the case of Celery, and in the other without this provision, and the difference in the crops bore no comparison, whilst the period of yield was considerably increased in the case of the manured rows, owing to the earlier podding and later cropping. *T.*

Rubber.—It happened that I spent nearly a year in the Lower Amazon region just when the call of the motor-car, etc., started the boom in rubber (1899-1900), a few years later a couple of years in Malaya, just when the boom in rubber estates was beginning. Such investments as I made were not devoted to rubber; as a mere gamble, I might have "made a bit," but the comparison between the ways in the two regions led me to think that disaster might follow. Perhaps the present shorting of supplies may be the best thing that could have happened to the planter, by giving his trees a chance. Quantity may have increased, but the quality of modern rubber is mainly execrable. The reason is perhaps simple; I use now a rubber release for a camera shutter 24 years old; a piece of the artist's bottle rubber which lay on my father's desk many years is still elastic, though it must be 40, if not 50, years old. On the Amazon they would not tap a tree under some 20 or 25 years of age—because they said the rubber obtained was inferior; in Malaya poor little saplings that one could nearly span with one hand were submitted to the knife. On the Amazon they would not tap a tree below some 3 or 4 feet from the ground, nor above some 16 or 20 feet from the ground, if memory serves me well—because they said the rubber was not so good above and below or from branches. Tapping was done by cuts, of perhaps a couple of inches, thrice repeated round the tree, always going higher on subsequent days; the plantation plan is to make a long gash down the stripling tree and run sloping cuts herring-bonewise far round the trunk—in itself enough tax on a young growing tree, but made worse by freshening the cuts day by day—and the latex was to be got by the "bucketful" from each tree. Another difference was that in the lower Amazon the trees were on flooded ground for some period of the seasons; in Malaya they were said to grow better on high land. *H. E. D.*

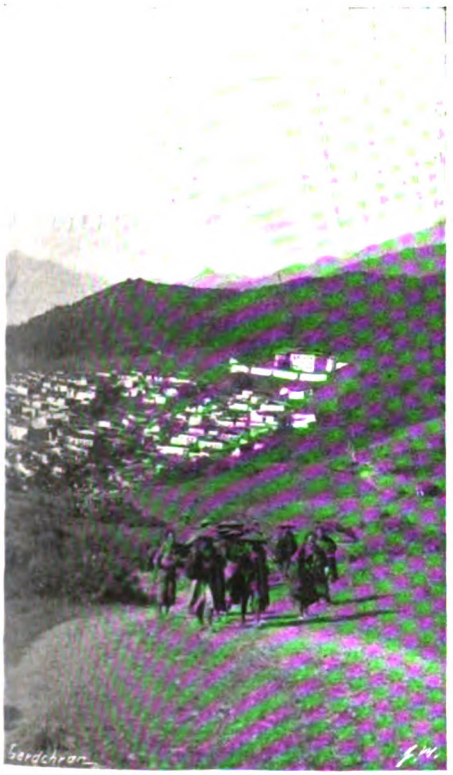

FIG 130.—MULI MONASTERY, ON A LIMESTONE PLATEAU EAST OF THE YANGTZE. (SEE PAGE 278.)

SOCIETIES.

HORTICULTURAL CLUB.

THE annual meeting of the Horticultural Club was held at the Connaught Rooms, Great Queen Street, W.C.2, on Tuesday, the 8th inst. The President, Lord Lambourne, was unable to be present and the chair was occupied by Mr. Gerald Loder. A letter was read from the Chairman, Mr. J. F. McLeod, expressing his inability to be present owing to indisposition. After the minutes of the previous annual meeting had been read and confirmed, the Hon. Secretary read the report of the committee for 1922, as follows:—

FIG. 131.—THE SALT WELLS AT TSA-KA-LO, ON THE MEKONG RIVER. (SEE PAGE 278.)

REPORT OF THE MANAGEMENT COMMITTEE FOR 1922-3.

The Committee has pleasure in reporting that it has been enabled to meet the liabilities of the past year without having to call upon the members for subscriptions, and that there remains a small balance to carry over for 1923. They regret, however, that it has not yet been possible to secure permanent headquarters in the Westminster district near to the Royal Horticultural Society's hall, but the arrangement with the Hotel Belgravia whereby the members are enabled to make use of the hotel, with a room specially reserved for the Club on the occasion of important horticultural functions in the Metropolis, still obtains, also the facilities for obtaining hotel accommodation at a reduced charge at the same hotel. The Committee recognises the great need of permanent headquarters with, if posible, sleeping accommodation for the country members, and the members are earnestly invited to place suggestions before the Committee of any scheme or place whereby such can be obtained in the district of the Horticultural Society's Hall. The membership has only fallen very slightly during the past year, mainly on account of deaths, and the Committee regards with considerable satisfaction the continued loyalty of the members to this old-established Horticultural Institution.

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The most successful of the Club's functions in 1922 was the annual outing on Friday, July 14, when a visit was paid to the R.H.S. Gardens at Wisley and Pyrford Court, Woking. Lectures and dinners were held on May 24, December 12, 1922, and February 27, 1923. The first was by Mr. E. A. Bunyard, on "Impressions of Algeria, Mainly Horticultural"; the second by Mr. R. A. Malby on "Beautiful Garden Features," and the third by Mr. W. B. Cranfield on "Hardy British Ferns." The thanks of the club are due to these gentlemen for the interesting evenings they provided, and the Committee appeals to the members to support their efforts in the matter of the club dinners.

Mr. Loder proposed the adoption of the report. He stated that, in common with similar institutions, the Club had suffered from the war, but the corner was now turned, and there were signs that the Club was beginning to assert itself again. It was an old institution, and just approaching its jubilee. The Club was formed for three purposes, amongst which was the entertaining of distinguished horticultural foreign visitors, and the Committee proposed to entertain members of the Federation Horticole Internationale Professionelle on the occasion of the Empire exhibition at Wembley, in 1924. The Club had not called upon the members for their subscriptions since the war, but from now forward they would have to ask the members to pay a small subscription.

Mr. William Cuthbertson, in seconding the adoption of the Committee's report, stated that he was one of the oldest members of the Committee, and his connection with the Club went back to the time when the Rev. Dombrain was Hon. Secretary. He referred with regret to the absence of Mr. McLeod, but he was glad to see Mr. Loder with them. The special need of the Club was a home, for when they left the R.H.S. building they felt they wanted a place where they could rest. Mr. Wallace also pointed to the great need of a Club room, and stated that the Horticultural Club should now go in for an ambitious scheme.

The balance-sheet was submitted by the Hon. Treasurer, Mr. P. R. Barr, who stated that there was a small credit balance of some £8, but this would not be sufficient to carry on the Club's activities without asking for a small subscription from the members.

Lord Lambourne was re-elected President; the Vice-Presidents, Sir J. T. D. Llewelyn, Sir Harry J. Veitch, and Mr. Chas. E. Shea, were also re-elected. Mr. P. R. Barr was re-appointed Hon. Treasurer, and Mr. G. F. Tinley Hon. Secretary. The trustees and auditors were also re-appointed. The committee was re-elected, and Messrs. R. W. Wallace, Gerald Loder and J. S. Brunton were appointed to fill vacancies.

Subsequent to the meeting the members sat down to dinner, and the dinner was followed by an interesting lecture, illustrated by lantern slides, by Mr. F. Kingdon Ward, on his plant collecting expeditions in Asia. Many of the views of the country he had traversed were exceedingly fine, and the pictures received frequent applause. He conducted his audience through the route he had taken on the last trip, and proceeded to describe the country, peoples, and flora of the various districts. He stated that the Marches of the Mantzu (a warlike race of Tibetan highlanders) comprise most of western Szechuan, with the adjoining parts of north-west Yunnan, east of the Yangtze.

This mountainous country, though apparently a disordered skein of high ranges, is in reality a lofty limestone plateau. It is deeply trenched by numerous rivers, flowing from north to south, cutting the plateau into blocks, faced with high escarpments, or cliffs. The climate is comparatively dry, with periods of drought, hot and cold, nearly all the rain falling in the four summer months. In abnormal years, however (and they are frequent), snowstorms occurring early and late cut the vegetation badly.

On account of the comparatively small precipitation, and the lack of it during several months of the year when the atmosphere is so dry that no dew is deposited, woody plants are not richly represented. The forests are mostly Coniferous—Pine below, Picea and Tsuga in the middle belt, Larix and Abies towards the tree line. On south slopes, too, there is a good deal of gnarled Oak, forming small evergreen forests; mixed forest is confined to the sheltered valleys and deep gloomy ravines.

Rhododendrons, with other woody plants, suffer by comparison with those of the country to the west of the Yangtze, where the rainfall not only grows rapidly heavier, but is more evenly distributed throughout the year.

There are about 40 species of Rhododendron known from the Muli district, distributed amongst various sections, particularly Intricatum and Campylocarpum. Many, if not most of these, necessarily grow directly on limestone, *e.g.*, R. sinolepidotum, R. cephalanthoides. The limestone, which is often crystalline, is probably a double carbonate of calcium and magnesium, allied to dolomite; it is not "chalk."

In this region, with its thin and meagre forests, alpine plants abound, and achieve perfection. There are about 50 species of Primula alone in the Muli district (see Fig. 130), the sections Nivalis, Muscarioides, Candelabra and Malvacea being especially well represented. Poppies are represented by five or six species, of which Meconopsis Henrici (?) is the most striking. There are numerous species of Iris, Lilium, Cremanthodium, Campanula, Gentiana, Cyananthus, etc.; but the most wonderful of all high alpine

FIG. 132.—THE HEADQUARTERS OF THE IRRAWADDY RIVER.

rock plants is undoubtedly Myosotis Hookeri, a large, cushion plant studded with azure-blue flowers. This Forget-me-not, curiously enough, grows on almost any rock but limestone.

Turning westwards from Muli, the Yangtze is crossed, the lofty Yangtze-Mekong divide with its snowy peaks, and the Mekong river (see Fig. 131). Here the forests contain a larger proportion of deciduous-leaved trees, and there are more species of Rhododendron, belonging to new sections.

While the country east of the Yangtze has been heavily glaciated, there are not many snowy peaks remaining, at least in the southern part. West of that river, however, in the narrow belt of country where the four great rivers, the Yangtze, Mekong, Salween, and Taron come galloping down from the north, are many snowy ranges overlooking the river gorges; but here, too, are signs of extensive glaciation in the past, the ice cap having retreated many miles.

After crossing the next range—the Mekong-Salween divide, we come down to the Salween river, and everything changes. Mules can be taken no further, and all the heavy kit has to be abandoned and sent down by the main road; with reduced loads, porters were engaged for the journey through the Irrawaddy jungles. The scenery changes. Instead of the splintered limestone ranges of the Tibetan Marches, we find the rounded, billowy, igneous ranges of the drenched Irrawaddy (see Fig. 132). The vegetation changes. Instead of the stark forests which fledge the lower slopes of the Marches, with the bald towers and spiky turrets of the mountains breaking through them, the igneous ranges are covered with the soft green plush of the jungle, East of the Yangtze the flora is Chinese; west of the Salween it is as definitely Indo-Malayan. The people change. The fierce Tibetan highlanders are replaced by the meek and small men of the jungle—dwarf Nungs, ill-provided even with the necessities of life, the Lisus, men of the cross-bow, and Shans, the scattered remnants of a once great people.

After crossing the Salween gorge, the last great barrier has to be climbed—the Salween-Irrawaddy divide, with its snow peak, the Gomba La—before descending to the furious Taron, the eastern (main) stream of the mighty Irrawaddy. And now begins the long march through the overwhelming jungle. There are no more flowers, save epiphytic Orchids; but Rhododendrons abound. The multitudinous rivers are cossed by "monkey" bridge or by cane bridge; and finally the traveller reaches the plains near the sources of the western Irrawaddy. Thence, turning south, railhead is reached in fifteen marches, following the western branch of the Irrawaddy to below the confluence.

NATIONAL TULIP.

MAY 8 AND 9.—The annual show of this special floral society was held in conjunction with the R.H.S. fortnightly meetings on these dates. The exhibits were rather more numerous than on some former occasions, but it was still a very small show, though the general quality was quite good. As usual the flowers were shown on boards, and there was no indication as to the requirements or objects of the several classes.

On some former occasions we remember in addition to the classes for blooms shown on boards, a class for a decorative exhibit of Tulips when Messrs. BARR AND SONS generally were awarded the first prize for a collection of fine blooms which would illustrate the real decorative value of the Florists' Tulip. But this year such a class did not seem to have been arranged.

In the premier class, which was evidently for twelve "Rectified" blooms, there were four exhibits, and the first prize was won by Sir D. HALL, with a very good collection which included, in a splendid bloom of Attraction, the premier bizarre bloom. Cecil Dollington, feathered bizarre, Elvira, flamed rose, and Garibaldi, feathered bizarre were also particularly good specimens in this fine set. Mr. J. W. BENTLEY, who was second, included Sam Barlow, premier bybloemen, in an even set of blooms; Mr. W. PETERS was third.

Mr. J. W. BENTLEY was first with six blooms: this exhibitor had excellent specimens of Stockport, flamed bybloemen, and Wm. Annibal, feathered bizarre. Sir D. HALL was second, and he had a particularly fine bloom of Sam Barlow, fl. biz. Mr. BENTLEY also won the first prize for three feathered, three flamed and one bloom each of feathered and flamed Tulips. Mr. C. J. Fox was second in the two first named classes, and Mr. PETERS was second in the other.

The Breeder blooms were particularly beautiful, and of higher quality than we remember having seen at a show for some time past. Mr. C. W. NEEDHAM won both first prizes; his splendid set of six blooms included Gleam, a beautiful Rose with yellow base, which was the Premier Breeder, and Ida Sutton, bybloemen. In the class for three blooms he showed Gold-finder, a Rose breeder with more yellow than in Gleam. Mr. C. J. Fox was second in this class, and Mr. W. J. BENTLEY was similarly placed in the class for six breeders.

The Florists' Tulip has a remarkably interesting history, and this annual exhibition, small as it may be, serves to keep these interesting flowers in being, and at the same time enables the flower-loving public to see standard varieties of the various types which have been developed by enthusiasts.

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ROYAL HORTICULTURAL.

Trial of Winter Flowering Carnations at Wisley.

The following awards were recommended by a Judging Committee, representing the R.H.S. Floral Committee and the British Carnation Society, after examination of the growing plants on four occasions, spread over two winter seasons, 1921-2, 1922-3.

The awards are recommended solely on the value of the plants for flowering between October and March, and take into consideration form and colour of the flowers, habit, vigour, constitution, and floriferousness of the plants. They are not intended to mark their value as exhibition flowers nor as summer flowering plants.

Awards of Merit.—1, 2.—*Wivelsfield White*, sent by Messrs. Allwood Bros. and Mr. C. Engelmann. 3, 4.—*White Wonder*, sent by Messrs. Allwood Bros. and Mr. C. Engelmann. 16.—*Iceberg*, sent by Mr. Jones. 35, 36.—*Mrs. Walter Hemus*, sent by Messrs. Allwood Bros. and Mr C. Engelmann. 86, 87.—*Enchantress Supreme*, sent by Messrs. Allwood Bros. and Mr. C. Engelmann. 94.—*Bona*. 132.—*The Herald*. 141.—*General Joffre*. 154.—*Aviator*. 228.—*Jazz* (all these five sent by Mr C. Engelmann). 158, 159.—*Triumph*, sent by Messrs. Allwood Bros. and Mr. C. Engelmann. *250.—*Atlantic*. *251.—*Oceanic* (both sent by Messrs. Allwood Bros.).

Highly Commended.—5, 6.—White Enchantress, sent by Messrs. Allwood Bros. and Mr. C. Engelmann. 10.—White Pearl, sent by Messrs. Stuart Low and Co. 28.—Sunstar, sent by Mr. C. Engelmann. 29, 247.—Jessie Allwood. 38.—May Day. 79, 80.—Delice. 88.—Lady Northcliffe. 99.—Nora West. 106.—Eisenham Beauty (these six sent by Messrs. Allwood Bros.). 138.—Elspeth, sent by Mr. W. F. Hamilton. 149.—West Hall Scarlet, sent by Mr. G. Carpenter. 171, 172.—Bishton Wonder. 174, 175.—Mikado. 184, 185.—Wivelsfield Claret. 200, 201.—Wivelsfield Wonder. 205, 206.—Benora. 211, 212.—Wivelsfield Beauty (these six sent by Messrs. Allwood Bros. and Mr. C. Engelmann). 194, 195.—Countess of Wilton, sent by Mr. C. Engelmann and Messrs. Stuart Low and Co. 215.—Harlequin. 218.—Fanny. 236.—Iona. 223.—Fancy Carola (these four sent by Mr. C. Engelmann). 234.—Claremont, sent by Mr. F. A. Jones. *252.—Gigantic, sent by Messrs. Allwood Bros.

* Perpetual-flowering Malmaison types.

DEESIDE (ABERDEENSHIRE) FIELD CLUB.

The summer session of this club was inaugurated on Saturday, the 12th inst., by an excursion to the beautiful district of Banchory, some 16 miles from Aberdeen and Invercannie, where is situated the waterworks which supply the city of Aberdeen. Arriving at Banchory, the party drove to Invercannie, where they were met by the convener, Councillor Ness, of the Aberdeen Water Committee, and the water engineer, Mr. George Mitchell, M.Inst.C.E., F.G.S. The last-named gentleman acted as guide, and explained the huge undertaking, to the evident interest of all. Returning to the Parish Hall, Banchory, the party had tea, and at a business meeting afterwards 30 new members were admitted. The excursion programme for the season was outlined. Mr. Wood has invited the club to visit Glassel on June 16; on July 7 it is proposed to visit Braemar, where the river Dee has its source; and on August 8 Loch Kinnord, on Lord Glentanar's Deeside estate. Mr. Joseph Farquharson, R.A., sent a cordial invitation to visit Finzean House on September 7; thus the summer programme is practically completed. Thereafter the club listened to an instructive address by Mr. J. W. Mackay, Aberdeen district forest officer, on "The Work of the Forestry Commission." Dealing with the north-eastern area, of which Aberdeen is the centre, Mr. Mackay said the total acreage planted up to date was 2,731 acres, none of which would have been planted had there been no State forestry department. The schemes of the Commissioners in this area were: County of Nairn—Culbin Sands, 3,500 acres; Monaughty, 1,798 acres; Tiendland, 1,000 acres. Aberdeenshire—Kirkhill, 488 acres. Forfarshire—Part of Montreathmont Moor, 756 acres; a total of 7,542 acres. There are two large central nurseries, Craibstone and Seaton, of 23 and 35 acres respectively. Mr. Mackay hoped in the near future to arrange a visit by the club to these areas.

THE WEATHER.

THE WEATHER IN APRIL.

April was an even more remarkable month for easterly winds than March had been, and the combination of the two is absolutely unprecedented, so far as the Southport records extend—now over fifty-two years. Temperature, however, was nearly normal in most respects, the mean direction of the wind being a little to the south of due east, and currents from all the northerly points being deficient. (The same southerly element in the east winds were still more pronounced in March.) The weather was rather dull, and there was a decided excess of rainfall. Ozone was deficient. The mean temperature of the complete month was 46.0°, or a trifle of 0.3° above the average. The duration of sunshine aggregated 153 hours, or 16½ hours less than the normal. Rain fell on 14 days—the usual number—but the total amounted to 2.61 inches, or 0.78 inch above the average. Barometric pressure was very low. Ground-frost occurred on 10 nights, and on the morning of the 24th the grass minimum thermometer fell to 19°, and there was frost in the shade also, much damage being done. Only on one day (the 26th) did the wind attain gale-force. A slight thunderstorm on the afternoon of the 14th was the sole other occasional occurrence. *Joseph Baxendell, The Fernley Observatory, Southport.*

THE WEATHER IN SCOTLAND.

"Sunny April" opened with a succession of seven practically sunless days, and closed with the low average of 3 hours of sunshine per day. The mean temperature was two degrees below the normal, while the minimum (night temperature) was slightly higher, and the maximum fully 4° lower than the normal means. The rainfall was high, being 2.16 inches for 17 days, against a normal of 1.70 inch for 13 days; the 10th was the wettest day with 0.72 inch. Of bright sunshine, we had an aggregate of 91.6 hours, an average of 3 hours per day, and a percentage of 22; there were 9 sunless days. With a mean of 29.81 inches the barometer varied from a highest of 30.28 inches on the 2nd to a lowest of 29.12 inches on the 26th. The mean temperature for the month was 42°, with a mean maximum of 47° and a mean minimum of 37°. The highest maximum of 56° was recorded on the 29th, and the lowest minimum of 30° on the 24th; on one night only did the temperature fall below the freezing-point. With a lowest of 27° on the 24th and 28th, the mean minimum was 35°; there were 6 nights of ground frost. At 1 ft. deep the soil temperature was 45° on the 1st, thereafter it fell to 42°, and with fluctuations rose again to 45° towards the end of the month. Strong winds were frequent, mostly from the north and east. *John Davidson, St. Andrews Provincial Committee at the Training College Gardens, Mayfield, Dundee.*

ANSWERS TO CORRESPONDENTS.

Arums Diseased: *Moorpark*. From your description the plants appear to be affected with soft rot of Calla. The cause of the disease is a Bacterium called Bacillus aroideae. This organism occupies the intercellular space in the host and dissolves the layers that connect the cells, causing the affected tissue to break down into a soft slimy mass. No cure has yet been discovered, but the disease may be prevented by a careful selection of the corms and by changing the soil in the beds every third or fourth year. See also reply to *T. S.*, p. 266.

Arum Lily with Double Spathe: *W. J. H.* Duplication of the spathes of an Arum Lily is of fairly common occurrence, and we annually receive several specimens somewhat similar to the one shown in the photograph you sent us.

Cactus Dahlias from Seeds: *H.* You must not expect to obtain a large percentage of seedlings from the sowing you have made, as the seeds of Cactus Dahlias do not germinate very successfully. The seedlings should be pricked off either singly in small pots or several in a larger receptacle, and placed in a box with a sheet of glass on the top until they are established. Great care in watering is needed, especially in the early stages, and the glass should be removed for an hour each day to change the atmosphere of the box; after a period of a few days the glass may be dispensed with altogether. The plants should be gradually hardened off and be ready for planting in the open in June. Well-grown specimens should bloom in their first season.

Digging: *H. F. H.* You may adopt two methods in digging your plot of ground, the one by taking out a trench, removing the soil which is excavated to the opposite end, and then working across the plot until the whole is completed. The other method consists in marking the plot down the middle, taking out a trench across the half of the plot at one end depositing it on the opposite side. The digging may be proceeded with down one side and then the other until the last trench is filled in with the soil excavated from the first one. The latter method results in a saving of labour in not having to remove the soil from one end of the plot to the other. Commence by digging out the ground a good spit deep, holding the tool almost perpendicularly, and inserting the blade to its full depth by pressure of the foot. With regard to placing the soil on the right hand or left hand of the operator, and digging with the left hand or right hand uppermost respectively, you can adopt whichever method seems most natural to you; many men can dig either way. Digging is an art that requires much skill and long practice, in order to obtain perfectly straight furrows and a level surface.

Diseased Dendrobiums: *T. B. A.* Your Dendrobiums are badly affected with spot disease, which is attributable either to too much or too little water during the winter months, with a low temperature heavily charged with moisture at that season. As the disease is spreading it would appear that the conditions of growth are not satisfactory, and as a remedy we suggest greater attention to the provision of heat, light and air. If the specimen sent is a fair sample, we believe the plants are beyond cure, but possibly, should they start into growth, it will be advisable to shake the compost from the roots and repot the plants in a clean, fibrous compost, placing them in the smallest receptacles possible, and cut away affected bulbs. When growth is completed, ripen it thoroughly by exposure to full sunlight. The temperature of 58° to 60° should be quite satisfactory during the resting period provided there is no humidity in the atmosphere. Only just sufficient water should be given the plants to prevent shrivelling; should any plant shrivel it is a mistake to give it an excess of water with the object of plumping up the pseudo-bulbs. You do not state whether the plants affected belong to this species or if other species are affected. We should like to know more of the prevailing conditions.

Eggs on Apple Tree: *E. L.* The eggs are those of the Lackey Moth (Clissiocampa neustria). It is necessary to destroy all the bands of eggs, and to spray the trees within three weeks after the dropping of the petals from the flowers. Lead arsenate (1 lb. paste to 20 gallons water) is the best insecticide to use, and the wash should be applied through a fine nozzle, giving a light dressing to every leaf on the tree. Thick grease bands placed around the trunks of the trees will prevent any of the larvae that may be on the ground from ascending again.

Employment at Kew: For the purpose of obtaining employment in the Royal Gardens, Kew, you should make direct application to the Curator, Royal Gardens, Kew, Surrey.

Flame Flower: *J. H. B.* The Flame Flower is Tropaeolum speciosum, and its tuberous root is quite hardy. For the successful cultivation of this handsome climber, the tubers should be planted in a position where they will be cool and shaded from direct sun-

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shine. The plant does not grow freely in any and every position, and is not always easy to establish, but once established it grows very freely and looks particularly well when covering an evergreen hedge, such as one of Holly.

FUCHSIAS FAILING TO BREAK SATISFACTORILY: *E. S.* It is very probable that you have kept the plants excessively dry so that they have become very hard. In this case it would be advisable to spray them at frequent occasions to make the bark soft and favour the development of the dormant buds. If you could plunge the pots in a hot-bed, this would favour growth at the roots, and the moist, warm conditions provided by the dung would be likely to favour top growth also.

MALFORMED NECTARINE FRUITS: *M. H. M.* There is no disease on the Nectarines sent us. The rough and cracked apices of the fruits are caused either by green fly or thrips, possibly the latter, just after the fruits were set. Fumigate the house or syringe the trees with quassia extract on alternate nights. In thinning the fruits finally, select those which are smooth and free from any signs of cracking. Provide a little ventilation early next morning after syringing the trees, and spray the trees freely with soft water before the sun gains much power.

NAMES OF PLANTS: *J. O. M.* Pieris formosa. —*A. G.* 1, Too withered to identify; 2, Phlomis fruticosa; 3, Veronica Traversii; 4, Fabiana imbricata.—*E. S. G.* 1, Aucuba japonica var. longifolia; 2, Drimys Winteri; 3, Raphiolepis ovata; 4, Magnolia conspicua; 5 and 7, too small to identify; 6, Piptanthus nepalensis.—*D. M.* 1, Berberis stenophylla; 2, Cupressus Lawsoniana; 3, Berberis Aquifolium var. aldenhamensis; 4, B. canadensis; 5, Fabiana imbricata; 6, Pyrus Aria; 7, Viburnum dentatum; 8, Phillyrea decora; 9, missing; 10, Berberis Hookeri var. viridis; 11, Kerria japonica var. flore pleno.—*S. W.* 1, Berberis Darwinii; 2, B. stenophylla; 3, Tiarella cordifolia.—*J. H.* Campanula Steveni.—*W. T. B.* 1 and 2, forms of Primula denticulata.—*L. S. A.* 1, Anthriscus sylvestris (Beaked Parsley); 2, Barbarea vulgaris (Winter Cress or Yellow Rocket).

PROPAGATION OF PRIMULAS, POLYANTHUSES AND ALPINE AURICULAS: *H.* The usual practice is to divide these plants as soon as they have finished flowering and are about to make fresh roots. It is essential, however, that they should not be placed in a dry situation exposed to the sun. If they are grown in a shady spot, preferably on a north border, and kept well watered, the divided portions will soon become established and make good specimens. These plants may also be divided and replanted early in October or in the spring before they commence to flower.

TOMATOS DISEASED: *Lycopersicum.* The Tomato plants are suffering from "Damping off" or Foot rot, caused by Phytophthora cryptogea. The disease may be prevented by sterilisation of the soil, water, boxes and pots, by heat, or by means of a 2 per cent. solution of formaldehyde. It is also possible to stop an epidemic of this disease by watering the plants with a solution of "Cheshunt Compound."

SOIL FOR EXAMINATION: *Miss A.* If the material is merely wood ash it should not have injured your seedlings; you would be well advised not to use it for such a purpose again. It would be better to use a small quantity in the open garden, and watch its affects on the plants, whether they benefit or not by it. It would not be worth the expense of having it analysed unless you have a considerable quantity, in which case we advise you to apply to Dr. J. A. Voelcker, Royal Horticultural Society's Garden, Wisley, Ripley, Surrey.

Communications Received.—J. F. S.—C. W.—C. L.—E. W. S.—K. McD.—W. L.—H. M.—F. W. J.

MARKETS.

COVENT GARDEN, Tuesday, May 15.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples—		
Victorian, N. S. Wales, Tasmanian & W. Australian		
—Cox's Orange Pippin	14 0	16 0
—Ribston Pippin	10 0	12 0
—Jonathan	10 0	11 0
—Cleopatra	13 0	— —
—Worcester	11 0	12 0
New Zealand		
—Jonathan	11 0	12 0
—Dunn's Seedling	11 0	12 0
—Cleopatra	14 0	14 6
—Others	10 0	12 0
Bananas, singles	16 6	27 0
—doubles	22 6	30 0
Cherries—		
Half-sieve	7 0	12 0
Box	2 6	3 0
Figs special	10 0	15 0
best	6 0	9 0
Gooseberries—		
—Devon, lb.	0 8	0 9
—Kent, ½ sieves	14 0	15 0
Grapes—		
—New Black Hamburgh	4 0	6 0
Grapes—		
—Belgian	3 6	4 6
—English muscat	15 0	18 0
Grape Fruit—		
—Jamaica	— —	25 0
Lemons—		
—Messina boxes	8 0	10 0
„ cases	15 0	18 0
—Naples	18 0	25 0
Melons, English and Guernsey, each	5 0	10 0
Nuts—Brazils	45 0	47 6
Oranges—		
—Denia	18 0	25 0
—Murcia	18 0	25 0
—Jaffa	12 0	17 0
Peaches—		
—English, doz.	18 0	36 0
—Belgian doz.	8 0	12 0
Pineapples, case	14 0	40 0
South African		
—Grapes		
Raisin Blanc	10 0	12 0
Lady Downe's Seedlings	—	15 0
Strawberries spec	12 0	14 0
„ best	6 0	10 0

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus, bundle		
—Special Devon	12 6	16 0
—Spec. Evesham	12 6	21 0
—Best „	6 0	10 0
Beans—		
—Guernsey, lb.	1 3	2 3
—Madeirabasket	2 0	4 0
—Worthing	1 6	2 3
Broad Beans, pad	3 0	3 6
Beets, cwt.	2 6	4 0
Cabbage, dozen	1 6	2 6
Carrots cwt.	2 0	3 0
—New, dozen	8 0	10 0
Cauliflowers, doz.	3 0	5 0
Cucumber, Flat	14 0	20 0
Greens, bag	1 3	2 0
Lettuce—		
—English	1 0	2 0
—Dutch, crate	3 0	3 6
Marrows, doz.	10 0	18 0
Mint, doz.	3 0	6 0
Mushrooms, lb.	1 6	2 6
Onions—		
—Dutch, bag	3 0	4 0
—Egyptian	8 6	9 6
Onion.	s. d.	s. d.
—English, cwt.	5 0	6 0
Parsnips, cwt.	2 6	3 0
Peas, lb.		
—Guernsey	1 3	2 6
—French, pad.	6 0	8 0
Potatos,		
—Canary Island case	8 0	10 0
—Spanish, cwt.	28 0	30 0
—Guernsey, new, lb.	3½	0 4
—Jersey	3½	0 4
—King Edward	£3	£3 5
—Others	£2 5	£3 0
—Natural	5 0	7 0
Radishes, doz.	0 6	1 3
Spinach, bushel	3 0	3 6
New Turnips, doz. bunches	8 0	10 0
Tomatos—		
—English	12 0	14 0
—Pink and Pink and White	12 0	14 0
—White	10 0	16 0
—Blue	10 0	14 0
—Guernsey	11 0	12 0
—Canary Islands	15 0	25 0

REMARKS.—In some directions the cold weather has had a disturbing effect on the demand, and the previous improved buying was brought almost to a standstill in the case of certain subjects. English Tomatos have declined considerably in value, large quantities of Guernsey Tomatos further unfavourably influencing prices. Cucumbers are a fair trade, and have maintained a good price, owing to sharp depreciation in quantities. Moderately large stocks of Australian, Tasmanian and New Zealand Apples are on offer, and their prices are moderate. Grapes, Strawberries, Peaches, Nectarines and Figs are in better supply, but the inquiry is not brisk. Forced Peas and Beans have been in firm request, and are quoted firmer. The cold weather has checked supplies of Asparagus, and prices have been at a higher level. Marrows are in shorter supply and much wanted. Mushrooms are very stable in both quantities and prices. Gooseberries are more plentiful, and with berries arriving from Kent prices are easier. French Cherries are plentiful and cheap, the cold weather retarding sales. Green vegetables are abundant and in fair demand. New Potatos from Jersey and Guernsey are a better trade, owing to smaller shipments from Spain.

Plants in Pots, etc.; Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz.	10 0	18 0
—elegans	10 0	12 0
Aralia Sieboldii	10 0	12 0
Araucarias	30 0	48 0
Asparagus plumosus	12 0	15 0
—Sprengeri	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Azaleas, 48's per doz.	30 0	48 0
—60's	18 0	24 0
Boronias	21 0	27 0
Cacti, per tray, 12's, 15's	5 0	7 0
Cinerarias 48's per doz.	10 0	15 0
Crotons, per doz.	30 0	42 0
Cyrtomium	10 0	15 0
Erica melanthera	24 0	36 0
„ 48's per doz.		
„ nivalis 48 „	24 0	30 0
Erica nivalis 60 „	10 0	15 0
„ Thumbs „	6 0	8 0
Genistas 48's per doz.	15 0	18 0
Heliotropes	15 0	18 0
Hydrangeas white & pink, —48's, doz.	24 0	30 0
Marguerites, per doz.	18 0	24 0
Mignonette	10 0	15 0
Nephrolepis, in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	24 0	30 0
—60's	15 0	18 0
—Cocos	24 0	36 0
Pelargonium	18 0	24 0
Pteris, in variety	12 0	21 0
—large 60's	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's	3 6	4 0
Spiraeas	15 0	18 0
Stocks, White & Coloured	12 0	15 0

POT PLANTS.

REMARKS.—This department is now open every morning for the sale of plants. Large supplies of bedding and decorative plants are now on the market, and all stands in this department will be occupied during the next two months, and business should continue fairly brisk. The supplies of Ferns and Palms are usually more limited during the time the former subjects being most in demand.

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum, decorum, doz. bun.	12 0	15 0
—cuneatum, per doz. bun.	8 0	10 0
Asparagus, plumosus, per bun. long trails, 6's	4 0	5 0
med. sprays	2 6	3 6
short „	1 0	1 6
—Sprengeri, per bun. long sprays	2 6	3 0
med. „	1 3	1 6
short „	0 9	1 0
Carnations, per doz. blooms	3 0	5 0
Cornflowers, per doz. bun.	4 0	6 0
Croton leaves, var., per bun.	2 6	4 0
Gladiolus, per doz bun.	24-0	30 0
Fern, French per doz. bun.	1 0	1 3
Forget-me-not per doz. bun.	4 0	6 0
French Flowers Anemone, St. Brigid, mxd. per doz. bun.	4 0	6 0
—Marguerite, yellow, per doz. bun.	3 6	4 0
—Stock Double White per pad	6 0	8 0
—Ranunculus, Scarlet, per dz. bun.	6 0	7 0
Carmine per doz. bun.	8 0	9 0
Scarlet, Romano large, per doz. bun.	10 0	15 0
double white per doz bun.	8 0	10 0
Heather, white per doz. bun.	4 0	10 0
Iceland Poppy, per doz bun.	2 6	3 0
Iris tingitana, per doz. bloom	3 6	4 0
—Ixia, per doz bun.	4 0	8 0
Lilium speciosum long per doz.	6 0	0 0
short „ „	3 0	4 0
Nigella, per doz. bun.	12 0	18 0
Lily of the Valley, per doz. bun.	18 0	36 0
Orchids, per doz. —Cattleyas	18 0	30 0
—Cypripediums	3 0	4 0
Pelargonium, per doz. bunch, double scarlet	10 0	12 0
Richardias (Arums) per doz.	5 0	7 0
Roses, per doz. blooms—		
—Melody	3 0	4 0
—Ophelia	3 0	4 0
—Richmond	2 0	4 0
Smilax, per doz. trails	6 0	7 0
Stock, per doz. bun. mauve	8 0	12 0
—white per doz. bun	8 0	12 0
Sweet Peas, per doz bun.	6 0	18 0
Tulips, Single—		
—yellow, per doz. bun.	8 0	15 0
—pink, per doz. bun.	8 0	15 0
—scarlet, per doz. bun.	8 0	12 0
—mauve, per doz bun.	8 0	15 0
—Darwins in variety, per doz. bun.	8 0	15 0
Violas, per doz bun.	1 6	2 0

REMARKS.—In this department supplies have been shortened during the past week owing to the return of colder weather, the shortage being most noticeable amongst Roses, Irises and Tulips, the first having advanced again in price, although the blooms are in excellent condition. The most prominent varieties are Madame Abel Chatenay, Ophelia, Molly Sharman Crawford, Melody, Columbia, Richmond, Sunburst and Liberty. Carnations are also in excellent condition, and moderate in price. Cornflowers, Iceland Poppies, Nigella (Love-in-the-Mist) and Gladiolus The Bride are improving in quality. Narcissus poeticus begins to show signs of finishing. More attention is now being given to double white Narcissus (flora plena). Larger consignments of these blooms are now arriving from home growers and also from Guernsey. Double white Stocks also find a ready sale. Richardias (Arums) are fewer, and good blooms are soon cleared. Lilium longiflorum is in good condition, and supplies appear sufficient for present requirements. Tulips are chiefly outdoor grown, and the unfavourable weather conditions during the past few days will lessen the supply. During the coming week-end there should be a good demand for scarlet and white blooms for the Whitsuntide festivities.

GARDENING APPOINTMENT.

Mr. F. J. Radford, for the past three years Foreman at Chilworth Manor Gardens, Romsey, Hampshire, as Gardener to G. H. WINTERBOTTOM, Esq., Horton Hall, near Northampton. (Thanks for 2s. for R.G.O.F. Box.—EDS.)

CATALOGUES RECEIVED.

GARDEN SUPPLIES, LTD., Cranmer Street, Liverpool.—Chrysanthemums; Plant Stakes.

D. G. PURDIE, 6, Waterloo Street, Glasgow.—Summer bedding plants, garden sundries, etc.

STORRIE & STORRIE, Glencarse, Perthshire.—Seeds and seedlings of florists' flowers

SKINNER, BOARD & Co., Bedminster, Bristol.—"Wire Tension" greenhouses.

Foreign.

O. M. PUDOR, Puyallup, Washington, U.S.A.—Irises.

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THE
Gardeners' Chronicle
No. 1900.—*SATURDAY, MAY* 26, 1923.

CONTENTS.

Alpine garden, the—
Potentilla rupestris.. 285
Banana aphis, the .. 281
Briquet, Dr. J. I. .. 282
Bulb garden, the—
Hybrid Watsonias .. 285
Caterpillars, a plague of 282
Chrysanthemum, insect enemies of the .. 282
Farmyard manure, a garden substitute for 280
Fire in an American nursery 282
Flowering, continuity of 291
Forestry Commissioners' Report 288
Forsythia, a new 282
Fruit garden, hardy—
Pollinators for Cox's Orange Pippin .. 290
"Gardeners' Chronicle" seventy-five years ago 283
Gardeners' wages .. 291
Gardening in Central Africa 288
Garden notes from S.W. Scotland 286
Hemsley, Dr. W. B. .. 282
Manures, slow-acting .. 292
Orchid notes and gleanings—
Cymbidium insigne Bieri 290
Laelio-Cattleya Emily Methuen 290
Odontoglossum Camden, Low's var. .. 290
Pear stock, a new .. 282
Plants new or noteworthy—
Primula calciphila .. 283
Sanguinaria canadensis var. mutiplex .. 283
Primula erythrocarpa.. 291
Purslane, Winter .. 292
Royal Gardeners' Orphan Fund 292
Sap, the ascent of .. 292
Seed orders, three eighteenth-century .. 286
Societies—
Bath and West of England Agric. .. 293
United Horticultural Benefit and Prov... 293
Solanum cinereum, poisonous properties of 281
Tree planting in the U.S.A. 282
Trees and shrubs—
Solanum capsicastrum in the open .. 287
Sollya heterophylla .. 287
Two handsome Grevilleas 287
Vegetable garden—
Manurial experiments at Droitwich .. 290
Week's work, the .. 283
Welsh garden, notes from a 286

ILLUSTRATIONS.

Achillea Kellereri 291
Edible Botanic gardens, view in the 289
Rose La France flowering in Central Africa .. 288
Sanguinaria canadensis var. multiplex 283
Solanum capsicastrum, fruiting branches of 287
Watsonias, new hybrid, in the Melbourne Botanic Garden 285

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 55.9°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 23, 10 a.m.: Bar. 30; temp. 62°. Weather—Showery.

The National Botanic Gardens of South Africa. The National Botanic Gardens at Kirstenbosch, which bid fair to rank among the most important gardens of the world, are, and have been since their establishment, hampered by lack of funds. The garden is a spacious one and to it has recently been added a large tract consisting of the mountain slopes between Kirstenbosch and Wynberg. The total area of the garden and the forest reserve now annexed thereto is 500 morgen (1060 acres). To develop and superintend so large a garden a considerable staff is required, and for the staff, adequate accommodation is necessary. Private munificence has done not a little for the garden, and the Botanic Society of South Africa lends its powerful support to the cause of the garden's development, but it is clear that Kirstenbosch must look to the Union Government for a largely increased measure of financial support if the garden is to be maintained and developed in a manner worthy of the community to which it belongs. Unfortunately, South Africa, like most other countries, has been passing through a period of depression, and economy has had to be practised in all directions. Recently, in view of the importance of obtaining an increased measure of financial support from the Government of South Africa, the National Botanic Gardens' Advisory Committee, after an exhaustive inquiry into the resources and needs of the garden, reported that the annual grant from Government sources should be increased immediately from £1,500 to £3,500 and should rise by yearly increments of £500 to a maximum of £10,000. Speaking on behalf of a deputation of the Advisory Committee to the Minister of the Interior, Sir James Rose-Innes urged upon the Minister the claims of the garden for increased grants. He pointed out that the scientific facilities provided by the garden are very restricted, and that the scientific staff was insufficient. Although the Minister expressed strong sympathy with the objects of the deputation, he was unable to promise the assistance asked for, and, in point of fact, the Government of South Africa has not yet found itself in a position to increase the grant. We trust, however, that as prosperity returns, the garden at Kirstenbosch will receive a full measure of support from the Union Government. No garden in the world has greater possibilities and in none may a more varied and valuable collection of plants be cultivated. Moreover, although material benefits which a well organised garden bring to a country are indirect rather than direct, they are none the less real. On a sound and thorough knowledge of systematic botany, the choice of varieties suitable for cultivation depends. From the point of view of science, there is no need to insist on the important part which botanic gardens have played and are playing in the advancement of botany. In happy manner they combine the æsthetic and the economic, and no government can afford to ignore their importance in the life of a nation. Gardens such as that at Kirstenbosch act also as a continual source of inspiration to the youth of a country. Among those who visit these great, living collections of plants are to be found some who have their minds directed to the importance of science in the life of a people. From among them science gains some of its best recruits—men who increase knowledge and bring honour to the country that bred them. Wherefore, we trust that the means of developing Kirstenbosch may be forthcoming; with these means the garden will surely become one of the brightest ornaments of the Union and will in time to come attract visitors and students from all parts of the Empire. Although the Advisory Committee rightly looks to the Government for the help the gardens need, and although the private benefactor has not been ungenerous, we think that the endowment of the gardens might well appeal to the imaginative benefactor of large means; to secure for all time a garden such as that at Kirstenbosch to provide facilities for the discovery of botanical knowledge, and for the enjoyment of Nature, are objects on which any man might with much profit to himself and to the community bestow munificence.

Retirement of Mr. W. J. Grant.—Mr. W. J. Grant, director of Agricultural education for Monmouthshire, has retired after thirty-two years of continuous service. His interests have been spread over a number of subjects besides farming, for, after forming a dairy school, he started to give instruction in horticulture and fruit growing, and instituted classes for poultry. Some time ago he was awarded a silver medal by the Royal Horticultural Society, accompanied with a certificate of appreciation, in recognition of excellent work that had been done over many years in connection with the Potato in Monmouthshire. He was the pioneer of school gardening in Monmouthshire, and other subjects in which he interested himself include Rose growing, bee-keeping, the bottling of fruit, hedging and shearing classes, and the making of baskets. In conclusion, we may quote the following appreciation from the *South Wales Argus* in a notice of Mr. Grant's retirement:—"We hope that in the enjoyment of his own beautiful little garden, and in the exercise of his versatile but practical knowledge of all things that appeal to those who love the country, we shall for many a long day have among us one who is proud of being country-bred and born, and in the truest sense a son of the soil."

Value of Aluminum Sulphate in Soils for Rhododendrons. — *The National Nurseryman* states that Dr. Frederick V. Coville, botanist of the United States Department of Agriculture, has met with great success in the cultivation of Rhododendrons by treating the soil with aluminum sulphate. The effect of aluminum sulphate is found in the change the soil receives in reaction from neutral or alkaline to acid. It is claimed that, where soils have been so treated, the stimulation of the growth of Rhododendrons has been very great, as much as 250 per cent. increase in the diameter of the rosettes of seedling Rhododendrons having been secured. Experiments that have been in progress for several years have shown that soil acidity is required, not only for Rhododendrons, but also for Azaleas, Kalmias, and practically all members of the Heath family. Dr. Coville's experiments are interesting, in view of the success obtained by Dr. Small in rooting seedlings in soil to which acetic acid has been added, as described in *Gard. Chron.*, May 5, p. 244.

National Dahlia Society.—The annual exhibition of the National Dahlia Society will be held on Wednesday, September 5, in the Royal Horticultural Hall, Vincent Square, Westminster. The schedule includes fifty-five classes divided into several sections. The open classes number eighteen, and prizes are offered for Show and Fancy Dahlias, Cactus Dahlias, Garden Cactus Dahlias, Pompon Dahlias, Single Dahlias, large and small Paeony-flowered Dahlias respectively, and Collerette Dahlias. In the amateurs' section, eighteen classes are open to all amateurs and gentlemen's gardeners; four classes to amateurs and gentlemen's gardeners who have never won a first prize at any of the Society's exhibitions, and seven classes for amateurs who do not employ paid assistants. There are also classes for floral decorations. The most valuable prizes are in the open amateurs' and gentlemen's gardeners' classes. Copies of the schedule and particulars may be obtained from the Hon. Secretary, Mr. A. C. Bartlett, 318, Kew Road, Kew.

The Banana Aphis.—Cultivators of Bananas by the northern rivers of New South Wales and in Southern Queensland have a new pest to fight, or rather an old one, which has now appeared in their plantations. This is the Banana Aphis, Pentalonia nigro-nervosa, a species of aphis which was found infesting Bananas growing at St. Dennis (Bourbon) so far back as the year 1859. It is a pest which has also been found abundantly on Bananas under cultivation in glasshouses in the United States, but was probably imported from some country where the fruit is grown extensively. The Banana Aphis is reddish-brown, marked with black, and in the adult, winged forms, the nervures are delicately outlined with black, which gave rise to the very appropriate specific name of nigro-nervosa. The infestations of the Banana plantations in New South Wales and Queensland have given rise to considerable apprehension on the part of growers, some of whom believe that the deformity known as "bunchy top" is due to the presence of the aphis, but there is no direct evidence that this deformity is due to aphis. The *Agricultural Gazette of New South Wales* suggests that infested plantations should be sprayed with kerosene emulsion, or some other reliable specific.

Poisonous Properties of Solanum cinereum.—From observations made in New South Wales it would appear that the fruits, and possibly also the leaves, of the native Solanum cinereum are poisonous to stock. In one particular case where inquiry was made it was shown that of 1,100 sheep in a certain paddock, forty-five died as a result of eating the fruits of this plant. In all probability, sheep do not eat either the fruits or leaves of this species of Solanum whilst there is plenty of fresh grass or other

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green herbage, but during a dry period they turn their attention to the Solanum fruits, with fatal results. The subject is receiving the consideration of the authorities in New South Wales, on whose behalf Mr. J. H. Maiden has identified this Solanum, the native name of which is Narrawa Burr.

British Bulbs for the British Empire Exhibition.—We understand that an order has been placed for 100,000 British-grown bulbs to be planted in the grounds of the British Empire Exhibition at Wembley, for the purpose of providing a display in the spring of 1924.

Dr. J. I. Briquet.—The Director of the Geneva Botanic Gardens, Dr. John Isaac Briquet, who has been elected a foreign member of the Linnean Society, received part of his early education in Scotland. He is best known in the botanical world by his *Texte Synoptique*, which served as a guide to the International Congress at Vienna in 1905; his *Prodrome de la flore de Corse*; and his labours in connection with the Labiatae and the botany of Switzerland.

A New Pear Stock.—The *Bulletin* issued by the Arnold Arboretum for May 10 refers to the value of Pyrus Calleryana as a stock for Pears; it states that this Pyrus promises to be one of the most valuable plants introduced by the Arboretum into the United States. So far as has been determined, this stock is believed to be immune to attacks of the blight which has proved so destructive to garden Pear trees in the United States. Many thousand seedlings of Pyrus Calleryana have been raised by the United States Department of Agriculture and by different experimental stations, and the seedlings will be put to a thorough test as to their suitability as stocks for Pears. The species forms a handsome and shapely tree, and has grown rapidly in the Arboretum, where it has flowered and produced fruits for several years. Apart from its value as a stock, this Pyrus is said to be a valuable garden plant, on account of its large, white flowers and dark green foliage. The fruit is very small, being scarcely more than one-third of an inch in diameter.

British Agriculturists to Visit Sweden.—The Ministry of Agriculture is making arrangements for a party of British agriculturists to visit the show of the General Swedish Agricultural Society, which will be held on June 19-24 at Gothenburg, in connection with the jubilee exhibition and fair of that city. The British party will probably leave this country on June 11, and the itinerary arranged by the Swedish Government includes an inspection of the famous seed-growing station of Svalöf.

A Plague of Caterpillars.—According to the *Daily Express*, fruit orchards in south-east Kent have been visited by a plague of caterpillars, which have largely divested Apple and Plum trees of foliage. The district around Sandwich, including such noted fruit-growing centres as Woodnesborough, Goldstone, and Ash, has suffered most from this plague, and in one orchard alone the damage is estimated at £300. The fruit trees in this part of Kent were a wonderful spectacle when in bloom, and before the appearance of the caterpillars there was promise of remarkable crops.

Tree Planting in the United States.—The American Tree Association recently organised by Mr. C. L. Pack, formerly President of the American Forestry Association, has for its objective the planting of one million trees in the United States during the present year. There is no charge for membership, and anyone who plants a tree and registers it with the association automatically becomes a member, and the association at once sends a certificate of membership. Widespread efforts are being made to interest children in trees, and to encourage the planting of memorial trees, roads of remembrance, and memorial forests. Various business organisations are also assisting, and it is interesting to learn that one bank at Louisville, Kentucky, has given its clients trees for planting, with the result that it has secured 3,000 members for the American Tree Association.

Mr. Charles Pynaert.—A man of outstanding eminence and striking personality in Belgian horticultural circles, Mr. Charles Pynaert bears an honoured and revered name and has maintained the fame of his family. Under the guidance of his father he received a liberal general and horticultural education, which fitted him for the strenuous duties that have fallen to his lot. Horticulturists present at the recent Ghent Conference of the Fédération Horticole Professionelle Internationale thoroughly appreciated the splendid way in which Mr. C. Pynaert carried out the duties of president during the two-day sitting of the Conference. His urbanity and business ability enabled the Conference to get through the apparently overwhelming amount of business within the scheduled time. He was fully conversant with every point raised, and having, with Mr. L. Sander, attended the Plant Quarantine Conferences at Washington in 1922 and 1923, on behalf of the Belgian Government, he was able to give first hand information

MR. CHARLES PYNAERT.

regarding the operation of "Quarantine Order No. 37," and he expressed the view that the U.S.A. Federal Board was not likely to amend the prohibitive order in favour of European nurserymen. It was on the death of his father in 1900 that Mr. C. Pynaert took full charge of the famous Pynaert nursery business at Ghent, and subsequently under his direction the whole business was reconstructed, and the nursery rebuilt at La Pinte in a manner and on a scale not previously attempted even in a city famous the world over for its extensive nurseries. In the same year Mr. Pynaert took over the direction of the *Revue de l'Horticulture Belge*, and in 1909, following the death of Count Oswalde de Kerchove de Denterghem, he became sole proprietor and editor in chief of that interesting and useful publication. Unfortunately the *Revue* had to be suspended owing to the war and circumstances have not permitted its re-publication since. Mr. Pynaert has been a member of the management committee of the Ghent Quinquennial Horticultural Exhibitions since 1900. For about ten years he has been a member of the Provincial Council of East Flanders, and it was on his proposition that this council allocated a considerable sum of money to enable the Belgian Government to complete its phytopathological service and to secure a special service for the destruction of Brown-tail Moth and Gipsy Moth in and around all nursery centres. A short time after the war Mr. Pynaert sold his nursery business to the Messrs. Van Houtte, but he still takes a very active part in all horticultural activities and remains president of the Chambre Syndicale des Horticulteurs Belges—the most important association of professional horticulturists in Belgium—a position he has held since 1919, although he is now engaged in a banking business. It is with great pleasure we present our readers with a portrait of Mr. C. Pynaert.

A New Forsythia.—Our American contemporary *Horticulture* records a new Forsythia, F. ovata, raised from seeds collected by Mr. E. H. Wilson, in Korea in 1918. The species flowers earlier than any other known Forsythia, is said to be unusually hardy, and is expected to succeed in parts of America where other Forsythias cannot be depended upon to bloom. The leaves are very broad for a Forsythia, being from three to four inches in width. The flowers are said to be Primrose-coloured.

Dr. W. B. Hemsley.—We are asked to state that Dr. Hemsley's new address is 9, Walmsley Road, Broadstairs.

Fire in an American Nursery.—The many friends of Mr. Wm. A. Manda in this country will regret to learn of the loss he has sustained by a fire in his nursery in New Jersey, the damage amounting to $20,000. The fire is supposed to have originated from sparks thrown out by a passing locomotive. The stock destroyed was principally trees, and the loss is the greater, as certain kinds, such as Japanese Cedars, can no longer be imported into America.

Insect Enemies of the Chrysanthemum.—*Farmers' Bulletin*, No. 1306, issued by the United States Department of Agriculture, is devoted entirely to Insect Enemies of Chrysanthemums, and the author, Mr. C. A. Weigel, of the Bureau of Entomology, states that, of the many insects known to attack and feed on Chrysanthemums, the most destructive in the United States are the Chrysanthemum Midge, the greenhouse Leaf-tyer, the black and green aphides, the common red spider, thrips, and white flies. He states that the Chrysanthemum Midge (Diarthronomyia hypogaea) is an insect of European origin, and was first reported in the United States in 1915. Since then it has become firmly established, and is now one of the most harmful of Chrysanthemum pests, causing thousands of dollars' worth of damage annually; indeed, it is now widely distributed over the entire country, and is probably the most serious enemy cultivators of Chrysanthemums have to contend with. The *Bulletin* extends to thirty-six pages, and practically all the pests enumerated are illustrated and fully described, while methods of control are detailed at some length. The preparation of suitable insecticides receives considerable attention, and a chapter is devoted to machinery for spraying and for the distribution of dry insecticides. At the end an interesting table deals with the use of hydrocyanic acid gas for the destruction of the various pests, and sets forth the amount of cyanide to be used in each case, the number of fumigations, and the length of interval between them.

Legacy to a Gardener.—The late Mr. Joseph Taylor, of Newstead, Blundellsands, Lancashire, who died on February 18, left a legacy of £200 to his gardener, Mr. Thomas John Portnall.

"Bulletin" of the Chamber of Horticulture.—The issue for May, 1923, being Part 4 of Volume I. of the *Bulletin* of the Chamber of Horticulture, contains several excellent illustrations of the exhibits in the British section at the recent Ghent Exhibition, together with a full account of the exhibitors and exhibits of the British section. Some very useful notes on keeping accounts in horticultural businesses are contributed by Mr. Geo. Cobley, F.C.A., who sums up his remarks with the statement that good accounting systems give up-to-date and accurate information—information leads to

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knowledge and knowledge leads to success. Figures and accounts may often tell the grower what he knows already, but he will not study and use them long before he learns a great deal he did not know before. A full-page portrait of Mr. Joseph Rochford, J.P., accompanies a biographical article of that gentleman, the founder of the world-famous firm of Joseph Rochford and Sons, whose nursery extends to over 200 acres, 43 of which are under glass. Mr. Rochford is a Yorkshireman, and he started a business for himself in 1882 when 25 years of age. At that time the Tomato was being introduced to Covent Garden Market as a desirable salad, and he commenced the cultivation of the Tomato, building house after house for the purpose, and he also engaged in the cultivation of Grapes, Peaches, and Cucumbers. To-day his firm employs one of the largest staffs in the industry, and his produce has a reputation in the market for its fine quality and high standard of grading and packing. Mr. Rochford was one of the founders of the Nurserymen's, Market Gardeners' and General Hailstorm Insurance Corporation, and his valuable advice as to fair rates, insurance of crops and cash settlement of claims has brought great benefit to many nurserymen. He has for many years been a valuable supporter and a member of the committee of the Gardeners' Royal Benevolent Institution. He is a Justice of the Peace for Hertfordshire, and was for many years a member of the Hertfordshire County Council. Amongst the miscellaneous articles in the *Bulletin* are those on the meeting of the International Commercial Horticultural Federation held at Ghent; on preferential railway rates, by Sir Herbert Matthews; particulars of the Imperial Fruit Show to be held at Manchester; and various notes of horticultural interest.

Appointments for the Ensuing Week.—Tuesday, May 29: Royal Horticultural Society's spring exhibition at Chelsea (3 days) Wednesday, May 30: Mitcham, Tooting and District Horticultural Society's meeting; Kew Guild annual meeting and dinner; Royal Counties Agricultural Society's Show at Southampton (4 days). Saturday, June 2: Darwen and District Agricultural Association's show; Blackburn and District Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Revival of Potato Culture in Ireland.* We learn with regret, but without surprise, that the cultivation of the Potato has been revived in Ireland, and with augmented eagerness. The most trustworthy accounts agree in representing that an enormous extent of land is already cropped with it. The peasantry have even been selling their clothes, their bedding, and, in short, every saleable thing, in order to procure seed of this calamitous plant. The inevitable result must be sooner or later a renewal of the famine which has covered the land with such indescribable horrors. There seems to be a confident belief among the Irish that the Potato disease has worn itself out, and they are probably right. It has been obvious that the plant has been improving in health for some time; and a sound crop may be reasonably counted upon for a little while; but for how long no one can say. What a spectacle! to behold a whole nation so destitute of resources and so reckless of consequences as to stake their existence upon the cast of a die; for a Potato crop is little better. If the throw is against them where will the nation be? We cannot but regard this renewal of confidence in the Potato crop as one of the worst signs that have yet appeared in Ireland, where it must be admitted that dangerous symptoms are not uncommon. It is some consolation, however, to find that light is breaking here and there through the gloomy future. It is certain that the Irish are not hopeless and helpless in all directions. In spite of difficulties, we are happy to find that the cultivation of other crops is progressing and in some instances with rapidity.—*Gard. Chron.*, *May* 20, 1848.

Publications Received.—*Plant Names.* By T. S. Lindsay. The Sheldon Press, Northumberland Avenue, W.C. Price 2s. 6d. net.

PLANTS NEW OR NOTEWORTHY.

SANGUINARIA CANADENSIS VAR. MULTIPLEX.*

One of the prettiest plants which I have seen in blossom this spring is a new form of the well-known Blood-root (Sanguinaria canadensis). A clump planted at the foot of a rockery in the nursery of the Arnold Arboretum had more than fifty fully expanded blossoms on April 21. The plant was sent to the Arnold Arboretum by Mr. L. van Webern, of Dayton, Ohio, in the autumn of 1919, and has blossomed freely each succeeding spring.

The flowers are from 2½ inches to 2¾ inches across; both stamens and pistil are changed into petals, of which there are forty-eight to each flower. The outside of the outer petals is slightly tinged with pink, otherwise the flowers are of the purest white and extremely lovely.

The Blood-root was supposed to possess medicinal properties of great value, and on this account was highly esteemed by the ancients. It was among the earliest of plants introduced into England from America. The first reference to it that I have found is in Jacques Cornut's *Historia Canadensium Plantarum*, 212 (1635), where a short account of the plant is given under the name of Chelidonium maximum canadense. Under this same name it is mentioned by Parkinson on page 619 of his *Herbal* published in 1640, but earlier on page 326 of the same work Parkinson figures it under the name of Ranunculus virgineus albus, the "White Virginian Crowfoot." Dillenius in his *Hortus Elthamensis*, II. 334, t. CCLII. fig. 326 (1732), figures three forms under the names of Sanguinaria major, major flore pleno and minor. His flore pleno has apparently fourteen to sixteen petals, that is double the normal number. It is this plant that is referred to in various books under the name of Sanguinaria canadensis plena, a name given by Weston in his *Botany*, III., 610 (1772). In the new form "multiplex" the multiplication of petals has been carried to a greater extent, and the whole of the stamens and the pistils have been converted into petals. For garden purposes this is decidedly a superior plant; the photograph I send (Fig. 133) shows how floriferous the plant is and the neat form of the flowers.

The Blood-root is among the most attractive of the earlier flowering plants, and, although the petals fall quickly, when grown in a mass as it is usually found in nature fresh flowers continue to appear for several days.

The plant thrives in well-drained soil, but it needs moisture with some shade, and it does best where it can revel in peat and leaf-mould. This plant is common in eastern North America, and is plentiful around Niagara Falls. *E. H. Wilson, Arnold Arboretum, Harvard University, U.S.A.*

FIG. 133.—SANGUINARIA CANADENSIS VAR. MULTIPLEX.

* *A typo et a forma plena recedit staminibus carpellisque omnibus in petala mutatis, Wilson n. forma.*

PRIMULA CALCIPHILA.

In reference to the notes on Primula sinensis accompanying my description of Primula calciphila in the *Kew Bulletin* (1923, 97), reviewed in *The Gardeners' Chronicle*, May 5, p. 239, I have received a note from Mr. James Britten calling my attention to his short note on P. sinensis in the *Journal of Botany*, 1897, p. 426. I disclaimed any intention of having dealt with the literature relating to P. sinensis, but Mr. Britten also states in his letter that when he was incorporating Hance's herbarium he marked on Watters' specimen in the Natural History Museum "different species," and he asks me whether it is really the same as Henry, 1292, the only specimen of P. calciphila at the museum.

I have now examined Watters' specimen and have no hesitation in pronouncing it to be rather a poor example of the common P. obconica, Hance.

As Watters' specimen had been associated by all previous authors with the so-called wild plant of P. sinensis, I never suspected that it might be different, and neglected the precaution of examining the specimen for myself. The reference to Hance on page 101 of the *Kew Bulletin* should therefore be deleted. *J. Hutchinson, Kew.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Epidendrum vitellinum.—Both the summer flowering and autumn-flowering varieties of this brightly-coloured Orchid may be grown in a cool house the whole year round. Many failures to cultivate these plants successfully may be attributed to the use of too much fire-heat; and an excess of water at the roots, especially during the winter, as very little moisture is needed when the season of growth is completed. Few Orchids will endure a much lower temperature provided the atmosphere and compost are in a dry condition. Repotting is best done when the new growths are about to develop roots. Shallow pans half-filled with drainage material form the best receptacles, and a compost composed of any of the fibres used for Orchids provides a suitable rooting medium.

Summer Quarters.—It is a suitable date to remove those Orchids that delight in an equable temperature the whole year round, to cooler quarters. For some little time after removing them it is advisable to keep the plants slightly drier at the roots than they have been in the warmer division. It is always advisable when a plant refuses to make reasonable headway to experiment with it in selected positions of shade, warmth, and moisture. Amongst the best-known species which benefit from a cooler treatment in summer may be included Laelia pumilea, L. praestans, L. Jongheana, Odontoglossum, Krameri, O. naevium, Miltonia vexillaria, M. Phalaenopsis, M. Endresii, and the hybrids in which one of these species is a parent. Many Maxillarias, Masdevallias and even Lycastes thrive remarkably well in cool conditions, especialy those of the M. Chimera section, and others which are unsatisfactory when left in either department the whole year round. Removing them also affords an opportunity of making a thorough inspection for insect and other pests, which, if allowed to spread at this season, will soon do irreparable harm.

General Remarks.—The temperatures of the general Orchid houses from now onwards for the next few months should be raised a few degrees. Cool house Orchids, however, soon suffer from excessive heat, and during hot weather should be kept as cool as possible by the admission of a greater amount of air and increased humidity in the atmosphere. In dry districts this is the only means of maintaining the cool, buoyant atmosphere which these plants need. We have reached the season of the plants' active growth, and every attention should be given them to grow strongly and healthily. Atmospheric moisture may be used abundantly, as no Orchids make satisfactory growth in a dry, parched atmosphere, whilst such conditions bring with them an unlimited increase of insect pests. Unsuitable conditions of atmosphere, either too little or too much humidity, bring their respective troubles, and a proper balance of air, heat and moisture must be maintained to secure the best results.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Removing Spring Bedding Plants.—As the various subjects used for this purpose pass out of flower, have the plants taken up and heeled in in spare ground elsewhere, until time can be found to deal with them, excepting, of course, such as are to be discarded, like Wallflowers and Forget-Me-Nots. Bulbs that are lifted will need sorting, and the best examples ripened after the foliage has died away. Such material as Polyanthuses, Arabis, and Double Daisies needs transplanting and, in some instances, dividing for use next autumn. The empty beds and other spaces may be then treated as deemed best for the summer occupants.

Summer Bedding.—The planting of summer bedding plants may be commenced in most districts, leaving until last any that are not suitably hardened, or that are very tender. These remarks apply to half-hardy annuals, as well as those usually grown in pots. Planting is best done late in the afternoons of hot days, and the plants should receive a copious watering immediately they are set.

Staphylea pinnata.—Though lacking in brilliancy of colouring in blossom, this shrubby tree compares most favourably with any other for profuseness of flowering, every part of its branches being covered with creamy-white flowers bearing a faint suspicion of green on their reverse side. After passing out of bloom this shrub is further interesting by reason of its bladder-like fruits, which are responsible for the names of Bladder Nut, St. Anthony's Nut, and Job's Tears. Specimens in these gardens are probably above the average in height and size, ranging from 12 feet to over 18 feet high, whilst the girth of the biggest main stems is about equal to that of a 54-sized flower-pot. Propagation of this shrub by suckers offers a ready method of increase. Staphyleas do best in moist soil.

Early Flowering Shrubs.—As shrubs pass out of bloom any attention in thinning or cutting back the growths should be given, having duly considered the habit and flowering method of the plants to be dealt with. The same work is necessary in the case of semi-climbing shrubs trained against walls. These latter will, in many cases, need some of their growths trained in for extension purposes, and the filling of bare spaces.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Cherries.—Trees that were started early should receive every assistance to develop their fruits by giving the roots liquid manure on frequent occasions and sprinkling a concentrated fertiliser on the surface to be washed down to the roots by watering. Feeding should be continued until the fruits show signs of ripening, when the application of stimulants and syringing the foliage should cease. Over-watering at that stage must be carefully guarded against, otherwise the fruits will crack. When the Cherries are nearly ripe shade them from bright sunshine to prevent injury by scorching.

Strawberries.—During bright weather plants which are stood on shelves near the glass should be examined frequently for watering. Stimulants should be used on frequent occasions up to the time the fruits commence to colour, after which manures are best withheld from the roots. If the pots are stood on a layer of turves with the grass side downward, the need of watering will be lessened. An orchard-house is a very suitable place in which to grow the plants at this season; failing this convenience, pits or frames may be utilised. If red spider is troublesome syringe the plants twice daily until the berries commence to colour, when syringing should be discontinued. The latest batch of plants may be infested with aphides, in which case they should be dipped in an insecticide, or the house vaporised. Vaporising is the more expeditious method when the plants are numerous, and the house or pit suitable. If but few plants are infested, these may, unless rooted into the turf-layer, be taken into a small house or pit for vaporising. An occasional syringing with quassia extract will prevent attacks of this pest. After the later batches of plants have fruited they may be planted on a well-prepared border in a warm, sunny position, and will furnish a second crop in September or early October; or remove all the flower trusses which develop during the ensuing year, and the plants will provide an early crop of fruits next year.

HARDY FRUIT GARDEN.

By A. J. HASTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Bush Fruits.—From now onward constant attention will be required to obtain good bush fruits. In the case of Red Currants it may be advisable to thin large clusters of fruits, otherwise the berries will not have sufficient room to swell and should aphis attack the bushes they will secrete themselves in the clusters, and cover the fruit with black excreta which renders them useless for any purpose. If large size is desired the Cherry type varieties of Currants should be thinned also. The bushes will need a stimulant to enable them to perfect their crops. Continue to stop lateral shoots as previously advised. With the exception of stopping, the above remarks apply also to the Black Currant. All basal shoots should be encouraged to develop, as they will form the fruiting wood of next season.

Apples.—Cold winds and frosts have given growers a very anxious time. Apple mildew is bound to appear, and should be dealt with immediately it is detected. Small, affected twigs should be removed and burnt.

Peach Leaf-curl.—Owing to the unfavourable spring it is probable leaf-curl will be found on Peach trees. Badly attacked leaves should be burnt and the trees sprayed with Bordeaux mixture, copper ammonia, or some other fungicide.

Plums.—Cold, drying winds will also have a detrimental effect on Plum foliage, and an increasing amount of aphis may be expected. This pest and shot-hole fungus should be combated by spraying.

Hoeing and Mulching.—The ground has dried rapidly, and care must be taken to prevent undue evaporation of soil moisture. Ground becomes arid and very hard under the influence of north or east winds, and the drying effects should be counteracted by continual movement of the surface soil by hoeing. Recently transplanted trees should, in all cases, be mulched and if necessary watered. Every effort must be made to keep down woolly aphis, and trees attacked by this pest should be examined frequently. The weekly spraying of Black Currants with paraffin emulsion to combat big bud should be continued during this month.

Strawberries.—A final hoeing of the soil of Strawberry plantations should be done prior to bedding the rows with straw. All labels should be made secure before this work is undertaken.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Euphorbia pulcherrima.—Old stock plants of Poinsettias that have been stored in a partially dry condition should be introduced to a warm house, as their propagation should be commenced next month. Under the influence of heat and moisture the plants will soon start into growth, and when the side-shoots are three to four inches in length they are suitable for use as cuttings, removing them close to the old stem. These plants bleed freely when cut, and it is a good plan to dip the cut ends into finely powdered charcoal. The cuttings should be inserted singly in small pots, well watered, and plunged in a warm propagating case. They should never be allowed to flag, for if this happens they generally prove difficult to root. Plants are, however, easily propagated by cutting the old stems into pieces about three inches in length and using them as cuttings. In their younger stages the plants need plenty of fire heat, and should be grown close to the roof glass. As the season advances they should be given cooler and more airy conditions, continuing such treatment until September, when they will require a warmer temperature. Successional batches should be propagated according to requirements.

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Brunsfelsia (syn. Franciscea).—The Brunsfelsias are generally regarded as, and usually treated as, stove plants; a stove temperature is necessary while the plants are making their growth, but when in flower they will stand for weeks in an ordinary greenhouse. Plants of B. macranthum and B. americana have been flowering freely for some weeks in the conservatory at Kew. The former is the finest and largest flowered of all, and produces its large, deep purple flowers with wonderful profusion on quite small plants. B. americana has attractive yellow, sweet-scented flowers, which gradually turn white with age. All the Brunsfelsias make fine large bushes if they are planted out in a well-drained border in a house where an intermediate temperature can be maintained. B. calycina and B. eximia are old and popular garden plants, and succeed under similar treatment. They are easily propagated by means of cuttings formed of the half-ripened young shoots, plunging the cutting pots in a warm propagating case. Brunsfelsias thrive in a compost of good fibrous loam mixed with leaf-mould or good fibrous peat, and sufficient sand to render the whole open and porous. When the pots are well filled with roots the latter should be given dilute liquid manure and soot-water. Brunsfelsias are more or less deciduous during the winter, and should then be kept somewhat dry at the roots.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Endive.—Where this salad plant is desired for early use, sowings may now be made on rich ground in drills drawn one foot apart. As soon as the seedlings have made a couple of rough leaves thin them to one foot apart, and water them copiously in dry weather. Keep the soil between the plants well hoed.

Autumn and Winter Greens.—Continue to plant out Cauliflowers and Broccoli as soon as they become ready. The latter may be put out between rows of Peas and Beans, but the first should be planted in good breadths in an open part of the garden, and the soil hoed frequently to promote healthy growth. A good bed of well-grown Savoys is, in my opinion, one of the most attractive features of the kitchen garden. Dwarf Green Curled and Cartercone are two excellent varieties. The latter, as its name implies, is cone-shaped, has finely crinkled foliage, and is of very fine flavour. Sow more Broccoli for planting out later; net the seed-bed against birds, and do not allow any green vegetable to become drawn in the seed bed; transplant the seedlings when small.

French Beans.—Make a sowing of French Beans to follow those sown previously in pots and planted in cold frames. Select rich, open ground, or a border on the south or west side of the garden, and sow in single rows made 2 feet apart. Plant the seeds with a trowel about 2 inches deep, and, when the young plants are 2 or 3 inches high, draw a little soil up to them with the hoe, and keep the surface soil well stirred around them as growth proceeds. French Beans growing in frames need protection at night while danger from frost lasts; but afterwards the lights may be removed entirely. Keep the roots well watered and use liquid manure, or some soluble fertiliser occasionally. The Beans should be gathered when they are young, and the plants will continue in bearing until the others are cropping.

Carrots.—Seedling Carrots have made good progress, and where they were sown in drills will require thinning to a foot apart. Those sown in holes filled with prepared soil should be thinned to one at each place, as near the centre of the hole as can be determined, leaving the strongest plant if possible. When finished give the soil a good hoeing to prevent it cracking, first drawing a little fine soil to the plants to keep them firm. A mulching with manure from a spent Mushroom-bed will be very beneficial to this crop. The material should be placed well around the plants to prevent the roots becoming green at the apex.

THE BULB GARDEN.

HYBRID WATSONIAS.

IT is to be regretted that our Australian kinsmen are so reticent in talking or writing about the progress they are making in the development of many well-known flowers. It is true that we are familiar with the great work done with the Chrysanthemum by that enthusiast, Mr. Thomas W. Pockett, and we know a little about the new Roses being produced by Mr. Alister Clark and others, but in general we are quite ignorant of Australian horticultural activities.

Outdoor gardens are a feature of the homesteads in Australia, and in no country are there finer Botanic gardens. These gardens have always been and still are a tremendous influence for good, and are well patronised by the people. During my recent tour through the length and breadth of the island continent I saw so much of interest that I shall never have sufficient time to tell of it to my friends. A great many exotic plants thrive in a remarkable manner in Australia, including numbers that are natives of South Africa. Among others that delightful genus Watsonia is very much at home.

Some years ago the possibility of producing a Watsonia having pure pink flowers occurred to Mr. J. Cronin, Director of the Botanic Gardens, Melbourne. With this object in view W. Meriana var. O'Brienii and W. rosea were crossed, the former being the mother parent. Numerous seedlings were raised from this cross, several of which had flowers of pleasing shades of pink. One of these with a branching spike and in size of flowers superior to the others was selected. This seedling as the mother parent was carefully crossed with W. aletroides and W. rosea and W. Meriana, and many seedlings raised. In the first generation little variation in colour was apparent, and except where the pollen of W. Meriana was used the flowers were almost uniformly purplish in colour. A few of the best forms of each cross were selected for further trial the following season. These were carefully self-fertilised, and the plants raised from them had flowers of varying colours and of superior quality. The six best forms were selected, and these, by crossing and inter-crossing, have produced a splendid race of Watsonias with flower spikes six feet tall (see Fig. 134), branching at the base, and carrying flowers of lovely shades of pink, salmon, red and crimson. This hybrid race is superior to any of the species. The blooms are produced in great abundance, and are valuable for ordinary decorative purposes and as cut flowers. So far as I know this race of hybrid Watsonias has received no name. It may fittingly be called Watsonia Cronini in honour of its originator. *E. H. Wilson, Arnold Arboretum, Harvard University.*

FIG. 134.—NEW HYBRID WATSONIAS IN THE MELBOURNE BOTANIC GARDENS.

THE ALPINE GARDEN.

POTENTILLA RUPESTRIS.

THOUGH rare as a native, this fine Potentilla has won its way by sheer merit into many gardens. As a rock garden plant it is ideal, making itself perfectly at home in any dry, sunny chink containing limestone or old mortar, and in such a situation it will continue growing for years without deterioration or any attention beyond what is needed to ensure tidiness.

P. rupestris makes a short, woody stock, and from this ascends in early spring the handsome leafage in a graceful tuft some 9 in. high. The leaves are slightly hairy, and borne on glossy, straw-coloured stems. No sooner have they attained their full stature than they are surmounted by the flower heads which are carried on stout but elegant peduncles to a height of some 12 inches or more.

The clear white flowers usually open in April or early May. They are, individually, about one inch across and of good form and texture, with no small resemblance to those of Parnassia palustris—Grass of Parnassus. The plant continues in flower for many weeks and may be raised from seed.

A very choice and valuable alpine form of Potentilla rupestris is offered by the trade as P. pygmaea. This is an almost perfect miniature of the type species, differing only in size (it grows but two inches to three inches high) and in its habit of flowering during the late summer. *A. T. J.*

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THREE EIGHTEENTH-CENTURY SEED ORDERS.

Among the miscellaneous papers of Edward Gibbon—the father of the historian whose garden is described in the *Gardeners' Chronicle* for April 21—which have been recently acquired for the Library of Magdalen College, are three receipted bills for vegetable seeds ordered for the years 1762, 1764 and 1766. The repetition or increase of the quantity of seed ordered may be taken as an indication of the success or popularity of the produce.

The selection of the varieties of vegetables and flowers grown is of no less interest than the fact that they were grown in a Hampshire garden in the home of the father of our greatest historian, who, as he confessed in his autobiography, "valued the supply of the kitchen much more than the exercise of the field."

The site of the mansion, "which had been converted into the fashion and convenience of a modern house," was at the end of the village of Buriton, near Petersfield, and at the bottom of the hill.

Some painters' bills tell us that there were two hot houses, "ye great hot house," with 12 lights and "ye little hot house," which together cost £1 16s. to paint. There were also a "succession house," "mellon lights" and "lights for ye pine plants in ye mellon ground." We also read of 34 yards of "palasadoes going into ye garden," of 37 yards of "palasadoes round ye bow windows" and of "a paleing by the pond." The rest, all but the vegetable garden, is left to our imagination.

The seed lists for 1762 and 1766 were ordered in February from the same seedsman, William Newman, and are therefore printed below in adjacent columns. The list for 1764 was ordered in October-December from George Eddie. *R. T. Gunther, Magdalen College, Oxford.*

GARDEN NOTES FROM S.W. SCOTLAND.

Anxiety and hope, despair and (sometimes) fruition chequer the lot of him who aspires to cultivate early-flowering species of Rhododendron in our exasperating climate. The bygone winter and the first moiety of spring were all that could be desired for this class of plants, forasmuch as, except a sharp nip in the early hours of March 24—no more than sufficed to tarnish the bloom of such bushes of Rhododendron ciliatum as were growing in exposed places—there had been a complete absence of frost between Christmas and the closing days of April. All through February and March we enjoyed a surfeit of blossom, beginning with R. moupinense, followed by R. haematocheilon, R. haematodes, R. oreodoxa, R. barbatum, R. campylocarpum, R. Thomsonii and its hybrids, etc.; and although the young growth on some species was perilously forward, we dragged ourselves into the belief that all danger was past, and that at last we were to be blessed with an ideal Rhododendron season.

We had read about 15° of frost at Kew, and spoke boastfully about the cloudy clemency of our West Coast climate. Experience ought to have warned us about its treachery.

During the night of April 25-26 the clouds cleared away, and in the morning the mercury was found to have registered 25°, or 7° of frost. Nearly all blossom was destroyed. We had had our fill of that; but the doleful fact had to be faced that much young growth had been blackened and destroyed, except on plants growing in a north exposure. Among those that suffered most were R. decorum, R. Griffithianum, R. kewense, R. Fortunei, R. pachytrichum, R. oreodoxa, and R. haematocheilon. Species that start late into growth were none the worse, such as R. arboreum, R. barbatum, R. calophytum, R. Soulei, R. sutchuenense, R. Thomsonii, R. Edgworthii, R. Scottianum, R. crassum, etc. Also, R. Augustinii and R. Schlippenbachii came through the ordeal with flying colours.

Of other shrubs that happened to be in bloom at the time of the frost, it may be noted that Exochorda grandiflora, Spiraea arguta, Prostanthera rotundifolia (on a wall), Clianthus puniceus (also on a wall), Piptanthus nepalensis, Olearia nitida, O. stellulata, and Calceolaria violacea never turned a hair. The only herbs that suffered destruction of flowers were Saxifraga (Megasea) Delavayi and S. Beesiana, both handsome things. S. Stracheyi we have written off as unable to bear the slightest ground frost.

The loveliest herb in bloom just now (May 10) in the open is Bailey's variety of Meconopsis simplicifolia. It bears only a single flower on each stiff stem, 18 inches high, but that flower measures well-nigh 5 inches across (by the tape). The petals, silky in texture and fine Cambridge blue in colour, surround a cushion of golden anthers, from among which rises a long pistil of pale buff hue. This exquisite plant can only be classed as a biennial, but is easily raised from seed, which it bears in abundance, and is perfectly hardy.

On the sea-coast the turf covering stretches of the 25 feet raised beach is sheeted with drifts of Saxifraga granulata, flowering simultaneously with plants of that species in the garden. On the other hand, Scilla verna, growing constantly in company with the Saxifrage, is not yet in flower on the coast, but has passed out of flower in the garden, where it began to bloom on March 24. This has nothing to do with the character of the season; it happens every year that the vernal Squill flowers six weeks earlier in the borders than it does along the shore, and grows to four times the stature.

Talking of stature brings to mind the multitude of dwarf Rhododendrons, which on the Chinese uplands take the place of Heather. Most of those I have seen in flower, regarded as garden plants, do not appeal to me, though they are of much botanical interest. But there is one species well worthy of a good place in rockwork where it may not be overgrown by grosser things—namely, R. calostrotum. As the specific name signifies "beautiful carpet," we may assume that it clothes the mountain sides as Heather does our Highland hills. The plant seems never to exceed 6 inches in height, but it bears flowers of a clear rose, with dark spots at the back of the corolla, which is as large as that of a Marsh Marigold. In the splendid display of Rhododendrons at Truro on May 1 (undoubtedly the most comprehensive exhibition of the genus that has ever been made) I noticed a small spray of this species in Mr. Magor's exhibit; but it had suffered in transit and could not do itself justice. This little Rhododendron makes a charming pot plant. *Herbert Maxwell, Monreith.*

VEGETABLE SEEDS.

February, 1762.			Jan.-Feb., 1766.			Oct.-Dec., 1764.		
1 gall. Challon Peas	1	6	2 galls. Early Peas	3	0	½ Pk. Early Peas	2	0
3 galls. Dwarf Marrow Peas	4	6	4 „ Dw. Marrow Peas	6	0	3 Pts. Marrow fat Peas	7	6
2 galls. Early Beans	2	0	2 bush. Broad Beans	16	0	1 Qt. Dwarf Beans		6
3 galls. Long poded Beans	3	0	4 galls. Long poded Beans	4	0	1 Pottle Early do.		9
2 qts. Windr. Beans		6	4 „ Windr. Beans	5	0			
1 gall. Speckd. Dw. Kidney Beans	4	0	1 gall. Large Dw. Kidney Beans	4	0			
1 „ White „ „ „	4	0						
1 lb. Orange Carrot	2	0	1 lb. Carrot	2	0	1 lb. Carrot	2	0
1 lb. Onion Seed	4	0	1 lb. Onion	3	0	1 lb. Onion	4	0
1 lb. Spinach	1	0	1 qt. Spinnish Seed	1	0			
4 oz. Parsnep	0	6	6 oz. Parsnep	1	0	6 oz. Parsnep	1	6
1 oz. Itallian Sallery	1	0	1 oz. Sallery	0	6	2 oz. Sellery		4
2 oz. Coss Lettuce	3	0	1 oz. Coss Lettuce	1	6	1½ oz. Coss Lettuce Seed	3	0
2 oz. Brown Dutch Lettuce	2	0						
2 oz. Red Beat, 2 oz. White do.	1	0	1 oz. White Beat	0	3	2 oz. Beet		6
1 oz. Red Cabbage	1	0	2 oz. Early Cabbage	2	0	3 oz. Early Cabbage	1	6
2 oz. Sugerlofe Cabbage	2	0	2 oz. Large Hollow Cabbage	1	0	2 oz. Dutch Hollow Cabbage	1	0
2 oz. Late Battersea do.	1	0						
4 oz. Curl'd Savvoy	2	0	2 oz. Savvoy	1	0	3 oz. Savoy	1	0
2 oz. White Brocoli	3	0	1 oz. Wh. Brocoli	1	0	2 oz. White & Purple Brocoli	2	0
2 oz. Purple do.	2	0	1 oz. Purple „		9			
2 oz. Early Colleyflower Seed	8	0	1 oz. Colley flower	4	0	2 oz. Colly flower Seed	5	0
2 qts. Mustard	2	0	2 qts. White Mustard	2	0			
2 qts. Garden Cress	2	0	2 pts. Cress	1	0			
2 qts. Radish Seed	2	0	1 pt. Radish		6	1 qt. Radish Seed	1	4
2 oz. Curld Endive	1	0	1 oz. Endive		6	3 oz. Endive	2	6
1 oz. Parsley	1	0	1 oz. Leek		3			
			1 qt. Shallots	1	0			
1 oz. Long prickley Cucumber	1	0	Cucumber	0	6			
1 oz. Short do. do.	1	0						
½ oz. Cantelope mellon	2	6						
½ oz. Romanna do.	2	0				6 Pine Suckers	6	0
						2 bushell of Mushroom Span	5	0

FLOWER SEEDS AND FRUIT TREES.

1 oz. Minonett	5	0	42 Standard Apples @ 8d.	1	8	0	20 Parsells of Best flower seeds	10	0
Sweet Peas	1	6	4 „ Cherrys	4	0		21 of the Common sorts	5	3
			4 Dwarf Apples	2	0		25 Roots of Common Hyacenthus	2	0

NOTES FROM A WELSH GARDEN.

Even in a garden where Brooms are extensively grown the peculiar beauty of Cytisus Moonlight (pallidus) cannot fail to attract attention. That this is one of the most distinctive and beautiful of the Scoparius class must be generally admitted, and it is notable not only for the large size and soft ivory hue (almost approaching nankeen) of its flowers, but also for the rich green of its sturdy growths. Another Broom of this section which arrests one's attention at this season is the late-flowering form of the common C. scoparius, which is conspicuous not, of course, for its blooms, but for the entire absence of them. Whilst all of the type species, and most of the varieties are laden with their abundant blossoms, these late Brooms are as green as they were in January. Nor will they open a flower in a normal season until midsummer.

Faithful to its reputation that fine old Rose, Paul's Carmine Pillar, was the earliest to show colour this spring, several of the large and single blossoms being open in May's first week. But R. Hugonis was only a few days behind, and this elegant species was wreathed with its delightful blossoms until the first of the Penzance Briars was a-bloom. Among the newer single varieties Glow-worm is, perhaps, the most gorgeous in colour, and one that promises to be very content with our light, warm soil, possibly owing to the Austrian Briar parentage, which its warm colouring suggests. Nor can one pass without notice R. indica, var. Miss Lowe, which is always among the forerunners of the Rose season, and one that will, in

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defiance of the usual habit with such singles, continue to flower on and off the season through.

Though it does not often bloom with us, Corokea Cotoneaster has lately borne a number of bright, little, golden stars among its tangle of wiry branches and rather dull foliage. Dipelta floribunda is another somewhat uncertain blossomer here, but its clear, rosy-white, tubular flowers, with their conspicuous orange throats are worth some patience. The Cotoneasters are not, as a race, notable for their beauty of blossom, but C. hupehensis is an exception. The fresh green sprays of this shrub are now bearing at almost every leaf axil a gay little bunch of pure white flowers, held erect on the upper side of the arching branches.

Among the plants which have gone ahead with the most hearty vigour in a new piece of retaining wall the Armerias are very noticeable just now. The largest and tallest, as well as the smallest, have done surprisingly well between the stones. This would, perhaps, not seem so remarkable to those who are familiar only with the Sea Thrifts which cling to the chinks of sun-baked cliffs; but plants gathered from the tide-washed mud flats seem no less amenable to dry wall culture.

Campanula raddeana is doing wonderfully well under similar conditions, as are also several of the Erysimums; the fine E. linifolia, though it grows into quite a bush on the flat, adapts itself to wall culture in a most delightful manner by spreading over the stones with a dwarfed, clinging habit. It will also seed itself in the chinks, but not so freely as some others of its tribe. Though it is accorded scant notice by some of the authorities, another wall plant, Achillea Huteri, must rank high among subjects of its class, if only for the delicate beauty of its foliage and the purity of its whiteness when in bloom. Few white flowers on the wall, however, at this season can equal Erinus alpinus albus, whose little blooms are so clean and sharp that they stand out in telling contrast among others, but they never look prettier than when an odd plant appears self-sown, in a colony of E. a. carmineus.

In like manner a tuft of the almost white Ramondia pyrenaica, among a small gathering of the violet-blue type, affords a pleasing note in the general effect. Douglasia laevigata, which always disliked our wet winters in other sites, is now enjoying life in the dry wall, and opening its cool, pinky-lavender, yellow-eyed blooms, and as much may also be said of Scabiosa Ptercphala. Two Alyssums established on warm ledges, which they adorn with their very silvery foliage and flowers of a soft yellow, are A. idaeum and A. moellendorfianum, the latter with a likeness to A. montanum.

Invariably the first of the Pinks to give colour here is Dianthus arvernensis, an alpine form of our own Cheddar Pink (D. caesius), and it is likewise one of the best of its class if freedom of flowering, robustness and compactness of habit are any recommendation. This pretty plant will make large mats on the wall, the rock-garden ledge, or along the margin of the path. It takes care of itself, and seems immune from that fell disease to which so many of its kind appear to be subject. *A. T. Johnson, Talycafn, N. Wales.*

TREES AND SHRUBS.

TWO HANDSOME GREVILLEAS.

Grevillea rosmarinifolia is a charming evergreen shrub which delights in a dry, sunny position. It is very floriferous, remains in full beauty from early spring till late summer, and carries a few of its quaint, red flowers almost throughout the year. It is of slow growth, and forms a bush five to six feet high in about 15 years.

G. sulphurea has bright yellow flowers, and is very showy. It grows much more rapidly than G. rosmarinifolia, and with the protection of a south or south-west wall, quickly reaches a height of 10-12 ft. If its long, slender growths are allowed to hang loosely from the main stems, a most beautiful effect is produced over a very long period. *W. Auton, Pyrford Court Gardens, Surrey.*

SOLANUM CAPSICASTRUM IN THE OPEN.

The sprays of Solanum capsicastrum I send you (see Fig. 135) were cut from a plant growing out-of-doors on a wall facing due north, which is, however, more or less protected by a range of Melon houses. It is seven years since the plant was turned out from a 5-inch pot. The second year after planting it was cut down by 19° of frost, but started into vigorous growth again in the following spring, and has since withstood 16° of frost, and without any further protection than a piece of fish net, which is used with the object of protecting the berries from the ravages of the birds. The plant is 4 ft. 9 in. high and 4 ft. wide.

It is a consistent bearer, and is always a great source of interest to visitors. We have some smaller plants in various positions, and an old wayside cottage in the neighbourhood also boasts of two plants of a similar age to the subject of these notes, which never fail to bear a fine crop of berries every season. *W. H. Honess, Walhampton Gardens, Lymington.*

FIG. 135.—FRUITING BRANCHES OF SOLANUM CAPSICASTRUM FROM A PLANT GROWING IN THE OPEN IN HAMPSHIRE.

SOLLYA HETEROPHYLLA.

This is a charming little twining shrub from Australia, which is hardy enough for training up a wall or trellis in any but the coldest districts. Even in some bleak districts it has succeeded for years in light soil, with the help of winter protection, such as dry Fern, over the roots, for if the latter are kept alive the plant will, on being cut back, shoot up in spring with the vigour of a hardy Fuchsia.

S. heterophylla sends up a sheaf of thin, wiry branches, clothed with leathery, Myrtle-like leaves, and from the axils of these the flowers appear. These are of the daintiest appearance, standing out on hairlike stems terminating in the drooping, Gentian-blue, bell-shaped blossom.

Plants that are not cut back will begin flowering in May and continue in bloom until the end of the autumn. If preferred, S. heterophylla may be grown in a large pot, plunged in the ground during summer and taken indoors in November. This treatment will obviate any danger of losing the plants in a hard winter. *A. T. J.*

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FORESTRY COMMISSIONERS' REPORT.*

THE Forestry Commissioners were appointed in November, 1919, and have just issued their third annual report. I may recall to readers that the Forestry Commission was established to carry out, as its main work, a definite programme of State Afforestation. This programme, sanctioned by the Forestry Act of 1919, involved the planting of 150,000 acres of new land during the ensuing ten years, the cost to come out of the Forestry Fund, a sum of £3,500,000 voted by Parliament and directed to be issued during the decade in ten annual instalments. The Forestry Commissioners set to work immediately, organised a staff, drew up their planting plans, and proceeded to acquire land suitable for afforestation both by purchase and by lease; but in the short period that has elapsed, extraordinary vicissitudes have occurred, due to the unfavourable financial position with which the Government was and still is confronted. The activities of the Forestry Commission were threatened with complete extinction by the Geddes Committee, who recommended that the scheme of afforestation should be discontinued and that the unexpended balance of the Forestry Fund, £2,800,000, should be cancelled. These drastic recommendations were rejected by the Cabinet, who, however, decided that the Forestry Commission should work on a reduced scale for the next two years, 1921-1922 and 1922-1923, with a saving each year of £200,000. Accordingly the Forestry Commission reduced its staff, ceased temporarily to acquire land, and made arrangements to diminish considerably the acreage to be planted annually.

The report of the Geddes Committee on State afforestation is characterised as superficial and full of misapprehensions; at any rate it was lacking in vision of the future. The policy of reduction has worked out in a grotesque way. The question of relief of unemployment arose; and while the Forestry Commissioners were asked on one side to reduce their planting programme on the score of economy, they were being pressed on the other side to provide as much work as possible for the unemployed. As a result the reduced expenditure for 1921-1922 out of the Forestry Fund was £244,414; but the Forestry Commissioners expended out of the Unemployment Fund £154,017, so that the total sum spent on afforestation was £398,431, considerably in excess of the normal programme. The same thing has happened again in the present year. The Forestry Commission thus receives money for the relief of unemployment, which enables work to be done on an enlarged instead of on a reduced scale.

The usefulness of forestry for relief work is abundantly shown in this Report. Of the £154,017 expended out of the Vote for the Relief of Unemployment, about two-thirds went to various forestry operations in lands owned by the Commissioners and in the Crown Woods of Dean Forest and Tintern, where unemployment was very acute. About £50,000 was spent on 501 schemes, in the form of grants to private owners and to corporations, in aid of planting trees, preparation of the ground for planting, and clearing scrub, on the condition that the labour engaged should be "unemployed." The grants vary from £2 to £3 per acre for private owners. There has been little complaint as to the quality of the labour, which was almost completely country-bred. It is believed that the work accomplished is of a productive character, and that the proportion of the Government grant actually expended in wages is higher than in any other form of relief work. The grant system is very efficient from the employment point of view, as the grant per acre is rarely sufficient to cover the cost of labour alone, and landowners have to draw on their private means. In some cases £100 advanced in grants has entailed a total expenditure on labour of £250.

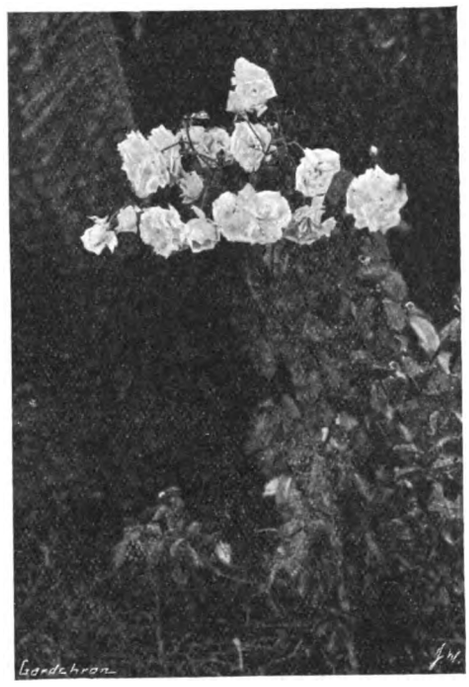

FIG. 136.—LA FRANCE ROSE GROWING IN CENTRAL AFRICA.

The Report shows that the new land acquired for afforestation during 1921-1922 amounted to 23,937 acres. The Commissioners now possess 92,426 acres of plantable land, of which 69,540 acres were obtained by lease and 22,886 acres by purchase. The area planted by the Commissioners in the year was 10,693 acres; and in addition to this 10,192 acres were planted by private owners and corporations by means of grants. The total area planted, about 20,000 acres, may be regarded as highly satisfactory. The Commissioners have ceased forestry operations in Ireland; and the financial and other arrangements caused by the change of government will be detailed in the next annual report.

There are numerous tables of statistics of the areas and species in the various plantations, of nurseries, of expenditure, etc., and a sketch map showing the Crown Woods and Forestry Commission Areas in Great Britain and Forestry Centres in Ireland. It may be noted here that a Bill had just been read a second time in the Imperial Parliament, transferring *en bloc* to the Forestry Commission the woods and forests which still remain under the management of the Commissioner of Woods. There is evidently going to be no reduction in the activities of the Forestry Commission.

There are now three Apprentices' Schools, at Parkend (Forest of Dean), Chopwell (Co. Durham), and Beauly (Inverness-shire), in which sixty-two men received training during the year. The expenditure on these schools amounted to £10,160 in the year. The School at Burley (New Forest) was closed in 1921. Grants in aid of higher forestry education, in all amounting to £2,206, were given to Oxford, Cambridge, Bangor, Armstrong College, and the Agricultural Colleges at Aberdeen and Glasgow.

On Research and Experiment, the expenditure was £6,126. Experimental plots of various species are 120 in number. Experiments have been carried out in the harvesting and storage of tree seeds, and on methods of sowing and protection against frost and drought. Investigations are being carried out in regard to Chermes, Phomopsis Douglasii, tree-growth on peat areas, Larch hybridisation, etc. Considerable progress has been made in the important work of making a census of woodlands. During the year some 509 parishes out of 816 parishes in Scotland, which contain woodland, have been investigated. Two counties in England, *viz.*, Hertford and Suffolk, have been completed, and two counties are being investigated in Wales, but are not yet completed.

In conclusion I may state that this Report contains much matter of interest to landowners, foresters and economists. *A. Henry.*

* *Third Annual Report of the Forestry Commissioners*, year ending September 30, 1922. H.M. Stationery Office, 1923. Price one shilling net.

GARDENING IN CENTRAL AFRICA.

ANYONE accustomed to gardening in England finds particular interest in practising the art in tropical Africa. Conditions are reversed, for the tender stove plants which tax the gardeners' skill at home are there the easiest to grow, whereas it is the hardy, common plants of English gardens which become of the greatest importance, and demand the greatest care. There are, however, some exceptions to the rule, and as these exceptions are so varied, and often entirely inexplicable, it is quite impossible to say what plant will or will not succeed in tropical Africa until it has been tried.

Houses in the towns are always built well apart from each other, allowing each a good piece of garden ground; but gardening has not reached a very high state of excellence. Occasionally, however, one does find an enthusiast, and it will be found that his greatest pride is not in his Crotons, or flaming tropical plants, but in a limited measure of success with the commoner of our garden plants.

The tropical plants met with in every garden, even the most slovenly kept (for plants are to be had from the Botanical Department for the asking), are Crotons, Acalyphas, Panax, Eranthemum, Hibiscus, Poinciana, Sanchezia and Frangipani. Bougainvillea and Solanum Wendlandii climb on to the roof of the bungalows. The latter plant I wrote to the late Sir T. Hanbury, Ventimiglia, for, in 1905. It came as a rooted cutting, by post, grew amazingly, and now its wealth of blue flowers is a feature of the civilised settlements of this part of Africa. The red-leaved Alternanthera has spread itself into every native garden. The native, with his usual sense of utility, uses it in a curious way. All but the main roads are kept up by natives, each householder being responsible for a section. The sections are defined by a few plants of Alternanthera, planted at the side. Apparently this plant has entirely superseded Dracaena fragrans, formerly used for this purpose. Of the wisdom of the change there is no doubt. Alternanthera is much more readily established, and should necessity demand that it grow in a swampy place, then a few handfuls of soil raised above the mud are sufficient for it. Another roadside plant which seems to have spread throughout the length of the country is the common Zinnia. It has deteriorated to a flower with a single circle of ray florets of dirty-pink colour, but it

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seeds and grows in thousands. Like the Alternanthera, it will not naturalise, and is only found by the sides of the roads. It is often associated with Tomato plants, great, big, straggling clumps with hundreds of tiny fruits.

Regarding our common English garden flowers, had I been asked, before I had experience to the contrary, which flower, the Rose or the Sweet Pea, would be likely to do best, I would have plumped for the Sweet Pea, particularly as the culinary Pea does so well. Yet, the fact is, nobody has ever succeeded in getting a single flower of the Sweet Pea, whilst the Rose may be said to be the most successful introduction. Tea Roses and hybrid Teas (Fig. 136) are an unqualified success, particularly on stony soil. Evidently they like the excellent drainage they get, for on moist spots, where one grows vegetables, they do not thrive. They are all grown from cuttings, and it is best to raise fresh bushes every few years. In a recent note from Uganda, I saw it stated that Rambler Roses do not flower. This is not quite correct. They flower, but do not ramble. I had Dorothy Perkins which used to send up strong shoots to 4 ft. in height, when they terminated in a fine head of flower. As each went out of bloom it was cut down and another growth resulted. The plant was well worth growing, as it was always in flower, and made a handsome bush. All Roses in Uganda are scentless. Another success is the sweet, blue Violet. Given a northern aspect, this plant flowers very well, and develops its lovely fragrance. I have seen natives attracted by the scent of this flower, and this is indeed a tribute to the homely Violet.

All herbaceous flowers which are unable to alter their habits and do without a rest are an utter failure. I had no success with the Campanula family, whilst Delphiniums, Hollyhocks and Michaelmas Daisies all failed. Gypsophila paniculata grew weakly as an annual, but is not a success. Chrysanthemums grow and flower weakly at about 6 inches high, although I have seen some fairly good plants grown on a cool verandah. Perennial Phloxes refused to thrive. Salvia splendens does very well, becoming almost a shrub; S. coccinea is also happy. Dahlias grow well from seed, and I had some very successful beds by cutting down the plants after flowering, and moving them into fresh soil.

Bulbs, such as Tulips, Narcissi, Hyacinths and Irises fail to grow after perfecting the flower that is in them when imported. I have, however, grown some very fine Amaryllis. Apparently resting is not essential to these plants. A large bed of a strong, flowering Pancratium was continually in flower and a pink Zephyranthes from the Cape did well.

Amongst annuals, there is a wide choice of proved successes, although, as in the case of the Sweet Pea, one never knows what is going to happen. The common Pansy I found quite difficult to manage. Cosmos, Calliopsis, Phloxes and Sunflowers were great successes. Love-lies-bleeding, in a deteriorated form, springs up everywhere, and in common with other Amarantaceous plants, the tips are eaten as Spinach by the natives. Datura Stramonium is a success everywhere. Gerbera hybrids I have seen growing very well. Cannas are exceptionally fine, and spread rapidly. Both French and African Marigolds succeed well, as do Nasturtiums. Stocks, Asters and Columbines I found impossible, as also were Poppies. Petunias are a moderate success.

Useful climbers are Aristolochia elegans, Maurandya Barclayana and Clerodendron Balfouri. These are more suited for verandah coverings than Bougainvillea. I once planted the latter beside a bungalow; its removal became necessary five years later, and was a problem. I cut it off at ground level, as it had rooted into the masonry, yet it threw out strong shoots at such a rate that the verandah had to be demolished in order to grub it up. Its shoots grew between the corrugated iron sheets of the roof and lifted them off; moreover, I found it a harbour for snakes. A fine Bougainvillea Sanderiana, grown as a bush in the Botanic Gardens, Entebbe, was 30 feet high, and as big as a house when I saw it last.

Solanum Wendlandii is a persistent plant when firmly established, though not satisfactory on a roof, as its shoots get into crevices and cause damage. To grub it up is not easy. I remember grubbing a large plant growing against a building, and on returning from a six months' absence I found the roof as thickly covered by the Solanum as before I grubbed it. Evidently roots send out growths.

Trees have been experimented with to a very limited extent. Cupressus macrocarpa grows quickly, but less rapidly than the Nyassaland Conifer, Widdringtonia Whytei. The latter makes timber quickly in Uganda. Many Australian trees, such as Eucalyptus and Acacia, have been planted, but this type of tree seems particularly susceptible to attacks from white ants.

Our British fruits are absolute failures. Most gardens possess a few Strawberry plants, but I have never seen a good-sized fruit, nor tasted one worth eating. I have heard of an odd Apple being produced, but the trees, as in the case of the Pear and Plum, grow weaker and weaker until they die. One would have expected the Fig to flourish, as tropical Africa is the home of the genus Ficus, but I found it difficult to grow; in fact, a plant I looked after for four years was smaller at the end of that time than at the beginning. The Mulberry acts curiously.

FIG. 137.—VIEW IN THE ENTEBBE BOTANIC GARDENS.

Cuttings root easily, and form fruiting bushes in two years. At five years of age they are eaten off by white ants. The fruits are small, abundantly produced, and useful for tarts and jam. There are, of course, all the tropical fruits in abundance, with little trouble in growing them.

Vegetable growing, speaking generally, is not easy. Many kinds will grow, but constant attention must be given them. They need a moist situation, and as, for health reasons, houses are built on high ground, the garden is usually unsuitable for vegetables. Successful crops are obtained from Potatos, Dwarf Beans, Peas, Cabbages, Carrots, Tomatos and Lettuce. Failures are Runner Beans, Turnips, Broad Beans, and Parsnips. The Runners and Broad Beans grow well and flower, but fertilisation, apparently, does not take place. Potatos are usually small, but this is doubtless due to lack of change of seed. Cabbages are frequently increased by cuttings; the shoots appearing after a head is cut are planted and shaded by a leaf. They quickly root and turn in, and I found they made as good heads as seedlings. Shallots are very successful; but I have never known anyone grow Onions from seed.

An unexpected failure was with Melons, Cucumbers and Vegetable Marrows. The plants grew, but no fruits were perfected. I found a small worm always present in the tiny fruit. This is curious as Uganda is the home of many Cucurbitaceae. Native Marrows and Pumpkins grow like weeds, the Luffa hangs from every hut, and Momordica Charantia is rampant enough to stifle out a Coffee plantation in a short time. Yet the useful plants of the order seem unable to fruit. I tried the South African Water Melon, but met with no success.

Occasionally one has an unexpected success with a crop. I remember once taking out from home seeds of Cauliflower, Savoy and Cabbage. I had three hundred plants of each put out, and never saw crops in England to beat them; but I never had another success nearly approaching that. One year I had some very fair Brussels Sprouts, but every other attempt with this vegetable was an utter failure. Once only did I get fair Celery.

In 1908 I sent to England for some Watercress seed. It was sown beside a running stream, and in a few months was to be found in fine patches down the stream for half a mile. After that date I was never without Watercress, and such Cress! Two heads would make a good penny bunch!

A note on gardening in Uganda would be incomplete without reference to lawns. Our sports ground was a grass one, and the golf greens were as perfect as any in this country. The grass grown is Cynadon dactylon, seeds of which were imported. The method generally adopted in making a lawn is to level the ground and dibble in runners of this grass, a few inches apart. In a few weeks the ground is covered. Another method, equally successful, is to chop up the runners into chaff, mix them with cowdung, clay and water into a paste, and plaster this over the ground about half an inch thick. The grass springs up as thickly as if seeds had been sown. A native grass, which greatly resembles the Cynadon, makes an equally good lawn, and was used to make the lawns in the Botanic Gardens at Entebbe, a view in which is illustrated in Fig. 137. *E. Brown, F.L.S.*

A New Climbing Rose.—*Plant Immigrants*, No 201, January, 1923, gives a very fine illustration of a climbing Rose, Belle Portugaise, or, as it is sometimes called, Belle of Portugal. The *Bulletin* states that this is one of the most valuable contributions of recent years to the list of hybrid climbing Roses grown in America. It was received by the American United States Department of Agriculture from the Botanic Garden of Lisbon, Portugal, in 1911, and is stated to be a hybrid, one of the parents being Rosa odorata gigantea. The colour is soft pink tinged with salmon; the buds are sometimes 4 inches long, whilst the fully expanded bloom measures 7 inches across.

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ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM CAMDEN, LOW'S VARIETY.

Messrs. Stuart Low and Co., Jarvisbrook, Sussex, send the first flower of a cross between O. Lambardeanum (coeruleum × Vuylstekeae) and O. Regale (ardentissimum × Lawrenceanum), in which the chocolate purple markings on a yellow ground acquired from the O. triumphans in O. Lawrenceanum are displayed in a very remarkable manner. The sepals are chocolate-purple with oblong yellow blotches and yellow margin. The petals are similarly coloured, but the middle of each has a pair of window-like yellow blotches with purplish centres. The lip is white with many chocolate-purple markings, and the outside of the column is dark chocolate-purple. A similar arrangement of opaque blotches is found in the interesting O. Ithone var. Papillon of E. R. Ashton, Esq., the parentage of which is given as Aglaon × Dusky Monarch, the sequence being strengthened by the fact that the O. Lambardeanum is from coeruleum × Vuylstekeae (*Gard. Chron.*, Jan. 15, 1922, p. 20). Great interest attaches to the close observance of hybrid records, as certain parents are generally disclosed which consistently give singular characters when suitably crossed.

LAELIO-CATTLEYA EMILY METHUEN.

A flower of this good, bright, yellow Laelio-Cattleya with cherry-red blotch on the lip is sent by Frederick J. Hanbury, Esq., F.L.S., Brockhurst, East Grinstead (gr. Mr. Matthews), where it is flowering for the first time. It results from crossing L.-C. Apello (C. Schröderae × L.-C. Warnhamensis) and L.-C. Baldockiana (C. Gaskelliana × L. cinnabarina). Laelia cinnabarina × C. Trianae produced L.-C. Warnhamensis, and thus it takes part in both parents and is the factor which sets the yellow colour, but doubtless the pronounced yellow in the lip of all the Cattleya parents assists. The size and form of the flower is nearest to C. Schröderae and the colour on the front of the lip is a feature derived from C. Trianae. The hybrid is named after Lady Methuen, wife of Sir Algernon Methuen.

CYMBIDIUM INSIGNE BIERI.

A large and beautifully marked flower of this favourite Cymbidium, which is a general favourite and has been the founder of one of the most decorative and varied of any class of Orchids, is sent by Mr. F. C. Puddle, gardener to Lady Aberconway and the Hon. Henry D. McLaren, Bodnant, North Wales. In point of beauty, size and form, it surpasses many of the hybrids which might be compared with it. The sepals and petals, which are of firm substance, are white with a slight blush tint, the broad lip with openly displayed side lobes having closely arranged claret-purple lines, the front lobe being densely spotted with the same colour. The two plants of it were purchased by Mr. McLaren at the Ghent show (see p. 218).

VEGETABLE GARDEN.

MANURIAL EXPERIMENTS AT DROITWICH.

Trials of Onion, Beet, Parsnip, Runner Bean, Broad Bean, and Pea were conducted under the same manurial conditions at Droitwich as the Potatos (see page 262). The records vary from 15 to 18 years; therefore they ought to possess some reliability with regard to their respective average rates of weight per acre.

The variety of each kind of vegetable grown each year was the same, and from the same source of supply. They were :—

Kind.	Variety.
Onion	Rousham Park Hero
Beet	Pragnell's Exhibition
Parsnip	Hollow-crowned
Pea	William Hurst
Runner Bean	Neale's Ne Plus Ultra
Broad Bean	Bunyard's Exhibition Longpod.

Average Crops per Acre over a Series of Years.

	Stable Manure and Inorganic Fertilisers,				Stable Manure only.			
	tons.	cwts.	lbs.	Years.	tons.	cwts.	lbs.	Years
Onion...	14	7	10	(16)	14	7	11	(18)
Beet ...	29	9	47	(18)	23	17	91	(18)
Parsnip	17	15	37	(18)	19	12	67	(18)
	b'hls.		lbs.	Years	b'hls.		lbs.	Years
Pea	188		20	(16)	178		8	(17)
Runner Bean	274		2	(18)	251		17	(18)
Broad Bean	289		10	(18)	306		14	(18)

	Garden Rubbish only.				Inorganic Fertiliser only.			
	tons.	cwts.	lbs.	Years	tons.	cwts.	lbs.	Years
Onion ...	15	16	48	(18)	4	10	99	(18)
Beet ...	26	14	93	(16)	24	15	72	(18)
Parsnip	16	13	31	(16)	8	8	22	(18)
	b'hls.		lbs.	Years	b'hls.		lbs.	Years
Pea .	195		15	(16)	130		9	(15)
Runner Bean	274		2	(16)	146		35	(18)
Broad Bean	274		5	(16)	212		17	(18

Peas and Beans were gathered and weighed in their pods as they became fit for the table.

Onions were pulled, cleared of soil, their roots trimmed, and the bulbs left to dry on the ground, then bagged in hundredweight bags and sent to the wholesale market.

Beets were pulled, trimmed, cleaned and placed in heaps on level ground (having been weighed as they were trimmed and cleaned), the heaps being long or round according to the space available. The roots were then covered with dry haulm of Peas and Beans, and any spare litter, the whole being covered in with a layer of soil about six inches in depth.

Parsnips were treated similarly to Beet in almost all respects, the chief difference being in the greater care exercised to avoid "bleeding" from the Beet; and the deliberate removal of the rat-like caudal extremity of the Parsnips, when weighing and bagging them for market.

These records—including the records of Apples, Pears and Plums—demonstrate the high value of garden rubbish in its various forms as a source of plant food. They also throw some light on the value of certain inorganic fertilisers when used *alone* over many years.

At this point it should be clearly stated that no vegetable debris of any kind was applied to, or allowed to remain upon, the plot devoted to inorganic fertiliser experiments. All weeds, leaves, prunings and rubbish of any other kind were removed and taken to the respective heaps to decay or to be burnt.

A small and short series of experiments was commenced in 1900 on four very small plots, each plot being treated with one of four kinds of inorganic fertilisers, viz., kainit, mineral superphosphate, nitrate of soda, and sulphate of ammonia. The cost per acre of each fertiliser was the governing factor, rather than the food value, at that time. This, admittedly, was not the wisest course or the best way to ensure good crops. The fertilisers were applied at the following rates per acre :—Kainit, 5 cwt.; mineral superphosphate, 5 cwt.; nitrate of soda, 2½ cwt.; sulphate of ammonia, 2 cwt.

Onion Rousham Park Hero was the crop selected, and the following were the resultant crops :—Kainit, 5 tons 106 lb.; nitrate of soda, 2 tons 7 cwt. 32 lb.; sulphate of ammonia, 1 ton 19 cwt. 92 lb.; mineral superphosphate, 1 ton 13 cwt. 51 lb.

Trial of Old and New Varieties of Potatos.

In 1919 some old and some new varieties of Potatos were planted on ground which had been bastard-trenched after a crop of Runner Beans, for which stable manure had been applied; the following were the varieties planted :—Magnum Bonum, Great Scot, Arran Chief, British Queen, King Edward, Express, King George, and Golden Wonder. No further manure was applied to the ground on which they were planted. The following were the results produced :—

Variety.	Tons	cwts.	lbs.	
Magnum Bonum	14	0	32	per acre.
Arran Chief	10	6	64	,,
British Queen	9	9	11	,,
King Edward	8	6	2	,,
Express	6	8	21	,,
Great Scot	5	15	12	,,
King George...	4	2	20	,,
Golden Wonder	1	14	105	,,

J. Udale.

HARDY FRUIT GARDEN.

POLLINATORS FOR COX'S ORANGE PIPPIN.

Market Grower (p. 262), in looking around for suitable varieties to pollinate the flowers of Cox's Orange Pippin Apple, has made a very appropriate selection of suitable ones. They flower at the same time, and five or six of them have long been proved as suitable pollinators. His list does not exhaust those that have already been proved capable of setting Cox's Orange Pippin. Others are Devonshire Quarrenden, Duchess' Favourite, High Canons, Lady Sudeley, Langley Pippin, Lord Grosvenor, Sturmer Pippin and Worcester Pearmain.

Thus, besides King of the Pippins, there are two good selling market Apples, though also of poor quality, namely, Worcester Pearmain and Devonshire Quarrenden. The former requires to be eaten from the tree to get it at its best, but that point does not concern market growers. Duchess' Favourite is of better quality, but I have not seen it recently in such quantity as in former years. Devonshire Quarrenden, no doubt, enjoys great popularity in the market because of its earliness and colour.

In the issue of the *Gardeners' Chronicle* for December 6, 1913, pp. 393-4, will be found an account of the value of Devonshire Quarrenden for setting Cox's Orange Pippin. A plantation of the latter had been practically barren for some years until interplanted with Devonshire Quarrenden. Not only was the resultant crop good, but the fruits were larger than usual during some successive years. *J. F.*

A GARDEN SUBSTITUTE FOR FARM-YARD MANURE.

The soil is the essential medium for the production of crops, and although some soils are naturally rich in potential resources, there are few, in this country at least, which can be cropped economically without the addition of manure. Hence a study of the material which must be added to the soil to increase its fertility is of the greatest importance to the cultivator.

From time immemorial the standard method of enriching the soil has been by the use of stable manure and farmyard manure. With the extensive displacement of the horse by mechanical transport the supply of the former has gradually diminished, until it has become an almost negligible quantity. The production of farmyard manure has also considerably decreased, owing to the reduction of the number of cattle in the United Kingdom by about 800,000 head since 1919. Further, agriculture needs more farmyard manure than it can produce for its own crops, hence horticulture is faced with the problem of finding a suitable substitute wherever such is necessary.

The practice of using farmyard manure for generations, and the fact that it is still the manure most in demand in cultivation, would seem to suggest that the principle of using it is sound. The theories advanced by reformers who wish to apply empirical formulae as a panacea for all ills are hardly acceptable, and these formulæ may often be classed with the nostrums of food faddists who would have us take all our nutriment in tabloid form.

Up to nearly a century ago the cultivation of land was governed by rule-of-thumb methods, and little was known of the processes involved. In 1840 the great chemist, Liebig, published his first work, showing that the processes were chemical, and as the result of a large number of experiments based on the theories he then brought forward, it was proved that at least ten elements are absolutely essential to the normal growth and development of plants. Liebig's principles state that in the entire absence of one or more of these elements the soil will be incapable of supporting vegetation,

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and if any one element is present in insufficient quantity for the requirements of the plant, a maximum crop cannot be obtained. A soil, then, can only be termed fertile when it contains all the elements requisite for the nutrition of plants in the required quantity, and in an available form.

With every crop a portion of these elements is removed, and although one part of this portion may be again made up from the inexhaustible store of the atmosphere, another part is lost, and must be replaced by man. The fertility of a soil remains unchanged if all the elements abstracted by a crop are given back to the soil by the application of a fertiliser.

In effect, Liebig assumed that the question of the fertility of soil was only one of supplying missing chemical elements, and as a result the real value of organic manure was minimised. The application of his principles has certainly greatly increased production, but experience shows that it is not sufficiently comprehensive. Recent developments prove that the presence of humus, or decayed organic tissue, in the soil is essential to fertility, and every successful grower realises that the best results can only be obtained by the intelligent application of organic matter in conjunction with the so-called artificial, or chemical, manures.

Although it is known that the chief mineral and nitrogen requirements of a crop can be easily supplied by the application of chemical manures, experience shows that a plentiful supply of organic matter is indispensable for maintaining the fertility of the soil. There is little doubt that the superiority of dung is due not so much to the mineral substance and nitrogen that it contains, as to the organic, humus-forming material it is so largely composed of.

Of the exact nature of humus little is known, and the term may be considered one of convenience rather than explanatory. It is the black substance usually associated with a rich soil, and results from the decomposition of organic matter. Its influence as a fertiliser is mainly indirect, and may be considered conveniently under three headings, namely, physical, chemical, and as a medium for soil bacteria.

As a physical agent the effect of humus is to improve the drainage and tilth of the soil. This increases to an enormous degree the area suitable for root action, and may be illustrated by imagining the difference between an impervious lump of clay and the same intersected in every direction by innumerable channels through which roots, air, and moisture may pass. Humus also helps the soil to retain moisture. For example, experiments give the following results :—

100 lbs. of dry sand can hold	25	lbs.	water.		
100 ,, ,, clay	,,	,,	50	,,	,,
100 ,, ,, humus	,,	,,	190	,,	,,

Humus is a non-conductor of heat, hence it fosters that equable soil temperature so desirable for steady growth.

Chemically, humus acts mainly as a catalytic agent; that is, it promotes chemical reactions without apparently taking part in them. This type of action is very common in chemical reactions. For example, the chemical activity of many substances is increased many times when absorbed by charcoal, and there can be no doubt that the same kind of reaction occurs in the soil. Besides this, all decaying organic matter contains a considerable proportion of elements of direct nutritive, chemical value as plant food. This cannot be disregarded, though it is proportionately less than in artificial manures.

Finally, there is the question of soil bacteria, which are now regarded as of the greatest importance in promoting certain chemical reactions essential to soil fertility. These bacteria feed on the decaying vegetable matter, which they help to break down, and render available as food for plants. They can no more live in a soil without humus than human beings could live in a desert devoid of vegetation. *W. Auton.*

(To be continued.)

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Primula erythrocarpa (See p. 255, Fig. 122).—It may interest Primula enthusiasts to know that P. erythrocarpa was flowering in the rock garden at Edinburgh, at the end of March. Other Primulas flowering there at that time were P. denticulata cashmeriana, P. Winteri, P. crispa, P. glaucescens, P. hirsuta nivea, P. chionantha, P. darialica, P. viscosa, P. The Jewel, an improved P. Juliae, and Polyanthus Barr's Blue. In the review of Dr. Macwatt's *Primulas of Europe* (*Gard. Chron.*, May 5), P. Marven is mentioned; this Primula is flowering in the Glasgow Botanic Garden. *F. W. J.*

Gardeners' Wages (see pp. 151, 166, 203, 232 and 263).—I shall be pleased to supply *T. W.* with particulars of my position in private service, in return for his cross references. I have taken the *Gard. Chron.* direct from the office for 25 years, and though too old for the Army I went into training for home defence during the war, and hold the R.H.S. Certificate for war services. I have no complaint to make for myself or men; we have a good employer and are as well paid as any in the profession. As regards the dole I am not in favour of it as a general thing, but, recently, a case was brought to my notice of a garden labourer with upwards of 20 years' service being discharged (for no fault), since when he has only had about two days' work a week. I think in this case the dole would be useful. As regards old servants, *T. W.* must remember that many estates have been closed, sold, or let, and there have been changes of employers; in such cases the gardener often has to leave, and then he may be too old to obtain another appointment. I quite agree that an ex-service man should have a fair chance if he had a gardener's position before joining up, but if he has a pension he is not so badly off as the older man out of work with no pension. Some ex-service men have very good pensions. I am pleased to see others think of these things, and the remarks of *H. Arnold* and *J. M. C.* should bring other opinions. *S. H. G.*

——During the past few weeks letters have appeared in the *Gard. Chron* which indicate that there is considerable discontent amongst the members of the horticultural profession. It seems that there are several things which could be done: (1) Work within the Agricultural Workers' Union for special consideration of the Horticultural Worker; (2) Form a separate Union of Horticultural Workers; (3) Establish a Guild of Horticultural Workers, and secure workers' control in the industry. I should be pleased to hear from readers who are anxious to improve the lot of the horticultural worker. *R. Sudell*, 65, *Huntingfield Road*, *S.W.*15.

——The discussion on gardeners' wages has brought forward many points, and as Mr. Arnold remarks (page 263), comparisons are odious; he also observes that more than enough has been written concerning the difference between the man who went to war and the man who stayed at home. I would like, however, to remind Mr. Arnold that those who stayed at home did not pass through the horrors of war, nor did they endure unspeakable hardships. Gardeners as a class did their duty, and the majority no doubt joined up early, but gardeners are made up of all sorts, and to my mind there is absolutely no comparison between the man who left "all" voluntarily, and the one who did not. Many gardeners have room for complaint regarding wages, and conditions in general. The soldier-gardener is no longer a soldier, and does not wish to go back over the past, but I would emphasise the fact that he deserves first consideration whenever possible. *Thomas Weimer Tylney Hall Gardens, Hampshire.*

FIG. 138.—ACHILLEA KELLERERI.

Continuity of Flowering.—To those of us who have only small gardens and need to make the utmost use of every inch of space available, plants that give a maximum of flowers over the longest period are of the greatest value. It is for this reason that what are known as old-fashioned flowers are so valuable to the small grower, for these include such continuous bloomers as Sweet Peas, Delphiniums, Roses, Marigolds, Lychnis chalcedonica, Pyrethrums, etc. Whilst these old-time flowers are so beautiful, many of us like to have a few of the newer subjects, and amongst perennial flowers that fulfil the quality desired are the beautiful modern Geums, varieties of Erigeron speciosum, such Campanulas as persicifolia, Antirrhinums, Dianthus Allwoodii, Shasta Daisies, Pentstemons, Scabiosa caucasica and Achillea Ptarmica, Perry's variety. There are certain rock garden plants, too, which are always in bloom during the summer and into the autumn, and amongst these may be included the beautiful Cheiranthus Allionii, Geum miniatum, Achillea Kellereri (see Fig. 138), Campanula Andersonii, Polemonium reptans, Armeria alpina, Cerastium Biebersteinii, Meconopsis cambrica, Gentiana acaulis, Arnebia echioides, Cyananthus lobatus, and many of

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the Alpine Pinks. These I name merely at random; it would be useful if one or more of your readers would compile a list of hardy plants, including Alpines, that have the longest season of flowering. *R.*

The Ascent of Sap.—In the illuminating article on this all-absorbing subject on p. 253, no mention is made of capillary attraction as an aid to the ascent of sap in plants. It seems to me that the ordinary process of osmosis and capillary attraction could account to a great extent, if not wholly, for the ascent of the sap. In the first place osmosis accounts for the whole supply of water available. Root pressure, however strong, is limited. The transpiratory pull exerted by the leaves when present (here termed "sucking force") is the acting agent at the extremities of the plant, and as the sap becomes concentrated by loss of water through transpiration, osmosis is playing its part all the time, and drawing water from cells behind which have a greater supply. A pulsating mechanism of cells would seem to suggest more rapid tension or inflation and emptying of cells than I would associate with osmosis, which is a steady diffusion of two liquids of different densities on the two sides of a membrane. The thinner liquid passes more rapidly into the denser solution than the dense one into the other. Evergreen trees and shrubs give off much water in winter, and that is why so many of them die when transplanted in winter, because they are giving off more water than the mutilated roots can supply. The long green and leafless stems of Roses behave in the same way, often dying from the tips downwards. Good rosarians cut them hard back the first year of planting, before they feel the effects of drying winds in spring. That places the dormant buds within reach of root pressure. With regard to capillarity, it is well known that water will rise from a great depth in close or compacted soil. In the same way it will rise in a tube, and the finer the tube the higher it will rise. In plants, especially woody ones, the sap filters through pressure into the interior of woody cells and vessels, before the leaves are expanded, and more or less during the night while transpiration is not active. During the day while plants are transpiring rapidly the lumen of cells and vessels is empty so that the sap must be ascending by the dense cell walls themselves. *J. F.*

Winter Purslane.—I believe the plant to which this name really belongs is Veronica peregrina *R. P. Brotherston.*

Rubber.—Further to my note on Rubber (p. 277), as to curing and the "improvements" in so-doing over the primitive smoking method of obtaining a "pelle" or ball, the market prices perhaps show the value of the improvements. For a good while I used to observe the prices in the papers, but I never remember seeing plantation Rubber so high as the Para—especially when remembering that the latter always has some amount of included water so that any difference is greater than appears. The planter needs to pay more respect to his trees and to the quality of his product; when Rubber is found to be bad and soon useless some other device comes along—the camera shutter release is an example, and most of these are now worked by a wire cable, I believe. Perhaps Gutta-percha should also receive some attention; some 20 years ago it realised, if memory serves me, 8s. against Rubber 3s. or 4s.; it was collected by natives in a crude and destructive way; the then Director of the Botanic Gardens told me Gutta-percha was no longer grown on Singapore island. *H. E. D.*

Slow-acting Manures.—There are several manures of considerable value which are so slow in decomposing that they are, if untreated, almost useless. Half-inch bones, rape meal, shoddy, leather dust and horn and hoof filings are all very slow to break down in the soil. Perhaps the slowest manure of them all is leather dust, to which reference has already been made in these pages. I suggest mixing either of these with fresh horse droppings or watering them with drainings from the stable. I have used rape meal as a manure for Roses for some years. At first it was so slow in its operation that I despaired of it, but on mixing it with stable manure and keeping it moist—a most important point or the heap grows hopelessly overheated—the good effect was most pronounced. I am told of half-inch bones being ploughed up in a field in Cornwall, almost unaffected after 32 years in a clay soil. If leather filings, etc., are mixed with fresh stable manure at the rate of one to three, I think there would be no question as to the solubility of the leather. *Harry Williams.*

SOCIETIES.

ROYAL GARDENERS' ORPHAN FUND.

Annual Festival Dinner.

The annual festival dinner of the Royal Gardeners' Orphan Fund was held on Friday, the 18th inst., at the Hotel Victoria, Northumberland Avenue, W.C. Mr. George Monro presided, and the company, which included several ladies, numbered about one hundred and sixty. Mr. Monro was accompanied by Mrs. Monro, and was supported by many prominent horticulturists, including the Rt. Hon. Lord Lambourne, Mr. Leonard G. Sutton, Mr. W. Lobjoit, Mr. and Mrs. J. E. N. Sherwood, Mr. and Mrs. H. W. Nutting, Mr. and Mrs. E. Manwaring, Mr. Whitpaine Nutting, Mr. John Poupart, Mr. A. W. White, the Rev. B. G. Bourchier, Mr. and Mrs. A. J. Monro, Mr. Geo. Cobley, Mr. Donald Monro, Mr. W. Lawrence Bradbury, Mr. H. O. Serpell, Mr. and Mrs. J. E. Dixon, Mr. and Mrs. J. M. Bridgeford, Mr. and Mrs. Harry Miles, Mr. and Mrs. D. Ingamells, Mr. and Mrs. J. F. McLeod, Mr. W. Bates, Mr. W. E. Churcher, Mr. G. Ingram, Mr. D. Swain, Mr. P. R. Barr, Mr. and Mrs. G. H. Barr, Mr. W. Howe, Mr. J. B. Leech, Mr. and Mrs. H. J. Jones, Mr. and Mrs. A. Dimmock, Mr. and Mrs. J. Linford, Mr. and Mrs. J. Collingridge, Mr. C. H. Curtis, Miss E. Colt, Mr. A. Metcalfe, Mr. and Mrs. A. Howard, Mr. and Mrs. G. F. Tinley, Mr. and Mrs. J. Cull, Mr. and Mrs. W. Auton, and Mr. and Mrs. J. Wort.

The dinner was held in the beautiful Edward VII. room, which presented a very charming spectacle, the tables being most daintily decorated for the occasion by Mr. Harry Miles, who employed Tulipa Gesneriana lutea with Nigella Miss Jekyll, that contributed a charming, hazy-blue tone, and a few other subjects, such as pale blue Irises, white Cytisus and Briza maxima—a simple yet very charming scheme of floral decoration.

After the usual Royal toasts had been acknowledged, the chairman proposed the toast of the evening, "The Royal Gardeners' Orphan Fund." Mr. Monro stated that many people thought the benefits of the fund were confined to the orphans of private gardeners, but the committee was empowered to decide who were eligible and who were not, and they exercised that discretion very broadly and included orphans of nursery foremen and departmental managers in seed businesses. The committee has power to grant allowances of 5s. a week to each orphan and children may be placed on the fund as young as one or two years of age. At the present time the fund is responsible for allowances to 103 children, and the benefit the weekly allowances afforded to mothers was emphasised by extracts read from letters received from mothers whose children had benefited by the fund. The committee has also power to make temporary grants to children awaiting election, and at the present time two children whose claims had been approved by the committee are being granted 2s. 6d. each per week. These two children are the orphans of a nursery foreman. In addition to this, the committee has the power to make grants not exceeding £10 when the orphan children cease to receive the allowance, and this sum may be expended on an apprenticeship, in providing a suitable outfit, or in other ways that the committee may approve. For example, during the past year a sum of £5 was granted to a lad to enable him to purchase carpentry tools, whilst another who had secured employment several miles from home was given £5 towards the purchase of a bicycle. During former years the fund was enabled to put by small sums as an investment, and interest from investments was a valuable source of income. During the war, when, perforce, the annual dinners had to be abandoned for several years, the management was obliged to sell some of the invested funds, and it was the earnest desire of the committee to make good these investments at the earliest opportunity. Mr. Monro referred to various methods by which the fund was helped, including the organisation of entertainments and special appeals, such as the one made by Mr. H. J. Jones, a keen supporter of the fund, who had a leaflet printed and circulated in his catalogue, appealing for donations of 2s. 6d. He referred to the trust which was founded by the Gardeners' Company, to provide an allowance to a male orphan in perpetuity. Mr. Monro congratulated the fund on having a most enthusiastic chairman and treasurer, and a committee of hard-working, enthusiastic business men.

Mr. Sherwood, the hon. treasurer, responded. He made a strong appeal for the restoration of the reserve fund to its pre-war basis, and stated that a sum of £1,650 was needed to enable this to be done.

Mr. Leonard Sutton proposed the health of "The Visitors," and extended a welcome to all the visitors present. He expressed the hope that they would cease to be merely visitors, but would become interested in and subscribe to the Royal Gardeners' Orphan Fund, and especially was he glad to see Mr. W. Lobjoit with them, for although horticultural traders were not particularly anxious to see Government officials, they were always delighted to see Mr. Lobjoit, Controller of Horticulture, because as a man engaged so long in the business he thoroughly understood their difficulties, and they felt sure that in him they had one who would always do his very best to advance the interests of horticulture. Mr. Lobjoit, in responding, stated that it was a great pleasure to be a guest at such a dinner, and he felt honoured that the toast of the visitors had been trusted to one whose career was so distinguished the wide world over as that of Mr. Sutton. He said: "I envy the committee their interesting work in watching over the lives of orphans and hope that the children will be so trained that some day they will add distinction to our land."

At this stage Mr. Geo. F. Tinley, in the unavoidable absence of the secretary, Mr. Brian Wynne, through indisposition, announced the amount of the donations, which he said exceeded £1,200. The principal contributions were the chairman's list, amounting to £385; in this was included sums collected by Mr. David Ingamells in Covent Garden Market, amounting to £175. The chief items in the chairman's list were his own donation of £100; Mrs. G. Monro, Senr., £10; Mr. A. J. Monro, £5 5s.; Mr. E. Monro, £5 5s.; Messrs. E. Stevens, £10 10s.; Mr. R. Rochford, £10 10s.; the Rt. Hon. Lord Lambourne, £5; Mr. D. Ingamells, £10 10s.; Mr. H. Larsen, £10 10s.; Mr. J. Cull, £10 10s.; Mr. H. Miles, £10 10s.; Mr. J. Miles, £10 10s.; Mr. W. Robins, £8 8s.; and Mr. Daniels, £6 6s. Other sums included Messrs. Hurst and Son, £100; Mr. F. C. Stoop, £100; Messrs. Sutton and Sons, 50 guineas; Mr. J. M. Bridgeford, 50 guineas, including £10 10s. from Mr. A. Watkins and £5 5s. each from Mr. Bridgeford and Mr. A. Howard; Mr. W. Nutting, £56 6s.; Mr. H. J. Jones, £43; Mr. G. F. Tinley, £25 15s. 6d., including £5 5s. from the proprietors of the *Gardeners' Chronicle*; £6 17s. from the *Gardeners' Chronicle* collecting box; £5 from Mr. W. L. Bradbury; and £5 5s. from Mr. J. C. Allgrove; Mr. J. F. McLeod, £25; Mr. J. E. Dixon, £23; Mr. D. Swain, £14 18s.; Mr. W. Howe, £14 3s., including £10 from Sir E. Tait; £10 10s. each from Sir E. Stern, Bt., Sir J. Colman, Bt., Mrs. Campbell, Messrs. Corry and Co., Mr. R. Cory, Messrs. Barr and Sons, Mr. C. R. King and Mr. E. Manwaring; and Mr. G. Reynold's list, amounting to £7 4s.

The chairman's health was proposed by Lord Lambourne in his usual felicitous style. During the evening an excellent musical programme was rendered under the direction of Mr. R. Norris.

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UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The monthly meeting of this society was held in the R.H.S. hall on Monday, May 14, Mr. Chas. H. Curtis presiding.

Nine new members were elected. Three members withdrew interest amounting to £13 7s. 6d., and three members drew £23 from their deposit accounts. The sum of £60 10s., plus £10 funeral benefit, was paid to the nominee of one deceased member.

The sick pay for the month on the ordinary side came to £95 0s. 10d., and on the State side to £75 17s., and maternity claims amounted to £10. Grants for dental treatment were made to three members, amounting to £12 10s.; and three other applications were considered. The trustees reported that they had invested a further sum of £1,500.

BATH AND WEST OF ENGLAND AGRICULTURAL.

This Agricultural Show, which was held at Swansea, from the 17th to the 22nd inst., included a horticultural section. A special marquee contained the horticultural exhibits, and the big tent was a blaze of beautiful colour. The show was visited by H.R.H. the Prince of Wales, who was conducted through the special marquee by Lord Blythswood. The public was excluded during the visit, and the Prince was keen interested in the exhibits; he spoke to most of the attendants, asking numerous questions.

Messrs. W. Cutbush and Son, Highgate, occupied one end of the tent with an attractive exhibit, having a groundwork of dwarf Polyantha Roses and Hydrangeas. Tall weeping standard Roses were grouped at appropriate spots. On a central staging Messrs. R. Veitch and Son, Exeter, staged a very interesting exhibit of rare shrubs, including a fine specimen of Edwardsia grandiflora, with its curious parrot-bill like flowers; Tremandra verticillata, a native of Australia, a very interesting plant studded with numerous purplish flowers, and Leptospermum Boscawenii.

Messrs. Dobbie and Co., Edinburgh, had a representative collection of Sweet Peas of remarkably fine quality. Prominent amongst the newest varieties were Mary Rose (a 1923 novelty), a lovely shade of soft pink; Dignity, Dobbie's Orange, and Orchid.

Messrs. Barr and Sons, Covent Garden, had a group of Tulips, which presented a gorgeous blaze of colour. The collection included more than 100 varieties, prominent sorts being the bronze-coloured Louis XIV.; Negro, almost black; Mrs. Kerrell and W. T. Ware; this exhibit was pleasingly finished off with little groups of Alpines.

Messrs. Stuart Low and Co., Bush Hill Park, had a bright stand of Carnations, including the varieties Red Ensign, Hon. Charlotte Knollys, and White Pearl. They also showed a few choice Orchids.

Messrs. Wallace and Co., Tunbridge Wells, exhibited a group on the ground that formed a suitable end piece to the central staging. Rhododendrons were the chief feature: there were fine examples of Rhododendrons Dr. Endz, Countess Athlone, and the brilliant scarlet variety Britannia. This exhibit also included groups of Lilium regale and Iris Hoogiana.

Messrs. Harris and Sons, Swansea, filled the extreme end of the tent with a magnificent group of Rhododendrons, the most prominent being very fine specimens of Loder's White, Old Port, a curious wine colour, and White Pearl.

Messrs. Blackmore and Langdon, Bath, showed Delphiniums. Among the best varieties were T. S. Ware, a lovely dark purple colour, with conspicuous white eye, Lavanda and Blue Queen. A collection of Begonias staged by this firm included many fine varieties.

Messrs. Allwood Bros., Haywards Heath, had an artistic bank of Carnations. The varieties Ed. Allwood, Chintz and White Enchantress were well shown, as also were several varieties of Dianthus Allwoodii.

Messrs. M. Prichard and Son, Christchurch, staged a group of interesting hardy flowers consisting of Lupins, Pyrethrums and Papavers, also some choice Alpines.

Messrs. Bakers, Ltd., Wolverhampton, had a miniature rock-garden, which greatly interested the Prince of Wales.

Messrs. J. Cypher and Sons, Cheltenham, showed a varied collection of greenhouse plants.

Messrs. Barber and Black, Swansea, showed Rhododendrons, Hydrangeas and Geraniums.

Other exhibitors were Messrs. W. Treseder and Sons, Cardiff, flowering plants; Messrs. Godfrey and Sons, Exmouth, Lupins, Oriental Poppies and Pelargoniums; Mr. Engelmann, Saffron Walden, Carnations; Messrs. Ellison and Sons, West Bromwich, Ferns; The Devon Rosery, Torquay, a general collection of flowering plants, including Roses in pots; Messrs. Rich and Co., Bath, Poppies and Anemones; Messrs. Toogood and Sons, Southampton, Tulips and a few vegetables. The only amateur exhibit came from Sir John Llewelyn, Penllergaer, near Swansea, who showed some good trusses of Rhododendron Falconeri, Hippeastrums in variety, and a few hybrid Primulas. The show was well attended and was a great delight to the hundreds of miners and their families who came in great numbers from the neighbouring villages.

NEW HORTICULTURAL INVENTIONS.

Latest Patent Applications.

12,661.—Arnecke, A.—Distributors for fertilisers, seeds, etc. May 11.

11,911.—Bull, G. F.—Device for cutting weeds, etc., from lawns, and replacing same with turf. May 3.

11,654.—Waltham, T. E.—Preserving and packing seeds. May 2.

11,234.—Fletcher, A. J.—Apparatus for spraying fruit trees, etc., with powder insecticides. April 25.

10,819.—Allan, A. B.—Hedge-cutting machines. April 21.

10,625.—Holt, W. G.—Gardening tool. April 18.

Specifications Published This Month.

196,788.—Capbell, P. A.—Lawn-mowers.

196,833.—Koch, E. J.—Implements for removing portions of the bark of trees.

196,877.—Elder, D.—Water sprayer.

196,524.—Deutsche Ges. fur Schadlingsbekampfung.—Insecticides.

196,012.—Vielle, J. A.—Process for the manufacture of insecticidal and fungicidal preparations.

196,212.—Pugh, C. H., Ltd., and Bell, G. F.—Rotary cutters of lawn-mowers.

195,908.—Jardine, C. A.—Pruning-shears.

Abstract Published This Month.

Garden Line and Spacer.—Patent No. 194,416.—A novel appliance for spacing and arranging plants in line has been designed by Mr. J. Cox, of 7, Collis Street, Amblecote, Stourbridge. Two pieces of wood, each about 17 inches long, joined at their centres to form a cross, this giving a measure of about one foot from point to point. Brackets attached to this support carry a ratchet reel, and the line from the reel passes through a hole in the centre of the support.

This list is specially compiled for *The Gardeners' Chronicle* by Messrs. Rayner and Co., Registered Patent Agents, of 5, Chancery Lane, London, from whom all information relating to Patents, Trade Marks, and Designs can be obtained gratuitously.

Messrs. Rayner and Co. will obtain printed copies of the published specifications only, and forward on post free for the price of 1s. 6d. each.

TRADE NOTE.

Under the heading of "Industries of Gloucestershire," *The Gloucestershire Chronicle* has published an illustrated account of the firm of Messrs. J. C. Wheeler and Son, Ltd., of London Road, Gloucester. The paper states that this is a firm of which the city has every right to be proud for a variety of reasons. Messrs. Wheeler have been trading for one hundred and seventy years, so that the firm may truly claim to be one of the city's most venerable concerns. The business was founded in 1753 by Mr. James Wheeler, who was the author of *The Gardener's and Botanist's New Dictionary*. Mr. Wheeler lived to the ripe old age of ninety-four, and when he died the business passed under the control of his sons, Edward and William Wheeler. At their deaths, Mr. James Cheslin Wheeler became the proprietor, and he was followed by Mr. A. C. Wheeler, who was a prominent citizen, and eventually filled the post of chief magistrate. The business continued to prosper, and, following the death of Mr. A. C. Wheeler in 1899, it was converted into a private limited liability company, with registered offices at 99, Northgate Street. Many of the employees have been with the firm for very long periods, several for forty years; one, Mr. J. T. Smith, recently completed his sixtieth year of service.

ANSWERS TO CORRESPONDENTS.

Formation of Putting and Clock Golf Greens: *J. S. J.* No hard and fast rule can be laid down as to the correct method of setting out a golf putting course. Generally it resolves itself into a question of making the best of the ground available for the purpose. In order to give interest to the game, it is essential to vary each hole as much as possible, both in regard to its length and the character of the course. The distance from the starting point to the hole may vary from fifteen feet to forty-five feet, according to circumstances. As you appear to have close upon half an acre of ground at your disposal and you only desire to provide nine holes, it will be possible to make the distance between the starting points and the holes much greater. On the other hand, by careful arrangement you might easily increase the number of holes. Apart from keeping the grass closely mown and the turf well rolled, the most important matter to be attended to in the maintenance of a putting course is the changing of the starting points and the position of the holes, as they get worn by play. In setting out a green for clock golf the position of the hole should be so arranged that each of the twelve starting points is a different distance from it.

Improving a Yew Hedge: *F. N. B.* It would not be advisable to use blood manure for a Yew hedge that has not become well established. The roots cannot be sufficiently vigorous to be able to take advantage of forcing manures, and such manure would be likely to do more harm than good. You cannot do better than leave your hedge to nature, and you will probably see a great improvement during the coming summer. We do not advise the use of fresh blood for trees at any time, and prefer liquid cow manure. Dried blood is more easily applied than the fresh article, and is much safer for inexperienced persons to use. Salt as a weed-killer may be applied at the rate of one pound to 16 square yards, but a good deal depends upon the number of weeds and the position as to the quantity required. Washing soda dissolved in water and used at the rate of one pound to 12 gallons of water will kill weeds.

Marechal Neil Rose: *F. S.* The dropping of the foliage of your Marechal Neil Rose points to some check to growth, such as would be caused by drought or a sudden fall in the temperature. The slight signs of canker at the collar would hardly be responsible for the sudden defoliation of the plant, but if the

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disease is allowed to spread, this would probably result in the death of the plant.

MARKET CROPS: *E. L.* 1. Peas followed by Broccoli are probably as profitable as anything in the way of vegetables. The Peas need not have sticks, and the Broccoli plants may either be raised at home or bought when required. Potatos are suitable for growing between young trees, but have not been profitable in recent years. In early districts spring Cabbages, Wallflowers, and spring Onions are grown, and these crops have the advantage in that they leave the land free for cultivation during the summer. Some growers plant bulbs, chiefly Daffodils, for cut bloom. Strawberries are another possibility. Of course, all inter-crops are liable to interfere with spraying, cultivation, etc., and generally need a lot of labour. For this reason we prefer to plant bush fruits between the trees at the start, preferably in such a way that cultivation can be done in two directions. 2. It is not likely that the Plums are suckers, unless they are of the Yellow Pershore variety, which is often propagated in that way. They are probably budded on stocks. 3. Sell the bedding plants in the boxes. 4. The eggs are those of the Lackey Moth.

MILLIPEDES IN VINERY BORDER: The millipedes are not insects, but as they are general feeders they are capable of doing a good deal of harm in gardens, although at the same time they prey upon slugs, small snails, and the larvae and pupae of insects, consequently they compensate for some of the harm they are capable of. Probably soil fumigation would dispose of a considerable number, but if the turf is being used for potting or other purposes, the millipedes should be removed when it is being broken up.

NAMES OF FRUIT: *Gardener, Herts.* 1, Annie Elizabeth; 2, Alfriston.

NAMES OF PLANTS: *G. J. W.* 1, Aucuba japonica var. longifolia; 2, Olearia Haastii; 3, Gasteria verrucosa; 4, Aloe arborescens. *J. R. K.* 1, Cotoneaster frigida; 2, Amelanchier canadensis; 3, Viburnum Lantana; 4 Pseudotsuga Douglasii var. glauca; 5, Prunus pseudocerasus var. *E. C.* Cytisus purpureus (Purple Broom). *A. F.* Very poor specimens; probably an Ixia of some kind.—*Leicester.* Veltheimia viridifolia.—*Miss E. B.* Specimens too scrappy to be of any service in determining their names.—*C. H. H.* Dendrobium Dalhousieanum, commonly known in gardens under that name, but referred by some authorities to D. pulchellum.

PRIMULA LEAVES SCORCHED: *A. B.* Red spider was present on one or two of the Primula leaves, but on several of them there were evidences of scorching, due to the action of sunlight after the plants had been watered.

TOMATOS DISEASED: *Cavan.* From your description we suspect your plants are affected with stripe disease. Watering the soil once a week with a dilute solution of potassium sulphate at the rate of 1 lb. to 100 gallons will often cause affected plants to recover. Potash fertilisers are specially necessary when nitrogen is present in quantity. All diseased plants should be removed and destroyed by burning, as this disease is easily spread, and care should be taken to sterilise the knife used for pruning any suspected plants by wiping the blade with a cloth soaked in two per cent. Lysol, before using it again on plants that are apparently healthy.

WOODLICE: *A. B.* A good method of destroying woodlice is to mix Steiner's "Vermin Paste" with barley meal or middlings, and put the poisoned meal on pieces of glass, wood or tin in the haunts of the woodlice. The creatures may also be trapped by placing scooped out Oranges or Potatos near their haunts, or by filling pots with damp moss or fresh horse manure.

Communications Received.—C. H.—P. S.—S. S.—E. J. T.—W. M.—R. C.—W. C.—J. McC—G. H. K.—K. F. F.—G. H. J.—E. H. W.—P. E. S.—A. G.

MARKETS.

COVENT GARDEN, Tuesday, May 22.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz.	10 0	18 0
—elegans	10 0	12 0
Aralia Sieboldii	10 0	12 0
Araucarias	30 0	48 0
Asparagus plumosus	12 0	15 0
—Sprengeri	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Azaleas, 48's per doz.	30 0	48 0
—60's	18 0	24 0
Boronias	21 0	27 0
Cacti, per tray, 12's, 15's	5 0	7 0
Cinerarias 48's per doz.	10 0	15 0
Crotons, per doz.	30 0	42 0
Cyrtomium	10 0	15 0
Erica melanthera	24 0	36 0
„ 48's per doz.		
„ nivalis 48 „	24 0	30 0
Erica nivalis	s. d.	s. d.
„ 60 „	10 0	15 0
„ Thumbs „	6 0	8 0
Genistas 48's per doz.	15 0	18 0
Heliotropes	15 0	18 0
Hydrangeas white & pink, —48's, doz.	24 0	30 0
Marguerites, per doz.	18 0	24 0
Mignonette	10 0	15 0
Nephrolepis, in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	24 0	30 0
—60's	15 0	18 0
—Cocos	24 0	36 0
Pelargonium	18 0	24 0
Pteris, in variety	12 0	21 0
—large 60's	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's	3 6	4 0
Spiraeas	15 0	18 0
Stocks, White & Coloured	12 0	15 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum, decorum, doz. bun.	12 0	18 0
—cuneatum, per doz. bun.	8 0	10 0
Asparagus, plumosus, per bun.		
long trails, 6's	4 0	5 0
med. sprays	2 6	3 6
short „	1 0	1 6
—Sprengeri, per bun.		
long sprays	2 6	3 0
med. „	1 3	1 6
short „	0 9	1 0
Carnations, per doz. blooms	3 0	5 0
Cornflowers, per doz. bun.	4 0	5 0
Croton leaves, var., per bun.	2 6	4 0
Gardenias, 12's, per box	4 0	5 0
18's, per box	2 6	3 0
Gladiolus, The Bride, per doz. bun.	30 0	36 0
—Blushing Bride, per doz. bun.	24 0	30 0
—Peach Blossom, per doz. bun.	30 0	36 0
—Ne Plus Ultra, per doz. bun.	30 0	36 0
Fern, French per doz. bun.	1 0	1 3
Forget-me-not per doz. bun.	4 0	6 0
French Flowers		
—Anemone, St. Brigid, mxd. per doz. bun.	4 0	6 0
—Marguerite, yellow, per doz. bun.	3 6	4 0
—Ranunculus, Scarlet, per dz. bun.	4 0	5 0
Heather, white per doz. bun.	4 0	10 0
Iris, Spanish, white per doz. bun.	36 0	42 0
—Spanish, blue, per doz. bun.	24 0	36 0
—Spanish yellow, per doz. bun.	24 0	36 0
—Spanish mauve, per doz. bun.	24 0	30 0
Ixe and Poppy, per doz bun.	5 0	6 0
Ixia, per doz bun.	3 0	4 0
Lilium speciosum long per doz.	9 0	10 0
short „ „	6 0	8 0
Nigella, per doz. bun.	9 0	12 0
Lily of the Valley, per doz. bun.	18 0	36 0
Orchids, per doz.		
—Cattleyas	18 0	30 0
—Cypripediums	3 0	4 0
Pæony, double white, 6's per doz. bun.	—	—
—double pink, 6's, per doz. bun.	18 0	24 0
—double red, 6's, per doz. bun.	18 0	24 0
Pelargonium, per doz. bunch, double scarlet	10 0	12 0
Pyrethrum, double white, per doz. bun.	—	—
—double pink, per doz. bun.	8 0	9 0
—single pink, per doz. bun.	7 0	9 0
—single red, per doz. bun.	8 0	9 0
Richardias (Arums) per doz.	8 0	10 0
Roses, per doz. blooms—		
—Melody	3 0	4 0
—Ophelia	3 0	5 0
—Richmond	3 0	4 0
Smilax, per doz. trails	6 0	7 0
Stephanotis, per 72 pips	3 6	—
Stock, per doz. bun. mauve	9 0	15 0
—white per doz. bun	9 0	18 0
Sweet Peas, per doz bun.	6 0	18 0
Tulips, Single—		
—yellow, per doz. bun.	8 0	15 0
Violas, per doz bun.	1 6	2 0

REMARKS.—The cold weather during the past few weeks has had a disturbing effect on the general supplies in this department. During the past week many salesmen have remarked that they have never experienced such a shortage for the Whitsuntide trade, and the supplies of many subjects were much below requirements. White and scarlet blooms realised high prices during the latter end of the past week. Scarlet Carnations, Lilium longiflorum, and Richardias (Arums) were in great demand for the provincial trade, and large consignments of other blooms were required for the provinces. Double white Narcissus is one of the most attractive subjects. Small consignments of double white Pyrethrum arrived from Holland and met with a ready demand, in spite of its unusually high price. Small consignments of the coloured varieties, both single and double flowered, have commenced to arrive from home growers, and at the present time these flowers are greatly welcomed. Gladioli and Irises were soon all sold, also Roses of all grades. Prices are expected to fall during the next few days to the normal, especially if more favourable weather sets in. It will be difficult to give a correct quotation of prices during the next few days.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples—		
Victorian, N. S. Wales, Tasmanian & W. Australian		
—Cox's Orange Pippin	14 0	16 0
—Ribston Pippin	10 0	12 0
—Jonathan	10 0	11 0
—Cleopatra	13 0	—
—Worcester	11 0	12 0
New Zealand		
—Jonathan	11 0	12 0
—Dunn's Seedling	11 0	12 0
—Cleopatra	14 0	14 6
—Others	10 0	12 0
Apricots, crate	12 0	14 0
Bananas, singles	16 6	27 0
—doubles	22 6	30 0
Cherries—		
Half-sieve	8 0	12 0
Box	2 0	2 6
Figs special	10 0	15 0
best	6 0	9 0
Gooseberries—		
—Devon, lb.	0 6	0 7
—Kent, ½ sieves	12 0	14 0
Grapes—		
—New Black Hamburgh	3 6	5 6
Grapes—	s. d.	s. d.
—Belgian	3 6	4 6
—English muscat	12 6	15 0
Grape Fruit—		
—Jamaica	—	25 0
Lemons—		
—Messina boxes	8 0	10 0
„ cases	15 0	18 0
—Naples	18 0	25 0
Melons, English and Guernsey, each	4 6	10 0
Nuts—Brazils	45 0	47 6
Oranges—		
—Denia	16 0	22 0
—Murcia	16 0	25 0
—Jaffa	12 0	17 0
Peaches—		
—English, doz.	18 0	24 0
—Belgian doz.	7 6	10 0
Pineapples, case	14 0	40 0
South African		
—Grapes		
Raisin Blanc	10 0	12 0
Lady Downe's Seedling	—	15 0
Strawberries spec	10 0	12 6
„ best	4 6	8 0

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus, bundle		
—Special Devon	10 0	12 6
—Spec. Evesham	10 0	18 0
—Best „	3 6	6 0
Beans—		
—Guernsey, lb.	1 6	2 0
—Madeira basket	2 6	3 6
—Worthing	1 6	2 0
Broad Beans, pad	3 0	3 6
Beets, cwt.	2 6	4 0
Cabbage, dozen	1 6	2 6
Carrots cwt.	2 0	3 0
—New, dozen	8 0	10 0
Cauliflowers, doz.	4 0	8 0
Cucumber, Flat	16 0	20 0
Greens, bag	1 3	2 0
Lettuce—		
—English	1 0	2 0
—Dutch, crate	3 0	3 6
Marrows, doz.	10 0	18 0
Mint, doz.	3 0	6 0
Mushrooms, lb.	1 6	2 6
Onions—		
—Dutch, bag	3 0	4 0
—Egyptian	3 6	9 6
Onion.	s. d.	s. d.
—English, cwt.	5 0	6 0
Parsnips, cwt.	2 6	3 0
Peas, lb.		
—Guernsey	1 0	2 6
—French, pad.	4 0	5 0
Potatos,		
—Canary Island case	9 0	11 0
—Spanish, cwt.	18 0	23 0
—Guernsey, new, lb.	22 0	25 0
—Jersey	23 0	25 0
—King Edward	£3	£3 5
—Others	£2	5 £3 0
Radishes, doz.	1 0	1 6
Spinach, bushel	3 0	3 6
New Turnips, doz. bunches	8 0	10 0
Tomatos—		
—English	10 0	12 0
—Pink and Pink and White	11 0	12 0
—White	9 0	10 0
—Blue	8 0	10 0
—Guernsey	10 0	11 0
—Canary Islands	14 0	22 6

REMARKS.—The general demand throughout last week was moderately good. The cold weather shortened supplies in some directions, and values were higher, but the reaction after the Whitsun holiday brought lower prices during the earlier part of this week. Apples from Australia, Tasmania and New Zealand have been in some demand, and continue a steady trade. Choice fruits have been unfavourably affected by the cold weather, which has greatly restricted the demand. Trade in forced Peas and French Beans was very good last week, but they have since eased in price. Asparagus, particularly from the Evesham district, sold at satisfactory prices owing to shorter supplies, but this week values are lower. Cherries from France are arriving in fairly good condition, and the first Apricots have made their appearance in Covent Garden Market. Gooseberries from Kent and the West of England have been in better supply. New Potatos from Spain are cheaper, as also are new Potatos from the Channel Islands. Cauliflowers are scarce and dear. Green vegetables are moderate in price.

GARDENING APPOINTMENT.

Mr. E. Durham, for the past seven months Gardener to G. F. MOORE, Esq., J.P., Chadwar, Bourton-on-the-Water, Gloucestershire, as Gardener to THOS. H. MORDEY, Esq., The Spinny, Sully, Glamorganshire. (Thanks for 2s. for R.G.O.F. Box.—EDS.)

CATALOGUES RECEIVED.

DICKSONS, Chester.—Bedding Plants and Dahlias.

BARR & SONS, King Street, Covent Garden.—Bedding Plants.

D. J. SMITH & CO., LTD., Compton Works, Wickford, Essex.—The "Climax" Motor Mower.

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NERINE BOWDENII.

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THE

Gardeners' Chronicle

No. 1901.—SATURDAY, JUNE 2, 1923.

CONTENTS.

Aberdeen, proposed forestry chair at .. 296
Alpine garden—
Viola Alannah .. 299
Ants, destruction of .. 296
Bark cloth 295
Books, notices of—
The Fundamentals of Fruit Production .. 295
"Botanical Magazine," original drawings of the 295
Bracken and pigs .. 296
Farmyard manure, a garden substitute for 299
Ferery, the—
Onoclea sensibilis .. 299
Fruit industry of South Africa 295
"Gardeners' Chronicle" seventy-five years ago 296
Hillier, Mr. J. Masters .. 296
Obituary—
Thomas, Owen .. 312
Pea, a prolific 296
Plants for the flower garden, specimen .. 297
Plants new or noteworthy—
Magnolia Kobus var. borealis 301
Societies—
Royal Caledonian Horticultural .. 312
Royal Horticultural 302
Women's Farm and Garden 311
Trees and shrubs—
Varieties of Lavender 301
Ward's, Mr. Kingdon, seventh expedition in Asia 300
Week's work, the .. 298
Wisley, notes from .. 297

ILLUSTRATIONS.

Carnation Eileen Low 297
Danyon, the cupola-shaped, snow-capped peak of, with Conifer forests in the foreground 300
Hillier, Mr. J. Masters, portrait of 296
Hydrangea Parsifal exhibited at the Chelsea show by Mr. H. J. Jones 305
Lily garden exhibited at the Chelsea show by Messrs. R. Wallace and Co. 307
Magnolia Kobus var. borealis 301
Odontonia Olivia exhibited at the Chelsea show .. 302
Orchid exhibit at the Chelsea show, part of Messrs. J. & A. McBean's 303
Rock gardens at the Chelsea Show 304, 306, 308
Rose, Capt. F. S. Harvey Cant 299
Supplementary coloured illustration: Nerine Bowdenii

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 57.1°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 30, 10 a.m.: Bar. 30.2; temp., 57°. Weather—Fair.

The Fundamentals of Fruit Production.*

Fruit growers interested in the science of their craft and students of pomology will be grateful to the authors of this volume for bringing together and weighing with care the numerous and very scattered fragments of knowledge on the science of fruit-tree cultivation. The authors have done their work well, and therefore the present lack of assured scientific knowledge on many subjects pertaining to fruit cultivation is the more evident. By recording what is known the authors have incidentally revealed how much remains to know and thereby have, as we hope, given a powerful stimulus to further investigation.

The first section of the book, dealing with "water relations," contains valuable information both on the water requirements of crops in general and on the methods of soil management used to conserve water. Unfortunately data are not available to show the precise water requirements of the chief fruit crops. These requirements no doubt vary—as is in fact indicated in Tables 2 and 12, but until the range of water requirements of a given kind of fruit is known, it can scarcely be claimed that we are able to deal with fundamentals. Speaking generally, and of top fruits, it is probable that in fruit-growing districts of this country water supply is rarely if ever a limiting factor in crop production. Even so, a knowledge of water requirements of fruit crops is much to be desired; for that knowledge must be taken into account before a scientific system of spacing of the trees of an orchard can be determined. Needless to say other factors must also be taken into consideration, and of these the nature of the stock is one of the most important. The wide range of root run of Apples has recently received attention in this country, and it is evident that in orchards planted too closely with permanent trees and fillers there may, in dry years, be a shortage of the water available for the roots. But unfortunately it is not known to what extent the total yield of an orchard over a period of years is affected by what might be, as judged from the vegetative growth of the trees, a deficiency of water supply. As the authors observe (p. 185), "a diminution of water supply is well known to be associated frequently with fruitfulness"; but "science is measurement," and until this observation made by successions of gardeners and growers can be expressed with greater accuracy and correlated with some definite change or changes in the biochemical processes of the plant, there must remain a wide field open to investigators of fruit tree physiology. In Section II the nutrition of plants in general and of fruit trees in particular is considered. The treatment of this difficult subject is admirable, although the conclusions which are to be drawn from the data presented are by no means clear. Practical fruit growers generally act on the maxim "manure small fruit, but not top fruit," and the experiments carried out by the late Spencer Pickering in this country would appear to confirm the latter part of the maxim. Nevertheless the experimental evidence (Table 66) presented by the authors points definitely to the value of nitrogenous fertilisers in increasing the yield of Apples. It is much to be desired that one of the fruit Research Stations should undertake an investigation into this subject. It would have to be prolonged, and should start with young, recently planted trees, and continue at least until they are in full bearing. Perhaps not unrelated with the beneficial effects which appear to follow from the use of nitrogenous fertilisers is the interesting difference in nitrogen content of fruiting and barren spurs (Fig. 12, p. 135). Whereas barren Apple spurs, that is, spurs in their off year, have a nitrogen content which like that of other parts of the plant is at a maximum in March, falls to a minimum in June, and rises throughout the rest of the year, fruitful spurs contain more nitrogen in proportion to their dry weight, and the quantity goes on increasing markedly until May, when a fall sets in. In the third section the temperature relations of fruit trees are discussed, and as is but natural in a work emanating from the United States, considerable space is devoted to winter injury. More important perhaps to growers in this country is a knowledge of the influence of temperature on different kinds of fruit trees. For example, there would appear to be in the northern and midland parts of this country some factor—which may be low temperature or insufficient light intensity—which limits the fruitfulness of certain varieties of Pears grown in the open. In the present year this factor which, as it may be scarcely doubted, is traceable to the wet and sunless conditions of last summer, is in evidence in the south as well—the Pear crop promising to be generally a poor one. Judging from the maps (Figs. 60 and 61) showing the distribution in the United States of Apple and Pear orchards, although the range of the Pear has a distinctly more southerly trend than that of the Apple, there is in that country with its continental climate no such marked difference as we think would be discovered were cropping maps of the Apple and Pear in this country available for comparison. In subsequent chapters pruning, fruit setting and propagation are dealt with, and constitute a useful summary of knowledge on these subjects. This book should prove a useful and oft consulted companion of the scientific fruit grower, and should also serve a further purpose — already insisted upon—that of stimulating further investigation into the present insufficiently known fundamentals of fruit production.

* *The Fundamentals of Fruit Production.* By Victor Royal Gardner, Frederick Charles Bradford and Henry Daggett Hooker, Jr., of the Department of Horticulture, University of Missouri. Pp. 667. McGraw Hill Publishing Co., 6, Bouverie Street, E.C.4. Price 25s. 6d. net.

Our Coloured Plate.—The coloured plate forming the supplementary illustration to this issue represents two inflorescences of Nerine Bowdenii, a very fine species imported many years ago from Cape Colony. The plant is hardy in the warmer parts of this country, where it flowers late in the autumn, while leafless. The rose-pink flowers are large, with wide, recurved and slightly wavy segments. The usual flowering period in the South of England is from the end of September to November; when planted in a narrow border near a greenhouse wall, this Nerine produces a fine display. Nerine Bowdenii is equally serviceable as a pot plant for greenhouse and conservatory decoration.

Original Drawings of the "Botanical Magazine."—The large number of original drawings of the plates published in the *Botanical Magazine* included in the collection of drawings in the Herbarium at Kew, has been supplemented by one hundred and sixty-five drawings, mainly belonging to the period between August, 1830, and August, 1834, through the generosity of Mr. W. A. Bilney. Mr. Bilney purchased the plates in 1922, from a member of the Curtis family, and presented them to the Royal Horticultural Society, and the Council of that Society has, with Mr. Bilney's sanction, generously transferred them to Kew. The Kew collection includes the whole of the original drawings since 1841, principally the works of Mr. W. H. Fitch and Miss M. Smith.

Fruit Industry of South Africa.—According to the *Journal* of the Department of Agriculture of the Union of South Africa, the fruit industry in the Union is making rapid progress. In the principal fruit-growing districts the number of Apricot trees in 1921 had increased by 37.5 per cent., Plum and Prune trees by 34.9 per cent., Pear trees by 12.1 per cent., Oranges by 8.2 per cent., Naartjes by 8.1 per cent., and Apples by 6 per cent.

Challenge Cup at Wolverhampton Floral Fete.—The Secretary of the Wolverhampton Floral Fête, Mr. G. W. Martin, informs us that the Leamington and County Flower Show has offered its handsome, fifty-guinea, silver Challenge cup for the best non-competitive group exhibited at Wolverhampton on July 10. The Cup will become the property of any exhibitor winning it three times in succession, or four times in all. Messrs. Webb and Sons won it at Leamington in 1910, Messrs. Sutton and Sons in 1911, Messrs. J. Peed and Son in 1912, Messrs. H. Lane and Sons in 1913, and Messrs. R. Wallace and Co. in 1914. Credit for their successes at Leamington will be accorded these firms should they be successful at Wolverhampton.

Bark Cloth.—In an article entitled "A Revision of Brachystegia," published in the *Kew Bulletin*, the authors, Mr. J. Burtt Davy and Mr. J. Hutchinson, describe the method of preparing bark cloth by the natives in Angola from fibrous sheets beaten out of the bark of several species of Brachystegia, Berlinia, and a species of Ficus (F. natalensis). The bark used is the inner or second bark of the tree, and the strips of bark, which are some four to six feet long, are placed on a log with a flattened surface and beaten with a mallet to the thickness

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of strong brown paper. A strip of bark of the size mentioned is beaten out until it is about six feet long and four feet wide. It is then spread out in the sun to dry, and the exposure to light gives the upper surface a tint somewhat like terracotta. The fabric is then stitched together with strips of fibre from dried Plantain stems. The bark of certain species of Brachystegia is also a valuable source of fibre for the manufacture of rope, cord, string, thread, game-nets, snares, fishing lines, sacks, grain bags, etc. The twine is quickly prepared by rubbing between the palms of the hands.

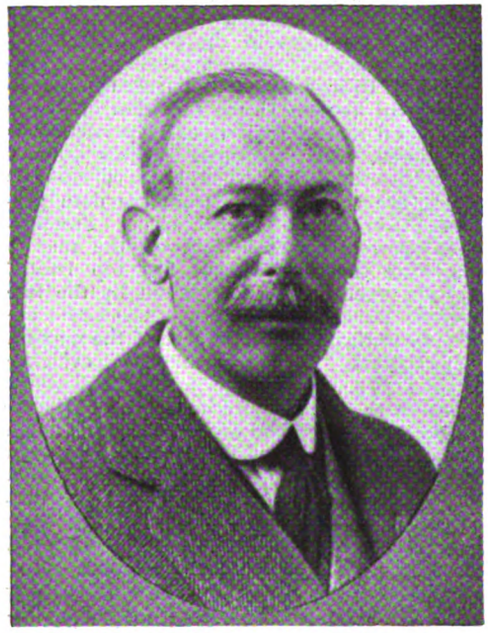
Illness of Mr. David King.—We very much regret to learn that Mr. David King, Osborne Nurseries, Edinburgh, one of the best-known horticulturists in the south of Scotland, is suffering from a severe illness, and his many friends will be pained to learn that there is a danger that the illness may leave him totally blind.

Proposed Forestry Chair at Aberdeen.—The proposal that the Aberdeen University Authorities should establish a Chair of Forestry at Aberdeen has a keen supporter in Mr. Donald Munro, O.B.E., of Banchory, Kincardineshire, whose work in the supplying of timber and in other directions during the war worthily earned for him his distinction. Mr. Munro asserts that there is no better centre in Scotland for the study of forestry than Aberdeen; the only other two centres with Universities are Glasgow and Edinburgh. The Edinburgh students have to make elaborate arrangements for a stay in a part of the country which is three hours' journey from their University. The Glasgow students can get nothing suitable nearer than Argyllshire, about the same distance away; whereas the Aberdeen students would have forestry in all its branches at Craibstone, or practically at their door. They could on occasions visit woods and forests for planting, felling, saw-milling and nursery experience in the morning, and return in the evening. There are many fine forests on Deeside and Donside, many estates and commercial nurseries are near at hand, and felling goes on all the year round within a few miles of Aberdeen. Mr. Munro is convinced that only the question of finance has prevented Aberdeen from having a Chair of Forestry in the past, and it is the only reason there can be for not having one in the future. Anyone, therefore, who is prepared to help will be conferring for all time a benefit on the young men of the north of Scotland and on the empire as a whole.

Linnean Society.—At the annual meeting of the Linnean Society held at Burlington House on Thursday, the 24th ult., Dr. A. B. Rendle, F.R.S., was elected President for the ensuing year, and Dr. B. Daydon Jackson was, for the forty-third time, re-elected one of the secretaries. The Gold Medal of the Society was awarded to Mr. T. Cheesman, F.Z.S., curator of the Auckland Museum, New Zealand, for distinguished services to New Zealand Botany.

Destruction of Ants.—Ants are at times a very great pest in greenhouses, and the following method of destroying them, recommended by Mr. W. B. Gurney, Assistant Entomologist of the Agricultural Department of New South Wales, may be of interest to our readers. A bait is made with 9 lb. of sugar, 9 pints of water, 6 grams of crystallised tartaric acid, 8.4 grams of benzoate of soda, 15 grams of sodium arsenite (or 25 grams of commercial sodium arsenite) and 1¼ lb. of honey. All the ingredients, except the sodium arsenite and the honey, should be boiled together slowly for thirty minutes and allowed to cool. The sodium arsenite is dissolved in half a pint of hot water, allowed to cool, and subsequently added to the cool sugar syrup, and the whole well stirred. The honey is added last, and the bait mixed thoroughly. Mr. Gurney placed the bait in small tins with the lids fitted on to keep out dust and rain, but with the sides of the tins bent inwards to form openings that allowed the ants ready access to the poison. Each tin was furnished with about four ounces of the bait, a quantity that lasts for about a month without fermenting. Sufficient rag or sponge to absorb practically all the bait was put into the tin so that the ants could obtain a foothold and feed on the bait in large numbers. The value of this bait lies in its slow action, as the poison permits the ants to return again and again before they are killed, thus allowing time for them to carry some of the bait to the larvae and queens in the nests.

Mr. J. Masters Hillier.—It is with great pleasure we publish the portrait of Mr. J. Masters Hillier, keeper of the museums at the Royal Botanic Gardens, Kew, which post he has held since the retirement of Mr. J. R. Jackson in 1901. Mr. Hillier was born at Teddington, and after leaving school served for a short period with a firm of auctioneers and estate agents at Kingston, and afterwards at the Kew Observatory. He entered service at Kew on December 7, 1879, as assistant to Mr. J. R. Jackson, and he has the interesting experience of having been continuously in employment, without even a day's break, since leaving school. Since entering Kew he has passed two civil service examinations, which is probably unique for a member of the Kew staff. It will be readily understood that Mr. Hillier has a unique knowledge of economic botany, and is a most interesting and instructive lecturer on this subject to the young men at Kew. Mr. Hillier has a wide reputation in Middlesex as a vocalist, and was for sixteen years a chorister in the Royal Choral Society. He is a keen gardener, and another of his hobbies is fishing. Having taken a keen interest in Kew men for over forty years, they in turn have shown their appreciation of his services by electing him to the presidency of the Kew Guild. Mr. Hillier's only son, Gerald, is also an old Kewite and at present Assistant Editor of *The Garden*.



MR. J. MASTERS HILLIER.

The late Mr. H. J. Elwes.—The late Mr. H. J. Elwes, of Colesborne Park, Gloucester, who died on November 26 last, left unsettled property to the gross value of £66,318, with net personalty £64,429. He left to the Royal Gardens, Kew, any living plants from his collection which may be required by the director of those gardens. He also directed that a sum not exceeding £2,000 be expended on the publication of a book or books founded on his journals relating to his travels and researches in botany, horticulture, ornithology, entomology and natural history, as arranged with his friends Sir Frederick Moore, and Mr. T. A. G. Strickland. He also bequeathed £200 and books to the value of £50 from his entomological library to his secretary, Mr. James Edwards, if still in his service, as a mark of gratitude for his long and faithful services.

A Prolific Pea.—Experiments conducted by Mr. J. M. Pitt, Senior Agricultural Instructor, New South Wales, proved that of nine varieties of Peas tested, much the largest yield was obtained from a variety named Greenfeast. It is stated to be a narrow-podded variety with pods well and tightly filled and having a decided bend back. The pods are said to contain eight to ten peas of even size. The yield of bushels per acre was 514, compared with the next best cropper, Senator, which produced 420 bushels per acre. The yields of seven other sorts tested were: William Hurst, 377 bushels; Richard Seddon, 351; Hundredfold, 351; Yorkshire Hero, 342; Daisy, 334; English Wonder, 291; and Stratagem, 257 bushels. In addition to this extraordinary yield the weight of the Peas in pod to a given measure were in the following ratio: Greenfeast, 38 lb.; Senator, 33 lb.; William Hurst, 35 lb.; Richard Seddon, 34 lb.; Hundredfold, 33 lb.; Yorkshire Hero, 32 lb.; Daisy, 32 lb.; English Wonder, 34 lb.; and Stratagem, 30 lb. It is stated that Greenfeast matured at least a fortnight earlier than Yorkshire Hero, the variety most commonly grown in New South Wales.

Appointments for the Ensuing Week.—Sunday, June 3: Wakefield Tulip Society's meeting. Tuesday, June 5: Sevenoaks Gardeners' Chrysanthemum Society's meeting; Royal Caledonian Horticultural Society's meeting. Wednesday, June 6: Lewes and District Horticultural Society's meeting. Thursday, June 7: Manchester and North of England Orchid Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Horticultural Exhibition at Chiswick.* Those who had the good fortune to be present at the first great meeting of the season in the Garden of the Horticultural Society will agree with us that there never before was witnessed such a display of perfect gardening. The only exception was the Pine-apples, some of which were miserable things. Foreigners, of whom there were many, must have looked with astonishment at the trifles which they left behind them, and must have discovered at Chiswick another striking proof of what may be done by energy and skill in a country where men prefer actions to words, and industrious employment to political *fêtes* and disorderly *attrouppements*. The weather was doubtful, but it did not prevent 3,238 visitors from joining the scene, of whom a larger proportion than is usual, even in May, consisted of personages of rank and distinction. We have called this exhibition the first on two grounds; not merely because it was the first of the year, but because upon the whole it was the first in merit of all that the Horticultural Society has witnessed during so many previous years. We can now say, what we were never able to assert before, that every exhibitor, except some of those of Pine-apples, would have merited a prize and it becomes a real subject of regret that the principle of competition on which these shows are founded, and the indispensable limitation of prizes at them, should render a universal distribution of honours impossible. What the Horticultural Society cannot do, we have, however, endeavoured to effect through our reporter, by whom the merits of the non-winners have, we trust, been duly cared for. Azaleas, of course, formed the most striking feature; their gay colours and large flowers, together with the admirable skill exerted in producing them, always secure them the first place in a May exhibition. The Orchids, however, with their infinite variety of forms, their grace and fragrance, presented most attraction to the critical observer. It was satisfactory, too, to observe how great an advance in cultivating them has been made by some of the younger gardeners, who have hitherto imagined it impossible to contend successfully with the more experienced growers. *Gard. Chron., May* 27, 1848

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SPECIMEN PLANTS FOR THE FLOWER GARDEN.

ALTHOUGH tall specimen plants are not grown to the same extent as formerly they add a distinctive feature to the flower garden during the summer.

Pelargoniums lend themselves readily to this purpose. Paul Crampel, the popular scarlet bedder Geranium, has the necessary vigour to make a fine standard, while the various scented-leaved Pelargoniums, of which Clorinda is a good example of those cultivated for their flowers, may all be grown to a large size, either as bushes or standards. The Ivy-leaved Pelargonium, Madame Crousse, is another old favourite, and very floriferous.

Marguerites are so common as bushes that their adaptability to the standard form of training is often overlooked. Cuttings should be rooted in late summer, and the plants grown on steadily through the winter. The Heliotrope is another useful subject for training as tall standards, or very large bushes, and in either form few pass them by without pausing to appreciate the fragrant flowers. The plants develop rapidly, and neat specimens may be obtained in a year from cuttings or seed. Veronica Andersonii also makes a noble plant, and it associates well with Marguerites or Pelargoniums, and, being practically hardy, is easily wintered.

Calceolaria amplexicaulis well repays for the trouble of training it as neat little standards for dotting over the surface of a suitable carpet plant. The cuttings may be rooted in the ordinary way in a cold frame, and the plants potted in February, subsequently growing them in a cool house.

Where a genial spot can be found for Brugmansias, few standard plants of this type equal them. Year-old stock raised from cuttings rooted in spring make fair-sized heads. The pretty blue flowers of Plumbago capensis are invariably admired, and the white form alba is worthy a place in the summer flower garden. They are rapid growers, and cuttings rooted in spring make fine plants suitable for growing in tubs a year hence. Aloysia citriodora is rarely out of place, for no plant lends itself more readily to specimen culture, and its sweet-scented foliage is always appreciated.

Fuchsias may be grown into handsome plants, and in a variety of forms, by careful attention to annual repotting in spring. Lantanas, and the brilliant orange-flowered Streptosolen Jamesonii, may both be trained as tall specimens for use as dot plants.

Although Hydrangeas bloom rather early in summer, they can scarcely be overlooked, for the blue forms are especially to be admired. These plants can hardly be fed too liberally when root-bound. For its effect about August, Agapanthus umbellatus in ornamental tubs is worthy of note. When well established this bulbous plant blooms very freely, always provided its treatment is on a liberal scale.

Japanese Liliums of comparative dwarf habit such as L. speciosum Melpomene, roseum, and rubrum, are also very ornamental in receptacles capable of holding six to nine bulbs, and they may be timed to bloom any time between July and October, by affording them indoor treatment, or placing them in a shady corner to retard them, as the case may be. Space, when potting these Lilies, should be left for future top dressings.

Early-flowering Chrysanthemums need no recommendation for autumn blooming in the garden, but their value in large pots and tubs deserves attention. It is, however, the later flowering kinds, including the Masse family and Horace Martin, which do the best. Earlier sorts are, generally speaking, too restricted in habit to look well in pots. These plants should be well cultivated from the cutting stage, otherwise they may lose their lower leaves, and with them considerable value in appearance. They should be grown as hardily as possible, but treated in regard to intermediate stages of potting on the same lines as indoor Chrysanthemums. *F. G.*

NOTES FROM WISLEY.

IN spite of sharp frosts and heavy rains, Azaleas and Rhododendrons were making a brave show in May. Among the latter, many beautiful species were in bloom, such as the white-flowered R. decorum. This is not completely hardy, and although placed in a sheltered position, lost a number of its flower buds. R. Soulei is a similarly flowered shrub, the blossoms of which are bright pink in bud. Other noteworthy species in bloom were R. Augustinii, with fine blue flowers, and R. oreotrephes with flowers of a rosy lilac hue and bearing a red style. The underside of the leaves is glaucous.

That indispensable shrub Berberis stenophylla, which has been flowering for some time, is now beginning to rain down its golden petals. Several varieties are to be observed in the gardens, one of the most distinct being B. stenophylla coccinea, with scarlet sepals and flower stalks, these giving the plant the appearance of B. Darwinii. B. stenophylla gracilis compacta has stems overcrowded with leaves, and B. s. gracilis glauca carries a slight bloom on its foliage.

Numbers of interesting plants are to be found in the rock garden. Cerinthe aspera, an annual of doubtful hardiness, has withstood several severe frosts, and has been flowering for over a month. The plant is glaucous, and reminiscent of a Euphorbia, but the flowers are tubular, with the upper half of the corolla deep chocolate, and the lower half yellow, the colours being sharply divided. The leaves immediately surrounding the flowers are blue at the base, merging into purple.

Quite a number of varieties of the common Bugle (Ajuga reptans), spreading themselves along the sides of the walks, are sending up their spikes. There is A. r. atropurpurea, with deep red foliage; a variety with variegated foliage, which goes well with the blue flowers; A. r. alba, with white flowers; and a pink-flowered form. Ajuga Brockbankii has flowers of a more brilliant blue than A. reptans, and its foliage is of a fresher green.

Some of the finest blue shades are seen in members of the Borage family, to which belongs the intensely blue-flowered Mertensia echioides, which is slowly recovering from the drought of 1921, when it was nearly killed. A fairly near relative is Onosma albo-roseum, which is earlier and less familiar than the yellow O. tauricum. The flowers open pure white, change to a clear pink and pale off from purple to blue.

A handsome Speedwell is Veronica gentianoides, which carries spikes, 12 inches to 15 inches high, of large, pale blue flowers. A dwarfer and greyish-white leaved species is V. cinerea. The petals are bright blue on opening, with a lavender reverse which gives the general colour. The pale pink flowers of V. Lavaudiana, a prostrate sub-shrub, are also conspicuous. The leaves are fleshy and have a red margin. Near by is the showy, double-flowered Meadow Saxifrage (S. granulata), the single form of which may be found growing wild within a few miles of the gardens.

Around the pool, Iris sibirica × orientalis and Primula pulverulenta are making splashes of rich colouring. A fiery orange flower is the result of a cross between P. pulverulenta and P. Cockburniana. Fronds of the Royal Fern are unfolding, and at this stage are of a pleasant bronze colour. The Gunneras have sent up their brush-like inflorescences, and are beginning to spread out their gigantic leaves, while the river is decked with multitudinous flowers of Ranunculus fluitans.

It is gratifying to know that the Oak trees at Wisley are exceptionally free from Tortrix viridana, although they have suffered badly from this pest in the past. *J. E. G. White.*

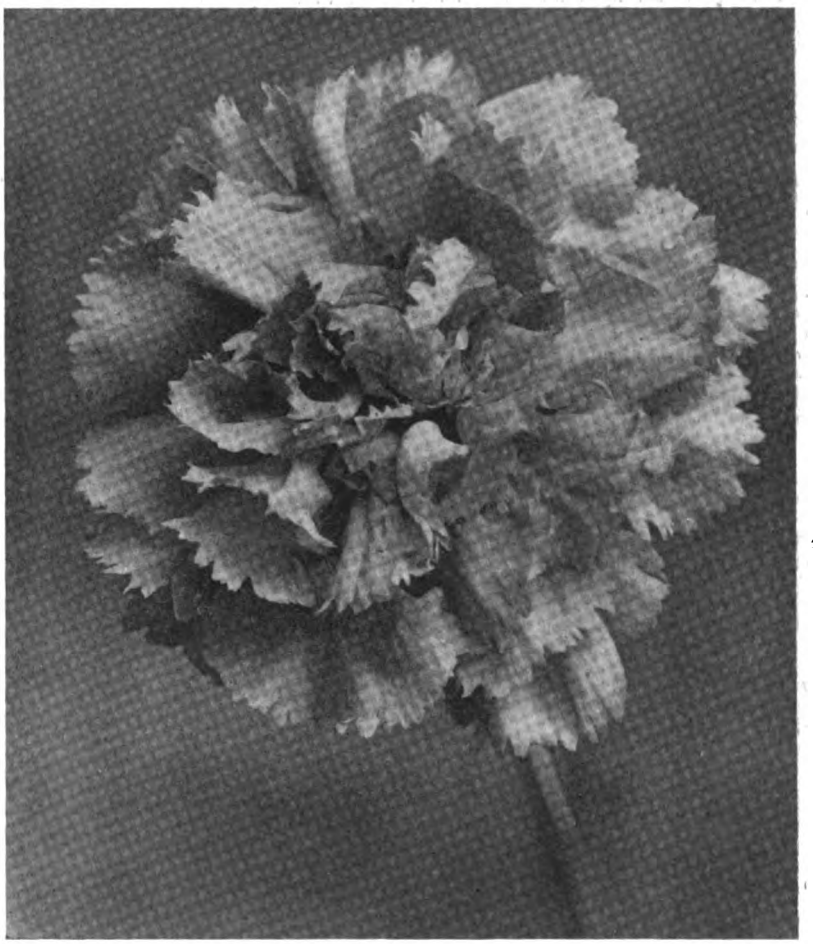

FIG. 139.—CARNATION EILEEN LOW; EXHIBITED AT THE CHELSEA SHOW BY MESSRS. STUART LOW AND CO. (SEE PAGE 309.)

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Stanhopea.—The Stanhopeas produce quaint and attractive flowers, and when in bloom are very interesting. Their flowers are produced in a distinct manner, as the pendulous inflorescences grow downwards through the bottom of the receptacles in which the plants are grown, therefore it is necessary to grow them in baskets suspended from the roof rafters. A layer of Fern rhizomes should be placed in the bottom of the receptacles to prevent the compost being washed through the bottom when dipping the plants, and it should be arranged in such a manner that the inflorescences can easily grow through. Such species as S. tigrina and its variety superba, S. Amesiana, S. Wardii, S. nigroviolacea, and others are becoming active at the roots, and any that require fresh rooting material should have attention as soon as it is seen that root action has begun. Stanhopeas resent frequent root disturbance, therefore sufficient accommodation to last the plants for two seasons should be given them; at the same time, should the compost be in a sour, decomposed state, it should be renewed. When placing the plants in fresh baskets, all the old decomposed material should be removed, and the fresh compost worked carefully around them, making the whole moderately firm. A suitable compost consists of equal parts of clean fibre, either Osmunda, or A1 fibre, and Sphagnum-moss, incorporated with broken crocks. These plants do well in a moist position in a warm, intermediate temperature, and their flowers, although of short duration, are attractive and interesting. Water should be supplied the roots sparingly during the early stages of growth, as the young growths are liable to damp off if moisture is given in excess, but when the new pseudo-bulbs begin to form, it should be afforded liberally. The leathery leaves are subject to attacks of red spider, hence the necessity of frequently spraying the foliage underneath as well as overhead.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Climbing Plants.—The new growths of climbers must be trained apart to prevent them becoming entangled. In the case of Roses on arches or pillars close tying is not advised, as the shoots will need pruning next autumn. Rather loop in the growths so that they will not obstruct passers by. Clematis shoots soon become entwined one with the other, and, being brittle, are easily broken when allowed to get in a tangled condition.

Pheasant's Eye Narcissus.—This member of the Narcissus family is one of the most beautiful for naturalising in grassland partially shaded by trees. Under such conditions it does splendidly here, and we have now, mid-May, a good display, though some of the blooms are past their best. Where spare grassland is a matter for consideration an economical and practical arrangement is secured by planting an early flowering Daffodil in the same ground as the above late bloomer—thus getting two effects in the one position. Being sweetly scented, Narcissus poeticus recurvus is a great favourite and much sought after for indoor decoration.

Pyrethrums.—The buds of these plants are well advanced, and the plants will be much benefited by a mulch of old manure. On light soil watering may be necessary in dry weather. For supplying cut blooms both the single and double forms of this plant are exceedingly valuable. Some growers advise treating the Pyrethrum generously after flowering in order to cause new growths to develop, with a view to securing another crop of bloom in the autumn.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Broad Beans.—Seedling Broad Beans raised in boxes and afterwards planted out are growing freely. The plants will be greatly benefited in dry weather by a mulch of half-decayed manure. Keep the growths upright by staking the rows with light Pea sticks, or place stakes along the rows at intervals of about 2 yards to carry a line of string. Water this crop copiously if the ground is light, and dry weather prevails.

Peas.—Dwarf Peas growing on south borders are making good growth, and should be assisted by hoeing the soil frequently and watering the roots when they are dry. Tall varieties that have been staked should be mulched with half-rotted manure and well watered at the same time if necessary. Others should be staked as they need it. A liberal dusting of the soil with wood ash during showery weather is very helpful to the plants.

Cucumbers.—Plants growing in houses should be assisted with top dressings of rich soil, and the growths kept thinned to prevent overcrowding of the shoots. Do not allow the fruits to hang on the plants for too long; rather cut them and place the ends in water, when they will keep fresh in a cool place. Surplus plants may be used for growing in frames on hotbeds. If the beds are re-lined with fresh fermenting material, and the frames kept close and shaded from bright sunshine, these frame plants will furnish plenty of fresh young Cucumbers. The roots should be supplied with plenty of water, and the shoots kept well thinned.

Broccoli.—Seedling Broccoli raised from seed sown early and pricked out in March should now be planted in strong, rich soil in an open position. Plant in rows made two feet apart, and the same distance from plant to plant in the rows. Use a trowel for the work, and place the roots well down in the soil. If slugs are troublesome, place a small quantity of cinder ashes around each plant. Water the roots freely in dry weather and, if drought is continuous, mulch the plants with half-rotted manure. Make another sowing of late varieties to follow those already sown. Clear away old stumps as fast as the heads are cut. Broccoli matured very quickly this spring, doubtless owing to the mild winter and the warm weather early in May.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Bougainvillea.—Specimens of this showy flowering plant growing in beds or borders and trained on pillars or rafters, are developing new shoots freely, and should have all the weak growths removed. In the case of old plants this attention is very necessary, as they soon become overcrowded with growths. The shoots retained should be so disposed that they are freely exposed to light and air, as this is very essential to successful flowering. This attention should also be given to pot plants. The Bougainvillea is easily increased by means of cuttings formed of half-ripened shoots of the smaller, twiggy growths. Plunge the cutting pots in a warm propagating case. The beautiful new variety Mrs. Butt is easily increased in the same way, but is much later in starting into growth than the other species and varieties. It is very free-flowering, young plants in large 60-sized pots or 48-sized pots producing flowers. Plants shown at exhibitions have always the appearance of being grown in too much warmth, as the flowers always flag. This should not happen, as in my experience the Bougainvillea succeeds quite well in an ordinary greenhouse.

Cyclamen.—The earliest plants of Cyclamens should be ready for placing in their flowering pots. Use a good medium loam, to which a little leaf-mould is added, and as these plants enjoy lime in some form, old mortar rubble may be used in place of sand. During the summer they should be grown in low pits or cold frames; they grow best in cool and fairly moist conditions.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BARNARD, Esq., Woolverstone Park Gardens, Ipswich.

Planting Young Vines.—The end of the present and early part of next month are suitable for the planting of vines raised from eyes early in the present year. For the first year a border 4 feet wide and 2 feet to 2½ feet deep, overlaying thorough drainage, will suffice. Previous to planting the vines the border should be well warmed by sunshine, maintaining a high temperature in the house to assist in that purpose. Do not practise deep planting; spread the roots evenly, and cover them with some of the best of the compost. Provided the soil is moderately moist water will not be required for several days. Maintain a close, moist atmosphere for a short period until the vines recover from the root disturbance. For a short time the house should be lightly shaded during bright weather, and the vines damped occasionally by means of the syringe.

Young Vines.—Vines raised from eyes this year will be ready for shifting into larger pots. If the vines are to be permanently planted next spring, pots 9 inches in diameter will be large enough, and the same sized receptacles will be suitable for those to be cut back next autumn and grown on another year for fruiting in pots. A mixture of roughly broken turfy loam of good quality, bone meal, old lime rubble, and burnt refuse makes a suitable potting compost. The pots should be quite clean, and crocked carefully, as good drainage is essential. In potting, the compost should be made moderately firm; the soil should be in a suitable condition, neither too wet nor too dry. For planting or inarching purposes, very large pots are not desirable. The present season is most suitable for the operation of inarching; the current season's wood makes the best union. The process consists in taking a slice of about equal length and depth from both shoots, and binding them together so that the cambium on each shoot unites on one side at least. In the warm, moist condition of a vinery the stems soon unite, and it is remarkable how quickly and strongly the inarched shoot grows.

HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

General Remarks.—From now onwards the careful grower is the more watchful for anything that may harm his crops. The ravages of caterpillar may be more serious in some localities than others. The effect of the codlin moth grub must be watched for. Timely removal of a few attacked fruits in the early stage may save a good deal of harm later. As the infected fruits swell, they will drop, and such should be collected and burnt without delay. The constant drying winds will have its effect on the trees. The rapid evaporation, both from the soil and leaves, will tend to harden the tissue too quickly; the fruit fails to swell and will drop. Trees on high ground, on south walls, and places particularly exposed to drying conditions should be watered. Provided the water is not obtained direct from a cold source, an occasional spraying will help the swelling of the fruit. At the moment of writing it is too early to hazard a forecast of the fruit crop, but thick clusters of Apples have set. Plums have remained at a fixed stage so long that the effects of the wintry conditions are likely to leave their mark on the crop. Continue to train trees as they develop, especially those planted to cover pergolas. Late-planted trees should have had their shoots shortened by this time. Growth rather than fruit should be encouraged on such trees. All laterals of Red Currants and Gooseberries should now have been stopped at the first or second leaf. Remove lower growths in order to secure a good stem on standards, otherwise fruit lowered by its own weight will become soiled by close proximity to the ground. Branches of Gooseberries attacked by "die back" should be removed and burnt. Litter of some kind, preferably clean straw, should be arranged carefully about Strawberry plants.

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A GARDEN SUBSTITUTE FOR FARMYARD MANURE.

(*Continued from page* 291.)

HAVING established the importance of humus as a fertilising agent, it is necessary to inquire as to the natural supply of this substance in the soils with which we have to deal. Generally speaking, it may be stated that the fibrous loams and peats are the richest in humus, and the light, sandy soils most deficient; while the supply of humus to the latter is vital, it is not safe to neglect indefinitely the maintenance of the supply in the case of the former.

Humus disappears from the soil as the result of various processes. It is washed out by physical action, and as a catalytic agent; although in theory the process is continuous, in practice the agent disappears. It is also destroyed by various subsidiary chemical reactions.

From a consideration of these facts one is forced to the inevitable conclusion that if the fertility of our soils is not to decrease steadily a substitute for farmyard manure must be found.

In looking round for such a substitute it is essential in the first place to have a correct idea of what farmyard manure really is. It is, of course, the waste solid or liquid products of animals, mixed in most cases with a certain amount of litter used for bedding. Incidentally, it should be stated that the litter is valuable for absorbing the liquid excreta, as without this the most valuable part of the waste products is frequently washed down the drains and lost. The raw material from which these waste products are directly or indirectly derived is invariably vegetable matter. The processes of digestion and assimilation of food in the animal system are promoted by ferments called enzymes, and obviously if we can cause vegetable matter to undergo similar processes independent of the animal, we are in a fair way to provide a substitute for farmyard manure. Not only so, but the substitute will be better than the original.

In the case of farmyard manure all the most valuable constituents have been extracted to provide the growth and energy of the animal. In the case of the substitute, however, the whole of the constituents will be present, and, if the process is successful, in a readily assimilable form. Hence our aim must be to promote the decay of vegetable matter in such a manner that a product similar to farmyard manure is produced, but with all the most valuable constituents retained.

The value of plant tissue as a means of enriching soils with organic matter has long been recognised, as shown by the fact that all up-to-date farmers and market gardeners use every favourable opportunity of sowing catch-crops of a quick-growing nature, and turning them in before the sowing of the next crop. This system of green-manuring has been developed to a high degree in certain districts, notably on the poor, light soils of Suffolk, where farming would hardly pay at all but for a special rotation, in which the whole or a large part of one growing season is given up to the green manure crop. In Germany, also, large tracts of barren, sandy heath have been converted to fertile areas by the use of green manures.

The catch-crops most suitable for growing to turn in as green manure depend somewhat on the district, and the rotation of regular crops. The widespread use of Mustard is due to its rapid growth, and probably no crop gives such a bulk of material in so short a time. If sown in August, or even so late as early September, a full crop is produced for turning in by November, and it should not be left later than this, or frost may partially destroy it. Other crops which usually do well and give a good body of green stuff by the end of the autumn are Rye and Buckwheat, the latter being particularly suitable for light soils.

Where the ground for the following crops is not wanted until the spring, the catch-crop may be grown on until February, and in this case Vetches, Red Clover, Winter Beans, Swedes and Turnips may be used. *W. Auton.*

(*To be continued.*)

PLANT NOTES.

NOMOCHARIS PARDANTHINA.

NOMOCHARIS PARDANTHINA FARRERI is undoubtedly one of the most charming of hardy Liliaceous plants introduced by the late Mr. R. Farrer from Yunnan. The delicate pastel colouring of the graceful, drooping, bell-shaped flowers is all that could be desired in any flower. This beautiful plant has been flowering at Messrs. Perry's nursery, Enfield, for the past few weeks; the slender stems rise to a height of from 15 inches to 18 inches, and bear from two to five flowers each. The plant is of Lily-like habit. The outer parts of the flowers are of the most delicate shell-pink, while the inner portion is snow-white, margined or suffused with soft shell-pink, with a central spotting of rich crimson. The flowers may very favourably be compared to many of the daintiest of Odontoglossums. A partially shaded position and a compost of loam and leaf-mould suits the plant. *W. L.*

SOLANUM WENDLANDII OUT-OF-DOORS.

REFERRING to the notice of Solanum Wendlandii in *The Gardeners' Chronicle* of May 19 (p. 272), I suggest to would-be growers of this beautiful flower that very satisfactory results may be obtained by planting it inside, in the corner of a greenhouse, and, when 4 ft. or 5 ft. high, passing the stem through a little hole cut in the woodwork or glass, and training it on a wall outside. I once saw a wonderful bed of Solanum Wendlandii in full bloom in a garden at Johannesburg, and was so impressed with it that I made the above experiment on returning to Sussex, after failing to grow it out-of-doors. An unheated house affords the plant sufficient protection in winter. *A. M. Godman, South Lodge, Horsham.*

THE FERNERY.

ONOCLEA SENSIBILIS.

AMONG the many good, hardy, garden Ferns native of North America Onoclea sensibilis, the Sensitive Fern, must be considered one of the most desirable. This species is quite hardy and will succeed in any cool soil containing humus, in shade or partial sunshine. It is, however, not very particular, and in most gardens will cover a considerable space, sending out underground rhizomes from which ascend the elegant fronds to a height of about one foot. In the spring these are a most delicate, almost transparent, green, which eventually changes to a pure, soft emerald green which is an uncommon shade among Ferns. Towards autumn these fronds become a warm golden buff before dying.

O. sensibilis belongs to the group known as "Flowering" Ferns, and it makes an admirable companion in the woodland for hardy Cyclamens, spring bulbs, Orchis maculata, O. foliosa and other similar subjects. *A. T. J.*

FIG. 140.—ROSE CAPT. F. S. HARVEY CANT (GOLD MEDAL N.R.S. JULY 11, 1922). R.H.S. AWARD OF MERIT, MAY 29 EXHIBITED AT THE CHELSEA SHOW BY MESSRS. FRANK CANT AND CO.

THE ALPINE GARDEN.

VIOLA ALANNAH.

THIS bright little Violet is in flower and is a good and pleasing plant for the rock garden or the front of the hardy flower border. It was raised, I understand, at Lissadell, and is a hybrid between V. bosniaca and V. cornuta. It seems to derive its colour mainly from the former and its larger size from the latter parent.

I have seen the colour described as dark lilac-purple with a golden eye, but the flower is lighter than this would convey, and might almost be called deep pink with a purplish shade, rather deeper than the tint of V. bosniaca. *S. Arnott.*

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Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. 15.—THE PI-TU LA.

FROM Le-gong we proceeded in a south-westerly direction by the main road into Tibet, travelling so far as the pass, which is the provisional frontier. Our road led down the valley by the Damyon stream, which after a few miles turns east to join the Mekong; crossing it, we followed up another stream. There is no tree growth down below, but by the stream itself are thickets and tangles, mostly of one or two species, with masses of straw-yellow Clematis—the one with the upturned thimble flowers. On the stony slopes above are the usual dwarf shrubs, Ceratostigmas now being particularly blue.

On September 7 we began the ascent to the pass, and were soon in the forest again—Pine trees and Oaks below. We saw no Pines in the Damyon valley, and their sudden reappearance was rather startling.

There were very few flowers, of course, and fruits were difficult to obtain. I collected a certain amount of seed of the Muscarioides Primula (K.W.5381). Pyrola atropurpurea was in fruit, and another dwarf species, new to me; but the seeds were not ripe.

After passing through the Pine belt we got into Rhododendron forest, where both R. argenteum and "Giant Rose" (K.W.4211) were abundant; the former was not seen in the south facing Damyon valley.

Higher up Picea began to dominate, and bush Rhododendrons replaced the trees, till, coming out into open pastures by the stream side, clumps of a dwarf Intricatum appeared. Under the Willows by the water a large Primula (probably of the Nivalis family) was scattered; seed of this was collected (K.W.5388), but it may be only P. sinoplantaginea. However, its situation in the wet river sand was a little unusual—it might account for the fact that only a small proportion of the long cylindrical capsules had any seed in them; nor was it so prolific of fruit, nor so large, as normal P. sinoplantaginea.

We pitched camp above the timber line, on the Rhododendron carpet, which, though extensive, appeared to be entirely composed of two species. However, there were other plants, and in any case the Rhododendron seeds were not ripe, so I paid scant attention to them.

Not only are Rhododendrons lacking on these dry ranges, but other Ericaceae also. There is no Enkianthus here, though it is found on the same range further south, at Ka-ga-pu; and of the little creeping plants, only two occur here, a Vaccinium with cyanide-blue "berries" now ripe, and very prominent on sheltered banks; and a Gaultheria with charming pink flowers and Heath-like foliage, or like some Cassiope. This last is found on Pai-wa-shan, as well as on Ka-ga-pu, but I believe it goes no further east. It was now in fruit and I collected some of the dust-like seed; though so late as August it was still in flower on Pai-wa-shan.

Of the Cassiopes, only C. myosuroides can withstand the long drought, the mossy leafed C. palpebrata being absent.

Scattered through the carpet of Rhododendron was a Gentian in fruit, an abundant annual species which hoists its ovary up clear of the corolla after fertilisation, the base of the ovary elongating into a stalk. Thus the fruit is rather conspicuous. It is one of the commonest alpine Gentians, occurring so far east as Mu-li. With it a small Lloydia was common.

On the highest cliffs, Aconitum Hookeri—a dwarf with large papery, pale purple flowers—was one of the very few species in flower. The rock here is porphyry, not limestone, and the flora was distinctly poor; also it survived to no great altitude, for the screes at 16,000 feet were almost bare of vegetation.

Having spent a day at the pass, collecting a few alpine plants and seed of such species as were ripe, we descended the valley on September 9; and crossing the river on the 10th reached Ya-ka-lo the same day.

The weather was very unsettled still, though the heavy rains were over; however, during our week on the Wi-chu divide, in spite of rain every day, we had had sufficient fine weather to permit of our climbing the mountains and having a decidedly interesting, if not very successful, trip. The fact is, the flora of a mountain like Damyon (Fig. 141), which has been seriously deglaciated, is not rich; the climate has been growing progressively drier, and many plants which undoubtedly grew here previously are now extinct.

We can now make a tolerably accurate division of the flora of western China into a dry Szechuan area and a moist Yunnan area. The former includes the country to north and east of the Yangtze river, and the Mekong and Salween gorges from the twenty-eighth parallel; the latter includes the rest of southern and western Yunnan so far as the Salween river, beyond which we enter a new region altogether—the Indo-Malayan. The interesting point is the extension of the dry Szechuan flora westwards to the Salween, whence it probably runs north-west conforming to the direction of the river valleys in eastern Tibet. It must not, however, be supposed that the flora of Damyon is the same as that of Mu-li. It is not. Most of the Damyon Rhododendrons are found in the Mu-li district, but many are found in the latter district which do not occur at Mu-li On the contrary, the Primulas are quite distinct, and only one or perhaps two species of Meconopsis are the same.

FIG. 141.—THE CUPOLA-SHAPED, SNOW-CAPPED PEAK OF DAMYON, WITH CONIFER FORESTS IN THE FOREGROUND.

But though the species are different, the flora is of the same type in both regions.

How far the difference in the species is due to edaphic influence it is not easy to say; the Mu-li country is limestone and Damyon is composed entirely of porphyritic granite, and that must affect the flora very considerably, as we have already seen at Pai-wa-shan, where limestone and porphyry on different sides of the same valley introduce marked differences into the flora. Moreover, the flora of Damyon is identical with that of Pai-wa-shan, both being composed of the same kind of rock.

The poverty of Primulas on Damyon is not hard to understand. The range is affected by the general decline in Primulas as we travel westwards, and there can be little doubt that the genus as a whole is better adapted to a calcareous soil than to any other. Abutting, as it does, on a region which is inimical to Primula development, Damyon suffers accordingly, though

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17, July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, March 10, 24, April 7, 21, and May 5, 1923.

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it is likely enough that many other species would grow there; the fact that they do not suggests the possibility that the mountain has been deglaciated within comparatively recent times. But it must be admitted that it has been hardly explored as yet.

The following comparison is interesting. In the Mu-li Yung-lin area there are at least forty-one known species of Primula. Of these eight occur on Damyon, or, if we include Pai-wa-shan, thirteen. In addition to these, there are seven species found on Pai-wa-shan or Damyon (or both), which are not known from the Mu-li area; a total of twenty as against forty-one. Of these twenty species, six are peculiar to the Pai-wa-shan group—or rather, are not found on Damyon, and four are found on Damyon, but not on Pai-wa-shan; the remainder, ten species, being common to both. These numbers, which, of course, are approximate only, illustrate the falling off in the genus as we go westwards.

I wasted no time at Ya-ka-lo, but the very next day, September 11, started for the Chiangka river, following the road to Ba-t'ang—this would take me over the Mekong-Yangtze divide once more, and by a pass I had not previously crossed. There was no time to lose. I had now decided to make the journey to the Taron river, and return to Burma by way of the head-waters of the Irrawaddy and Hkamti Long rather than go to Ba-t'ang, or come down by the old familiar road. But mid-October would be the latest date to which I dare delay the start, and I must hurry back to Atuntzu and prepare. *F. Kingdon Ward.*

PLANTS NEW OR NOTEWORTHY.

MAGNOLIA KOBUS VAR. BOREALIS.*

In the garden of Professor Sargent at Brookline, Mass., U.S.A., is growing one of the first raised and probably the largest tree in cultivation of Magnolia Kobus var. borealis (Fig. 142). It was raised in the Arnold Arboretum from seeds sent from Sapporo in Hokkaido, north Japan, by Mr. William C. Clark, in 1876. It bore a few flowers for the first time in April, 1899. Each year the number has increased, and now it is one of the most free-flowering of Magnolias. The flowers are white, about half the size and less cup-shaped than those of the well-known Yulan, whilst the petals are loosely spreading and not so thick. The leaves are obovate, narrowed to the base and the twigs, like those of Magnolia salicifolia, have a spicy odour.

The variety borealis of Magnolia Kobus is the most northern of the Magnolias that flower before the leaves appear. In the moist forests of Japan from Nikko northward to central Hokkaido, it is not uncommon. In these forests it forms a tree from 50 ft. to 70 ft. tall, with a trunk from five to eight feet in girth. In the open the lower branches are apt to develop at the expense of the main stem, and give the tree a broad, irregular habit. The typical M. Kobus is found in south Japan, where it is either a large bush or a low tree with a broad bushy crown. The northern variety is a much finer and hardier garden plant. *E. H. Wilson.*

* Sargent, *Trees and Shrubs*, II., 57 (1908).

TREES AND SHRUBS.

VARIETIES OF LAVENDER.

Varieties of Lavender are numerous, and they offer a good selection for forming edges or border-lines to flower beds or herbaceous borders. The common Lavandula spica quickly forms bushes 3 feet tall that are smothered in summer with long spikes of purple flowers and hoary, aromatic foliage.

The following varieties are, however, of much dwarfer stature, and better suited to forming edges to herbaceous borders and for planting by paths, as they have a more compact habit, and readily form neat bushes which are smothered with lavender-blue and purple flowers. These are: Lavandula spica, Bowles' variety; Early Dutch; and Middachen var., while L. s. nana atropurpurea is a pigmy form, making neat, compact bushes of silvery grey foliage, and covered in summer with slender spikes of rich purplish blue flowers. Lavandula pectinata is quite distinct from those enumerated in its dark green, deeply serrated foliage, which is highly aromatic, and its numerous close spikes of dark purple flowers. This Lavender and nana atropurpurea are admirably adapted for the rockery.

To obtain the full perfume the flower spikes should be cut while in a young stage, or just as the blossoms are opening. Lavender should be planted in light, alluvial soil, and is readily propagated from cuttings. *W. Logan. Holtwhite Avenue, Enfield.*

[*Photo by G. W. Root.*

FIG. 142.—MAGNOLIA KOBUS VAR. BOREALIS IN PROF. SARGENT'S GARDEN AT HOLMLEA, BROOKLINE, MASS., U.S.A.

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ROYAL HORTICULTURAL SOCIETY.

EXHIBITION AT CHELSEA.

May 29, 30, and 31.

THE enthusiasm and enterprise of a host of exhibitors combined to make up a wonderful show at the Royal Hospital Gardens, Chelsea, on the above dates, but, alas, the weather on the opening day was execrable, and although it did not spoil the show it made matters most uncomfortable for visitors and exhibitors; apparently it did not affect the attendance. All around the tents, turf and soil were converted into a quagmire and the roadways were for many hours a mass of thin liquid mud, and practically impassable by ladies. Notwithstanding this unfortunate state of affairs, their Majesties the King and Queen attended early on the opening day, and were escorted through the tents and grounds by Lord Lambourne and Mr. Dykes. They appeared to be keenly interested in all they saw, as did H.R.H. the Duke of Connaught, who also was an early visitor.

The judges commenced their duties at 9 a.m., and those who had to adjudicate upon the rock gardens, formal gardens, and groups of trees and shrubs arranged out of doors had an unenviable task, which, apparently, they accomplished successfully. Needless to state, the work of reporting the show was greatly impeded by the inclemency of the weather.

Taken as a whole, the Chelsea Show of 1923 was very fine, somewhat larger than its predecessors and remarkable for the wonderful colour of the exhibits under canvas. The extensive variety of subjects exhibited was also a feature of the show, whilst the novelties shown proved interesting to the large numbers of visitors who braved the elements on the opening day. In our opinion, the rock gardens as a section fell short of the glories attained in other years, while the formal gardens were not excitingly interesting; but, perchance, the weather must be held responsible for their appearance, though not for their design.

Orchids were a magnificent feature of the show, but owing to the arrangement of the groups, rendered necessary by a large tent, the effectiveness of these brilliant subjects was not so fine as in the old Temple show days; however, if effect was lost, there was nothing lacking in variety, colour and interest. Fruits and vegetables were admirably, though not extensively, shown. Roses and Sweet Peas attracted a great deal of attention, and deservedly so. The exhibits of trees and shrubs were rather better than usual, and the Azaleas were of outstanding merit.

We offer congratulations to the R.H.S. officials, who worked under great difficulties, and to exhibitors, who we hope obtained an ample reward for their labours in the form of abundant orders.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson (assistant secretary), H. G. Alexander, W. H. Hatcher, Frederick J. Hanbury, Arthur Dye, R. Brooman White, Thomas Armstrong, J. T. Barker, E. R. Ashton, Henry H. Smith, J. Cypher, J. E. Shill, Fred K. Sander, S. W. Flory, A. McBean, C. J. Lucas, Stuart H. Low, Richard G. Thwaites, H. T. Pitt, Chas. H. Curtis, and G. F. Moore.

Fifty-four specimens were submitted to the Committee for awards, and a large proportion of them were regarded as worthy of that distinction.

FIRST-CLASS CERTIFICATES.

Dendrobium Gatton Sunray (*Dalhousieanum luteum* × *illustre*), from Sir JEREMIAH COLMAN, Bt. One of the most beautiful of the Gatton hybrids, which had previously secured an Award of Merit. The plant bore several sprays of large yellow flowers with a dark blotch on the lip.

Cypripedium Antinea (*Godefroyae leucochilum* × *Lord Derby*) from Messrs. COWAN AND CO., Southgate. A really fine and distinct Cypripedium with pale yellow ground colour, the dorsal sepal, and broad, extended petals being lined with deep claret colour; the lip is wholly pale yellow.

Cattleya Prince Shimadzu var. Olympus (*Tityus* × *Hardyana*) from Messrs. FLORY AND BLACK, Slough. A noble flower of perfect form, the sepals and petals are rosy-mauve; the broad front of the lip is crimson-purple, with a yellow disc.

Odontoglossum crispo-Solon var. Carmania (*crispum* × *Solon*), from Messrs. MCBEAN, Cooksbridge. A superb flower, violet-purple, with broad white margin.

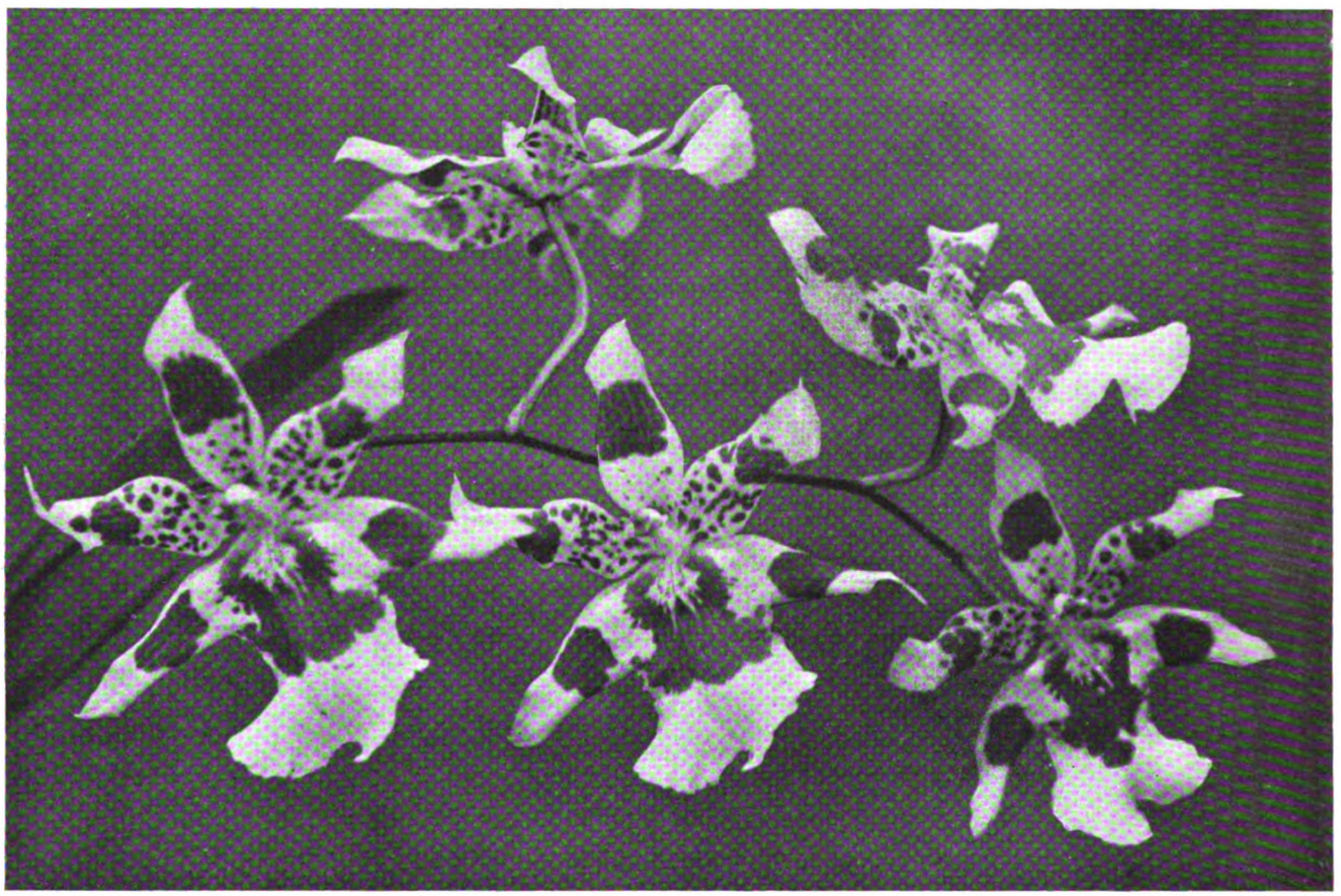

FIG 143.—ODONTONIA OLIVIA EXHIBITED AT THE CHELSEA SHOW BY MESSRS. CHARLESWORTH AND CO. R.H.S. AWARD OF MERIT.

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Odontioda Radiant var. Majestic (*Chantecler* × *Royal Gem*), from Messrs. J. and A. McBEAN. A noble scarlet flower with slight white markings.

Brasso-Laelio-Cattleya Truffautiana var. Triumph, from Messrs. STUART LOW AND CO. A model flower with vinous-purple front to the lip; the sepals and petals are yellow, tinged with rose.

Odontioda Duchess of York, from Messrs. CHARLESWORTH AND CO. A perfect flower of rich colour and distinct features.

Odontoglossum Serapis var. Dusky Monarch. A very fine and intensely richly coloured flower.

Odontioda Murillo. Flowers of perfect form and fine colour. Both these were shown by Messrs. COWAN AND CO.

Odontoglossum Llewellyn var. Colossum, from Messrs. CHARLESWORTH AND CO.

Cymbidium Castor var. Laburnum, from PANTIA RALLI, Esq. A distinct form with flowers of good shape, coloured pale yellow, with a red zone on the lip.

Cattleya Irene var. Our Queen, from Messrs. FLORY AND BLACK, Slough. A fine pure white Cattleya of good substance.

AWARDS OF MERIT.

Miltonia Constance (*vexillaria Lyoth* × *Isabel Sander*). A very large and showy flower with blush white ground and deep claret mask on the lip.

Odontonia Olivia (see Fig. 143) (*M. Bleuana* × *Odm. triumphans Crawshayanum*). The flower shows much of the O. triumphans parent; the ground is yellow, with chestnut red markings. Both these were exhibited by Messrs. CHARLESWORTH AND CO.

Odontoglossum Gatton Emperor var. Nero, from Sir JEREMIAH COLMAN, Bt. A flower of fine form, coloured rich claret red with white margin and front to the lip.

Odontoglossum crispum Esmerelda, from Messrs. J. AND A. McBEAN. A noble, blush white, home-raised crispum of the highest order of merit.

Odontioda Brilliant, from PANTIA RALLI, Esq. The flowers are large, of fine shape, and coloured bright scarlet.

Cattleya G. P. Walker var. superba (*Tityus* × *Mendelii*), from Messrs. FLORY AND BLACK. A flower of fine shape, coloured rosy mauve with a velvety crimson lip and yellow disc.

Miltonia Butterfly var. Empress, from Messrs. SANDERS. The plant bore two spikes of large and finely-formed white flowers, with dark violet mask on the lip.

Miltonia Sanderae Unique, from Messrs. SANDERS. A white flower flushed with pink, and having a dark base to the lip.

Brasso-Cattleya Villa Jeanne (*C. Empress Frederick* × *B.-C. Dietrichiana*), from Messrs. STUART LOW AND CO. A model flower of large size and mauve-purple colour.

CULTURAL COMMENDATIONS.

To Messrs. ARMSTRONG AND BROWN, for a noble plant of Dendrobium acuminatum with five spikes of carmine-rose flowers.

To Mr. Farnes, Orchid grower to PANTIA RALLI, Esq., for Laelio-Cattleya Excelsior var. The Globe, with many showy flowers.

GROUPS.

The Orchids made a very fine display, completely filling one end of the large marquee, the groups being arranged around the sides and on cross staging in a similar manner to that of last year. Sir JEREMIAH COLMAN, Bt., Gatton Park (gr. Mr. J. Collier) had one of the finest groups ever staged by an amateur at Chelsea, occupying the entire length of a cross stage. Cattleyas were especially fine, the varieties of C. Mendelii, including Quorndon House variety, and leucoglossa Hessle variety, were notably good; C. Mossiae was equally well represented. Among rare species were C. Skinneri Temple's variety, with fine heads of rose-purple flowers; the pure white C. intermedia alba and plants of the yellow Cattleya citrina. Laelio-Cattleyas were well shown; the Odontoglossums included Odm. Gatton Emperor var. Nero, a rich crimson-purple flower with white front to the lip, and other Gatton hybrids. The many forms of Odm. crispum included a fine example of Leonard Perfect, the very distinct variety Solum, roseum and Seagull. Odontiodas were brilliant and well displayed; Phyllis, Princess Bibesco, Gatton Glory, Mentone and others raised at Gatton, were prominent varieties. Among the Dendrobiums were two good specimens of the yellow D. Gatton Sunray; D. Dalhousieanum luteum, and the carmine-tinted D. acuminatum. Rare species always give special interest to the Gatton collections, and on this occasion there were many pretty Masdevallias, Pleurothallis and Bulbophyllums, the last including several of the feather-lipped species. Other rare species noted were Lissochilus purpuratus; the red Dendrobium Arachnites, the green Lycaste Locusta and pretty Pleurothallis and allied species.

PANTIA RALLI, Esq., Ashtead Park, Surrey (Orchid grower, Mr. Farnes), had a magnificent group occupying the full length of a cross stage.

NURSERYMEN.

Messrs. CHARLESWORTH AND CO., Haywards Heath, staged a magnificent group replete in the good things of the season, and all finely grown and profusely flowered. At one end was a fine batch of pure white Odontoglossums, including most of their famous xanthotes types. Then followed sections of Miltonia of various types, their darkest form of M. vexillaria being one of the richest in colour. Odontoglossums and Odontiodas were mingled effectively in sections, the forms of Odm. Llewellyn showing themselves at their best. The new Odm. Senator is a showy flower with novel features. Odontiodas ranged from scarlet to white blotched with purple, and the Cattleyas and Laelio-Cattleyas, including forms of L.-C. Fascinator, L.-C. Aphrodite and L.-C. Circe, were of the highest merit.

Messrs. J. AND A. McBEAN, Cooksbridge, arranged on cross staging one of the finest collections of Odontoglossums and Odontiodas yet

FIG. 144.—PART OF MESSRS. J. AND A. McBEAN'S ORCHID EXHIBIT AT THE CHELSEA SHOW.

Fine specimens of Cymbidiums were arranged at the back, the best noted being C. Pauwelsii grandiflorum, a very distinct form of this favourite hybrid; C. Castor var. Laburnum, with clear, light yellow flowers; C. Beryl and C. Vesta, all pretty hybrids. Plants of the better known forms were well displayed, mingled with sprays of Odontoglossums, Odontiodas, etc. The Cattleyas embraced forms of C. Mossiae, the best being C. M. Ashtead Park variety, a large blush flower with rose lip.

The best form of Laelio-Cattleya Aphrodite was the variety Excelsior. Miltonias were well displayed, large specimens of the M. vexillaria being specially finely flowered. Odontoglossum Europa (coeruleum × crispum), Odontioda Canturarie and Oda. Brilliant, were fine examples, and among the Brassavola hybrids B.-L.-C. Jupiter, Ashtead Park variety was superb.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), staged a very attractive group in which the Miltonias, Odontoglossums and Odontiodas were finely displayed with Cypripediums, the scarlet Renanthera Imschootiana and many rare species, including Chondrorhyncha Chestertonii, species of Odontoglossum, Masdevallia and Coelogyne. A showy new Odontoglossum in the group was the one named Odm. Antares (Dido × illustrissimum), a large flower with yellow ground, and showy chestnut-red blotching; a very distinct flower.

J. J. BOLTON, Esq., Claygate Lodge, Claygate (gr. Mr. S. Lyne), sent flowers of his fine form of Brasso-Laelio-Cattleya Jupiter.

shown, the many coloured hybrids being almost entirely ruby-purple, and contrasting effectively with the home-raised white Odontoglossum crispum, which included a grand plant of Odm. c. Esmerelda, with two spikes of nineteen flowers, the like of which has not been excelled. This fine group included well-grown Cymbidiums at the back with the useful Oncidium McBeanianum and other slender species. Odontiodas, including the showy Oda. Brilliant, of deep scarlet colour, were arranged with white Cattleyas, showy Laelio-Cattleyas and some new forms which received awards.

Messrs. SANDERS, St. Albans, staged a grand group, the leading features in which were the many forms of beautiful Miltonias, ranging from white with nearly black mask to rose-pink with crimson base to the lip. The forms of Miltonia Butterfly, and M. W. R. Dykes, a large white variety, with nearly black mask on the lip, were especially choice. Among the Odontoglossums, Odm. crispum St. Albans is a variety of fine colour, whilst Odm. Perseus is a showy flower. Forms of Laelio-Cattleya Aphrodite exhibited great variety in form and colour; L.-C. Britannia majestica is one of the best of its class shown, and the Cymbidiums arranged above richly coloured Odontiodas were very effective.

Messrs. J. CYPHER AND SONS, Cheltenham, had a grand group staged in their usual artistic manner. Fine Cattleyas and Laelio-Cattleyas were prominent; a grand example of Brasso-Laelio-Cattleya Veitchii had large and finely-

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coloured flowers; the old Brasso-Cattleya Digbyano-Mossiae is still one of the finest in size and shape. Batches of Cypripediums were effectively arranged, and among the many species not usually seen now were the large claret-blotched Maxillaria Sanderiana, the white, pink-tipped Chysis Limminghei, the Tulip-like Anguloa Clowesii, the scarlet Renanthera Imschootiana, and a pretty selection of Odontoglossums, Odontiodas and other showy hybrids.

Messrs. STUART LOW AND CO., Jarvisbrook, Sussex, had a very fine group, in which forms of Brasso-Laelio-Cattleya Jupiter, B.-L.-C. Truffautiana and other Brassavola hybrids were well displayed with showy Laelio-Cattleyas, a section of which having purple bands on the petals being very distinct. Brasso-Cattleya Villa Jeanne (C. Empress Frederick × B.-C. Dietrichiana) is a pretty novelty. A good selection of Odontoglossums, Odontiodas and Cypripediums were also included in this collection.

FIG. 145.—VIEW IN MR. G. G. WHITELEGG'S ROCK GARDEN EXHIBIT AT THE CHELSEA SHOW.

Messrs. COWAN AND CO., Southgate, the raisers of all the beautiful forms of Brasso-Laelio-Cattleya Jupiter, had an effective group, including some of that showy hybrid, with Laelio-Cattleyas, Cypripediums, etc., some of which received awards.

Messrs. FLORY AND BLACK, Slough, staged a very effective group, including a large proportion of showy novelties. Cattleya Prince Shimadzu var. Olympus is probably one of the finest Cattleyas yet shown, and C. irene Our Queen one of the finest whites of true Cattleya form, whilst C. G. P. Walker var. superba is an effective flower of distinct colour.

Mr. HARRY DIXON, Wandsworth Common, had a very pretty and well-arranged group of showy hybrids and species.

Messrs. MANSELL AND HATCHER, Rawdon, Leeds, staged a beautiful collection of Odontoglossums, Odontiodas, Cattleyas, Laelio-Cattleyas and Miltonias.

Floral Committee.

Present: Mr. H. B. May (in the chair), W. G. Baker, W. Howe, J. Jennings, C. R. Fielder, G. Reuthe, Amos Perry, G. Harrow, D. B. Crane, Arthur Turner, John Heal, W. B. Cranfield, J. B. Riding, Chas. E. Pearson, Sydney Morris, H. R. Darlington, Chas. E. Shea, Andrew Ireland, H. J. Jones, F. Page Roberts, Thos. Stevenson, H. V. Warrender, J. F. McLeod, W. B. Gingell, W. J. Bean, W. H. Page, T. Hay, Hugh Dickson, C. Blakey, and G. Jackman.

The Floral Committee had a vast amount of work to do, and they carried it out under some difficulty in a tent wherein other committeemen, not so busy, took shelter from the persistent and cold rain. No fewer than one hundred and eighty entries came before the Committee, and not one of these received a First-class Certificate, but sixteen were granted an Award of Merit.

AWARDS OF MERIT.

Hydrangea Triumph.—The name of this fine Continental variety has been Anglicised from Triomphe, but that does not detract from the beauty and usefulness of the plant. The "flowers" are of large size and excellent form, rich warm pink, slightly paler in the centre when young, and they are borne in large handsome trusses. A very attractive greenhouse plant, and probably a fine one for market. Shown by Mr. H. J. JONES, Lewisham.

Rhododendron Lady Constance.—A very bold and handsome variety, with widely expanded flowers of a rich reddish, old rose shade, that is very attractive. The base of the flower is paler and there are a few deep red spots near the base. Leaves large, deep, smooth green above, pale green below. Shown by A. G SOAMES, Esq., Sheffield Park, Uckfield.

Rhododendron Pink Shell.—In this lovely variety the broadly tubular flowers are of a delightful shade of shell pink, and they make an upstanding pyramidal truss. The blooms are seven-lobed and each lobe is broadly, but not deeply, notched. Shown by T. LOWINSKY, Esq., Tittenhurst, Sunninghill.

Rhododendron (unnamed).—This pure white variety was shown under the name of Snowflake, but as that name is already taken a new name has to be found for it. The widely-opened flowers are of large size and the broad lobes have wavy margins. A loose truss of eight blooms was exhibited. Shown by T. LOWINSKY, Esq.

Carnation Scarlet Iona.—A splendid clear scarlet, perpetual flowering variety, of excellent form and size, and, as shown, with an entire calyx. Certainly one of the finest scarlet varieties yet seen. Shown by Mr. C. ENGELMANN, Saffron Walden.

Carnation Donald.—A bold, large flowered, rich crimson, perpetual-flowering variety, deliciously close-scented. The petals are very full and slightly fringed at the margins. Stout stems and entire calyx. Shown by Mr. C. ENGELMANN.

Carnation Surprise.—A beautiful rich pink perpetual-flowering variety with salmon tinting in the centre. The large flowers are finely formed and the petals are slightly fringed. Shown by Mr. C. ENGELMANN.

Primula chrysopa.—This handsome and free-flowering Asiatic species has tufted growths composed of pale green leaves, three to four inches long, with serrated margins, and carried on rather long footstalks. The flowers are carried on stout scapes and the first whorl is borne at a height of from 10 inches to 15 inches. The individual blooms are about an inch across, blue or lavender blue, with a yellow eye. There appears to be some variation in the blue colouring among seedlings, but the species is very free and attractive and should become a useful garden plant. Shown by Mr. A. K. BULLEY, Ness, Neston.

Campanula calcicola.—We could not find this plant, but understand it is somewhat like C. Portenschlagiana, with lilac-coloured flowers and deeply veined or netted leaves. Shown by Mr. A. K. BULLEY.

Gentiana Hopei.—A distinct and interesting species of erect growth, and bearing its flowers, usually twin, in the axils of the stiff, opposite leaves. The flowers are clear blue on the outside and paler within, but they do not appear to open out, and therefore lose a great deal of possible effectiveness. We do not think it will become a popular plant. Shown by Mr. A. K. BULLEY.

Incarvillea Bees' Pink.—This plant is very like I. Delavayi in habit, form and size of flower, but differs in colour. The showy blooms are of a pleasing, soft pink shade, with deeper markings near the rich lemon-coloured throat. Shown by Messrs. BEES, LTD.

Begonia Lord Lambourne.—A gorgeous, double-flowered, tuberous-rooted Begonia, with blooms of large size, flattish and composed of broad petals of a rich orange-amber colour. A grand variety. The specimen exhibited was a marvel of high cultivation and carried nine huge flowers. Shown by Messrs. BLACKMORE AND LANGDON, Bath.

Lupinus, Downer's Strain.—This strain of Lupinus is characterised by sturdy growth and very long and well-furnished spikes of attractive flowers. The colours are varied and include blue, blush, purple, pink, old rose, lavender, and cream. Shown by Mr. G. R. DOWNER, Chichester.

Rose Capt. F. S. Harvey Cant.—A large-flowering, finely formed H.T. variety, broad-petalled and full (Fig. 140). The colour is bright pink, with a deep salmon-pink glow in the centre and at the bases of the broad petals. This fine Rose won the N.R.S. Gold Medal at Wolverhampton last year (see p. 57, July 22, 1922). Shown and raised by Messrs. FRANK CANT AND CO., Colchester.

Rose Chastity.—A prettily named climbing hybrid tea Rose. The broad, white petals make up a bloom of lovely shape and pleasing appearance. A delightful novelty. Shown by Messrs. FRANK CANT AND CO.

Rose Orange King.—A charming addition to the useful Polyantha section of Roses suitable for bedding. As shown, the flowers are rather small, moderately double, carried in erect, elegant trusses, and of a pleasing orange-salmon colour. Shown by Messrs. WM. CUTBUSH AND SON.

CULTURAL COMMENDATION.

To Androsace foliosa, a well-known species, with pink, yellow-eyed flowers. A large pan was shown, finely in flower. Shown by LADY ABERCONWAY, Bodnant, N. Wales.

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OTHER NOVELTIES.

Baron Schröder, The Dell, Egham, exhibited several hybrid Calceolarias, and one of these, named aureafolia splendens, was very attractive. It had neat leaves with deep centres, and an abundance of golden-yellow red spotted flowers. Aucuba japonica crotonaefolia, with golden, green-marked leaves, was very attractive and one of the best of the richly-coloured forms we have seen; it should make a good market plant if the colour holds.

Roses.

It needed but an hour's sunshine to make the anticipations of the lay Press materialise, and then it would almost have been "Roses, Roses all the Way," for there were plenty of Roses, both as well grown pot plants and as cut blooms, to satisfy even the most enthusiastic Rose grower. Although the blooms did not open so fully as the exhibitors anticipated, they were very beautiful, and the retarding effect of the inclement weather caused them to last fresh much longer than would otherwise have been the case.

The groups of pot plants arranged on the floor in the tents were a delightful feature of the show.

At the hospital end of the big tent, Mr. ELISHA J. HICKS had a magnificent group. The tall weeping standards and pillars of such free flowering sorts as Lady Gay, Paradise, Excelsa, Sodenia and White Dorothy Perkins, rose above a great many dwarf examples of splendidly flowered plants of Premier, Lloyd George, Ophelia, the large pale blush Mrs. Elisha J. Hicks, Mr. John Cook, a smaller blush, H. T. Margaret Horton, of Sunburst type and orange-yellow colour, and Souvenir de Claudius Pernet, a valuable H. T. of good form, and in colour very suggestive of a slightly paler Marechal Niel Rose. His new multiflora variety Fairy Queen, bears large trusses of small, double, white flowers which have pale yellow centres. Ethel and Miss Flora Mitten, two other free flowering varieties, were also well represented; the former bears plenty of small flowers, while the latter is much larger, and both have somewhat similar colouring to the wild Rose. Golden Emblem, and handsome standards of General McArthur and Caroline Testout were also exceptionally good.

An attractive group was also arranged by Messrs. B. R. CANT AND SONS. Their principal novelty was Lady Dixon Hartland, a salmon H. T., shading to old gold at the base of the petals. It is a very attractive and well formed bloom. Sovereign, of rich colour, was very effectively massed in the centre of the collection. Covent Garden was also shown in quantity. Amongst the free flowering varieties so well displayed were Blush Rambler, Minnehaha, Thousand Beauties, and the dwarf variety Echo. The Rev. J. H. PEMBERTON confined himself largely to the polyantha varieties, and showed his Havering Rambler and Pemberton's White. The General is a good rich crimson coloured Rose. As a bordering to the stand, Mr. Pemberton used sprays of Rosa spinosissima. Such standard sorts as Madame Butterfly, Molly Sharman Crawford, Hoosier Beauty, Los Angeles and Melody were well set up by Messrs. ERNEST PAUL AND CO.

A goodly collection of new and recent varieties of Roses was included by Messrs. F. CANT AND CO., in their collection. Capt. F. S. Harvey Cant (see Fig. 140), which received a Gold Medal last year, was especially well staged This is a valuable pink H. T. variety, which should have a great future. Henry Nevard, which won the Clay Cup for its fragrance, is also a bright attractive variety. Chastity is a perpetual climbing Rose, bearing good, double creamy-white blooms. Mrs. E. Claxton is a splendid pillar Rose, which in its colour and form suggests a smaller and more pointed La France. Mrs. F. S. Harvey Cant is a good-sized H.T., possessing much of the delicate blush colouring of Devoniensis.

Chief amongst the good Roses staged by Mr. GEORGE PRINCE was the large stand of Souv. de Claudius Pernet, which possessed the rich yellow colouring of Marechal Niel to a greater extent than any other exhibit of the variety in the show. Irish Fireflame, cut from the open garden, was beautifully coloured. Mr. Prince also showed long, free flowered branches of the yellow Banksian Rose, and of Rosa ochroleuca.

In a corner space Messrs. WM. CUTBUSH AND SONS had a very attractive group of the cluster Roses, and this included the new dwarf Polyantha, Orange King, which is of erect habit, and bears small flowers of uncommon colour. They also used Dorothy Perkins, Lady Gay, Tausendschon, Ellen Poulsen, Orleans Rose, and Greta Kluis to good effect. Messrs. WATERER, SONS AND CRISP had an attractive group in the body of the tent, where they displayed standards of Caroline Testout, Lady Hillingdon, and other varieties, with dwarf plants of Mrs. A. Tate, Lady Ashtown, General McArthur, Independence Day, and several good Wichuraiana varieties.

Masses of bloom were splendidly disposed by Messrs. WM. PAUL AND SON. They had unusually freely flowered standards and pillars of American Pillar, Hiawatha, Lady Godiva, Lady Gay and Ethel, while amongst the excellent dwarfs were Thos. Aaron Ward, Mr. T. Hillas, and Leonora. The last named is a new H.T. of attractive dark crimson colouring. Messrs. J. PIPER AND SON associated such Roses as Paul's Scarlet Climber, Tausendschon, Dorothy Perkins, Lady Gay and American Pillar, with Clematis, Wistarias and other flowering shrubs.

FIG. 146.—HYDRANGEA PARSIFAL EXHIBITED AT THE CHELSEA SHOW BY MR. H. J. JONES IN HIS GOLD MEDAL GROUP.

Sweet Peas.

Messrs. ANDREW IRELAND AND HITCHCOCK, Marks Tey, exhibited a collection of the best varieties of Sweet Peas, notably: Lord Lascelles, lavender; Mascotts' Purple, an immense flower; Improved Daisy Bud, deep blush pink; Shamrock, mauve, one of the best of its colour. The group was flanked with a most extraordinary novelty in the shape of a hybrid between Scarlet Beauty Sweet William and a scarlet border Carnation. The habit of the plant is sturdy and erect, the stems being stiff enough to stand without the slightest aid. The flowers are single, brilliant rose in colour, fringed on the edges, and about 1½ inches across, and are borne as many as eight or nine in a truss. It is intermediate in habit between the parents, and should make an excellent plant for cutting and other purposes.

Messrs. ROBERT BOLTON AND SON, Halstead, Essex, put up a remarkably attractive collection of about 50 varieties of Sweet Peas in ornamental wicker Gainsboro' baskets, which lent themselves well for display purposes. Among the novelties we noted Wizard, orange scarlet; Comrade, apricot-peach; Bonfire, a lovely pink and rose bicolor; Skylight, blue on cream; and Daffodil, one of the best yellows yet seen.

Messrs. ALEX DICKSON AND SONS, Belfast, had an extensive display of their "Hawlmark" varieties. About 10,000 sprays were tastefully arranged in tripods along the back, and the others on spiral wires and in bowls, along the front. The novelties included Champagne, a soft creamy-yellow; Celeste, a deep lavender; Purple Perfection, a brilliant purple with large blooms; and Lucifer, a fine deep rose; Powerscourt a splendid lavender; Fairy Queen, cream flushed, bright rose; Hawlmark Pink, bright pink; and Elegance, a lovely deep blush, were some of the other 40 varieties that were exceedingly attractive. Prince of Orange, a fine orange-scarlet, is likely to be a favourite with market growers.

Mr. J. STEVENSON, Wimborne, Dorset, exhibited a collection of home-raised novelties in tall epergnes, set off with Asparagus. Amongst the most striking varieties noticed were Delight, a charming salmon-pink on a cream ground; Charming a bright rose; Felicity, blush pink on a white ground; Poppy, a remarkable sun-proof, orange-red variety; Diana, a beautiful lavender; and Wild Rose, old rose shaded salmon.

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The PRESTON HALL NURSERIES INDUSTRIAL SETTLEMENTS, INC., Aylesford, Kent., put up a fine display on stands, in which Sunset, deep rose; Tangerine, orange red; Mrs. Tom Jones, blue; Wild Rose, a lovely clear rose novelty; Mascotts' Helio, lavender; Mascotts' White; and Barbara, salmon, were effective. The whole group was finished off with Asparagus and Smilax.

In Messrs. JAS. CARTER AND CO.'s magnificent group were several vases of the most popular varieties, and also such novelties as Duchess of York, a fine blue; Princess Patricia, heliotrope blue, one of the largest-flowered blues; Delight, a cream-flushed variety; Viscountess Lascelles, pale lavender blue; Ruffles, a rosy lavender; and Snowdrift, a new frilled variety.

Messrs. SUTTON AND SONS, Reading, had a most artistically arranged collection, displayed in bowls placed on pedestals draped with black velvet and backed with archways festooned with Smilax. Amongst the most conspicuous varieties were Tangerine, bright orange; Constance Hinton, the best white; Charity, a deep crimson beauty; Mrs. Tom Jones, blue; Gladys, lavender mauve; Mary Unwin, orange scarlet; and Warrior, a deep maroon.

Messrs. DOBBIE AND CO., LTD., Edinburgh, put up a magnificent collection of Sweet Peas occupying a large area along one side of the large tent, banked up from the ground. The exhibit comprised over 40 of the leading varieties, all of which were examples of fine cultivation. Besides the well-known standard varieties we noticed the following among the novelties:—Mary Rose, certainly one of the finest, clearest of salmon-roses. The sprays were long and sturdy, and carried not fewer than four blossoms, many of which were semi-double. This variety should become a leading one at Sweet Pea shows, and for the market growers also. Crimson King is another novelty which Messrs. Dobbie are showing by the courtesy of Messrs. C. C. Morse and Co., San Francisco. The flowers are a deep, intense crimson, with magnificent substance. Royal Sovereign is a glorious deep orange, with larger blossoms than generally seen in this shade. Youth is another of Messrs. Morse's novelties, and has large flowers, with white ground edged with pink.

Rock Gardens.

Unconventional planning, unless cleverly carried out, is apt to produce a bizarre and restless effect. It cannot be denied, however, that a touch of originality in design is absolutely necessary to raise a garden from the ordinary level. This character, although seen in small details, seems sadly lacking in the general plan of most of the rock and formal gardens at the Chelsea Show. The rock gardens are largely of the same pattern, with a central waterfall and stream. Water is also general in the case of the formal gardens, which are chiefly of the sunk variety, surrounded by low, dry walling. It is gratifying to note, however, that in the majority of cases the general effect has been carefully considered, and not spoiled by a superabundance of seats or statuary, and that practical planting schemes have been employed and anachronisms avoided.

Quite a novel feature of the rock gardens were the miniature gardens shown by Messrs.

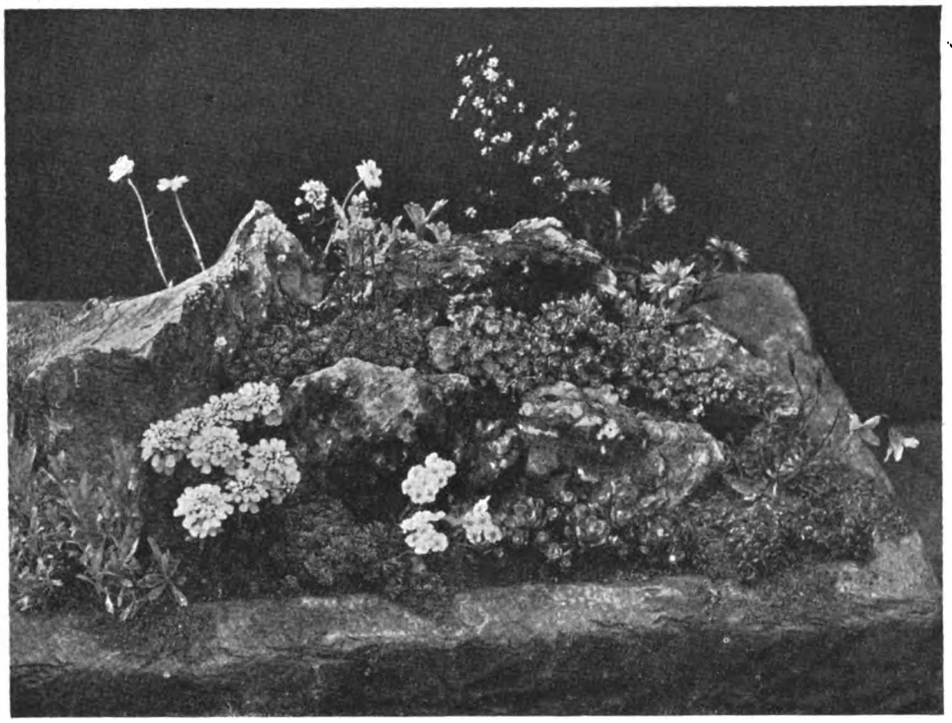

FIG. 147.—A MINIATURE ROCK GARDEN IN AN OLD STONE SINK; EXHIBITED AT THE CHELSEA SHOW BY MR. CLARENCE ELLIOTT.

CLARENCE ELLIOTT, LTD., contained in old stone pig troughs and in stone sinks (see Fig. 147), in which such plants as Sedums and Sempervivums were growing. A happy touch was the inclusion in one stone pan of the little Orchis ustulata, a rare British species. In the main garden, built out of water-worn Yorkshire limestone to represent natural rock beds, a well-coloured form of Iberis gibraltarica and some beautiful Aquilegia glandulosa were conspicuous.

Messrs. R. TUCKER AND SONS reproduced a strip of Alpine meadow-land in which was planted numbers of Trollius, and groups of Cytisus decumbens. A tumbling rill ran through the middle, and by its side grew Dodecatheon Meadia and Primula Cockburniana. Higher up, Cypripedium acaule, Orchis mascula and the Butterfly Orchid were visible. The effect of natural stratification was very good and the whole tastefully planted.

In a similar style and also most attractive was the exhibit of Mr. G. G. WHITELEGG, Chislehurst. Of outstanding beauty were feathery inflorescences of Saxifraga Cotyledon platyphyllum and of S. longifolia. The pretty blue Linum perenne was freely planted, and a hybrid between Dianthus alpinus and neglectus was much admired (see Fig. 145).

A bold but natural rocky effect was achieved by Capt. SYMONS-JEUNE with large pieces of Somerset stone. The sides of the stream running through the garden were bordered with masses of the blue Bugle (Ajuga reptans), but the dominating colour was red, occasioned by such plants as Japanese Maples, a mossy Saxifrage named Lord Lascelles, red-flowered Cytisus and red-fruited Pernettya. Messrs. FULHAM & SONS reproduced a piece of Sussex scenery, using large blocks of sandstone. The water came from two sources, one a sheer fall and the other a rippling brook. The planting was so arranged that the cost of maintenance should not be excessive.

Of a simple nature also was the rock and water garden of Messrs. HODSONS, LTD. Their Fern-edged stream was so designed that the water was broken throughout its course. The most conspicuous plants were Gentiana acaulis and the fiery Primula Aileen Aroon, of which there were large patches. Messrs. T. R. HAYES & SONS put up a pleasant rock garden with a central waterfall and stream, around which grew the double-flowered Marsh Marigold, Pinguiculas and Gentiana verna. Some distance away were plants of the sweet-scented Daphne Cneorum.

The garden of Messrs. W. H. GAZE & SONS was of a different type, involving the use of much larger boulders and of Rhododendrons, Azaleas and Iris. Water flowed from the waterfall into a small pond in the middle of which was a rocky island. This, however, erred on the large side. Adjoining this garden was a miniature example of Messrs. Gaze's green hard tennis court, with permanent sunk marking, a red court and a selection of garden ornaments.

A fine vista was obtained looking down the water garden of Messrs. J. CARTER & CO., Raynes Park. The water made a fall from a piece of rockwork, and continued as a stream overhung with a willow and bordered with Iris and Primulas planted in the grass. A paved path ran by the water-side, along which were some fine pink-flowered Rhododendrons. The garden exhibited by Messrs. R. NEAL & SONS consisted of a well-planted rock bank at the foot of which was a pool bounded by some stone balustrading. This seemed out of place, and did not go well with the other walling of rough rectangular stone blocks. Some good Rhododendrons were planted in the grass. A rock bank was made by Messrs. WM. CUTBUSH & SON and planted with Azaleas and rock plants. In a little dell was a group of Primula japonica. The stones were of a good warm sandstone, but their sizes were too uniform.

Hardy Flowers.

Mr. AMOS. PERRY put up a fine group of Lupinus polyphyllus, in which we noticed beautiful and delicate art shades such as rose, salmon, pink, etc. The bearded Irises were very conspicuous; they included such fine varieties as Lord Lambourne, a bronze, and Kulan Tith. Gladys Roberts is the name of a charming rosy purple variety. All the specimens shown were of Mr. Perry's own raising and were remarkable for their long sturdy stems and floriferous habit. Herbaceous Paeonies of the officinalis type made a wonderful splash of colour next the Irises. Thermopsis montana was conspicuous with its masses of bright yellow Pea-like blossoms. Several specimens of the hardy Orchid Cypripedium spectabile pubescens and C. macranthum were well shown. Hardy Primulas such as P. heliodoxa, bright yellow; P. Lissadel Hybrid, scarlet; P. pulverulenta, purple; and P. Cockburniana, orange scarlet, were well shown. Other hardy flowers such as Trollius, Pyrethrums, Poppies, Geum, Linum, Eremurus, Anemones, Anthemis macedonica, Heuchera tiarelloides, etc., were shown in great profusion. Special mention may be made of the beautiful white Columbine, Aquilegia nivea grandiflora.

Messrs. BEES, LTD., Seeland Nurseries, Chester and Liverpool, had a fine display of long-spurred Columbines, in which many shades of their special strain caught the eye. In the centre were specimens of Lilium regale. We also noticed a nice batch of Primula Bulleyana, Pyrethrum roseum vars., Lilium croceum, Campanula Telham Beauty, Primula Red Hugh

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Lilium Krameri, Geum Lady Stratheden, the rare and curious Roscoea cautlioides, and R. Humeana, Lupinus Sunshine (yellow), white and purple Irises, Torch Lilies, etc. Special mention should be made of Celmisia spectabilis argentea with large, pure white, Marguerite-like flowers, and of Primula chrysopa, a new Chinese species with large lavender blooms. A new hybrid Incarvillea called "Bees Pink" with large delicate pink flowers is a decided acquisition. Other novelties included Meconopsis pseudo-integrifolia and M. Delavayi (purple), Primula chionantha (white), P. nutans (pale lavender), Arisaema candidissimo, a curious dwarf Chinese Aroid, with a large white, hooded spathe.

Messrs. G. GIBSON AND Co., Bedale, Yorks., put up a circular group, composed of the new Trollius caucasicus Mrs. G. Gibson, Lupins, Verbascums, Primula pulverulenta, Torch Lilies, Iberis gibraltarica, and a splendid Oriental Poppy named "King George," remarkable for its deeply incised and fringed petals. Other plants were Dodecatheon Meadia, and a group of Daphne Cneorum. A special note should be made of Gibson's New Giant Orange Iceland Poppy. It has flowers about four inches across, brilliant orange-tangerine shade, on stems 18 to 24 inches high.

Messrs. R. W. WALLACE AND Co., LTD., Tunbridge Wells, put up a splendid collection of hardy flowers. The principal feature of the exhibit was Liliums (see Fig. 148). Amongst these were L. Farreri, the "marbled Martagon," the pure white reflexed petals being heavily speckled with violet; L. regale, L. Willmottiae, bright orange, and L. Krameri, splendid pink. The Lupins and Irises intermixed with Eremuri, Incarvilleas, and Camassias, Primulas, etc., were also conspicuous features of a truly wonderful display. Special note may be made of a fine mass of the rare, Chilian Andean Habranthus pratensis, the brilliant scarlet flowers of which attracted from afar. Messrs. RICH AND Co., Bath, staged a nice lot of Pyrethrums, Oriental and Iceland Poppies, St. Brigid Anemones, Geums, Lupins, Chrysanthemum maximum "Rentpayer," and Violas. Messrs. BARR AND SONS, Covent Garden, occupied a large space on one side of a big tent with a fine collection of hybrid polyphyllus × arboreus Lupins. The Early Dutch Iris Xiphium in several varieties was a conspicuous feature. In addition were several specimens of the still rare Regeliocyclus Irises, in many forms. Early Gladiolus, Oriental Poppies, Pyrethrums, Eremuri, Trollius, Columbines, Heucheras, and a fine mass of the yellow flowered Isatis glauca completed a fine group, with the addition of an edging of rock and alpine plants. Messrs. WM. ARTINDALE AND SON, Sheffield, staged a collection in which Eremuri formed a very conspicuous feature and included Elwesianus, robustus and superbus. We also noticed some fine Darwin Tulips, Lupins, Verbascums, Pyrethrums, Oriental Poppies, Thalictrum aquilegifolium, Nepeta Mussinii and Incarvillea brevipes, etc.

THE CHALK HILL NURSERIES, Reading, had a very distinct and varied group in which Mimulus and a very fine show of Chalk Hill Giant Pansies, Primula hybrids, Lupins, Violas, Isatis glauca, Geum Mrs. Bradshaw, and the Blessed Thistle (Carbenia benedicta) were attractive features.

THE MAYTHAM GARDENS, Rolvenden, Kent, planted a crescent-shaped border at the Embankment end of the grounds, and displayed groups of herbaceous Paeonies, Geums, Delphiniums, Thalictrums, Columbines, Irises, Violas (including Arkwright Ruby), Lupins, Pansies, etc., in a very attractive manner on the sloping bank placed at their disposal. Special note must be made of the rare Paeonia lobata with beautiful cherry-salmon flowers about 4 inches across. In the large tent the same firm had a striking collection of Lupins chiefly raised by themselves. One, called Maytham Modesty, with delicate lavender flowers, was particularly noticeable. Mr. WM. WELLS, JUNR., Merstham, had a well-staged group in which Torch Lilies, art forms of Oriental Poppy, Centaurea montana rosea, Columbines, Hybrid Lupins and finely coloured Pyrethrums were leading features. Mr. G. W. MILLER, Wisbech, had a fairly extensive group in which Pyrethrums, Oriental Poppies, Heucheras, Torch Lilies, Lupins, Daisies, Tulips, etc., were well shown. Special mention should be made of Pyrethrum Queen Mary, a lovely rose-pink, and the deep crimson Mrs. Bateman Brown; and a new seedling No. 1, a fine pink, remarkable for its early flowering.

Messrs. WATERER, SONS AND CRISP, Bagshot and Twyford, had an attractive group of hardy plants, in which hybrid Lupins played a conspicuous part. Delight, rose, and Sunshine, yellow, were two particularly striking forms. Delphiniums occupied the centre of the group, and were flanked with bearded Irises, Pyrethrums, Geums, and Oriental Poppies, the whole group being edged with Nepeta Mussinii.

Messrs. HERBERT CHAPMAN, LTD., Rye, Sussex, staged a very attractive lot of own-raised seedling bulbous Irises originally derived from the Spanish and tingitana species

FIG. 148.—MESSRS. R. WALLACE AND CO.'S LILY GARDEN AT THE CHELSEA SHOW.

They are a vast improvement on both parents, and have the advantage of blooming before the ordinary Spanish varieties, and fill a gap between the latest Tulips and Daffodils. The colours are practically in the same category as the Spanish varieties, some being perfectly pure, and others marked with various shades. Mr. Chapman would like to see the yellow keel eliminated from the falls, but has not much hope of doing this at present.

Messrs. STORRIE AND STORRIE, Glencarse, Perthshire, had a wonderful selection of Polyanthuses, bunch Primroses, and Alpine Auriculas, put up in baskets and elevated on stands. They displayed a great range of colour. Messrs. BAKERS, Wolverhampton, put up a large group of Chinese Primulas and their hybrids; Trollius (T. Smith and Light Ball—both good varieties); the fine yellow Geum Lady Stratheden, and hybrid Lupins. Thrift, Heucheras, and Incarvillea brevipes constituted the most conspicuous subjects. Interspersed with these were good specimens of Cytisus, Daphnes and Kalmias, with a groundwork of choice Alpines.

The ORPINGTON NURSERIES Co., Orpington, Kent, staged an extensive collection of bearded Irises, containing about 160 distinct varieties, many of which were shown for the first time, and also a number of fine new seedlings. Prominent amongst the novelties were Aphrodite, a fine tall pink; several new varieties of Bliss's famous Dominion race, including Canopus, Bertrand, Majestic, Titan, Moa, Paladin, Glamour. Lent A. Williamson and Sapphire are both excellent. A group of Alcazar with shaded standards and rich purple falls was very fine.

V. C. VICKERS, Esq., Newsells Park, Royston, Herts (gr. Mr. W. Watkins) had a wonderful display of long-spurred hybrid Columbines, with many shades of colour in the 40 varieties shown. The arrangement with their own foliage only was very effective. Messrs. REAMSBOTTOM AND Co., West Drayton, Middlesex, and Geashill, Ireland, had a splendid display of their famous St. Brigid Anemones, all grown in the open ground in their nurseries, many of the blooms up to 4 inches across. The colours varied from white to pink, purple, salmon, blue, scarlet, mauve—in fact, all shades except yellow. The flowers were arranged in bowls and vases with their own foliage, and were exceedingly effective.

Messrs. GODFREY AND SON, Exmouth, made a compact display of Lupins of various shades, and Oriental Poppies in shades of cream, crushed strawberry, maroon, etc. Mr. G. R. DOWNER, Drayton Manor Nurseries, Chichester, had a charming lot of rose, pink, white, and blue Lupins, remarkable for the length and sturdiness of the spikes, many of which were over two feet long and smothered in bloom.

Messrs. MAURICE PRICHARD AND SONS, Christchurch, put up an effective group of Pyrethrums, Irises, Lupins, new Pinks, and Heucheras. The combinations of colours were quite effective. The new Pink called Don Giovanni, with large pale pink double flowers, very highly scented, was specially noticeable.

Messrs. BLACKMORE AND LANGDON, Bath, staged about 60 varieties of Delphiniums, averaging from five to eight feet in height. Notable amongst them may be noted Mrs. Townley Parker, a lovely open flower, with broad overlapping petals of a blue, somewhat deeper than the Cambridge colour, and with a conspicuous white eye or centre. Lord Derby is unique in colour, being violet-rose with large semi-double flowers. Mrs. Christie Miller is perhaps the best white, and Lord Lansdowne is a very fine blue.

Messrs. G. and A. CLARK, LTD., Dover, had a rectangular exhibit, consisting chiefly of choice varieties of single and double Pyrethrums, rising from the level to a centre of Eremurus Elwesianus and Astilbe Venus. Among the Pyrethrums, special mention may be made of Mrs. T. M. Pocock, a fine crimson. Other good hardy flowers were Gladiolus, Spanish Irises, Verbascums, Oriental Poppies, Heucheras,

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Lupins, and the fine orange-scarlet Lychnis Arkwrightii, with brilliant masses of bloom.

Dr. MACWATT, Morelands, Duns, Scotland, had a very extraordinary and interesting collection of Primulas and Auriculas, remarkable for good culture and variety. Noticeable among the Primulas were luteola, rupicola, Smithiana, helfodoxa, conica, muscarioides, vincaeflora, Sikkimensis, secundiflora, and other gems. Mr. FRED. G. WOOD, Ashstead, in addition to a nice rock garden exhibit, also displayed good plants of Anchusa "Opal," Pyrethrums, Oriental Poppies, Pentstemon Scouleri, Geums, Heucheras, etc.

Mr. F. GIFFORD, Montague Nursery, Hornchurch, put up an effective lot of Paeonia officinalis lobata, the single flowers of which, brown, bronzy flowers, was particularly conspicuous; also Lucifer, deep red shaded orange.

Mr. WM. YANDELL, Castle Hill Nurseries, Maidenhead, staged a grand lot of bedding and show Violas, consisting of about forty varieties. Outstanding sorts amongst the best were Morrison, deep mahogany and bronze, flushed rose; Mauve Queen, J. V. Macdonald, the new Moseley White, a good form of Mrs. Chichester, Kitty Bell, lavender, and Klondyke, a real good yellow, easy to propagate. Mr. C. H. TAUDEVIN, Willaston, Cheshire, had a nice little exhibit of hardy Asiatic hybrid Primulas, raised from P. japonica, P. pulverulenta, and P. heliodoxa, all exhibiting sturdy vigour for use in the bog garden.

FIG. 149.—VIEW IN MESSRS. R. TUCKER AND SONS' ROCK GARDEN AT THE CHELSEA SHOW.

with bright crimson petals, round a cluster of yellow stamens, stood up remarkably well and in perfect condition. Mr. H. CLARKE, Taunton, staged an exhibit of choice bedding Violas, all artistically arranged in wicker bowls and shallow pots and pans. Among the most attractive were noticed Drummer Wilson, soft yellow edged with lavender; J. V. Macdonald, one of the finest whites; Primrose Queen, soft yellow; and Milton Jumbo, with large deep velvety purple flowers.

Messrs. J. CHEAL & SONS, Crawley, in addition to rock garden exhibits, staged a good collection of hardy perennials, including Verbascums, fringed Oriental Poppies, Bearded Irises, Lupins, Paeonies, Aquilegias, etc. Messrs. R. H. BATH, LTD., Wisbech, arranged a nice collection of Tulips, Trollius, Irises, Paeonies, Lupins, Heucheras, Scilla Blue Queen, etc., in their usual bold and effective style. A vase of Tulip Dom Pedro, with deep

Mr. JOHN FORBES, Hawick, N.B., put up an exhibit of East Lothian Stocks and the old Scotch Rocket, which is rarely seen, Hesperis matronalis purpurea plena and albo plena, and the dwarf bedding Dahlia Coltness Gem, with its brilliant crimson flowers. In addition to these were several fine varieties of Violas and Pansies. One of the oldest and most prolific, yet rarely seen, was Jackanapes, deep maroon on the upper petals and bright yellow on the lower ones.

Begonias.

Messrs. BLACKMORE & LANGDON, Bath, put up a magnificent group of their well-known strain of tuberous Begonias. Each plant was a perfect specimen, of high cultivation and great floriferousness, coupled with which one could not but admire the great substance and wonderfully perfect form of the individual blooms. Amongst the new varieties special mention should be made of Hilda Langdon. The flowers are of a rich and lovely pink, with deeper shades in the centre. Mrs. F. Bedford is a fine, shapely bloom, with extra large rounded petals, soft blush edged with pink and shaded rose in the centre. The variety called Lord Lambourne is one that attracted universal notice. Its flowers are of a rich orange-amber colour, large and well formed, resembling a glorious Camellia.

Clematis.

Messrs. GEO. JACKMAN AND SON, Woking, one of the very oldest exhibitors at the R.H.S. shows, put up a fine group of Clematis, occupying about 450 square feet and comprising 40 distinct varieties. All the old favourites were present, but amongst the newer varieties we noticed The Bride, a beautiful pure white 6-8 petalled variety with yellow stamens. This is a cross between one of the small-flowered species and a variety of the patens type. It appears to be a very free flowering variety, and the blooms continue to open week after week until the late autumn. Crimson Beauty is another novelty shown for the first time last year, and its flowers are of a rich, deep crimson that can be seen from a good distance. It is several shades more brilliant than the old variety Mdme. Ed. André which was also shown in fine form. One of the finest Clematis still is Lady Northcliffe, with large deep and clear purple flowers, which have a decided blue sheen when seen in the open-air.

Carnations.

Messrs. ALLWOOD BROS. staged an imposing exhibit of Carnations that occupied a considerable amount of space in one of the large tents. It took the form of a terrace garden raised above the general level, with crazy paths approached by stone steps and with old leaden vases at appropriate spots. At the four corners approached by the steps were circular beds filled with the firm's new hardy perpetual border Carnations, of which Sussex Beauty, heliotrope, Sussex Pink and Sussex Purple are the three best sorts. Along the edge of the terrace was a series of beds filled with Dianthus Allwoodii, the plants having such a profusion of flowers as to appear like an unbroken band of colour. The several varieties were massed and the colour blending was skilfully arranged. The central arrangement was most imposing and took the form of a diamond-shaped bed with a narrow band of turf, and a staging on which were displayed all the best varieties of perpetual-flowering Carnations, including the new George Allwood variety, of a creamy-salmon shade; Chintz, blush mauve, flaked with purple; Laddie, pink; Edward Allwood, scarlet; White Pearl, Wivelsfield Fancy, pink flaked with rose, and Wivelsfield Apricot. There were also vases of the perpetual-flowering Malmaison type, the whole presenting a dainty and imposing exhibit of these most popular flowers.

Mr. C. ENGELMANN, Saffron Walden, showed great banks and sheaves of Carnations, of the perpetual-flowering type, cleverly arranged as to colour scheme, and all the blooms in perfection of quality. A black background of velvet served to throw the colours into high relief, and a few graceful Palms added just the necessary touch of greenery. Outstanding varieties were Saffron, Tarzan, scarlet; Dora, pink; Mrs. Hamilton Fellowes, purplish; Thor, scarlet; Laddie, pale salmon-pink; White Wonder, and Carola. The RT. HON. LORD LAMBOURNE, C.V.O., Bishop's Hall, Romford (gr., Mr. H. Cunningham), has a very charming group of Carnations staged on a three-tier platform covered with black velvet. There were many vases of the perpetual-flowering type, but the most conspicuous were the large Malmaison blooms for which Bishop's Hall Gardens are famous.

Sir WILLIAM CAIN, Bart., Wargrave House, Wargrave, contributed a group of pot plants of Carnations, both perpetual-flowering and Souvenir de la Malmaison types. The plants exhibited the finest culture and presented a wealth of beautiful flowers. The most imposing feature of this fine group was a batch of the old Prince of Wales Malmaison variety.

Messrs. WM. CUTBUSH AND SON, Barnet, showed Carnations in association with their large floral

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exhibit. The use of fancy baskets on tall stands made a pleasing feature and gave lightness to the group, the centre-piece being a big basket of the scarlet Peerless variety, crowned with a graceful Palm. The Carnations on the ground were bedded in a mass of fine Ferns.

Mr. JAMES DOUGLAS, Great Bookham, showed superb border Carnations; every bloom was a choice specimen. Many were of exquisite fragrance, especially Scarlet Clove, White Clove, Purple Clove, Wonder Clove, scarlet, and Rose Clove, varieties of a series of the old Clove type in distinct colours. Amongst others were Kelso, orange ground with violet markings; Bookham Belle, yellow ground with slaty-puce markings; Highland Mary, canary yellow ground with bright rose markings, and Bookham Salmon.

Messrs. STUART LOW AND Co., Enfield, displayed choice Carnations in beautiful vases on stands, with Palms and Ferns interspersed. They had their own novelties in splendid condition, including Eileen Low (see Fig. 139), a very large bloom of soft clear salmon colour, somewhat after Laddie, but said to be a better grower; Sheila Green, a yellow-ground fancy marked with orange-red, and Reginald Cory, showing cerise. Laddie, Mikado and White Wonder were also conspicuous in a collection of general excellence.

Messrs. ANDREW IRELAND AND HITCHCOCK, Marks Tey, showed a new hybrid Dianthus, raised from Scarlet Beauty Sweet William, crossed with a border Carnation. The colour is charming—a clear rose-pink, and the flowers are developed on stems almost as stiff as wire, about 12 to 15 inches high. The habit is upright and compact, and the plant is very free flowering.

Messrs. KEITH LUXFORD AND Co., Sheering Nurseries, Harlow, made a very pretty group with perpetual-flowering Carnations, the varieties including such popular sorts as White Pearl, Bona, Aviator, White Wonder, Mrs. C. W. Ward, Cupid and Peerless.

Mr. G. H. TAUVEDEN, Willaston, also exhibited perpetual-flowering Carnations in variety.

Mr. C. H. HERBERT, Acocks Green, exhibited his new border Pinks. These flowers are very dainty and most refined in colouring and general appearance. Notable sorts were Gertrude, rose-mauve with purple base; Dickie Felton, deep salmon-pink with a darker base; May Queen, pink self; Mrs. G. Walker, rosy-red; Red Indian, Indian red; Fire King, salmon-scarlet; and Bridesmaid, shell pink with salmon at the base of the flower.

Hardy Ferns.

Mr. AMOS PERRY, of Enfield, put up a splendid collection of Hardy Ferns, in which we noted fine specimens of Osmunda regalis purpurascens, Scolopendrium nobile, the finest of the Hart's Tongues, and Polystichum angulare, Perry's variety, which is remarkable for its intense plumose frondage.

Formal Gardens.

Messrs. KENT AND BRYDON showed a rectangular garden with a long pool, in the middle of which was a leaden figure. On each side of the sunk walk were rock borders admirably furnished with dwarf Rhododendrons and Azaleas, Viburnum Carlesii, and pretty rock plants, such as Veronica gentianoides. At the end of this garden, beneath a fine Plane tree, were masses of Azaleas against a background of dark Conifers. The orange and yellow of the Azaleas was taken up by the Geums and Alyssum in the border. A "Garden of Meditation" was provided by Messrs. WM. WOOD AND SON. It was of rectangular pattern, with a central pool into which a figure gazed, and the garden was entered by means of a semi-circular Oak pergola. Bright colour was intentionally omitted in order to give a restful effect. At the far side was a thatched garden-house.

The EN-TOUT-CAS Co. showed a sunk garden, with a central pool edged with Iris sibirica and Funkias. The best feature of this garden was a handsome Oak garden-house with a tiled roof. The large seats on each side seemed unnecessary. A pleasantly simple design was used by the ORPINGTON NURSERIES Co., whose garden consisted of paved walks, with a sundial at their point of intersection and long beds of pink Roses cut out in the grass.

Mr. E. DIXON exhibited a rectangular garden, with a paved path leading to a stone terrace. This walk was edged with beds of Azaleas and blue Violas, and, halfway to the terrace, steps descended to a small circular pool. On either side were borders of Lupins. A lawn with clipped Box and Yew trees figured largely in the formal garden laid out by Messrs. J. CHEAL AND SONS. A paved path ran on each side, and beyond the path was a mixed border. The garden was terminated by a dry wall supporting a bank of evergreens and Maples, at the foot of which was a wall fountain.

Messrs. G. BUNYARD AND Co. showed a rectangular, paved Iris garden, in the middle of which was an area of water representing an exposed piece of stream, the irregular outline of which did not accord well with the formal lines of the garden. The Irises, however, were charming, and included the pale blue Corida and the velvet-pulple Souvenir de Mme. Gaudichau. At one end was a fine show of Dutch Irises, Eremuri, and Paeonies. An interesting exhibit was made by Mr. JAS. MACDONALD, Harpenden, consisting of a formally arranged display of Grasses, comprising some 50 varieties. Considerable contrast was obtained by the use of variegated forms and of distinct varieties, such as Elymus giganteus, Eulalias, and Lagurus ovatus. It is not generally realised what degree of skill is required to bring such Grasses as Eulalia japonica to such perfection as was seen here.

Messrs. HODSON, in addition to their rock garden, showed a rectangular formal garden, with a central semicircular pool. The paths were of York paving, on the outside of which were bricks on edge, giving a good effect. Messrs. J. PIPER AND SON constructed a square garden in bright red brick, surrounded with clipped Yews, and planted with blue flowers. In the centre of a grass basin was an octagonal pool, also in red brick, which seemed to require toning down.

Mr. G. G. WHITELEGG, Chislehurst, had a pleasing collection of Geums and Lupins intermixed with Japanese Maples. The yellow flowers of Geum Lady Stratheden stood out conspicuously, and were well foiled with deep crimson Pyrethrums.

Stove and Greenhouse Plants.

One of the best collections of miscellaneous stove and greenhouse plants that has been shown of recent years was arranged by Messrs. L. R. RUSSELL, LTD. Well grown Caladiums, Crotons (Codiaeums), Dracaenas, Aralias, Alocasias, and other genera were displayed with great skill and taste. Medinilla magnifica, Impatiens Holstii, Anthurium Scherzerianum, Hippeastrums, Clerodendron Balfourianum, Gloriosa Rothschildiana, and the fragrant Hoya carnosa supplied blooms which were well set off by the handsome foliage plants.

Large Caladiums reminiscent of the days when stove plants were more important than is now the case, were well shown by Messrs. JOHN PEED AND SON. These possessed all the charm and value of large, shapely leaves of most delicate or brilliant colouring. In spite of their apparent fragility, such Caladiums are very valuable for furnishing the warm greenhouse during the summer months. Associated with the Caladiums were excellent Streptocarpus, which embraced every possible shade of colour and were of very large size, also Hydrangeas, Liliums, Gloxinias, Hippeastrums and splendid double white and double blue Petunias.

An unusual exhibit in these days was the collection of 400 varieties of succulents displayed by Miss WORTH. These were for the most part shown as small pot plants, and while the general effect was somewhat marred by the use of Moss on the staging—an incongruous association apparently required by the authorities—all the plants were full of vigour and illustrated the great diversity of form and type, while gorgeous flowers were provided by several species of Phyllocactus.

The great value of annuals for summer gardening, either in association with perennials, or, as was the case at Chelsea, for solely furnishing the flower garden, was well illustrated by Messrs. SUTTON AND SONS. The large central space allotted to them in the tent was laid out as a formal flower garden with the beds surrounded by mown turf. The centre beds were filled with Salpiglossis of wonderful beauty of colouring. Messrs. SUTTON AND SONS have often exhibited splendid plants of Salpiglossis in the past, but on the present occasion they excelled themselves. Nemesias were also of great importance in the garden scheme, as these included large flowered Pale Yellow; Crimson, of deep velvety colour; Twilight, a bicolor flower which has a white tip and inky-violet standard, and Blue Gem, a dainty little variety of cloudy blue colouring. The rich orange flowers of Dimorphotheca aurantiaca provided rich colouring, while a frontal bed of Phlox Drummondii Pink Beauty was a mass of warm rose-pink colour. Viscarias in variety and blue Cornflowers were amongst the other annuals which combined to make such a successful exhibit.

Schizanthus hybrids of a splendid strain were contributed by Mr. ALFRED DAWKINS. All the many plants were of a desirable compact habit, and bore quantities of well-formed flowers of beautiful colours. Although the plants on view were apparently from mixed seed, several of them, particularly the rose pink, deep rose, and crimson, seemed worthy of varietal names.

A well-arranged group of Calceolaria hybrids and the new white Schizanthus Bridal Veil were set up by BARON BRUNO SCHRODER, The Dell Park, Englefield Green (gr. Mr. J. Shill) The Calceolarias embraced an interesting range of semi-shrubby types bearing good-sized flowers of yellow colouring, some of clear yellow, and others, as in the case of Golden Gem, regularly spotted with crimson. All the plants displayed the highest degree of skilful cultivation.

Trusses of flowers of many zonal Pelargoniums, arranged with their foliage, were displayed by Messrs. JARMAN AND Co. The excellent collection of varieties included General Wolseley a splendid large-flowered single variety, while Achievement, rose-coloured, was excellent amongst the large trusses of double varieties.

Messrs. CARTER AND Co. had a very bright display at the Embankment end of the large tent. All along the back, surmounted by elegant Cocos plumosa and other Palms, they arranged splendid banks of Stellata Cinerarias, Salmon Queen Clarkias, and Butterfly strain of Schizanthus, with Antirrhinums of salmon and pink shades. In the foreground were magnificent circular groups of Invincible Gloxinias of erect habit and large, widely spread flowers, herbaceous Calceolarias and large-flowered Cinerarias. These were pleasantly broken by oblong beds of Petunia Rose Queen of splendid colouring, and some excellent double-flowered tuberous-rooted Begonias. A neat grass edging with narrow borders of Ageratum, Pteris and Maidenhair Ferns made a fitting finish to this noteworthy exhibit.

Banks of generous proportions of hybrid Schizanthus, herbaceous Calceolarias, and Cineraria stellata were the dominant features of an imposing display by Messrs. WEBB AND SONS. All three of these useful greenhouse plants were characterised by excellent strains of good and varied colours. Along the front there were goodly groups of Rhodanthe maculata, double-flowered tuberous-rooted Begonias, Gloxinias, a giant strain of Primula obconica, and particularly elegant plants of Linaria hybrida Excelsior. The graceful little flowers of the last-named plant attracted a deal of admiration, both on account of their charm and delicate colouring.

A large circular group of well-grown Hydrangeas, arranged by Mr. H. J. JONES, made a memorable display in the large tent. There were splendid heads of white, pink and blue varieties, with intermediate shades of these colours. Helge, Parsifal, Krimhild and Satinette of the deep rich pinks, Lille Monillere, Radiant, and Madame Truffaut of the

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blue shades, and the white Madame Mouillere are a good selection of the splendid varieties. Messrs. W. J. Godfrey and Son's superb strain of Schizanthus grandiflora is very compact and floriferous, and embraces a wide range of good colours. On the other side of their stand Messrs. GODFREY & SON staged many excellent Pelargoniums. Rose of Devon. Lord Bute, The Queen, Mr. Richard Eames, Gipsy and Delightful are the names of a few of the varieties shown.

Vases of cut spikes of zonal Pelargoniums were displayed by Mr. R. J. CASE, and these made a welcome display of bright colouring. Amongst the singles were Mr. S. T. Wright, a truss of large pips in which the rose-pink colour has a stippled appearance. Somerset Lass, an excellent scarlet; Dot Slade, pale salmon pink; Western Queen, Apple-blossom pink; and Mrs. A. C. Adams, purplish magenta, are other singles of more than average merit.

Show and Fancy Pelargoniums were splendidly shown by AUBREY F. WOOTTEN, Esq. (gr., Mr. W. Lamson), Downs Road, Epsom. The central mound of Mrs. Lawson, a delicate blush with carmine blotch, the bright pink Cardiff and the blush and maroon Queen Mary, were excellent examples of these valuable greenhouse plants, while all the sorts displayed expert cultivation.

Greenhouse Ferns of such genera as Polypodium, Adiantum, Cibotium and Asplenium, with Platycerium alcicorne, were displayed by Mr. H. N. ELLISON, who also had a small collection of Cacti and other succulents.

Although somewhat out of season, the group of Dahlias arranged by Messrs. CARTER, PAGE AND CO. is well deserving of note. At this season it was a stupendous effort to have so many plants of the various types in full bloom. Besides providing excellent flowers, illustrating the values of the different types of this indispensable autumn flower, the group served a very useful purpose as a reminder that the present is a good time to procure plants which will provide abundance of bloom this year.

Dwarf plants in quite small pots of the popular Dahlia Coltness Gem, shown by Mr. JOHN FORBES, showed how suitable this brilliant single-flowered variety is for bedding purposes.

Particularly good succulent plants were staged by Mr. SIDNEY SMITH, Enfield. The chief genera were Phyllocactus, Mamillaria, Echinocactus, Opuntia, Cereus, Echinocereus, and Aloes. He also had specimens of Sempervivums, Mesembryanthemums, Echeverias, and Euphorbias.

A neat collection of Fuchsias was staged by Mr. E. H. Causer; the chief varieties were Mauve Beauty, Ballet Girl, Scarcity, Fascination, Cupid, and The Doctor. Besides the Fuchsias Mr. Causer showed well-flowered Verbenas. Adjoining their show of Roses Messrs. Wm. Cutbush and Sons massed such Hydrangeas as Directeur Vuillemot, Maréchal Foch, and Helge. Many plants were shown and all bore large and shapely heads of bloom.

Trees and Shrubs.

Rhododendrons and Azaleas were dazzlingly, gloriously beautiful, and these alone would have been well worth braving the mud and rain to see. At this great spring show the public have become accustomed to find Rhododendrons and Azaleas of great merit, but on the present occasion all previous exhibits of these valuable shrubs were eclipsed. The bank of glowing, vibrating colours of the Azaleas exhibited by Messrs. R. AND G. CUTHBERT was a splendid display. They had countless numbers of trusses of different types, but it was probably the mollis-sinensis hybrids that were the most showy. Of this type quite a number deservedly received distinctive names, such as Apple Blossom, Sunset, Multatuli and Anthony Koster. There were many specimens of Azalea mollis, of which J. C. Van Thol is an excellent example. The vigorous Ghent varieties were equally well represented by standards and bushes, and there were also many varieties of the later flowering Azalea rustica section.

Of necessarily different character, the collection of Rhododendrons arranged by Messrs. WATERER, SONS AND CRISP was equally effective. For the most part it was composed of massed varieties of distinct colours. Glowing reds were represented by such sorts as Bagshot Ruby, Brilliant and Corona, while amongst the many good varieties of pink shades were Mrs. E. C. Stirling, Strategist and Pink Pearl. There were also numbers of standards and bushes of Rhododendron fastuosum fl. pl.

A very good group of Rhododendrons, mostly of large bushes, was well arranged by Mr. T. LEWIS. The chief varieties were album grandiflorum, White Pearl, Mrs. Milner, Mrs. E. C. Stirling, Mrs. Holford and fastuosum fl. pl. The principal feature of the very effective corner group displayed by Messrs. J. CHEAL AND SONS were dwarf, floriferous Rhododendrons and Azaleas, and they also arranged excellent bushes of Kalmia latifolia, Caenothus dentatus, C floribunda and Philadelphus varieties. Messrs. M. KOSTER AND SONS had a large bank of Rhododendrons, mostly with their seedling numbers, but there were also named varieties including Mrs. Lindsay Smith, Rosamund, Millais, a showy red variety, and Koster's Brilliant Red Seedling.

Rhododendron cinnabarinum was very well shown by Mr. G. REUTHE, who also showed blooms of the uncommon Magnolia Watsoni, Tricuspidaria lanceolata, Embothrium coccineum, Dipetala floribunda, Deutzia Veitchii, and various Azaleas and Kalmias.

Mr. R. C. NOTCUTT had a splendid collection of Brooms, both as standards and bushes, and each was particularly well flowered; the most showy was probably Daisy Hill. Even at this late date he was able to show Lilacs, and included large trusses of President Grévy and Waldeck Rousseau. The showy and useful Kamia angustifolia rubra, and Philadelphus Virginal were also excellent in this very fine collection.

Many magnificent branches of the brilliant Embothrium coccineum were displayed by Messrs. R. GILL AND SON, who also had equally good branches of Tricuspidaria lanceolata and Drimys Winteri, Clianthus puniceus and Rhododendrons, particularly R. Nuttallii. The DONARD NURSERY CO. had a very interesting collection of uncommon shrubs, which included Pinus sylvestris variegata, Athrotaxis cupressoides, Olearia stellulata, Pittosporum Mayi, Silver Queen, and P. Tobira variegata. The vivid Embothrium coccineum and Tricuspidaria lanceolata were also well represented.

In a large and valuable group, arranged by Messrs. HILLIER AND SONS, the plants of the hardy Banana (Musa Japonica, Syn. Basjoo) attracted a deal of attention on account of the unusual appearance of their luxuriant foliage. A splendid branch of Eucalyptus coccifera, bearing numerous flowers, was also greatly admired. Viburnum plicatum, Ozothamnus rosmarinifolius, a number of Wistarias, Brooms, Rosa Willmottiae, and various Conifers were all of interest. The group included some excellent spikes of Eremurus and the edging of floriferous, little bushes of Daphne Cneorum added to its attraction.

In the tent the YOKOHAMA NURSERY CO. had a fascinating collection of dwarfed Japanese trees and shrubs, principally of Wistarias, Acers, Cypresses, and Larches of apparently great age. In the open, Messrs. FROMOW AND CO. had a collection of the Japanese Maples they grow so well and in such great variety.

Under the trees in the Elm Avenue Messrs. WALLACE AND CO. had a pleasant arrangement of Japanese Maples and Azaleas. Amongst the latter there were particularly good standards of Ghent varieties and hybrids, with glowing masses of dwarf mollis Azaleas. In the tent Messrs. WALLACE AND CO. had a particularly bright display somewhat in the form of a Rhododendron garden, where very floriferous bushes of this shrub, Ghent and Mollis Azaleas, were effectively massed and interspersed with the group of their unique collection of Liliums. They trained against a tent-pole a good specimen of Rhododendron cinnabarinum.

Miscellaneous shrubs were displayed in the open by Messrs. L. R. RUSSELL, LTD. Ceanothus Veitchianus, C. dentatus, various Brooms and Ghent Azaleas were the chief flowering subjects, while amongst those with ornamental foliage were a goodly variety of Japanese Maples, Tree Ivies, Escallonia exoniensis, and such climbers as Vitis Henryana and V. Coignetiae. Although not in flower, a well-grown standard Pomegranate and an exceptionally tall Loquat attracted attention. In the tent Mr. RUSSELL had another group of hardy shrubs.

A neat and especially effective display was made by Messrs. A. CHARLTON AND SON. Japanese Maples, both as standards and bushes were highly coloured. Acer Negundo variegata and Acanthopanax pentaphyllum folius variegatus and the variety argentea marginata were represented by well-marked specimens. Ceanothus Gloire de Lorraine, Ceratostigma Willmottiana, various Brooms and Rhododendrons, amongst the flowering species added floral brightness.

Trained Bay trees of good quality and in a variety of conventional shapes were exhibited by Messrs. ROBERT GREEN, LTD., while Messrs. WM. CUTBUSH AND SON set up near by a large collection of excellent Topiary specimens, principally fashioned in green Box, although Yew and Bay Laurel were also used. Mr. R. F. FELTON displayed half a dozen or so excellent pyramids of Eurya japonica variegata.

A pretty collection of Rhododendrons, with a few conifers, was displayed by Messrs. Fletcher Bros. The principal Rhododendrons were Marchioness of Tweedale, Helen Paul, Helena, and Frederick Waterer. The Conifers were mostly the erect growing Cupressus Lawsoniana Fletcheri and the new compacta form of that variety. The latter makes a quite dwarf, round bush of much compressed foliage which gives it a Juniper-like appearance. Mr. J. Klinkert displayed his excellent specimens in the form of a Topiary garden. Along each side of the central path he alternated cones with balls and disposed the spirals, peacocks, living chairs and other forms on the lawns. All the specimens were well trained, and it was a successful exhibit of its type.

Fruit.

Messrs. T. RIVERS AND SON, Sawbridgeworth, showed pot fruit trees, including Cherries, Nectarines, Peaches, Plums and Figs. The new Nectarine John Rivers was included; it is the earliest variety to ripen, being a trifle earlier than Cardinal. The fruits are of large size and carry a high colour; a very showy fruit. Other Nectarines shown were Cardinal Early Rivers and Lord Napier. Of Peaches there were well-fruited trees of Peregrine, Kestrel and Early Rivers. The Cherries included Early Rivers and Belle d'St. Tronc. All the trees were splendid specimens and well fruited. Messrs. G. BUNYARD AND CO., LTD., Maidstone, showed thirty-four dishes of Apples and two of Pears, the latter including Bellissime d'Hiver and Uvedale's St. Germain. The Apples were remarkably good for so late in the season, outstanding varieties being Norman's Pippin, Sturmer Pippin, Heusgen's Golden Reinette, Wagener, Lord Hindlip, Lord Burghley, Cox's Orange Pippin, Belle de Pontoise, Encore and Bramley's Seedling. The exhibit was very daintily staged, the fruits being shown in ornamental mahogany-coloured baskets with Ferns and Asparagus for decoration. Messrs. LAXTON BROS., Bedford, had a very bright group of Strawberries, both pot plants and gathered fruits. Plants of the variety The Duke were each cropped with a dozen or more large berries; the oldest fruit is wedge-shaped, but those that succeed it are round. The new Abundance, of darker colour, is a little later in season than The Duke, and the flavour is excellent. Other sorts shown were Lord Beatty, Sir Douglas Haig and Marechal Foch, which ripen in this order. In open Messrs. LAXTON BROS. showed oblique cordons and fan-trained Pear trees. They also showed cordon Gooseberries, standard Gooseberries, and standard Currants.

Messrs. S. SPOONER AND SONS, Hounslow, showed well-grown Gooseberries and Currants in pots as an outdoor exhibit.

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Vegetables.

HON. VICARY GIBBS, Aldenham House, Elstree (gr. Mr. Ed. Beckett) had the only collection of vegetables in the show. It consisted of more than one hundred dishes and embraced most of the kinds in season and many out of season. The quality, as usual, was superb, and the group ranked as one of the best collections ever exhibited by this famous grower. A different kind of staging was employed than the one Mr. Beckett has set the fashion in for some years past; the wide trellis-work at the back was in good taste and served well to carry brackets, on which were arranged mounds of Cauliflowers, Globe Artichokes, Seakale Beet, Peas, Celery, coloured Beans, purple and white Aubergines, and Marrows. Below these were magnificent Lettuces, Cucumbers, Tomatos, Potatos, Endive, Turnips, Capsicums, Carrots and Radishes; whilst on the table were ornamental and fancy baskets containing Mushrooms, Kohl-rabi, Broad Beans, Tomatos, Oxalis tuberosum and many other kinds. King George spent a considerable time at this exhibit and congratulated Mr. Ed. Beckett on what he described "as a most wonderful exhibit."

AWARDS MADE BY THE COUNCIL.

AWARDS.

Sherwood Cup for the most meritorious exhibit in the show, to Messrs. CHARLESWORTH AND Co., for Orchids.

"Daily Graphic" Cup for the best rock garden to SYMONS-JEUNE, B.H.B.

Cain Cup for the best exhibit by an amateur to PANTIA RALLI, Esq., for Orchids.

Allwood Carnation Bowl for the best group of Carnations exhibited by an amateur, to Sir WILLIAM CAIN, Bart.

Gold Medals.—To Messrs. ALLWOOD BROS., for Carnations; Mr. C. ENGELMANN, for Carnations; Messrs. R. W. WALLACE AND Co. (and congratulations), for Rhododendrons; Messrs. G. JACKMAN AND SON, for Clematis; PANTIA RALLI, Esq., for Orchids; Messrs. CHARLESWORTH AND Co. (and congratulations), for Orchids; Messrs. J. AND A. McBEAN, for Orchids; Messrs. JAMES CARTER AND Co., for water garden; Messrs. KENT AND BRYDON, for a rock and water garden; Messrs. DOBBIE AND Co., for Sweet Peas; Messrs. R. AND G. CUTHBERT, for Azaleas; Mr. R. C. NOTCUTT, for flowering shrubs; Messrs. G. BUNYARD AND Co., LTD., for fruit; Messrs. T. RIVERS AND SONS, LTD., for fruit trees in pots; the Hon. VICARY GIBBS (gr. Mr. E. Beckett), for vegetables; Messrs. BLACKMORE AND LANGDON, for Begonias and Delphiniums; Messrs. JAMES CARTER AND Co., for flowering plants; Messrs. SUTTON AND SONS, for flowering plants; Mr. E. J. HICKS, for Roses; Mr. SYMONS-JEUNE, for a rock garden; Mr. G. G. WHITELEGG, for a rock garden; Mr. L. RUSSELL, for stove plants; and Mr H. J. JONES, for Hydrangeas.

Large Silver Cups.—To Sir WM. CAIN, Bt., for Carnations; Mr. JAMES DOUGLAS, for Carnations; Messrs. BARR AND SONS, for bulbous and hardy herbaceous plants; Messrs. SANDERS, for Orchids; MESSRS. STUART LOW AND Co., for Orchids; Messrs. W. H. GAZE AND SONS, LTD., for a formal garden; Messrs. ALEX. DICKSON AND SON, for Sweet Peas; Mr. AMOS PERRY, for Irises, Ferns, etc.; Messrs. LAXTON BROS., for Strawberries; Messrs. R. TUCKER AND SON, for a rock garden; and Messrs. EDWARD WEBB AND SONS, for stove and greenhouse plants

Small Silver Cups.—To Mr. J. C. ALLGROVE, for herbaceous plants and shrubs; Messrs. BEES, LTD., for alpines and hardy herbaceous plants; Messrs. W. H. ROGERS AND SON, for alpines and hardy herbaceous plants; Sir JEREMIAH COLMAN, Bt., (gr., Mr. J. Collier), for Orchids; Messrs. COWAN AND Co., for Orchids; Messrs. J. CYPHER AND SONS, for Orchids; Messrs. J. CHEAL AND SONS, LTD., for a formal garden; Messrs. R. BOLTON AND SON, for Sweet Peas; ORPINGTON NURSERIES CO., for Irises, etc.; Messrs. B. R. CANT AND SONS, for Roses; Messrs FRANK CANT AND Co., for Roses, Messrs. J. PEED AND SONS, for Caladiums, etc.; Mr. CLARENCE ELLIOTT, for alpines, and Mr. R. PRICHARD, for alpines.

Silver-gilt Lindley Medal.—To Dr. JOHN MACWATT for Primulas.

Silver-Gilt Flora Medals. — To Mr. J. MACDONALD, for Grasses; the Rt. Hon. LORD LAMBOURNE, for Carnations; Mr. G. R. DOWNER, for Lupins; MAYTHAM GARDENS, for Lupins; Messrs. M. PRITCHARD AND SONS, for hardy herbaceous flowers and alpines; Messrs. BAKERS, LTD., for hardy herbaceous plants and alpines; Messrs. BOWELL AND SKARRATT, for hardy herbaceous plants and alpines; Messrs. MAXWELL AND BEALE, for hardy herbaceous plants and alpines; Messrs. REAMSBOTTOM AND Co., for Anemones; Messrs. STORRIE AND STORRIE, for Primulas; Mr. F. G. WOOD, for herbaceous plants and alpines; Mr. W. WELLS, Junr., for herbaceous flowers; Messrs. FLORY AND BLACK, for Orchids; ORPINGTON NURSERIES Co., for a Rose garden; Messrs. W. WOOD AND SON, LTD., for a formal garden; Messrs. SUTTON AND SONS, for Sweet Peas; Messrs. W. CUTBUSH AND SON, for clipped trees; Messrs. W. FROMOW AND SONS, for Japanese Maples; Mr. L. R. RUSSELL, for Azaleas and shrubs; THE DONARD NURSERY Co., for new and rare shrubs; Messrs. HILLIER AND SONS, LTD., for flowering trees and shrubs; Messrs. M. KOSTER AND SONS, for Rhododendrons and Azaleas; Mr. G. REUTHE, for rare shrubs; Messrs. DOBBIE AND Co., for Antirrhinums; Mr. CLARENCE ELLIOTT, for a rock garden; Messrs. HODSONS, LTD., for a rock and water garden; Messrs. PULHAM AND SON, for a rock and water garden; Messrs. J. WATERER, SONS AND CRISP, for Alpines; and Baron SCHRÖDER, for Calceolarias, etc.

Silver-gilt Banksian Medals.—To Messrs. K. LUXFORD AND Co., for Carnations; CHALKHILL NURSERIES, for hardy perennials, Mimulus, etc.; Messrs. J. CHEAL AND SONS, for rock and hardy herbaceous plants and Dahlias; Messrs. G. AND A. CLARK, LTD., for hardy flowers; Mr. G. Reuthe, for herbaceous plants; Messrs. WATERER, SONS, AND CRISP, LTD., for hardy herbaceous plants; Messrs. W. ARTINDALE AND SONS, for hardy herbaceous plants; Messrs. R. H. BATH, LTD., for hardy herbaceous plants; Messrs. K. and J. HILL, for Alpines; Mr. G. W. MILLER, for hardy plants; Mr. V. C. VICKERS, for Aquilegias; Messrs. MANSELL AND HATCHER, LTD., for Orchids; Mr. E. DIXON, EN-TOUT-CAS Co., Messrs. R. NEAL AND SON, these three for formal gardens; Messrs. ANDREW IRELAND and HITCHCOCK, for Sweet Peas; Messrs. CHARLTON AND SONS, for trees and shrubs; Messrs. WATERER, SONS, AND CRISP, for Rhododendrons; Messrs. G. BUNYARD AND Co., LTD., for Iris garden; AUBREY WOOTTEN, ESQ., K.C., for Show Pelargoniums; Messrs. WATERER, SONS, AND CRISP, for Roses; Messrs. T. R. HAYES AND SONS, for a rock and water garden; Messrs. CARTER PAGE AND Co., the Misses HOPKINS, Messrs. OLIVER and HUNTER, Messrs. W. H. ROGERS AND SONS, and Mr. G. G. WHITELEGG, these five for alpines; Mr. E. DIXON, for a miniature garden; Messrs. W. CUTBUSH AND SON, for Hydrangeas and Carnations; Mr. S. SMITH, for Cacti, etc.; and Miss WORTH, for succulent plants.

Silver Lindley Medal.—To Messrs. H. CHAPMAN, LTD., for Irises.

Silver Flora Medals.—To Mr. C. H. HERBERT, for Pinks; Messrs. STUART, LOW AND Co., for Carnations; Messrs. B. LADHAMS, LTD., for herbaceous plants; Messrs. G. GIBSON AND Co., for herbaceous plants, including new Lupins; Messrs. Rich and Co., for herbaceous plants; Messrs. HODSONS, LTD., for a formal garden; Mr. J. STEVENSON, for Sweet Peas; Mr. H. DIXON, for Orchids; Mr. A. DAWKINS, for Schizanthus; Messrs. GODFREY AND SON, for Pelargoniums, Schizanthus, etc.; Mr. G. G. WHITELEGG, for an Iris garden; Messrs. PAUL (Waltham Cross), Messrs. W. CUTBUSH AND SON, Mr. G. PRINCE, the Rev. J. H. PEMBERTON, Messrs. J. PIPER AND SON, these last five for Roses; Mr. H. HEMSLEY, for rock and alpine plants; Mr. E. SCAPLEHORN for alpine plants; Messrs. R. TUCKER AND SONS, for alpine plants; and Messrs STUART LOW AND Co., for stove plants and New Holland plants.

Silver Banksian Medals.—To MAYTHAM GARDENS, for a herbaceous border; Mr. C. H. TAUDEVIN, for Carnations; Mr. F. GIFFORD, for Paeonies; Mr. H. T. PITT, for Orchids, Messrs. J. PIPER AND SON, for a formal garden; Messrs. FLETCHER BROS., for Rhododendrons and Conifers; Messrs. J KLINKERT, for Topiary; the YOKOHAMA NURSERY Co., for Azaleas and dwarf shrubs; Messrs. J. CHEAL AND SONS, LTD., for flowering and foliage shrubs; Mr. T. LEWIS, for Rhododendrons; Messrs. E. PAUL AND Co., for Roses; Messrs. C. TURNER, for Roses; Messrs. W. CUTBUSH AND SON, for a rock garden; Messrs. J. PIPER AND SONS, for alpines; Mr. W. WELLS, junr., for alpines; Mr. H. N. ELLISON, for Cacti; Messrs. CARTER, PAGE AND Co., for Dahlias; Mr. R. J. CASE, for Pelargoniums; Mr. H. CLARKE, for Violas; Messrs. J. FORBES (Hawick), for Violas, Pelargoniums, etc., and Mr. W. YANDELL, for Violas.

Bronze Flora Medals.—To Messrs. ANDREW IRELAND and HITCHCOCK, for new Dianthus; the PRESTON HALL NURSERIES, for Sweet Peas; Messrs. R. GREEN, LTD., for Bay trees; and Mr. E. H. CAUSER, for Fuchsias, etc.

SOCIETIES.

WOMEN'S FARM AND GARDEN.

A SPECIAL meeting of the Women's Farm and Garden Association was held at Bute House, South Audley Street, W.1, on Monday, May 28, 1923, at 5 p.m. Lord Ernle, formerly Minister of Agriculture, was in the chair, supported by Lord Lambourne, President of the Royal Horticultural Society; Sir Robert Sanders, Minister of Agriculture; Sir Frederick Keeble, F.R.S., Professor of Botany at Oxford University; Lady FitzGerald; the Hon. Mrs. Norman Grosvenor; Mrs. Wilton Allhusen; and Kathleen Viscountess Falmouth.

Lord Ernle, in opening the meeting, said that the Women's Farm and Garden Association had earned during the war the gratitude of the nation by its services in the cause of food-production. During one "black fortnight" in 1917, one out of every four ships bringing food to this country was sunk, with the result that the country became for a time almost dependent upon home production. The extra food thus required could not have been grown without the aid of the women of the country, in view of the fact that more than a third of the able-bodied young men were withdrawn for the army. The Association began in 1915 to give special training to women for work on farms, and their general efficiency enabled them to break down the prejudice against female labour, which at first existed among farmers. In the absence of such special training, the success of the women would have been much less rapid. The Board of Agriculture took up the idea of supplying female labour to farmers, and in response to an appeal for volunteers, 45,000 applications were received. He hoped that the memory of the services rendered during the war, and pride in the success then achieved, would induce many of those present to help the movement by becoming Associate Members of the Society.

Sir Robert Sanders, in an amusing speech, traced the connection of women with agriculture and husbandry from the earliest dawn of history. He said that during the war, what struck him most was the way in which the French women worked in the fields everywhere as a matter of course. In this country many women were now beginning to take up country pursuits as a means of livelihood, and at the recent Bath and West Show a lady exhibited some prize black sheep she had reared. The Ministry of Agriculture was anxious to encourage women to take up work on the land, and scholarships were awarded in various parts of the country enabling women to be trained in properly equipped institutes. Everyone was grateful for the part played by the Association during the war, and the work that it was still doing deserved every encouragement.

Lord Lambourne said that the part played by women in Agriculture during the war had filled him with amazement and delight. Of course they had not all proved satisfactory, but most had coped successfully with what was admitted to be hard and in some cases unpleasant work. At the present time there was a great opening for women in horticulture; but if they wished their work to be a source of profit to themselves and their employers, it was necessary to do it

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as well as men would. Everything should be made profitable, even a garden, and women should be prepared to give equally valuable work with the men they were replacing. He had every hope of a great future for the Association.

Sir Frederick Keeble, who spoke in place of Lady Keeble, as she was unable to be present, said that he thought there was a class of women who took a genuine pleasure in country pursuits quite apart from any idea of enriching themselves. He hoped that this type of woman would increase in numbers, and that a time would never come when the country was considered by educated people simply in the light of a holiday place, to be visited for short periods and then left alone. Plenty of opportunities should be provided for those people who were really happier engaged on the land than living in towns. If the Association provided these opportunities, it would be performing an invaluable service to the community. In horticulture, "a little learning" was not a "dangerous thing." The land girls had made good, many of them after a very short apprenticeship, and he confidently hoped that the Association would do as good work in the future as it had done in the past.

Votes of thanks to the chairman and speakers, and to Lady FitzGerald, who had kindly lent her house for the occasion, were then proposed and carried, which terminated the meeting.

ROYAL CALEDONIAN HORTICULTURAL.

May 15.—The ordinary monthly meeting of this Society, which was adjourned from May 1 on account of the death of the president, Mr. J. W. M'Hattie, was held at 5, St. Andrew Square, Edinburgh, on May 15, Mr. W. G. Pirie, vice-president, in the chair.

The chairman made sympathetic reference to the death of Mr. M'Hattie, and alluded to the great loss which the Society and horticulture generally had thereby sustained, and it was agreed to record this in the minutes, and to send an extract therefrom to Mrs. M'Hattie.

A paper was read by Mr. Robert L. Scarlett, C.D.A., Sweethope, Inveresk, on "The Ways of Market Men." Sweet Peas were exhibited by Mr. D. Armstrong, The Drum, Gilmerton, and Schizanthus, by Mr. J. A. Sword, Inveralmond, Cramond.

TRADE NOTE.

There was a capital attendance at the recent meeting of the Technical Committee of the Chamber of Horticulture, Mr. F. O. Mosley presiding.

The Secretary reported that a large number of county superintendents and instructors had accepted the committee's invitation to act as honorary correspondents.

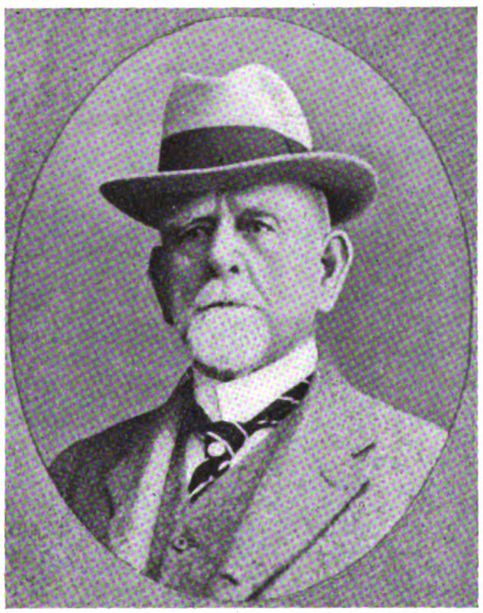
The committee then proceeded to deal with the numerous reports and inquiries for advice from correspondents. The reports show that conditions generally are normal with the exception of serious attacks of caterpillar, especially in the southern counties. The committee recommend spraying with lead arsenate, a treatment which is, of course, well known, but all those using this preparation are advised to demand a standard content, and it is recommended that a spreader be used so as to apply a fine mist spray at a strength of 5 lb. of arsenate to 100 gallons of water.

The subject of leaf scorch was discussed at length, this trouble apparently being on the increase, and correspondents are being asked to supply further information upon which the committee will no doubt be able to supply some useful advice. Good results are reported as to the use of carbolineum as a winter wash for insects' eggs.

The question of the organisation of this committee with a view to a wider distribution of its recommendations was discussed, and the committee wish it made known that any applications for advice as to the treatments for pests and plant disease troubles will be welcomed and prompt replies given. Such applications should be made to the Secretary of the Chamber, giving the fullest information as to the trouble, and accompanied, wherever possible, with specimens.

Obituary.

Owen Thomas, V.M.H.—Our readers will be sorry to learn that the veteran horticulturist, Mr. Owen Thomas, V.M.H., who was for very many years gardener to Queen Victoria, passed away on Sunday evening last, after a severe illness of over seven weeks' duration. The late Mr. Thomas was born near Bodorgan and reached the age of 79 years in December last. During his long career he was employed on the Bodorgan Estate in the Isle of Anglesey, Messrs. F. A. Dickson and Sons' nurseries at Chester, Little Aston Hall, Messrs. James Veitch and Sons' nursery at Chelsea, and Drayton Manor, but it was when gardener at Impney, Droitwich, that he came into prominence. Subsequently he became successor to Mr. T. Speed in charge of the famous gardens at Chatsworth, whilst in 1891 he



THE LATE OWEN THOMAS.

succeeded Mr. T. Jones as head gardener at Windsor. An appreciation of Mr. Thomas, giving details of his career, appeared in our issue of September 16, 1922, p. 160. Mrs. Owen Thomas survives her husband, and there are also three sons and two daughters to mourn his loss.

ANSWERS TO CORRESPONDENTS.

Names of Plants: *G. H. W.* 1, Aesculus flava; 2, Prunus Padus (Bird Cherry); 3, Euonymus europaeus (Spindle-tree); 4, Staphylea colchica (Bladder Nut); 5, Jasminum humile; 6, Berberis vulgaris var.; 7, Cornus alba var. sibirica variegata.—*E. S.* Plantago Coronopus (Bucks-horn Plantain).

Perpetual-Flowering Carnations: *J. F. S.* The second stopping of your Carnations should be done at short intervals until the end of June. By stopping one or two shoots at a time on each plant, at the fifth pair of leaves, you will prolong the flowering season. Strong-growing varieties, such as Carola and Baroness de Breinen, should only be stopped once to obtain flowers in October and November.

Renewing the Lower Part of a Yew Hedge: *F. G.* The only way to restore vigour to the lower part of a Yew hedge that is healthy in the upper parts is to reduce the height, cut out dead wood, fork up the surface of the ground about the base of the hedge, and apply food material in the form of well decayed farmyard manure or liquid cow manure. If such manure cannot be procured a dressing of fish manure may be applied at the rate of one pound to three square yards. The cutting back should be done at once.

School of Landscape Gardening: *J. A.* There is a school of landscape gardening at Lancaster; particulars may be obtained from Mr. Thomas H. Mawson, Caton Hall, near Lancaster.

Seedling Gorse: *W. H.* It is desirable to remove the tops of seedling Gorse when the shoots are about two inches high, and again once or twice when they have made two or three inches more growth. With seedling Gorse, in particular, it is important to lay the foundation of good bushy plants by stopping them when young. Plants propagated from cuttings break better naturally, but these also are often improved by stopping.

Spruce Aphis on Picea pungens: *R. W. R.* The specimen received for examination was not Abies Lowiana, but Picea pungens. It was badly infested with Spruce aphis (Aphis abietina). This insect is doing a good deal of harm in many parts of the country on various kinds of Spruce, particularly on Picea pungens and P. sitchensis. Isolated trees should be sprayed on several occasions at intervals of six days, using a paraffin wash made by dissolving one pound of soft soap in two gallons of boiling water, then, whilst hot, thoroughly incorporating a gallon of paraffin making up to sixty gallons with clear water before use. The shoot of Cedrus atlantica var. glauca may have been injured by the same insect for some were found on the buds, but there was also a fungus present on some of the leaves. The tree should be carefully examined to find out whether the small green fly is present or whether those found on the specimen received for examination had migrated from the Spruce during transit. If present the tree may be sprayed with the paraffin wash. In some places Aphis abietina is destroying large plantations of Sitka Spruce.

Vine Unhealthy: *E. F.* The shoots appear to have been scorched by the sun; their unhealthy appearance is not due to organic disease. Vine leaves are very liable to be scorched by hot sunshine if there is too much condensed moisture in the house during the night, and any delay occurs in not admitting a little air in good time in the morning, especially if the sun breaks out suddenly. It would have been much better to have covered the outside border with light litter and leaves during the winter, and dressed the border with farmyard manure from June onwards, when the roots were active and the vines in need of manurial support. Maintain a little warmth in the pipes on cold nights for a few weeks, and leave the top ventilators open a trifle until the weather improves, when the trouble will soon disappear.

Water From a Stokehole: *E. A.* It seems unlikely that the water from a tank in a stokehole would be contaminated with sulphur to such an extent as to cause injury to your plants. The scalded appearance of some of the leaves and the curling of others may be due to sulphur fumes entering the house through the aperture in which the pipe connected with the tank is led. See that any opening there may be is blocked tightly. With regard to the water being from chalk hills, this might result in a deposit on the leaves and fruit after syringing, but it would only be likely to cause disfigurement and not injury. If you suspect the water is contaminated with injurious gases, cover the tank with a tight-fitting lid.

Communications Received.—E. B.—G. H. W.—G. F. R.—A. S.—Brading—S. A.—J. B. MacL.—C. C.—J. C. N. F.—S. B. B. M.—G. I.—F. W J.—Rev. J. B. H.—T. B. A.—H. M.

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THE

Gardeners' Chronicle

No. 1902.—*SATURDAY, JUNE* 9, 1923.

CONTENTS.

Alpine garden—
Alpine plants at Kew 319
Campanula raddeana 319
Books, notices of—
Jottings from a Gardener's Note-book 315
The Ferns 315
Calceolaris, hybrid .. 315
Chelsea Show, the .. 314
Dawson, the late Mr. Jackson, memorial to 313
"Gardeners' Chronicle" seventy-five years ago 315
Gardeners' wages .. 323
Garden notes from S.W. Scotland 319
Garden substitute for farm yard manure, a 322
Guild of Blind Gardeners 314
Mackie, Dr., honour to 314
Melon fruits cracking and splitting .. 323
Neill, Patrick 320
Obituary—
Fowler, Canon .. 326
Thomas, Owen .. 326
Orchid notes and gleanings—
Brasso-Laelio-Cattleya Queen of the Belgians, Low 'svar. 321
Cypripedium Fletcherianum var. Antinea 321
Odontioda Bantingii 321
Peas 323
Plant names, puzzles in 323
Propagation of "difficult" plants.. .. 318
Rock garden? What is a 323
Rose, the Christmas .. 317
Societies—
Bath and West of England 324
Kew Guild 324
Manchester and North of England Orchid 324
Newcastle and District Horticultural 325
Royal Horticultural 325
Wakefield and North of England Tulip.. 234
Thomas, the late Mr. Owen 314
Trees and shrubs—
Cistus ladaniferus.. 317
Cytisus purpureus incarnatus.. .. 317
Deciduous Azaleas .. 317
Vegetable garden—
Globe Artichokes .. 322
Potato trials at Droitwich 322
Weather forecasts, official 314
Week's work, the .. 316
Whitton, Mr. James .. 314

ILLUSTRATIONS.

Annual flowers at Chelsea Show, Messrs. Sutton & Sons' exhibit of 315
Campanula calcicola 320
Gentiana Hopei 323
Incarvillea Bees' Pink 318
Iris and water garden at Chelsea Show exhibited by Messrs. J. Carter & Co. 317
Odontoglossum crispo-solon var. Carmania 321
Primula chrysopa 319
Rhododendron Pink Shell 325
Whitton, Mr. James, portrait of.. 314

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 58.2°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, June 6, 10 a.m.: Bar. 30.1; temp., 59°. Weather—Fair.

The Chelsea Show.

All who are solicitous for the reputation of British horticulture may look back with satisfaction on the Chelsea show of 1923. The exhibits demonstrated that British growers have got once more into their pre-war stride, have made up the lee-way inevitably lost during the war, and have become—taking them all round—the finest cultivators in the world. The popularity of the Chelsea show is, in itself, a recognition of this fact; for although certain people go to Chelsea because it is customary for people to go there, the majority go in a spirit of connoisseurship, with the intention of observing, criticising and learning about plants and their cultivation. It looks, therefore, as though the Royal Horticultural Society may rely on continued and increasing support in its efforts to assist horticulture. If, as we think, this is the case, it certainly behoves the Society to lose no time in reviewing the situation and making, so far as is possible, arrangements which will secure for the Chelsea show the continued and increasing measure of public support which it deserves. Until it was demonstrated beyond doubt that the post-war shows were destined to obtain a very large measure of popular support, the Society could not well have undertaken the financial risks attendant upon making permanent provision of a show ground which should be not only attractive in itself, but also to the largest possible extent weatherproof. The two disastrously wet days which have occurred during recent Chelsea shows have demonstrated alike the drawbacks of the Chelsea grounds, as they are at present, and the need for providing against the contingency of wet weather. Enthusiasts may be heroic upon occasion, but few care to make a habit of heroism, and after the experience of this year, wet weather next year is likely to affect attendance very acutely. For we think that not many of those who tramped over wet ground to the congested shelter of the tents, where the ground was less wet, are likely willingly to repeat the experience. It is as easy as it is unprofitable to grumble, and few of those who have recounted their experiences have done so in any grumbling spirit. But everybody will agree that it is desirable that every possibility of mitigating the discomfort attendant on wet weather should be explored by the Council of the Royal Horticultural Society. This question and that of increased accommodation for the fortnightly shows will, we hope, engage their immediate and careful attention. When, greatly daring, the Royal Horticultural Society built the present hall, there were those who saw in such enterprise a large measure of rashness. Events have falsified the predictions of pessimists. With the increasing importance and popularity of horticulture, the present accommodation for the fortnightly shows is, upon occasion, inadequate. At the more important of these shows a hall several times the size of that at Vincent Square would be none too large. These two questions—that of a larger permanent home and that of a more weatherproof Chelsea show—will, we hope, be considered very closely by the Council. It may be that the difficulties in the way of remedying congestion at fortnightly shows and of safeguarding visitors to Chelsea against the inclemencies of the weather may prove insuperable. This, however, can only be determined by a close and careful inquiry and by a reconsideration of policy. Although it has many commitments, all of which are, in our opinion, conducive to the advancement of horticulture, the Society possesses the resources, both financial and of ability for organisation, to undertake a bold scheme. As to minor provisions—which might be made to give protection to visitors to Chelsea from the worst effects of the weather—they also deserve and are, no doubt, receiving immediate consideration. Whatever the weather, it should be possible to make such arrangements that people may go reasonably dry shod once they reach the tents, and that the concourse of visitors should be constrained by carefully organised means, once it reaches the tents, to "move on" in a predetermined direction. But although these minor matters of organisation claim very emphatically the further consideration of the Council, it is the larger questions which we have raised which most appeal to us. The solution of them is not easy, and will require anxious thought; but if it be possible to find the solution, the result will undoubtedly be to enhance yet further the prestige of the Society and to contribute in emphatic manner to the advancement of British horticulture for which cause the Royal Horticultural Society has already done so much.

The Late Mr. Owen Thomas.—The memorial service to the late Mr. Owen Thomas was conducted by the Rev. Maynard, Vicar of West Ealing, in the beautiful Church of St. Stephen's, on Thursday, the 31st ult., the same church in which, almost exactly sixteen years ago, the funeral service of the late Dr. Maxwell Masters was held. There were a few horticulturists present, including Mr. G. Ingram, representing Sir Harry J. Veitch, and the Gardeners' Royal Benevolent Institution, Mr. John Heal, Mr. William Crump, Mr. G. F. Tinley, representing the *Gardeners' Chronicle* and the Horticultural Club, Mr. James Hudson, representing the Royal Horticultural Society, and Mr. W. B. Gingell. The remains were subsequently interred in the Westminster Cemetery, West Ealing.

Association of Economic Biologists.—The annual field meeting of this association will be held at Cambridge on Friday, June 15, 1923. A visit will be made to the School of Agriculture, where the laboratories will be inspected and investigations in progress on animal nutrition and physiology will be demonstrated. Lunch will be taken at the National Institute of Agricultural Botany, where the laboratories, seed testing station, and field trials of agricultural crops will be inspected. After tea a visit will be paid to the University Farm and Plant Breeding Institute, when investigations in progress on cereal hybridisation will be demonstrated.

Official Weather Forecasts.—The Air Ministry announces that farmers and others whose business is affected by weather conditions may obtain a forecast of the weather for the night and following day without charge by ringing up any telephone exchange in the evening after 5 o'clock. To meet the needs of those who are not in connection with the telephone system daily forecasts will be dispatched by telegram to subscribers. These forecasts are normally issued in the afternoon to cover the weather of the following day, but forecasts for the same day can be issued in the early morning if desired. For these telegrams a fee of 6d. per week plus telegraphic costs (calculated on an average of 1s. 3d. per message) is charged. Another type of forecast which is sent by telegram gives notifications of the setting in of spells of fair, settled weather and of their break up. These telegrams are not issued on regular dates, but as called for by the conditions. The charge made is 6d. for each forecast in addition to the cost of telegraphy. Those desirous of obtaining forecasts should communicate with the Director of the Meterological Office, Air Ministry, Kingsway, London, W.C.2, enclosing a postal order or a cheque to cover the cost of the messages required.

Guild of Blind Gardeners.—The success which has already attended the efforts of this Guild to show that blind people are able to take a keen interest in the cultivation of the garden, has induced the Council to make an effort to establish a special training centre for blind gardeners. Necessarily this will have to begin in a small way, and the modest sum of £500 is considered sufficient with which to make a start. All those who are interested in the education of blind people in the art of gardening are invited to subscribe to this fund. The Hon. Secretary is Mr. C. E. Rose, 23, Daleham Gardens, Hampstead, N.W.3.

Honour to Dr. Mackie, of Rhynie Cherts Fame.—A large and representative gathering of the leading citizens of Elgin met in the Station Hotel on Friday evening, June 1, and entertained to a complimentary dinner, Dr. William Mackie, to signalise the honour recently conferred on him by the University of Aberdeen, which made him a Doctor of Laws in recognition of his scientific work. Lord Provost Forsyth presided, and in proposing the health of Dr. Mackie, paid warm tribute to his scientific attainments. About twenty years ago, Dr. Mackie made his mark as a scientific thinker when he published his book, *Sand Grains*. Some years ago Dr. Mackie added greatly to his reputation as a geologist, when, after long and protracted investigation, he discovered in the Cherts at Rhynie, Aberdeenshire, new geological formations which never before had been anticipated, and by which he was hailed as a scientific thinker of the first order. Dr. Mackie, replying, said he had been greatly touched by

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the feeling of delight with which the announcement was received by his friends. The Lord Provost had been good enough to refer to some of the research work in which he (Dr. Mackie) had been engaged. The "Elgin Sand Stones" were the subject of his first published paper near thirty years ago. But the subject was not yet exhausted, and he had quite a large amount of interesting results that had yet to be published. Then there was the discovery of the Rhynie Cherts. That by most people would be classified as a piece of good luck, but it was not quite so simple as it looked; it was not exactly like going into the street and picking up an odd sixpence that someone had dropped. In the hands of the specialists, the fossil plants in these Cherts had opened up quite a wide field, and thrown unexpected light on the development of plants generally, and also regarding the conditions under which the old red sand stones were laid down. These Cherts were really very old. They indicated the conditions of things when they were first formed; they really represented a peat moss of old red sand stone time, and were certainly much older than Tutankhamen, though to the man in the street they did not possess the same interest as did that ancient Pharaoh's tomb. Human interests appealed to most men, and he was not sure but that geologists were the most ideal humanists. The author who said "that in the dignified procession of the universe man is a recent, somewhat vulgar, and perhaps ephemeral incident," probably came nearer the mind of the average geologist than they were perhaps aware. The proceedings throughout were very enthusiastic, and reflected the warm and kindly feelings entertained towards Dr. Mackie by his "ain folk."

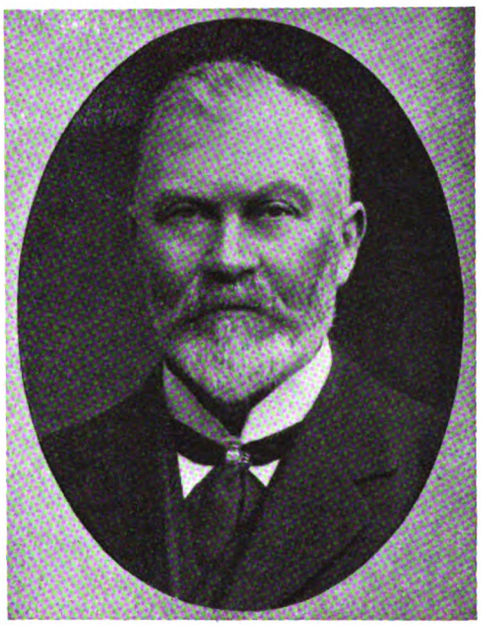
Gardeners' Royal Benevolent Institution.—Owing to the promise given early in the year by his father to preside at the 78th Anniversary Festival of the Gardeners' Royal Benevolent Institution, the Earl of Plymouth has consented to take the chair at the dinner which will be held at the Hotel Victoria on June 28 next.

Hybrid Calceolarias and Schizanthus from The Dell.—Special reference was made on pp. 305 and 309 in our issue of June 2, to the new hybrid Calceolarias shown by Baron Schröder, from The Dell, Egham, but on p. 309, Mr. Shill's name was mentioned as the gardener, whereas, as most of our readers are aware, Mr. J. E. Shill is Baron Schröder's clever Orchid grower, and Mr. E. J. Henderson is the gardener. Mr. Henderson has devoted considerable attention to the raising of new plants, and has been particularly successful with Chrysanthemums, as a reference to our issues of last autumn will show; the new Calceolarias shown at Chelsea promise to be useful garden plants, and Schizanthus Bridal Veil from the same gardens attracted a great deal of attention.

Legacy to a Gardener.—Mr. Daniel Barley Balding, of The Beeches, Royston, Hertfordshire, who died on April 8, bequeathed the sum of £100 to his gardener, Mr. Charles Pigg.

Silver Leaf Order of 1923.—Fruit growers are doubtless aware that in order to check the more rapid spread of Silver Leaf Disease, which has done much damage throughout orchards in this country, the Ministry of Agriculture and Fisheries issued an Order in 1919 (Silver Leaf Order of 1919) making it obligatory on growers to cut out and destroy all dead Plum trees and all dead wood of Plum trees before April 1 in each year. Whilst much dead and infected wood has been destroyed during the last three years, the Ministry has in virtue of the experience gained during this period and the knowledge of more recent research, deemed it necessary to make some changes in the Order. The matter has been considered by the Ministry's Horticultural Advisory Council, and acting on the advice of that Council, the Ministry has now made an Order under the above title, which came into effect on June 1, 1923, and revokes the previous Order. This new Order requires that in future the work of destruction of dead trees and dead wood must be done in the case of Apple trees as well as Plum trees, whilst the date laid down for completion of this work is July 15, in each year, instead of April 1. Growers are strongly recommended to cover with anti-fouling paint, white paint, or tar, all wounds of Apple and Plum trees, whether made by cutting or pruning, or in any other way. Such wounds are particularly susceptible to the entry of the fungus, Stereum purpureum, which is the cause of Silver Leaf, and if they are left exposed there is a great risk of infection.

Mr. James Whitton, J.P., V.M.H.—The retirement, on May 31, of Mr. James Whitton, Director of Parks and Botanic Gardens, Glasgow, affords a fitting opportunity to give a sketch of his career and achievements. He was born in 1851 at the Gardens, Methven Castle, Perthshire, where his father was head gardener for almost half a century. After serving as apprentice and journeyman at Thirlstane Castle, he went as journeyman to Glamis Castle. Early in 1872 Mr. J. Whitton was promoted to be foreman, and remained at Glamis until the autumn of 1876, when he was appointed gardener to the late James Houldsworth, Esq., of Coltness, Wishaw, where he remained for 11 years. On the death of Mr. Johnston in October, 1887, Mr. Whitton became gardener at Glamis, a position he held



MR JAMES WHITTON, V.M.H.

until early in 1893, when, with the approval of his noble employer, he applied for the superintendentship of the Glasgow Public Parks, and, out of about 100 applicants, was selected for the appointment. That the choice of the Corporation was fully justified has been shown by the improvements and extensions carried out during the term of thirty years during which Mr. Whitton has held the appointment. In 1902, when the late Mr. Daniel Dewar resigned the curatorship of the Botanic Gardens, the duties of the post were handed over to Mr. Whitton. More recently, the Corporation, with the view of improving the status of the department, conferred upon Mr. Whitton the fully deserved title of "Director of Parks." Glasgow has no fewer than 31 parks, with about 100 open spaces, children's playgrounds, etc., for which the Director of Parks is responsible. When Mr. Whitton was appointed superintendent there were only five parks and about a score of open spaces. Now the Glasgow parks are universally recognised as models of their kind and the organisation and systems of management are as nearly perfect as possible, a fact which is mainly due to the administrative ability and practical knowledge of Mr. Whitton, who has always been heartily supported by successive Convenors and members of the Parks Committee and the Corporation, as well as by a most loyal and competent staff. In addition to the magnificent horticultural features in the open and under glass in the delightful winter gardens, recreation is adequately catered for, and few, if any, cities are so well supplied with facilities for bowling, golf, tennis and other outdoor games. Mr. Whitton is a true plantsman, but reference must also be made to his interest in arboriculture, which naturally has a powerful influence on the parks under his care. This has also been highly helpful to the Corporation, who, under Mr. Whitton's advice, are afforesting part of their Highland estate of Ardgoil, Argyllshire, where several hundred acres have been planted with about 1,250,000 trees, mainly raised in a nursery on the estate. To test the utility of the respective Conifers as timber trees, in the West of Scotland, a considerable experimental area has been planted and contains almost every hardy Conifer obtainable. He has been a member of the Royal Scottish Arboricultural Society for close on 40 years; for a long period a member of the Council, and this year he occupies the position of senior vice-president of this society. Mr. Whitton's abilities have been recognised again and again by leading horticultural societies. He has been for many years a member of the Royal Caledonian Horticultural Society, which, by the way, awarded him the Neill Prize several years ago; a vice-president of the Glasgow and West of Scotland Horticultural Society. The Royal Horticultural Society recorded their appreciation of his eminent services by awarding him the coveted distinction of the Victoria Medal of Honour in 1913. He has officiated as a juror at many international exhibitions at home and abroad, notably at St. Petersburg and Ghent. In other affairs he has taken considerable interest. He is a member of the Glasgow Natural History Society; the Glasgow Archaeological Society; and several other cognate bodies. He is also a member of the ancient Trades House of Glasgow as one of the Incorporation of Cordinaers, of which he held the office of Deacon for a term. He is a Justice of the Peace of the City of Glasgow; and an elder and trustee in Bellahouston Parish Church. In private life Mr. Whitton is a general favourite, and his many friends have learned to appreciate his high character and his genuine kindness of heart. His successor is Mr. Edward Matthews, who has been his assistant since the death of Mr. James Rourke, nearly three years ago. We are happy to be in a position to state that Mr. Whitton retired on a handsome allowance with the good wishes of the Corporation and a host of citizens who appreciate his work for the good of the community.

Memorial to the late Mr. Jackson Dawson.—It is proposed to raise a memorial to the late Mr. Jackson Thornton Dawson, of the Arnold Arboretum, and the tribute will take the form of a fund placed with the trustees of the Massachusetts Horticultural Society, the interest to be used for prizes, lectures and medals, or as the trustees may direct, to commend and encourage the science and practice of hybridisation and propagation of hard wooded plants. It was in this field that the late Mr. Jackson Dawson excelled.

Local Horticultural Societies.—The Congleton Rose and Sweet Pea Society is holding an exhibition of Roses and Sweet Peas in the Town Hall, Congleton, on Saturday, July 14. This is the sixth annual exhibition of the Society, which is affiliated with the National Rose and National Sweet Pea Societies, and medals of the former Society are offered for the best Roses in the show, open to all, and the best Roses in the amateurs' section, while the silver medal of the National Sweet Pea Society is offered for the best vase of Sweet Peas in the show. A challenge cup, valued 25 guineas, together with a sum of £6, is offered as first prize in a class for twelve vases of Sweet Peas distinct, with second and third prizes of £3 and £2 respectively. The chief class for Roses is the competition for twenty-four blooms in not fewer than eighteen varieties, for which a first prize of £3 is offered.—Beckenham Horticultural Society had a successful year in 1922, and the membership has been increased to 115. The Society held two shows in 1922, both of which were successful. A series of lectures was held during the winter

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session, at which the attendance averaged thirty. The balance carried forward from last year amounts to £8 14s. 2d.

Appointments for the Ensuing Week.—Monday, June 11—United Horticultural Benefit and Provident Society's meeting; Bath Gardeners' Society's meeting. Tuesday, June 12—Royal Horticultural Society's Committees meet (two days); Jersey Gardeners' Society's meeting. Wednesday, June 13—Yorkshire Gala (three days); East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting. Friday, June 15—Association of Economic Biologists meet at Cambridge.

"The Gardeners' Chronicle" Seventy-five Years Ago.—*Bess Pool Apple.* It appeared in one of your papers, in the early part of the present year, in an observation respecting the Bess Pool Apple, that it was a kitchen fruit, good to Christmas or January. I beg to say that it appeared at my table as a dessert fruit this present year till May, keeping perfectly sound up to that time. Its quality was better, and it was generally liked better by admirers of the Apple, than almost any other sort. Its only use as a kitchen Apple is for stewing whole; for this purpose it is of much worth, as the fruits never alter from their original shape, if well served; if baked, they dry up. No garden should be without one or two Bess Pool trees; they are late in beginning to bear, but seem never to fail when they once begin, and their fine, handsome, and vinous fruit furnishes a certain stock of excellent quality for table use from November to May or June. *W. P. L., Gard. Chron., June 3, 1848.*

Publications Received.—*Gardening for the Twentieth Century.* By Charles Eley. John Murray, 50a, Albemarle Street, W.1. Price 16s. net.

NOTICES OF BOOKS.

Jottings From a Gardener's Notebook.

IT is scarcely necessary to note that this book* has been written by a gardener, as any one of experience can see on the face of it when once he commences to read it. Some of the chapters or articles are very short, such, for instance, as that on Loganberries. Nothing is said about pruning, and that is one of the stumbling blocks of the novice, who does not comprehend that Raspberries, Loganberries, Phenomenal Berry and all other Rubi of rambling habit, are all pruned on the same principle. Another point is that all of these plants must be cut down the first year, whereas hundreds of amateurs require them to fruit the first year, and want to know how to make them do so. Amongst hardy fruits most attention is given to Apples. Soils and the preparation of them is dealt with at some length, on orthodox lines. The inexperienced amateur who has just taken a new house with a garden in pasture or in the native wild state would do well to read a book like this carefully, before commencing to plant. As a rule he wants to lay it out and plant it with all sorts of permanent subjects in hard, unworked soil, where a Dock would find it hard to linger before dying. Lists of suitable Apples, Pears and Plums for the small garden are given, with reasons for their selection. Bush trees are considered best for small gardens, and cordons come next. Vegetables for home use and exhibition, as well as for early use, are dealt with at considerable length. Part 3 of the book is devoted to popular flowers; while Part 4 is an extensive calendar for every day of the year. There are many illustrations.

* *Jottings from a Gardener's Notebook.* By F. W. Miles. Letchworth Printers, Ltd., Norton Way, Letchworth, Herts. 1923. Price 2s. 6d.

The Ferns.*

DR. BOWER has been an ardent student of Ferns for about forty years (though he says nothing about this), and is therefore well qualified to make an exhaustive inquiry into their relative affinites, the most primitive of existing forms and the order of progressive evolution. It may seem strange to regard Salvinia, Azolla, and Marsilea, as types of floating and aquatic Ferns, yet as such they are classed. They are also described as microphyllous, whereas most Ferns are megaphyllous. The anatomy or histology of root, stem, leaf and reproductive organs, with cognate subjects, are discussed in seventeen chapters, and illustrated with a wealth of very exact drawings and some photographs. The large-spored Ferns, represented by the Ophioglossaceæ and Marattiaceæ are reckoned the relatively primitive types, while the remainder end up with the Polypodiaceæ, the most numerous and the most advanced at the present day. Fossil Ferns confirm this order of development. The sporophyte or Fern-plant has the most marked features for comparison; and the gametophyte offers far fewer facilities for this. The cresting of Ferns is dealt with and considered as a reversion to an ancestral type, which branched dichotomously. An illustration is given on p. 340, of Hornea Lignieri, as an example of a very early type of land-living sporophyte. It is interesting to note that the spermatozoid is not always a round body, with a corkscrew tail, ending in fringes, as in the Male Fern, for in that of Onoclea sensibilis the whole body is elongated, flattened, and twisted, without fringes.

* *The Ferns (Filicales).* Treated Comparatively with a View to their Natural Classification. Vol. I. Analytical Examination of the Criteria of Comparison. By F. O. Bower, Sc.D., LL.D., F.R.S., Regius Professor of Botany in the University of Glasgow. Cambridge, at the University Press. 1923. Price 30s. net.

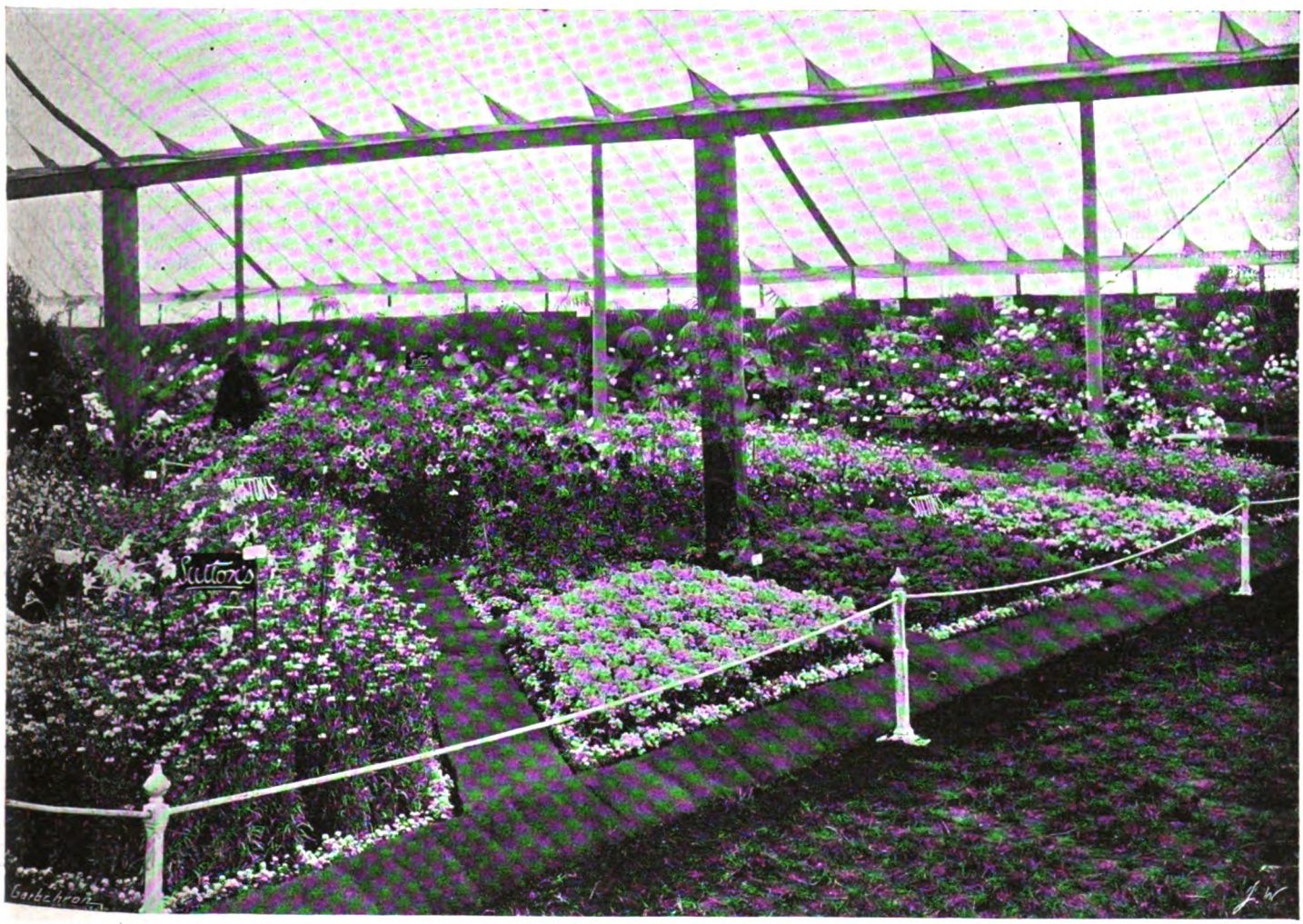

FIG. 150.—MESSRS. SUTTON AND SONS' GOLD MEDAL EXHIBIT OF ANNUAL FLOWERS AT CHELSEA SHOW (SEE P. 309).

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Acineta.—The two or three members of this genus are developing their inflorescences, and extreme care is necessary, as if the plants are over-watered at this stage the spikes may turn black and drop off. These plants are similar in their habit of growth and flowering to Stanhopea, and succeed under similar conditions. Any necessary attention at the roots should be afforded soon after the plants have passed out of flower, when new growth has commenced and the roots begin to develop briskly.

Sophronitis grandiflora.—This brilliant, cool-house Orchid has passed out of bloom, and its partially developed pseudo-bulbs will commence to make new roots. The best possible time to undertake any necessary repotting is when roots are observed to be developing. These Orchids, owing to their small pseudo-bulbs are best grown in shallow pans, suspended from the roof rafters. They should be afforded ample drainage, and a rather thin layer of material should be used. A similar compost to that used for Cattleya cut into small pieces will serve their requirements. With the exception of temperature, these plants may be treated as Cattleyas as regards their seasons of growth and rest, as there is a close relation between the two genera. When growing actively care should be taken that water is not allowed to remain in the centre of the young growths, as this may set up decay and be the means of the loss of the young growths. Whilst Sophronitis does best in the cool house, many of the hybrids require much more warmth, hence the necessity of finding suitable quarters for the individual varieties.

THE FLOWER GARDEN.

By G. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Annual Climbers.—In addition to garlanding fences, pergolas and the like—the general and natural use to which these plants are put—they are most serviceable for covering a shrub that may have died and which it is too late to replace this season, also for masking bare places between plants on walls and buildings. Three stakes fixed tripod fashion close to the wall form a handy support up which the annual used can climb. The chief of these annual climbers are Sweet Peas, Nasturtiums, Convolvulus—with which I include Ipomaea, and the Canary Creeper, Tropaeolum canariensis.

Transplanted Shrubs.—Notwithstanding the showery and much cooler weather experienced lately, the ground is in some places quite dry when it is moved to the depth of a spade. This being so, those who have planted trees and shrubs should make quite sure that the ground is moist down to the roots, and this is especially necessary when the roots form a ball of fibres, as in Rhododendrons. Merely testing the soil an inch or so deep for moisture is not sufficient.

Stopping Herbaceous Plants.—This practice is necessary in regard to several families of plants, more especially those grown in pots, but is not usually carried out with border plants. Nevertheless, several years' experience of the operation have proved to me the soundness and satisfactory results of stopping border plants. Among plants that specially call for this treatment are perennial Asters, Artemisia lactiflora, Helenium, Helianthus, Œnothera, Rudbeckia and Solidago. This act of pinching out the growths produces a shorter habit, and the plant is better able to withstand winds and storm, a great consideration in exposed gardens, and lessens the need of staking. When the plants are from half to three-parts grown is a suitable time to stop them.

Weeds on Paths.—Weeds show themselves all too soon on paths that are none too well drained and sparsely covered with gravel; and the only effective method of keeping them in check for a reasonable time is to apply a thoroughly efficient weed-killer in accordance with instructions issued by the makers. If the application be made when the ground is moist, the solution soaks in the soil quickly, and the result is sooner realised; but circumstances do not always favour waiting for such a condition. Where the use of weed-killer is objected to, the only alternatives are hand-weeding or hoeing the paths and raking off the weeds, afterwards re-firming the paths. A day spent now in removing coarse weeds from a lawn is worth two days or more spent in doing the same work in the colder season. As grass grows fast at this period, any scars made are soon hidden unless the weeds have made exceptional big and spreading growth, when it would be advisable to fill the hole with fine soil to assist the grass in covering the bareness.

Rheum.—Certain members of this family have a high ornamental foliage value, and should find a place in all gardens large enough to warrant their inclusion. The towering spikes of white or red flowers, as the case may be, add greatly to their appearance, the red-flowered species now in bloom being the more striking. Being vigorous growers, these ornate Rhubarbs will thrive in most soils, and once planted, will practically take care of themselves.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Begonia manicata.—Cuttings of this fine, winter-flowering Begonia should now be inserted singly in small pots, plunging them in a propagating case, furnished with slight bottom heat. When rooted the young plants should be grown on into six-inch or seven-inch pots, for their first year, when they will be suitable for furnishing the plant stages. During their growing period they should be placed in a house having an intermediate temperature. They are at their best when grown on for a second year. Young plants used for the benches last season should now be potted on into ten-inch pots, in which they should make fine specimens, six to seven feet in height. This Begonia is generally grown in too much warmth when in flower, usually in a stove temperature. In such conditions the colour in the flowers is poor, and the blooms only last about six weeks. If, however, it is removed to an ordinary conservatory when the flowers show signs of colour, it will last in perfect condition for at least three months.

Begonia Gloire de Sceaux.—If not already inserted, cuttings of this fine winter-flowering Begonia should be placed singly in small pots, and the latter plunged in a warm propagating case; this Begonia should be grown in a temperature of 60° to 65°, but when in flower does best in an intermediate temperature.

Freesia, Lachenalia and Nerine.—The foliage of these bulbous plants having practically died down, water should be withheld from the roots. The plants may be stood in cold frames for the summer, keeping the frame lights on, but otherwise fully expose them to sun and air.

Canna.—Large specimen Cannas are very useful for furnishing beds in the conservatory during the summer and autumn; they will maintain a display of bright flowers until Chrysanthemums come in. Plants that are well started in 48-sized pots should be used for making up specimens, placing four of them in a twelve-inch pot. Cannas are gross feeders, and should be given a rich compost, adding well decayed manure to the potting soil. They need plenty of heat and moisture, and, while growing actively, should be afforded a temperature of 60° to 65°. When showing signs of flower they should be removed to the conservatory. Plants started early in the year and grown in small pots are making a good display. Successional plants that have well filled their pots with roots should be afforded liberal feeding with dilute liquid manure or suitable concentrated fertiliser.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Cauliflowers.—Continue to plant out seedling Cauliflowers as fast as they become ready, and treat them as advised for Broccoli. Plants growing in frames and on warm borders, from an autumn sowing, will be ready for use shortly, and they should be kept well watered and mulched. Bend the leaves over the heads or tie the foliage with raffia to keep the curds white.

Leeks.—If not already done, seedling Leeks should be transferred to the trenches prepared for them, and planted in the same manner as advised for Celery. Water them in thoroughly and keep the soil about them stirred with the Dutch hoe. The blanching of the stems should be commenced almost as soon as the Leeks are planted by placing tin or brown paper collars over each plant, and drawing them up as growth proceeds, at the same time adding more soil to the roots. A better plan is to place boards along either side of the rows, and fill the space enclosed by them with finely broken soil as the plants develop, adding more boards as the plants become taller. The trench outside the boards may be mulched, and the roots kept watered all the summer to the great advantage of the plants. For ordinary use, make holes about fifteen inches deep, drop a plant in each hole and fill the latter with water to settle the soil at the bottom. The plants will soon fill the space, and later soil may be earthed up to them.

Herb Border.—Keep the herb border clean and tidy by frequent hoeing. Seedling herbs should be thinned before they become drawn, and top-dressed with a little sifted leaf-mould. Parsley planted out from boxes should be making good progress. Do not gather any of the leaves until the plants become larger.

Runner Beans.—Plants of Scarlet Runners raised in boxes should be planted out after being hardened off. The site for the rows having been selected, place stout poles, two at either end of the row, about 15 inches apart, and drive them in firmly, leaving about 7 ft. above the ground. Also place two stakes in the middle of the row, or at more frequent intervals if the rows are long. Stretch some fairly stout wire down each side, about 6 ft. from the ground, and then place the poles about 1 foot apart and tie them to the wire. If Pea-sticks are used as a means of support, select the longest, and place them so that they just touch each other, and tie the tops to the wire. A strong support is necessary for Runner Beans, as they become very heavy when in full growth and are easily blown down. Fork the ground lightly around the sticks, and then rake it level. Lift each plant from the boxes with a good ball of soil, and plant one to each stake. Water them in when the work of planting is finished, and tie the young growths to the stake to give them a good start. Damp the plants overhead in the afternoons of warm days, and hoe the ground round them frequently to promote a quick growth.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Pot Figs.—These trees will have been affording ripe fruits, but the crop will soon cease, unless there are successional batches of trees available. After a crop is finished, the surface soil, which can readily be removed, should be taken away, and a top dressing of fresh loam, mixed with old lime rubble, bone-meal, and a sprinkling of a quick-acting fertiliser applied. This will assist in the development of the second crop of fruits, which is now in an advanced stage. Where it is not possible to apply a top dressing owing to the pot being full of roots, a strip of zinc, about 5 inches in width, placed around the inside of the rim will provide ample room for the purpose. Diluted liquid-manure may be applied two or three times weekly if the pots are well filled with roots. In regard to moisture, do not be misled by the damp

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appearance of the top dressing, for the soil below it may be dry. Stopping of the shoots needs frequent attention.

Successional Houses.—The fruits of the earlier varieties of Peaches and Nectarines are well advanced, and the trees should receive plenty of air in favourable weather, with a drier atmosphere during the ripening period. Nectarines, where growing close to the glass and fully exposed to the sun, will be the better for a slight shade during the hottest part of the day. This will prevent scalding of the skin, which, if allowed to occur, completely spoils the appearance of the fruits. A light spraying with "Summer Cloud" on the glass will afford sufficient shade without detriment to the colouring of the fruits. The shading should be removed when the fruits have been gathered. At this stage the night temperature may range from 60° to 65°; during the day, as the heat increases, gradually admit more air until it is possible to afford full ventilation. Houses in which the trees are at the stoning period are best kept under cool treatment until the stoning is completed, after which, if necessary, the trees may be subjected to gentle forcing. They will, however, succeed better, and give finer fruits, if grown under comparatively cool treatment. The fruits should be fully exposed to the light in good time, or they will lack colour. Keep the young growths tied down as they extend and pinch out their points when they have attained a length of twelve inches to fourteen inches. Extension growths may be allowed to grow considerably longer, checking any growth which is at all gross in character; laterals growth should be pinched back to the first joint.

HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

The Fruit Prospects.—May, 1923, will be recorded as one of the worst experienced by fruit growers and others. The intermittent cold will be bound to affect the ultimate fruit crops. Only immediate warm rains will save crops of all kinds that may survive. The rapid transpiration of moisture by the foliage and evaporation of soil moisture by cold, drying winds reacts injuriously on the trees. As a result, a considerable amount of fruit has dropped, and an increase of insect pests must be expected. We have watered our trees on the higher ground in the hope that loss of crops will be counteracted, and with warmer weather rapid swelling of the fruit should follow. The trouble is that the fruit, having set well, has remained at a standstill so long. Water will have to be applied to all fruit trees on light soils if the crops are to be saved. Those who have kept their land well tilled will be well repaid this season for their trouble. Apple American Mother blossomed very late, and it will be interesting to make a comparison with it and varieties that flowered earlier, also during a cold period.

Grafts.—Neat sticks should be placed to young grafts, and the binding material securing the grafts in position should be loosened. Growths from buds should also be made secure. Continue to disbud, and thin fruits as desired. Keep a watchful eye for woolly aphis and also for Peach-leaf curl, and, where necessary, apply remedies as previously recommended.

General Remarks.—In gathering Gooseberries, those nearest the ground should be removed first, followed by a general thinning of the berries. Straw will now have been placed around Strawberry plants, but stimulants may be given the roots to assist the fruits to swell. At no time should Strawberries be allowed to suffer a check from insufficient moisture. Nets for the protection of the berries from birds should be placed at least 4 feet above the bed to allow the fruit gatherers easy access. The nets may be placed over a light framework. If a permanent cage is desired, the sides may be of galvanised wire. It is best to use square mesh fish netting for the top. Permanent wire netting is liable to cause damage to the structure by snow, and there is the detrimental effect of drip to consider.

CHRISTMAS ROSES.

HELLEBORUS NIGER is a variable plant, and there are several forms of it in cultivation. The type is well known, and is largely grown for cut flowers in many parts of the country.

The type is eclipsed completely, however, in beauty and dignity of flower, by several other sorts. Of these the best is, undoubtedly, H. niger angustifolius, var. St. Brigid, which is of Irish origin. It is a stately plant with its noble blossoms, of the purest white, and the texture of the petals is remarkable. The flowers are borne on very long, stout stems, and not even the choicest selections from the inconstant H. niger maximus can rival this exquisite Irish Hellebore. St. Brigid, owing, apparently, to errors in growing it, has become very scarce, and I have seen it stated that the variety is not now in commerce. It is rarely offered, but it can still be had. It is almost impossible to make any mistake in regard to this charming variety, for its foliage is distinct from that of any other.

There is a variety of H. orientalis named angustifolius, which is, of course, a Lenten Rose, and which must not be confounded with St. Brigid.

In order to grow H. niger St. Brigid well it is necessary to give it very liberal treatment, and the plants must not be disturbed. An annual mulch of well-decayed cow-manure, supplemented by bone-meal, is essential to success. A full exposure to sunshine is incumbent, and on no account must the plants be allowed to suffer from dryness at the roots. When it is grown in this way on a light, loamy soil, and the clumps have attained an age of three or more years, its flowers are superb.

The variety known as Madame Fourcade is intermediate between the type and H. n. maximus. It produces two flowers on a stem and is pure white. The forms of H. n. maximus gives quite a host of flowers, and some choice things may be selected from them. The best of these, next to St. Brigid, are the finest of all the forms of Helleborus of n. maximus character. These fine selections from H. maximus are the earliest to flower, and they begin from October onwards. As a rule the blossoms are pure white, shaded with rose on the exterior of the petals. The other varieties, notably giganteum, major, angustifolius, altifolius, grandiflorus, and the Bath variety, are all variants of H. n. maximus. I think that many seedlings must have been put into commerce, very possibly by Dutch growers, judging from the immense variation I have found in gardens.

The Christmas Roses are all too often grown in some shady position in the garden. There would be less trouble with the dreaded disease if the plants were grown in full exposure to sunshine. They all do best in a rich, light soil, and they need watering if the summer should be dry. A mulch serves to retain the soil moisture. They are all gross feeders, and the soil cannot possibly be too rich. The plants resent disturbance, and when once put in they should be left alone for several years. The small plants generally received from nurseries take at least three years to form clumps capable of producing fine flowers. *George M. Taylor, Edinburgh.*

FIG. 151.—MESSRS. J. CARTER AND CO.'S IRIS AND WATER GARDEN AT CHELSEA SHOW. (SEE PAGE 306).

TREES AND SHRUBS.

CISTUS LADANIFERUS.

THIS fine Cistus must always rank among the very best of its race, even if it is not one of the hardiest. Though the commoner and more robust C. cyprius is not seldom seen labelled C. ladaniferus, the true Gum Cistus may easily be distinguished by the flowers being borne singly in the leaf axils whilst those of C. cyprius are produced in clusters. There are also other differences, including the very noticeable yellow tint that pervades the young wood and foliage of the Gum Cistus. The leaves of C. cyprius, moreover, are not only of a deeper green, but they assume a more decidedly glaucous sheen in winter.

The white flowers of both of these Cistuses are about four inches across and have a deep, vinous-red, or maroon blotch at the base of each petal.

C. cyprius occasionally bears semi-double blossoms, and there is a remarkably fine variety of C. ladaniferus with pure white flowers. Though a free grower in a warm, open soil, C. ladaniferous is not a long-lived shrub in some places. But it is easily raised from seed and will even become naturalised in congenial locations. *A. T. J.*

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CYTISUS PURPUREUS INCARNATUS.

IN reply to Mr. Arnott (p. 269) *re* the above, the trouble we have had with this Broom and other varieties of this species is mildew. We have tried the three in various places, on their own roots and otherwise, but they have been, almost without exception, so attacked by this disease as to be rendered useless. Though we have a fairly representative collection of Brooms, no other kind is affected in this way. C. p. incarnatus is undoubtedly a fine plant, and that it does so well in some gardens makes its failure here the more to be regretted. *A. T. Johnson, Talycafn, N. Wales.*

DECIDUOUS AZALEAS.

DECIDUOUS AZALEAS, by the splendour of their hues, seem to outshine all their predecessors as spring-flowering shrubs, and surely no other plant can equal them in their rich display of colour, that ranges from the most delicate cream through all shades of yellow, pink, salmon and orange to scarlet. Whether grouped in separate colours or arranged in mixed masses they provide a floral feast reminiscent of the gardens of Japan.

FIG. 152.—INCARVILLEA BEES' PINK : R.H.S. AWARD OF MERIT, MAY 29 (SEE P. 304).

Although a peaty soil is most suitable for them, it is not essential, and they flourish in any good loam of a non-calcareous nature. The more open glades of the woodland, where the surface soil has become enriched by the accumulation of fallen leaves and other decayed vegetation over a period of many years, are admirably suited to the cultivation of these plants and offer the planter much scope for the production of pleasing colour effects. If the planting scheme is arranged to include both the early and late-flowering groups the display is maintained over a prolonged period.

For this purpose mixed masses are as effective as grouped colours, and for the extension of plantations seedlings may be raised from own saved seeds. When the plants have attained a large size it is not always practicable to remove the seed pods, but while in the small stage this should be done immediately after flowering, as seed-bearing is a great drain on the energies of the plant, materially reducing its vigour and consequently its next year's florescence.

Glorious autumn colour effects are also produced by established plantations, as deciduous Azaleas are amongst the most attractive of autumn-tinted shrubs, the foliage dying off in brilliant shades of orange, scarlet and purple. *W. Auton*

THE PROPAGATION OF "DIFFICULT" PLANTS.

MUCH has been written from time to time concerning the propagation of certain plants and the difficulty in getting them to root, therefore the following notes may be of service to growers:—

ERINACEA PUNGENS.

This plant is considered difficult to root from vegetative shoots and often the time taken is said to be from 12 months to 15 months. Nevertheless, I consider it to be one of the easiest to propagate of its kind, and may be rooted readily in from fourteen to twenty-one days, depending upon the amount of sunshine.

The method adopted in the Royal Botanic Garden, Edinburgh, is as follows:—Cuttings are taken from the parent plant from May right on to the middle of August, after which the rooting process will be much slower. They are placed in a sun-frame facing south and fully exposed to the sun. The propagating frame is jacketed (one frame inside another), thereby preventing too great a reduction of temperature should the day be cloudy. If the weather be very hot and sunny, watering takes place every half-hour or every hour. The water should always be warm, having been taken from a tank in a tropical house. (Tank heated up to 70° to 80°).

The amount of sunlight available is a very important factor in the propagating of this plant. For example, if the cuttings are put in the cutting frame and get a few days' sunshine, then dull weather sets in, the results are practically nil, but with fairly bright sunny days and just a few days without sun (the sunless days at intervals) there is no difficulty in getting a strike of 95 per cent of the cuttings.

Great care must be taken in the potting of these cuttings and in the method of treatment. When the first lot of cuttings is ready for potting, the soil should be prepared with the proper amount of moisture in it, and placed in a tray or shallow box, inside the case where the cuttings were rooted, to bring up the temperature of the soil to that of the cutting case.

Potting should commence about 11 a.m., when the outdoor temperature is on the rise. After potting, the cuttings should again be put into their old quarters and watered, and kept there until they have rooted through to the side of the pots, when they should be shifted into a cool, close frame to become gradually hardened off, to prepare them for planting out in the rock garden or elsewhere. It is a mistake to take many cuttings out of the case at one time; handling them quickly is one of the secrets of success.

Adoption of this system by commercial growers would save a lot of time, as one is able to root, establish, and plant out E. pungens in the same season, instead of wasting from eighteen months to two years. When cuttings are taken from the parent plant with a sharp knife, or pair of sharp scissors—which is much the best implement owing to the spiny nature of the plant—no further preparation is necessary, the cuttings being taken straight to the propagating frame and put in. The sand in the case being loose, no dibber is required for inserting the cuttings, and they are only put in as deeply as will keep them standing erect. After inserting, water the sand well to firm up the cuttings. This is all that is necessary.

The foregoing method applies equally well to Ulvex europaeus, fl. pl. (the double-flowering Gorse).

ARCTOSTAPHYLOS MANZANITA.

This is another plant which seems to give trouble, but is found to be comparatively easy to root here.

Although not a subject for a sun-frame, it may be propagated in an ordinary, outside, brick frame, with a northern exposure, and a temperature ranging from 50° to 65°, according to the weather. Here again frequent watering is necessary; on dull days twice a day is found sufficient, but when the weather becomes hot and dry, watering must be done five or six times daily. The water should be as nearly the same temperature as the propagating frame as possible.

The following table may be of some assistance to anyone who may be interested in the growing of this very fine flowering shrub, and may act as a guide as to which are the most successful months in which to take cuttings of Arctostaphylos Manzanita.

Six cuttings were put in every month, and the following results were obtained:—

January	2	rooted	(May)	
	4	,,	(July)	
February ..	1	,,	(April)	
	5	,,	(July)	
March	1	,,	(May)	rest dead
	1	,,	(July)	
April	5	,,	(July)	one dead
May	3	,,	(July)	rest dead
June	3	,,	(Sept.)	rest dead
July	3	,,	(Aug.)	rest dead
August	6	,,	(Oct.)	
September ..	4	,,	(May)	rest dead
October	4	,,	(Aug.)	rest dead
November ..	2	,,	(May)	rest dead
	1	,,	(July)	
December ..	6	,,	(Aug.)	

In taking the cuttings we use a sharp knife and remove the flowers on the end of the shoots, but no leaves are removed from the stems of the cuttings. The cuttings are then inserted just deep enough in the sand to keep them standing erect, no dibber being required for the operation.

I may mention that it is a hard-and-fast rule in the propagating department here that a dibber must never be used so far as vegetative propagation is concerned. The reason for this is that the mediums used for propagating are either pure sand or coconut fibre, and, being of a very loose texture, cuttings may be inserted easily without the use of a dibber. When inserted in this way, it is certain that the basal end of the cutting is in close contact with the medium, thereby getting the requisite amount of moisture to form callus and roots. *L. B. Stewart, Royal Botanic Garden, Edinburgh.*

(To be continued.)

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GARDEN NOTES FROM S.W. SCOTLAND.

PAEONIA Mlokosewitschii (I hope I have given its bloodcurdling name correctly) is a notable addition to our list of herbaceous Paeonies. Presumably a Chinese species (it came here from the extinct Alder River nursery three years ago without note of its native country) it did very little in its first season to captivate our fancy, though the foliage is attractive in all its stages. This year, however, it has come to its own, standing two feet high, opening the first of its great lemon-coloured flowers on May 12, and being still in beauty to-day—the 28th. It is a far more desirable plant than P. lutea, which never does itself justice, hiding its blossoms under the leaves, whereas P. Mlokosewitschii holds them well aloft.

The earliest Paeony to flower here, and the most delicately coloured, is P. Cambessedesi, which a kind Irish lady found in the Balearic Isles, collected some roots thereof, while the plant was in full flower, and gave me two good pieces which have been a source of much joy ever since. It began to flower here on April 10, so the bloom is now past, but the foliage remains fresh—the upper surface with a metallic sheen like oxidised silver, the lower surface rich red. Like others of the genus, this species appreciates an allowance of ground limestone in the soil.

Hippeastrum (Habranthus) pratense is just coming into flower, unrivalled even among its Chilean compatriots for flagrancy of orange-vermillion. The vehemence of its hue calls for some care in choosing neighbours for it, so horribly does it contrast with blossoms of more delicate colouring. For instance, it must be kept well out of sight of Rhododendron Soulei, just now a pretty picture—a dome of cherry-pink and snow rising out of a carpet of Myosotis sylvatica.

The common wooden labels are the cause of constant vexation, so perishable are they and so apt to be kicked over and broken. Most timely, therefore, was the very last of many wrinkles I received from my old friend, Mr. H. J. Elwes, who recommended me to use labels made of the wood of Holly. These are far more durable than deal, and the white surface can be inscribed with a lead pencil without any need for paint. *Herbert Maxwell, Monreith.*

ALPINE PLANTS AT KEW.

BOTH the rock garden and the alpine house at Kew are exceedingly interesting just now, indeed, the alpine house is one of the most attractive features at the present time. The rockwork piled up in front of the alpine house is exceedingly pretty, the most striking plant in flower being Erinus alpinus, which has covered great patches with its mauvy-pink flower spikes. There is also a fine clump of Onosma echioides bearing its clear yellow, drooping bells on stems a foot or so high; Anthemis montana is also finely flowered on this little outside rockery. In the alpine house the Erinus already referred to is equally beautiful, growing in pans. Several Achilleas are finely in flower, including A. Portae, bearing cymose inflorescences of pure white flowers on stalks some nine inches tall; A. Wilczekii, bearing on tall stems handsome white flowers, with a boss of pale yellow stamens, in heads of some six or seven; and A. argentea, which has pretty, delicately pinnate foliage of a soft grey colour. Saxifrages are also very fine, including S. cochlearis, S. longifolia, C. cochleariaefolia, the last with dainty inflorescences of white flowers arising from a mass of spathulate-shaped foliage; and the hybrid S. cochlearis × lantana. Alyssum spinosum is also finely in flower, producing its dense, globose heads of white flowers above the greyish, spathulate-shaped foliage.

Other interesting plants are Dianthus callizonus, with relatively large, light pink blossoms that have a zone of deep red spots around the eye; Aster alpinus; Phyteuma Scheuchzeri, bearing curious, spiky, violet-blue heads of flowers; Veronica austriaca, a very charming species for a pan, with beautiful blue flowers that fade to purple with age; Raoulia australis, an uncommon plant that forms a mat of dense growth of greyish-white colour, which in its native home, Australia, is often mistaken at a distance for a sheep; Erodium corsicum, a pretty pink-flowered species, the petals veined with deeper pink; and Primula Veitchii, with glowing, rosy-purple flowers, a most glorious shade of colour, the spikes arising from among large, cordate, Sage-green leaves.

The rock garden contains a host of interesting species in bloom, and amongst those that attracted my special notice were Aster heterochaeta, one of the new species discovered on Mt. Everest last year; it has promise of making a good garden plant, with its mauvy-blue flowers some two inches across produced on stems from six to ten inches high; Aethionema amoenum, one of the showiest of all the plants in flower, patches several yards across being covered with the pale pink flowers that become even paler with age; Oxalis enneaphylla, which gives a variety of colours, but needs the sun to open its numerous blooms; O. adenophylla, with rosy-purple and crimson flowers; Polygonum sphaerostachyum, which has very dainty inflorescences that form a columnar tuft on the end of stalks some ten or so inches high, and with very elegant foliage; Melittis Melissophyllum, which bears a great resemblance to a Dierillea, both in the foliage and shape of the flowers; it is a very striking plant; and Paeonia Woodwardii, a lovely species with single, soft rose colour flowers, allied to P. anomala.

Of the many interesting Primulas noticed in bloom, the more striking were P. helodoxa, which is also exceedingly fine just now by the edge of the lake; P. Cockburniana, the flowers of which are scarlet, and, as massed in the rock garden, show to great advantage; P. sikkimensis, with charming yellow bells; P. vittata, a species close to P. secundiflora; P. flexilipes, which bears its lemon-yellow blooms on thin, wiry stems that move with every breath of wind; and a fine form of P. japonica, with clear, soft pink blossoms.

Many of the plants arranged in their Natural Orders in the beds near by are now in flower, and offer opportunity for those who wish to identify species, although in some cases, such as Euphorbia, Geranium and Veronica, the affinity is so close that only an expert can tell the differences. *T.*

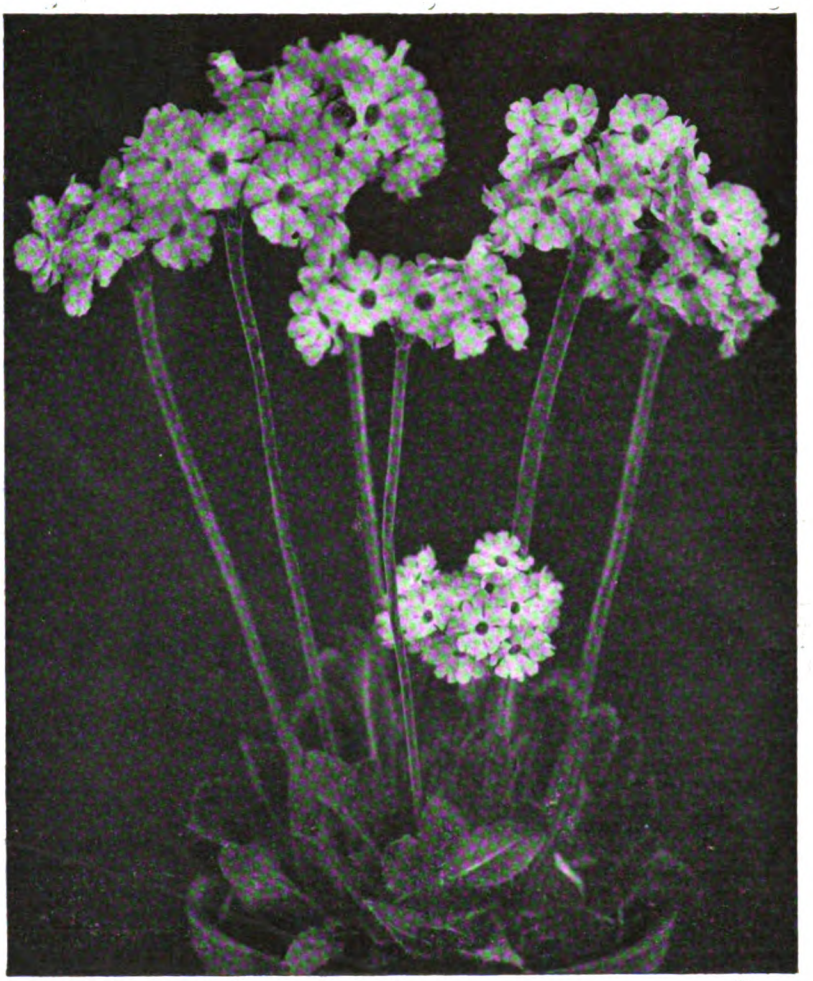

FIG. 153.—PRIMULA CHRYSOPA; R.H.S. AWARD OF MERIT, MAY 29 (SEE P. 384).

THE ALPINE GARDEN.

CAMPANULA RADDEANA.

ALTHOUGH not a novelty, Campanula raddeana is a comparatively rare plant in gardens. It is of much beauty, and has a most accommodating nature; it lends itself readily to increase by division, and probably by seeds. It came to me as a novelty a few years ago, and it proved all that it was stated to be—a beautiful plant, dwarf in habit, free-flowering, easy in its cultural requirements, and in every way a most desirable subject for the rock garden.

I planted a specimen in my garden on a level part of the rock garden, facing south-east, in loam, leaf-mould, and a little sand and grit, and there it throve well and gave every satisfaction. The plant forms charming tufts of glossy, prettily notched leaves almost close to the ground; above the foliage rise slender stems bearing large deep violet bells, reminding one of a glorified, deeper-coloured Harebell, and drooping gracefully towards the ground. It comes from the mountains of Transcaucasia, which doubtless contain many other beautiful new alpine plants. *S. Arnott.*

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PATRICK NIELL, LL.D.

IT is exactly 100 years since Dr. Niell's Magnum Opus—*A Horticultural Tour*—was published. It may therefore be opportune to make a few remarks on the history and writings of this, in his day, celebrated horticulturist. Dr. Niell was a member of a family of printers and type founders, whose business premises were situated in one of the "closes" extending from the High Street to the Cowgate, Edinburgh, the firm now being located in a street behind Princes Street. Canonmills Cottage, the Niell's private residence was not far from the present Royal Botanic Gardens, and had been occupied by them since the beginning of the eighteenth century. The garden was just a little more than half an acre, and while in the occupation of Dr. Niell, it had become a very famous one, not only for the thousands of plants it contained, many of which flowered therein for the first time in this country, and were duly reported in the *Botanical Magazine*, and elsewhere, but also for its specimens of animated nature—Gulls, Herons, Owls, Eagle, etc. So great a value was placed upon its preservation that the line of a projected railway tunnel between Edinburgh and Leith, which the promoters wished to carry underneath the garden, had to be altered so as not to interfere with its amenity.

Dr. Niell was one of the originators of the (Royal) Caledonian Horticultural Society, in 1809, and was joint or sole secretary thereof for more than 40 years, and this, no doubt, accounts for the interest he displayed in gardening and gardeners. The memoir of James Stuart, Pinkie House, Musselburgh, which he wrote on the death of that gardener, is to later generations a vivid illumination of the estimable qualities of those practitioners who worked under difficulties of which we in our day have no conception. On Dr. Niell's death this interest was still further revealed by a bequest of £500 to the Royal Caledonian Horticultural Society, the interest from which was to be bestowed every second year on a Scottish gardener to purchase a momento of the giver. But this society was only one of many in which he took a keen interest, an interest that never relaxed till the burden of old age incapacitated mind and body.

Patrick Niell was born in 1776, and attained to manhood at a time when Edinburgh was the centre of great literary and scientific progress. Among his friends were Sir David Brewster and other University men; lawyers like Francis Jeffrey; Sir John Sinclair, and many others. He seems to have been brought up an Anti-Burgher, the straitest religious body of that time, but later he united with the Established Church, nor ever allowed ecclesiastical opinions to interfere with friendships, and even after the Disruption in 1843, when the ties of friendship were severely strained, he continued to welcome Dr. Chalmers and other Free Kirk leaders to his house and table. Portraits show Dr. Niell to have been rather short in stature, thin of body, his visage long, with prominent profile. At least in his later years he walked with a slight stoop, aided in his progress by a gold headed cane, and carrying in the other hand a bulky umbrella, which he dragged behind him. He always wore a brown wig, a voluminous white cravat and black clothes, the coat distinguished by its length. Each day he walked up Pitt Street on his way to business, which he attended to with unfailing regularity, at the same hour, and was indeed regarded for his pecularities as one of the "characters" of the city. But no "character" was more generally popular, the fellow citizens of his ward showing this by electing him as their first representative to the reformed Town Council, a seat in which he held for many years. He was very conservative in everything, and it is related in this connection that he long resisted the attempts of the authorities to drain a filthy pond on his premises, lest a weeping Willow, whose roots imbibed sustenance therefrom, should suffer. He never married, and lived with a spinster sister and died calmly as he had lived, September 5, 1851. Loudon, G. W. Johnson, and others, acknowledged the help and sympathy extended to them by Niell, in their literary undertakings, and the former's *Encyclopædia of Gardening*, was said to be modelled on an earlier work of his.

Dr. Niell was a fertile writer on subjects other than gardening. Geology, itchthyology, zoology and other sciences engaged his pen. Perhaps his earliest book was *A Tour Through the Islands of Orkney and Shetland*. Of purely horticultural interest, he wrote a lengthy article for Brewster's *Edinburgh Encyclopædia*, which it was intended to publish separately, but the appearance of Loudon's *Encyclopædia* stopped that. He also wrote a brief account of gardening for the *Encyclopædia Britannica*, in 1822, and for the seventh edition of the same work in 1834, a discussion of gardening on similar lines to that in Brewster's. This was published in book form in 1840.

The *Journal of a Horticultural Tour* was, as already stated, published in 1823, its publication having been delayed through various circumstances. The inception of the tour was due to Sir John Sinclair, who had visited Flanders to study its husbandry, and his observations led him to believe that a deputation from the Caledonian Society to inspect Continental gardens would lead to improvement in Scottish practise. Accordingly he made a proposition to that effect in 1815, and in 1817 it was decided that the survey should be made in that year, the members to be Dr. Niell and Messrs. Hay and Macdonald. Hay was a planner or garden designer, formerly gardener at Archerfield. He laid out a number of gardens, one of his innovations being a short wall standing out at an angle from the south wall of the kitchen garden in order to break the force of easterly and westerly winds. Macdonald was the last to superintend the old gardens at Dalkeith, which were replaced on his retiral in 1838, by more extensive ones, by his successor, James McIntosh.

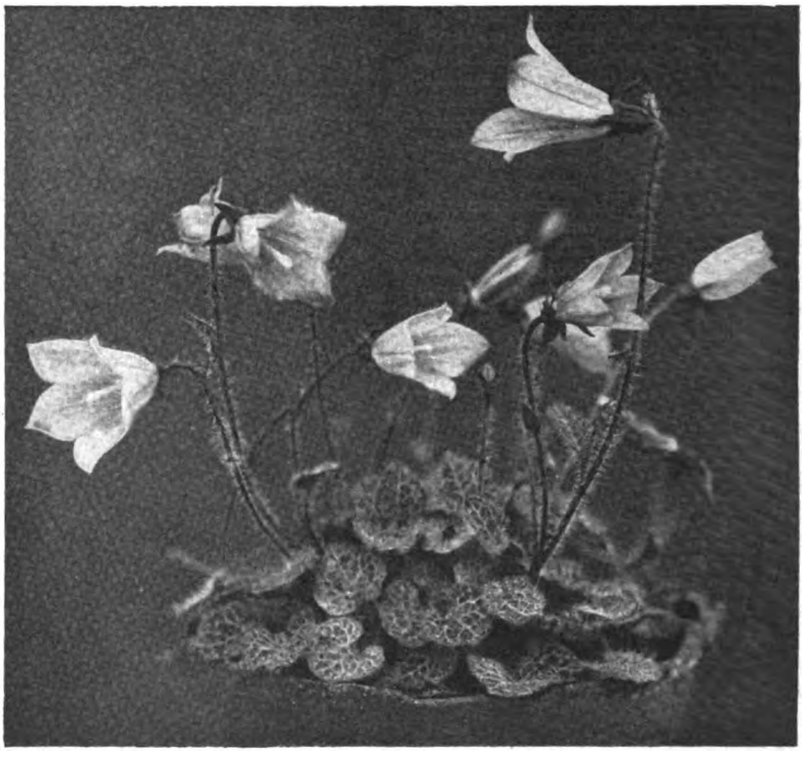

FIG 154.—CAMPANULA CALCICOLA; R.H.S AWARD OF MERIT, MAY 29 (SEE P. 304).

The writing of the book was delayed for quite five years. It is very readable, and the conclusion arrived at by its author was that Scotland had nothing to learn in gardening from the Continent. The first paragraph of the book is suggestive: "August 1, 1817.—We sailed from Leith on the afternoon of the 1st of August, in the Czar, one of those elegant and commodious vessels which ply between that port and London. We made a prosperous voyage, having entered the Thames in little more than four days." After visiting some market gardens in London they set sail for Ostend, from whence they travelled through Flanders and spent a considerable time in the neighbourhood of Ghent, viewing commercial and private gardens. In due course they arrived at Leyden, where they found in the Botanic Gardens a flowering Ash, grafted by Boerhaave, a figure of which shows it to have a strangely malformed trunk. Another engraving shows Clusius' Palm—Chamaerops humilis, as pictured by Boerhaave, and as they found it. At Haarlem and its vicinity, they visited most of the bulb growing establishments

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—Noordwyk, now noted for bulbs, was then devoted to Rose culture. They found the Voorhelm of that day to be a grandson of the correspondent of James Justice, of the *Scots Gardener's Director*, and four representatives of Van Eden, were interviewed. At Amsterdam they were attracted by two Apples—Gravenstein and Borsdorfer. At Utrecht, which was next visited, an old-fashioned Dutch garden is fully described, in which were rare "pieces of sculpture," grottoes, fountains, "frogs and lizards spouting water," and "other figures in still worse taste." Two verdant houses of Beech trees had a "very odd appearance," but on the whole they enjoyed the opportunity of seeing this remarkable 17th century garden. In another garden they found a Pear strange to Edinburgh—the Calebasse. When at Brussels they inspected the royal gardens of Laeken, which did not please them. Then they had a day at Waterloo viewing the field of battle. Returning to horticultural matters again, they had a kind reception from Van Mons, who told them he had raised 800 varieties of Pears out of thousands worth propagating. It is noted that Napoleon and Marie-Louise were raised by Duquesne; Beurré Bosc, Beurré Diel and some others by Van Mons. The next year Van Mons sent grafts of about 50 sorts of Pears and over 30 of Apples to the Caledonian Society, which were grafted by two Edinburgh nurserymen. Very few of these varieties are now in existence. In due time they left Picardy and arrived at Paris, and under the guidance of Mr. Blaikie, a Scotsman settled in that city, visited all the places of horticultural interest. The Marché aux Fleurs made our author sad, that his "ain toon" had no such market, though its provision had been mooted. Messrs. Andrieux—Vilmorin and Cie's establishments were then the most extensive in Paris, but the keeping of the grounds was inferior to the Edinburgh nurseries. An interesting account of the Peach gardens of Montrieul is given, with methods of cultivation. They had a great field day in the nurseries of M. Noisette, who accompanied them. He cultivated 600 varieties of Roses, and showed them "A new Rose of considerable beauty [that] has lately had the name of de Noisette bestowed on it." Other nurseries were examined and then to Dieppe for Brighton, and a look round more London nurseries, and a visit to Covent Garden. Dr. Niell also called at a meeting of the Horticultural Society, presided over by Mr. Sabine, and remarks how "members brought fruits and specimens of plants in their pockets." Potato tubers and runners of Wilmot's Scarlet Strawberry were offered to those who wished to try them.

The other book of Dr. Niell's is entitled *The Fruit, Flower and Kitchen Garden*, 1840; mine is the third edition, 1844. It is well written and passes in rapid review the various practices then in vogue, with short lists of varieties. Several old Scotch Pears and Apples are highly recommended and they must have then been in general cultivation. The book is well illustrated with engravings, reduced from those in *Encyclopædia Britannica*, and were drawn by a son of Smith, gardener at Hopetoun House; another son of whom aided in the production of the book. *P. P. Brotherston.*

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM FLETCHERIANUM VAR. ANTINEA.

MESSRS. COWAN AND CO., Southgate, obtained a First-Class Certificate at the Chelsea Show for a very beautiful Cypripedium named C. Antinea. The parentage is C. Godefroyae var. leucochilum × C. W. R. Lee (var. Lord Derby), the latter being a cross between C. Rothschildianum and C. superbiens. At the meeting of the Orchid Committee of the Royal Horticultural Society, September 25, 1906, Messrs. Low and Co. obtained an Award of Merit and a Diploma for the cross, which was described in *Gard. Chron.*, Oct. 13, 1906, p. 254, Fig. 103. Messrs. Cowan's variety Antinea is distinct from the original, the petals being less deflected and bearing smaller dotted claret-purple lines on its wax-like, cream-yellow ground. In Messrs. Low's form the dark spotting on the pale yellow lip is well marked, while in Messrs. Cowan's form the spotting is smaller and lighter. It is a very remarkable Cypripedium and widely separated from the types usually seen in gardens.

ODONTIODA BANTINGII.

MESSRS. MANSELL AND HATCHER, Rawdon, Leeds, showed in their group at Chelsea, among a good selection of handsome Odontiodas, this very pretty and distinct cross between Odontoglossum Uro-Skinneri and Odontioda Bradshawiae (C. Noezliana × Odm. crispum). The flowers, which have a wax-like white ground, are evenly spotted on the inner two-thirds with light mauve, all the segments being broad and well displayed. As usual with crosses of Odm. Uro-Skinneri, that species predominates in the general character of the hybrid. In this pretty novelty Cochlioda Noezliana may be traced in the lip and crest, although the colour of this parent is suppressed in Messrs. Mansell and Hatcher's hybrid.

ODONTOGLOSSUM CRISPUM CEPHEUS.

A FLOWER of this very beautiful, home-raised form of O. crispum, sent by Messrs. J. and A. McBean, Cooksbridge, represents one of the choicest of the several fine forms exhibited by them in their splendid group at the Chelsea show. It is a true crispum of the finest type, but far superior to any imported form. The flower, which is of fine substance, is four inches across, the petals being two inches wide, pure white, and deeply fringed at the margin. The sepals are white, slightly tinged with mauve, the reverse side of the flower being similarly tinged. The showy lip is white, with a large chestnut-red blotch in front of the yellow crest, and the upper surface of the column is chestnut-red.

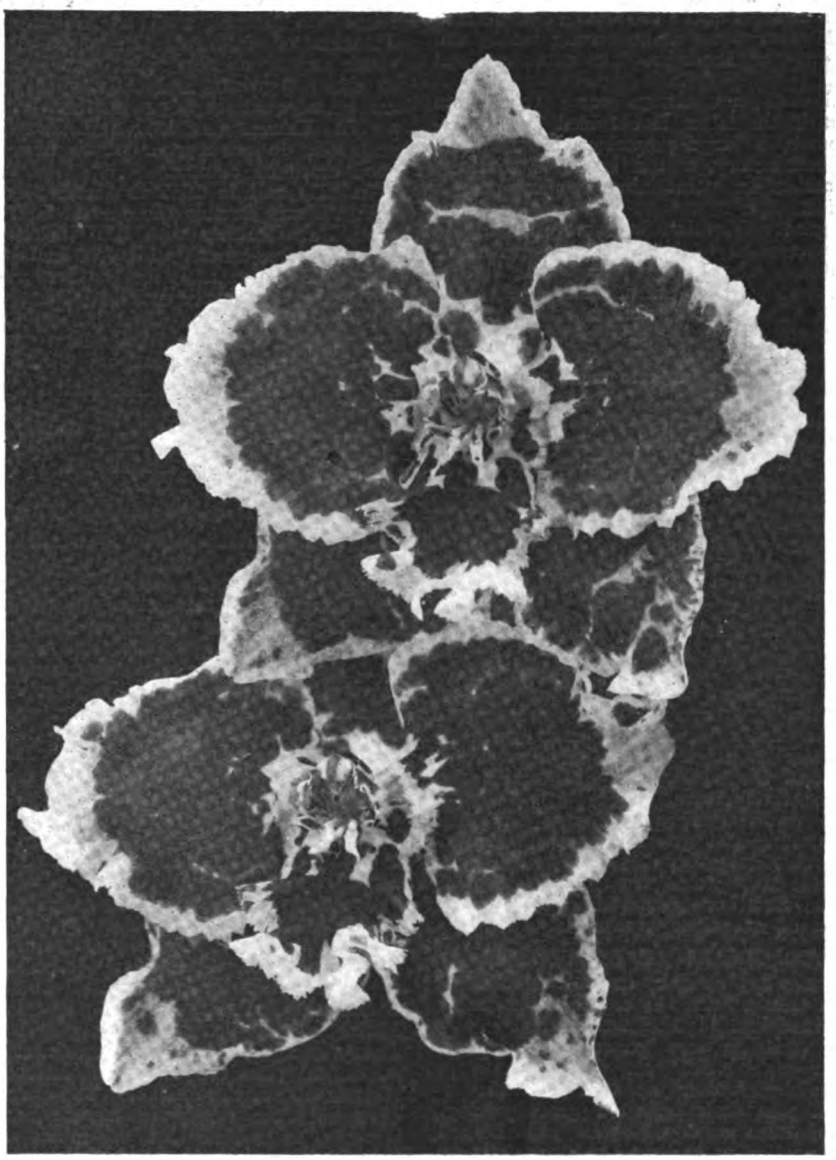

FIG. 155.—ODONTOGLOSSUM CRISPO-SOLON VAR CARMANIA; R.H.S. FIRST-CLASS CERTIFICATE, MAY 29 (SEE P. 302).

BRASSO-LAELIO-CATTLEYA QUEEN OF THE BELGIANS, LOW'S VARIETY.

FLOWERS of a specially fine form of this charming cross between Cattleya Mendelii and Brasso-Laelia Digbyano-purpurata are sent by Messrs. Stuart Low and Co., Jarvisbrook, Sussex. In some forms the narrowing influence of Laelia purpurata in the sepals is a detriment. In Messrs. Low's type the fine shape of Cattleya Mendelii predominates, and the result is a model flower from the florists' point of view. The flower, which measures 8 inches across, has silver-white sepals, and petals slightly tinged with mauve. The broad lip is white at the base, the expanded and fringed front lobe being rich violet-purple and the disc primrose-yellow.

Brasso-Laelio-Cattleya Queen of the Belgians received the Award of Merit of the Royal Horticultural Society, on May 2, 1916, when it was shown by Dr. Miguel Lacroze.

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VEGETABLE GARDEN.

GLOBE ARTICHOKES.

THE Globe Artichoke is an excellent vegetable of great delicacy, but is seldom so well cultivated as it deserves to be.

To obtain succulent heads of high quality it is essential to have young plantations, as plants usually lose their vigour after the third year and produce only inferior inflorescences. Although the plant is perennial, it may be treated as an annual, and plants raised from seed sown under glass in the spring and planted out in May or June make strong stools and bear a crop of heads in late summer and autumn.

Varieties do not always come true from seed, but if the latter is obtained from a reliable source, a large proportion of the seedlings is satisfactory, and a batch of seedlings greatly assists in maintaining supplies over a long period.

With good cultivation it is not difficult to have a succession of heads over a period of six months. The first supplies will be the terminal heads from established plants in May, and these will be followed in June by smaller heads from the side-growths. In July and August good heads may be cut from a plantation of strong suckers made in March, and during September and October heads from the seedlings will supplement the supply. If a cool house is available, a later batch of seedlings may be grown and transferred to it in late autumn. These will give occasional heads during the winter and early spring, when extra dishes of green vegetables are greatly appreciated.

The Globe Artichoke delights in a rich, moist, sandy loam, and readily responds to liberal treatment. A native of Southern Europe, it sometimes suffers from the effects of sharp frosts, necessitating some protection in severe weather, but care should be taken that the plants are not covered too densely. A good plan is to apply a heavy dressing of decayed vegetable manure in early winter, which serves as a protection during severe weather, and the manure may be forked into the soil in the spring.

Copious waterings are necessary in dry weather during the growing season, supplemented with regular supplies of liquid manure if available; failing this, frequent dressings of nitrogenous fertilisers assist the plant in the production of succulent heads. *W. Auton.*

POTATO TRIALS AT DROITWICH.

CONTINUING my remarks on Potato trials at Droitwich (see p. 262), the results given below were obtained in 1914, 1915, and 1916.

Twelve varieties were grown, for comparison, under equal conditions. The seed tubers planted weighed from 2½ oz. to 3 oz. each.

The soil was dark loam on gravelly clay, and the manure employed was old hotbed material, applied at the rate of about 12 tons per acre, supplemented by half the quantity of burned refuse from the garden, the ground being dug normally.

Several of the varieties show almost extraordinary variation in the rate of the weight of crop per acre during the three years of trial, there being first a rise in weight, then a speedy decline, not followed by other varieties. Several varieties fell in weight the second year, to rise again in the third year.

	1914.			1915.			1916.		
	t.	c.	lb.	t.	c.	lb.	t.	c.	lb.
Great Scot	17	16	28	12	7	14	8	15	11
Magnum Bonum ...	17	2	52	14	8	51	7	6	9
Ninetyfold	14	11	88	7	5	95	10	10	60
Satisfaction	12	8	6	8	18	29	8	18	29
Table Talk	10	13	43	13	7	14	4	9	14
Abundance	11	17	56	11	6	98	2	12	74
International Kidney	13	3	37	8	2	6	4	9	14
New Success	8	2	6	11	10	102	6	1	60
The Factor	7	1	89	3	16	109	14	11	78
Sharpe's Victor ...	8	10	17	12	7	14	2	12	74
White City	10	8	52	5	5	37	6	1	60
Duchess of Cornwall	7	17	63	10	10	75	2	4	63
	139	15	89	119	6	84	78	12	98

When making comparison between yearly crops of any kind, some consideration must be given to the rainfall during the respective years. Happily, the meteorological records for a series of years, including those for 1914-15-16, are at hand, showing that in 1914 rain was recorded on 182 days to the extent of 25.15 inches, in 1915 on 164 days to the extent of 28.20 inches, and in 1916 on 189 days to the extent of 26.48 inches. The aggregate of all the varieties for each year is for 1914, 139 tons 15 cwt. 89 lb.; for 1915, 119 tons 6 cwt. 84 lb.; 1916, 78 tons 12 cwt. 98 lb.

Thus it will be seen that rain alone does not account for the disparity in the different aggregates. Vigour, stamina, and several other items are factors, such as the strength and duration of daylight, the regularity of the water supply at the right period—the period of greatest growth and activity of the plant; and an adequate supply of suitable food at that period. Extremes of heat and drought, water and soil, do not appear to be favourable to good crops of Potatos.

In 1914 and in 1915 the largest amount of rainfall was during the second half of each year, July leading with 3.39 inches in 1914, and the same month with 4.74 inches in 1915.

In 1916 the rainfall for the first and second half-years was nearly equal, 13.00 inches falling during the first and 13.48 inches during the second half, the whole fall being spread over 189 days during that year. *J. Udale.*

A GARDEN SUBSTITUTE FOR FARM-YARD MANURE.

(*Continued from page* 299.)

It is doubtful whether it would be worth while to use catch-crops on heavy soils, as, owing to their slow decomposition, it would be necessary to turn them in at least two months before the sowing of the succeeding maincrop. On light soils, where decomposition is rapid, it is certainly advantageous to leave the catch-crop on the ground so long as possible, and an interval of one month between turning it in and the sowing of the succeeding main crop is sufficient.

If it is worth while to grow crops to turn in for green manuring, it is surely worth while to conserve and turn into manure the large amount of waste vegetable matter which is available in such abundance in all gardens and estates.

The common practice of burning most of this matter on the bonfire cannot be too vigorously condemned, for the loss of potential soil fertility due to this destructive system of dealing with the matter is incalculable. It is realised that the prejudice against altering this state of affairs is very great. Probably it is because many good gardeners are so conservative: they retain old practices, and it is difficult to get them to discuss the problem. The circumstances controlling the supply of organic matter are, however, so definite that the minds which do light in its destruction must be converted to a study of the economics of the subject.

The great argument advanced by advocates of the eternal bonfire is that this lazy way of dealing with vegetable refuse is essential to prevent the spread of noxious weeds, pests, and diseases. A study of the facts show how fallacious this argument is. Undoubtedly such refuse will contain many weed seeds, and if the material is left in odd heaps the seeds germinate, reproduce themselves, and become distributed through various agencies, but under a system of controlled decomposition of this material any mature weed seeds germinate and become destroyed in the early stages of fermentation.

With regard to pests and diseases, it is very doubtful if the eggs and spores of these can remain virile after being subjected to the fermenting process, and in the case of spores the bonfire itself is probably a powerful disseminating agent. Material resting on the actual fire certainly becomes consumed, but myriads of spores towards the outside of the bonfire heap may be carried upward by the rush of warm air, and spread through the atmosphere over a very wide area!

Further, lovers of the bonfire always extol the value of the bonfire ash, because of its potash content, yet most of them fail to realise that the residual potassium salts are extremely soluble, and that owing to improper handling a very large portion of it fails to reach the roots of garden crops.

The problem, then, is how to deal with the waste vegetable matter which is so abundantly available in all gardens. The following description represents the methods adopted at Pyrford, by means of which a large garden has been kept in a high state of cultivation without the aid of farmyard manure.

At this stage, it should be mentioned that temperature may play a very important part in determining the result of chemical reactions. Frequently it is found that certain bodies which interact to produce certain substances at one temperature produce something entirely different at another. Consequently, in regulating the decomposition of organic waste we cannot afford to ignore the effect of temperature, though many would be disposed to regard it as of small importance. Still further, if the temperature is too high valuable constituents may be lost through volatilisation.

The danger of too violent heating is always present when green, sappy material is used, and to obviate this, such material should be mixed with that of a drier nature. Indeed it is desirable to grade refuse into four classes as follow:—

Class A.—Soft, green matter, such as lawn mowings, weeds, flower-bed and vegetable plot trimmings.

Class B.—Material of a fibrous nature, such as the clearings of mature growth from the herbaceous border and kitchen garden.

Class C.—Woody matter, as the prunings from Rose and fruit plantations, shrubberies, and hedge trimmings.

Class D.—Dead leaves, dry litter, and Bracken. These should be collected and stored during the winter months, and kept as dry as practicable until required for mixing with the green material, as it becomes available during the growing season.

The materials should be mixed in the following proportions, as the refuse is collected. That in Class A will need at least an equal quantity of D; for Class B a proportion of two to one of D will be suitable. As the material is mixed it should be placed in wind-rows 2 feet wide at the base and 2 feet high and made firm. On the size of the wind-rows depends the intensity of the heating, so that if a greater or less proportion of Class A is used the size should be proportionately diminished or increased. As the wind-rows are built the materials should be moistened, if this is necessary, and the layers sprinkled with ground limestone.

If the wind-rows are kept to these dimensions over-heating is not likely to occur, but it is wise to use a thermometer. If the temperature rises above 90° F. the ridge should be turned and moistened, and when the temperature has become steady under 90° the wind-rows should be thrown into a large heap and decomposition allowed to proceed naturally.

The time taken to effect the breaking down of tissue naturally varies according to the nature of the material used. In the case of A and D decomposition may be sufficiently complete in a few weeks from the time of stacking it. In Class B and D two or three months are needed. The purposes for which the resulting product is used, must, however, determine at what stage of decomposition it is best to use it. For digging in it is neither necessary nor desirable that an advanced stage of decomposition should be reached; for mulching purposes it is advisable to allow a greater breaking down of tissue; if fine material is needed, complete decomposition can be effected in from six to ten months, when most of it will pass through a sieve giving a compost equal to the famous "*terreau*" of French gardens. This is an excellent medium for root formation, and no finer material can be produced for top-dressing lawns and or the preparation of seed-beds. *W. Auton.*

(*To be Continued.*)

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HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

What is a Rock Garden?—I ask this question owing to a difference of opinion between the Council of the Royal Horticultural Society and the three experts, Messrs. Stern, Bartholomew and myself, the appointed judges of the Rock Gardens at the Chelsea Show. After careful comparison and discussion as to what a rock garden should be, we, the appointed judges, decided to give first prize to Mr. G. G. Whitelegg, second to Messrs. R. Tucker and Son, and third to Captain Symonds Jeune. I was astonished when I learnt that our decision had been upset by the Council, and, so far as I know, without consulting the judges, Captain Symonds-Jeune was awarded the first prize. It is quite possible that other experts would have come to a different decision than the appointed judges did. Taste differs with respect to rock gardens, as it does in other matters. Still, I think Messrs. Stern, Bartholomew and Watson are probably as competent as any other three that could be selected, and that to flout this judgment as the Council did was wrong. What is a rock garden? Mr. Reginald Furrer, in his great work, *The English Rock Garden*, discusses the question in his own inimitable way, but leaves it unanswered, warning the designer against certain mistakes, and stating that "natural" effects should be aimed at, but that the art must be "selective and adaptive." That we must all agree with. There are many beautiful bits in nature which would be unbeautiful if removed to a garden. My idea of a rock garden is that of a garden designed for the successful cultivation of alpine plants. Except in very large gardens, the use of big boulders of stone is a mistake, however picturesque they may be in themselves. Imposing piles of rock are not gardens. Nor are such arrangements as are sometimes set up as rock gardens—but which are nothing more than weathered slabs of stone placed irregularly in turf with a few low growing plants set here and there—in any sense a garden. It is not garden art to transfer big chunks of rock from Derbyshire or Westmoreland, or elsewhere, to the garden, and decorate them with suitable plants. Picturesque if you like, but in no sense rock gardening. Judged by this standard, I maintain that some of the rock gardens set up at Chelsea this year were good examples, whilst others were not. The question we judges put to ourselves with regard to them was, if we had to decide, which of those exhibited we would prefer for the cultivation of a collection of rock plants, and as a pleasing rockery feature in our own gardens, and we all three selected that of Mr. Whitelegg. For the same reason we preferred Messrs. Tuckers' as second best. We admired the exhibit of Captain Symonds Jeune, but, as one of us put it, it was not exactly a rock garden; its value lay in being a good example of how to make the best of a mass of stone that nature had placed in the garden. The stones should always be looked upon as means to an end, that end being the cultivation of alpine plants in a garden which, without them, did not furnish conditions suitable to the welfare of alpines. The picturesque use of boulders in the garden was superbly shown in Messrs. Gaze's exhibit, but that was not a rock garden. *W. Watson.*

Peas.—I have followed with much interest the discussion on cultivation of culinary Peas, as given by Mr. G. H. Copley in *Gard. Chron.*, March 31, p. 176. I agree with that writer regarding the value of manure to the plant at the bottom of the trench, but not the amount, for I consider 1 cwt. to every 12 feet of trench (to be added to the soil when filling in) to be quite unnecessary, the resulting medium being of too spongy a nature for the well-being of the plant. Peas so treated suffer more from drought than those grown in a more solid medium. In a later article Mr. Copley states "within the last three months I have assisted in the preparation of ground for Peas on precisely the lines indicated in my notes." Perhaps, later, Mr. Copley will be good enough to give us, in your columns, the result of his labour. I am expected to supply Peas every day from mid-June until late autumn, and would like to give young readers the method I follow with success, but fear this would take too much of your valuable space. *R. Carter.*

—For the past 25 years I have grown Peas in trenches, as advocated by Mr. Copley and others. To-day, May 15, we have made two trenches 80 yards long, and these will be ready for sowing in three days. Broccoli leaves, weeds, etc., are, as a rule, put in the bottom of the trench. As our vegetable garden is in a rather exposed situation, tall varieties of culinary Peas are not grown. I know one grower who had very little farmyard manure owing to the family living away from home. Neither cattle nor horses were kept, and he was obliged to buy a certain amount of dung and mix the manure with leaves. I have known him to grow Peas in trenches with superphosphate mixed with the soil, without farmyard manure. I consider the practice we adopt an economical one, considering the time saved in watering, hoeing, etc., and it results in a much better crop. *J. McC.*

Gardeners' Wages.—In reply to *T. H.*, p. 232, I fail to see that the best gardeners get the best chances. I know of two middle-aged gardeners in the employ of a lady in this district. One of the gardeners was sixteen years with a builder, and the other several years on a poultry farm. I also know of two others, one a head, the other an under gardener, in this district. The head gardener was formerly a farm labourer, whilst the under gardener was for several years in the grocery business previous to taking up gardening, and I know others who have never been away from their birthplace to gain a better knowledge of their profession. I have been thirty years both in nurseries and private gardens, and have had a hard struggle to bring up three children on the low wages which have been paid me. During the war I had to carry on in the best way I could, and the pay for the hours I worked did not exceed 6d. per hour, notwithstanding I was foreman in a very large nursery producing food crops. Not many employers leave their gardeners who have struggled hard for a large number of years a legacy at their death. More experienced gardeners are out of employment than in any other trade. Gardening is a very interesting occupation, but I do not intend to let my sons engage in it for a livelihood. *H. P.*

Melon Fruits Cracking and Splitting.—Mr. Messenger, in his note on p. 270, states that cracking and splitting of Melon fruits is brought about by an excess of humidity in the atmosphere and a sudden rise in the temperature. As a grower of Melons for many years I have come to the conclusion that cracking is due to keeping the soil a little too moist when the fruit is on the point of ripening rather than any other cause. I have not been troubled much with cracking in Melons, but experience it now and again. My practice has been to keep the plants on the dry side at the roots whenever there is any sign of cracking, and by so doing I have always considered I have helped matters, but, like many other gardeners, I am still "at school" and am out to learn all I can. Perhaps some other growers will give us the benefit of their experience. *J. Treloar, Trevarno Gardens, Sithney Helston, Cornwall.*

Puzzles in Plant Names.—I wonder if Mr. Brotherston (page 201) has heard of the name Moonock as applied to the fruit of a well-known native plant. Growing on an island on Anagariff Lake, near Lough Neagh, in the north of Ireland, is a plant the fruit of which is known in the district by the name of Moonocks, why, I was for long unable to find out, though a query was inserted in several of the Ulster papers. On visiting the island, however, I found the plant to be the Cranberry (Vaccinium), and learnt that the fruit was used in the making of tarts and jam. *A. D. Webster.*

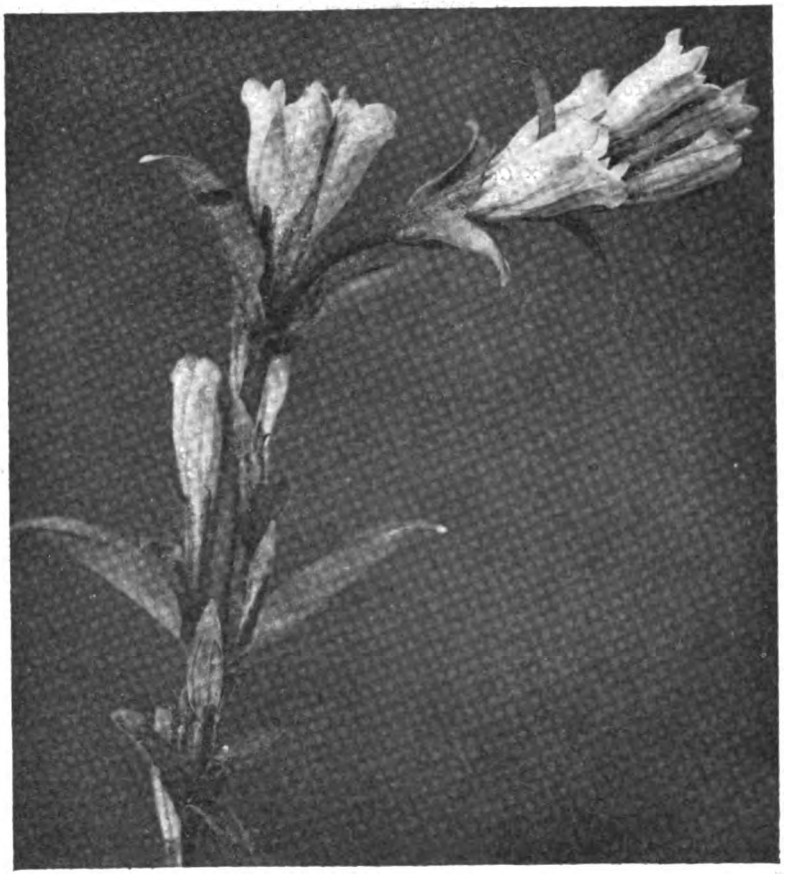

FIG. 156.—GENTIANA HOPEI; R.H.S. AWARD OF MERIT, MAY 29 (SEE P. 304).

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SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THURSDAY, MAY 3.—*Committee present*: The Rev. J. Crombleholme (in the chair), Messrs. B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, J. Cypher, J. Evans, W. Giles, Dr. Hartley, A. Hanmer, J. Howes, J. Jackson, W. M. Jackson, A. Keeling, D. Losh Thorpe, J. Lupton, D. McLeod, E. W. Thompson, J. Whitham, and H. Arthur (Secretary).

FIRST CLASS CERTIFICATES.

Odontoglossum Eros (*Othello* × *Doris magnificum*), a round flower of solid Plum colour, the lower half of the flat lip being pure white; *Laelio-Cattleya Gold Flake* (*C. Schröderae* × *L.-C. Elinor*), an orange-red coloured flower; *Cattleya Vishnu var. Snowflake* (*C. Undine* × *Luddemaniana Empress*), a pure white flower, the lip having a faint lemon-yellow shade in the throat. From S. GRATRIX, Esq.

Odontoglossum crispum Lady Mary Cambridge, a large, round, white flower with occasional spots on the sepals; *Odontioda Le Papilon* (*Odm. Lambeauianum* × *Odontioda Cooksonii*), a flower of solid maroon colour, with white edges to the segments and the lip; *Odontoglossum nebulosum xanthotes*, a form with markings of dark yellow. From Mrs. GRATRIX.

Odontoglossum Victory var. Duchess of York (*Armstrongiae* × *crispum*). The well-formed flower is heavily marked with light chocolate-brown. From A. HANMER, Esq.

Odontioda Juno var. Mira (*Oda. Coronation* × *eximillus*), flower almost solid pink, with red markings on the segments and lip. From P. SMITH, Esq.

AWARDS OF MERIT.

Lycaste Gratrixiae (*plana* × *Lawrenceana*); *Cypripedium Bellatulum var Seriathian*; *Odontoglossum crispum Faustina*; *Angulocaste Sanderae var. suavis* (*Angulca Cliftonii* × *Lycaste Skinneri alba*). From S. GRATRIX, Esq.

Cattleya The Bride (*C. Undine* × *C. gigas Firmin Lambeau*). From Mrs. GRATRIX.

Miltonia Butterfly var. Radiant, from Messrs. SANDERS.

GROUPS.

Gold Medals were awarded to S. GRATRIX, Esq., West Point (gr. Mr. J. Howes), and A. HANMER, Esq., Buxton (gr. Mr. Giles), for groups of Orchids in variety.

Mrs. BRUCE and Miss WRIGLEY, Bury (gr. Mr. A. Burns), staged a group for which a Large Silver Medal was awarded.

Silver Medals were awarded to the following for groups of Orchids: P. SMITH, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson); B. J. BECKTON, Esq., Irlam-o'-th'-Heights (gr. Mr. W. A. Stewart); J. WHITHAM, Esq., Crompton Hall (gr. Mr. E. Greaves); Messrs. J. CYPHER AND SONS, Cheltenham; and Messrs. SANDERS, St. Albans. Mr. E. SHAW, Congleton, was also awarded a Silver Medal for a collection of paintings of Orchid flowers.

THURSDAY, MAY 17.—*Committee present:* The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, J. Cypher, J. Evans, A. Hanmer, Dr. Hartley, J. Howes, A. Keeling, Dr. McLeod, E. W. Thompson, and H. Arthur (Secretary).

FIRST CLASS CERTIFICATES.

Odontoglossum W. E. Bissett, a large, well-shaped flower of chocolate-red colour with white fringe; *Odm. harvingtense Rosslyn var.*, a pale yellow flower with brown spots on the sepals; *Vuylstekeara Memoria Joseph Charlesworth* (*Oda. Brewii* × *M. Charlesworthii*), a deep maroon coloured flower with a flat lip; *Miltonia Venus var. Fascinator* (*M. vexillaria* × *M. Phalaenopsis*), a variety with a beautifully lined lip. From H. T. PITT, Esq.

Brasso-Cattleya Pallas magnifica (*B.-C. Digbyano-Mossiae* × *gigas Sanderiana*), a large, well-shaped flower, the base of the lip being deep orange colour. From Mrs. GRATRIX.

Brasso-Cattleya Enchantress var. Lady Primrose (*B.-C. Digbyano-Mendelii* × *C. Fabia alba*), a flower of sulphur-yellow colour, the base of the lip being a darker shade. From S. GRATRIX, Esq.

Vuylstekeara insignis var. Marigold (*Odta. Charlesworthii* × *M. Bleueana*). The colour is rich marigold yellow deepening in tone at the base of the segments. From P. SMITH, Esq.

AWARDS OF MERIT.

Odontoglossum Antinous (*Othello* × *crispum*); *Odta. Cardinal* (*Oda. Schröderae* × *Odm. eximium*); *Cypripedium Enchantress* (*Curtisii* × *Alma Gavaert*). From H. T. PITT, Esq.

Cattleya Schröderae Duchess of York; *Laelio-Cattleya Canhamiana Sunray* (*L. purpurata Queen Alexandra* × *C. Mossiae Reineckiana*). From S. GRATRIX, Esq.

Miltonia Sanderae var. Painted Lady. From Capt. W. HORRIDGE.

Cattleya intermedia Aquinii. From P. SMITH, Esq.

GROUPS.

S. GRATRIX, Esq., West Point (gr. Mr. J. Howes), was awarded a Gold Medal for a group.

H. T. PITT, Esq., Stamford (gr. Mr. F. W. Thurgood), staged a group for which a Large Silver Medal was awarded.

Messrs. J. CYPHER AND SONS, Cheltenham, were also awarded a large Silver Medal for a group in variety.

BATH AND WEST OF ENGLAND.

WE regret that in our reference to this exhibition (see p. 293) our reporter inadvertently omitted to state that Messrs. English and Son, Eventyde Rose Nurseries, Gloucester, exhibited a group of Roses in pots. This interesting display, which was much admired by H.R.H. the Prince of Wales, was eight feet in width and twenty feet in length.

WAKEFIELD AND NORTH OF ENGLAND TULIP.

THE 87th annual show of the Wakefield Tulip Society, with which is incorporated the North of England Tulip Society, was held at the Brunswick Hotel, Wakefield, on Saturday, the 19th ult. The show this year suffered both as regards quality and quantity from the weather; notwithstanding the severe cold, nearly four hundred blooms were displayed. In the principal class for nine blooms consisting of three bizarres, three byblomens, and three roses, one of each set to be a breeder, one feathered, and one flamed, Mr. C. W. NEEDHAM, Hale, Cheshire, was first with Cyrano, Athos and Jezebel (breeders), Attraction, Sam Barlow, Trip-to-Stockport, George Edward, Mrs. Collier, and Annie McGregor; 2nd, Mr. J. W. BENTLEY, Castleton, near Manchester, who showed Sulphur, Talisman, Rose Hill (breeders), Sir Joseph Paxton, Gleam, Trip-to-Stockport, Aglaia, and Gloriana; 3rd, Mr. CHAS. J. FOX, Moseley, near Birmingham. Mr. Needham was also successful in the class for six breeders, dissimilar, in which he showed Arthos, Cyrano, Annie McGregor, Lucy Luard, Robin, and Rhoda; 2nd, Mr. C. J. Fox with Sir Joseph Paxton, Gleam, Lucy Luard, Mrs. Douglas, Eos, and Rose Hill. Mr. Needham also won first prizes in the class for (1) two feathered blooms and (2) for two flamed blooms, as well as the special premier prizes in the open classes with Attraction (feathered), George Edward (flamed), and Annie McGregor (breeder). In the local classes, Mr. S. F. RICHMOND was placed first for six recified Tulips, dissimilar; Mr. I. HEWITT first for six breeders, dissimilar, and Mr. ROBERT ROBINSON first for three breeders, dissimilar. The last-named exhibitor was very successful in the single bloom classes, winning first prizes for breeders bizarres, feathered bizarres, breeders byblomens and flamed byblomens. Mr. I. HEWITT showed the best rose breeders; Mr. S. F. RICHMOND the best flamed bizarres and the best feathered byblomen and the best feathered rose, and Mr. E. H. ROBINSON the best flamed rose.

KEW GUILD.

THE annual meeting of the Kew Guild was held on Wednesday, the 30th ult., at the Imperial Hotel, Russell Square, and was, as usual, followed by a dinner. The chair was occupied by Mr. W. J. Bean, Chairman of Committee, and there were about sixty of the members present The Secretary submitted the annual report of the Committee, of which the following are extracts :—

The receipts for the year amount to £113 3s. 5d., and the expenditure to £14 10s. 5½d. These figures include the War Memorial Fund balance of £29 0s. 6d.

The retirement of Mr. W. Watson and the appointment of Mr. W. J. Bean as Curator again necessitates a change in the trusteeship of the Guild funds. Mr. W. J. Bean has kindly consented to be a trustee.

The Committee regret to record the resignation in July, 1922, of Mr. A. Osborn, who has so ably carried out the duties of Secretary and Editor since 1914. Mr. A. C. Bartlett has acted for the remainder of the year, and as he is unable to continue, the Committee propose Mr. E. G. Dunk as Secretary and Editor.

The members of the Committee who retire are Major T. F. Chipp, Messrs. J. S. Christie, W. Dallimore, R. L. Harrow, and W. H. Johns. The following have been nominated to fill the vacancies:—Messrs. G. H. Banks, H G. King, T. H. Patterson, W. Taylor and H. Williams, and Mr. K. E. Tomas to represent the sub-foremen, and Mr. F. L. Squibbs the student gardeners. As Mr. Bean, who has only acted in a temporary capacity, retires from the position of Chairman of Committee, Major Chipp has been elected to that post.

Mr. J. Coutts has kindly consented to again be nominated as Hon. Treasurer, and Messrs. W. Hales and W. H. Johns are recommended as auditors for the ensuing year.

In proposing the adoption of the report, Mr. Bean referred to the late appearance of the *Journal*, for which, he said, the Committee as a whole was responsible, but the late appearance was really due to the Secretary, Mr. Bartlett, who had been very busy with his other work. The *Journal* was in type, and Mr. Bean expressed the opinion that it was a very good number. Mr. Bartlett had resigned, owing to pressure of business, and the Committee recommended Mr. Dunk, a member in the Curator's office, for the offices of Secretary and Editor. Experience had shown that it was almost essential that the Secretary should be a member of the Kew staff, and Mr. Dunk would have exceptional opportunities of reading correspondence from old Kewites in all parts of the world, and thus be able to obtain interesting matter for publication in the *Journal*.

Mr. J. Coutts, the Treasurer, gave a few details of the financial position, and stated that there was a balance in hand of £160 odd. It was proposed, he said, to utilise the balance of the War Memorial Fund to form a nucleus for educational purposes. There was a balance on the capital account of £86 3s. 3½d. The Committee had written down the value of the back numbers of the *Journal*, which had no great value, and might be regarded as waste paper. Notwithstanding the satisfactory balance of £163, Mr. Coutts pointed out that the *Journal* for the present year would cost from £60 to £80, and as it had been decided that in future it should be issued in January, they would be called upon to pay for two *Journals* in the present year.

The adoption of the report was seconded by Mr. G. F. Tinley, who thanked Mr. Bartlett for his kindness in acting as Secretary at a time when no one else was willing to undertake the office.

Mr. John Weathers stated that he did not agree with the Treasurer's remark that the old *Journals* were valueless. He regarded them as of great worth. A complete set of the *Journal* was a most valuable possession, and would be prized in future even more than to-day.

Mr. C. H. Curtis, a member of the Committee, stated that Mr. Bartlett was elected Secretary in his (Mr. Bartlett's) absence, and at a time when no one in the gardens at Kew would accept the office, and that it was only pressure of other work which had been the

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cause of the delay in editing the *Journal*. The report and balance-sheet were adopted.

Mr. Horton suggested that the annual meeting and dinner should be held at Kew, and it was agreed that his proposition should be forwarded as a recommendation to the Committee. Votes of thanks to Mr. Coutts and the Chairman concluded the business proceedings.

Some hundred and thirty of the members then sat down to an admirable dinner, at which Mr. J. Masters Hillier, President for the year, presided. The chief toast of the evening, "The Kew Guild," was proposed by the President, who stated that he was pleased to see so many ladies present. It was, he said, the thirtieth year of the Kew Guild, and much history had been crowded into those years, in which Kew men had played a conspicuous part. He extended a special welcome to the members present from overseas, including Mr. and Mrs. Patterson, from the West Coast of Africa, Mr. Sillitoe, from Khartoum, Mr. Butler, from British East Africa, and Mr. Burtt Davy, from South Africa; Mr. Hillier coupled the name of the last gentleman with the toast. Mr. Davy, in a lengthy speech, gave some valuable hints as to the openings for Kew men in the Colonies and Dependencies now that many of the official appointments in those parts were reserved for Colonial-trained men. He said that during the many years since he was a member of the Kew staff he had travelled over the face of the earth, and it had been of great interest to him to note in many distant countries that a Kew man was carrying on the white man's burden, and upholding the high traditions of Kew. The opportunities for Kew men abroad were not the same as in the past, for the Colonial-trained man was coming into his own, and the agricultural training colleges in the Colonies were turning out men who were filling the official appointments. He suggested that the Guild should try to get from Kew men overseas a knowledge of the openings, other than Government posts, for those trained at Kew. The municipal positions abroad, he said, offered such scope to men with the Kew training, but there was no scope in market gardening, which was carried on by Italians and Chinamen. He suggested that young men with some amount of capital and the Kew training might go to the various Colonies and start business after acquiring a knowledge of the local conditions, as he felt sure that in the cultivation and distribution of native plants, especially in South Africa, there was an excellent opportunity. He also pointed out that in the development of Colonial estates men with a Kew training plus a gift of organisation were, and would in the future be still more, in demand.

Dr. Hill proposed the health of the President, Mr. J. Masters Hillier, which was heartily received. Mr. Hillier responded in a few well-chosen words.

The pleasure of the reunion was increased by musical items provided by members of the Guild.

NEWCASTLE AND DISTRICT HORTICULTURAL.

MR. T. A. LAWRENSON delivered a lecture on "Alpines" at the monthly meeting of this Society held on the 22nd ult. Mr. Lawrenson stated that rock plants may be used for a variety of purposes, including edging subjects to paths and hardy herbaceous borders, for growing in beds on lawns in the formal garden, for draping unsightly walls, the ornamentation of garden steps, etc. He deprecated the making of rock gardens in hollow places, as such hollows form frost pockets, exposing the plants to injury from excessive cold. In the disposition of the stone he emphasised the importance of displaying the strata of the stone as being natural. Points to consider in planting, he said, are colour effects and the selection of flowers that will bloom over the longest period. Other points dealt with were propagation by cuttings and division, mulching suitable soils and mixtures, and the best type of stone.

ROYAL HORTICULTURAL.

GARDEN SUNDRIES AT CHELSEA.

MAY 28, 29 AND 30.—The many adjuncts—necessary and otherwise, but mostly necessary—to present-day and successful gardening occupied their accustomed place along the Lime Avenue. It was interesting to note that despite the most uncomfortable weather there was a constant stream of visitors inspecting, with intelligent interest, the many varied exhibits. As was only to be expected, the many preparations for destroying insect pests or for preventing their infesting plants drew the greatest number of visitors, and it seemed that it was a certain and reliable "cure" for white fly which was most in demand. The Alvesco Red Star brand of white fly fumigant manufactured by Messrs. MURPHY AND SON was confidently recommended as one of the most reliable specifics.

The ABOL CO. also displayed a compound which is especially prepared to combat white fly in Tomato and Cucumber houses. On the Abol stand were various other preparations and also the well-known and valued Abol syringes and sprayers. Fertilisers, spraying compounds and appliances were exhibited by Messrs. EDWARD COOK AND CO., LTD., while Messrs. WM. COOPER AND NEPHEWS, LTD., gave prominence to their V2 compound, which is especially recommended for spraying Rhododendron bushes both as a preventive and destroyer of the Rhododendron bug which, in some gardens, is causing considerable injury.

Letharion vapour cones had the chief place amongst the fumigants displayed by Messrs. CORRY AND CO., who also set out in an attractive manner a variety of sundries, including dyed Raffia and their "Summer Cloud" shading which, although not particularly required at the moment, is certain to be in demand later. A new firm amongst the exhibitors in the Lime Avenue was the CROSS BONE MANURE AND LIME CO., LTD., who displayed samples of bones crushed finely by machinery and not dissolved by means of acids.

Dyoweed, a non-arsenic preparation, whose use is well indicated by its name, and Rectisol, which is recommended as being at one and the same time destructive to insect pests and of fertilising value, were the chief items set out by Messrs. HAWKER AND BOTWOOD, LTD. JEYES' Sanitary Compounds included their well-known horticultural washes and a soap which removes grease and dirt, even including tar, quickly from the hands without unduly roughening the skin.

Katakilla, which, besides being deadly to caterpillars of the many sorts which vex the gardener, is also valuable for spraying green-fly infested plants, was prominent in the stand of Messrs. MCDOUGALL AND ROBERTSON. They also showed their Kallamist sprayer which is recommended for use by amateurs. By an ingenious arrangement the spray may be automatically turned off. Many other appliances and specifics were also to be seen in this exhibit.

The old and proved Ichthemic Guano was attractively displayed by Messrs. PRENTICE BROS., LTD., and alongside, in very bright wrappers, was Tomorite. This was one of the most attractive of the sundries exhibits, and in addition to their artificial manures Messrs. PRENTICE had bunches of excellent Cannon Hall Muscat Grapes, flats of Cucumbers and baskets of Tomatos grown by the aid of their preparations, while vases of Tarzan Carnations grown by Mr. C. ENGELMANN added dazzling floral colour to the stand.

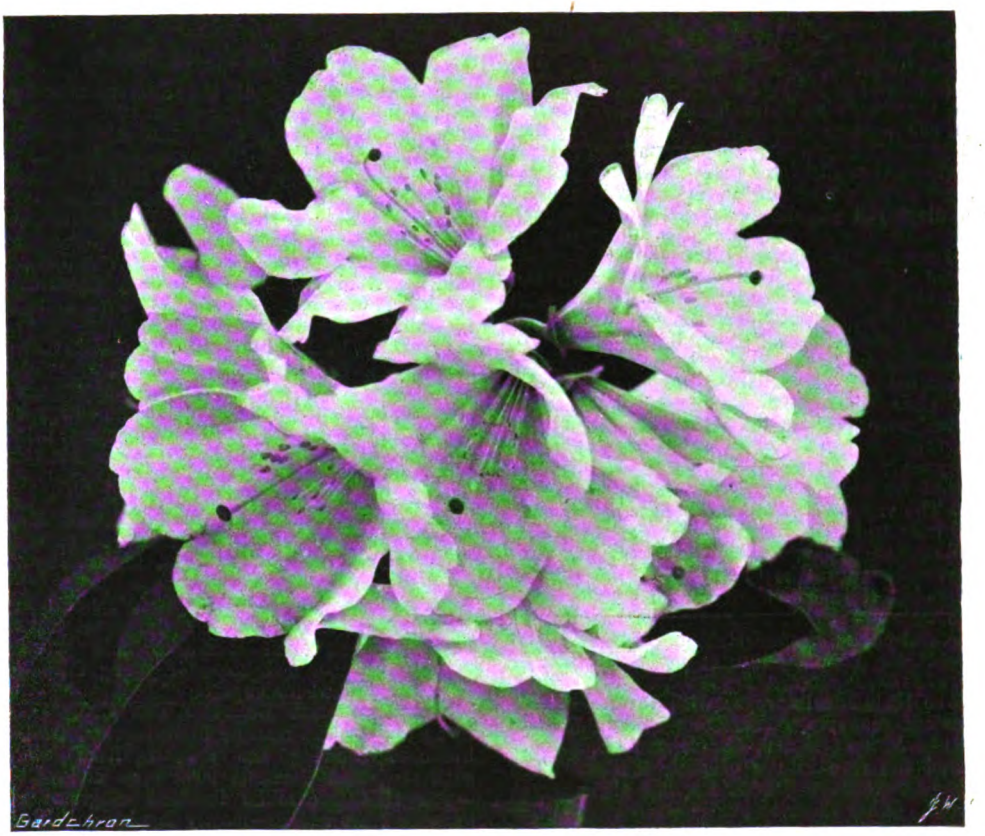

FIG. 157.—RHODODENDRON PINK SHELL; R.H.S. AWARD OF MERIT, MAY 29 (SEE P. 304).

Chief amongst the exhibits of Messrs. ROBINSON BROS., LTD., were Carmona and their Multiple Lime Sulphur Wash. The STONEHOUSE WORKS CO. displayed, in addition to their well-known knapsack and other sprayers, such fertilising spraying preparations as Potomo, Vitalizer and Kilzall, with Eelite recommended as an antidote against eelworm in Daffodils and other plants. Borderite and Blighty, for use as a preventive against Potato Blight, were attractively staged amongst many other preparations by Messrs. WALTER VOSS AND CO. Messrs. WM. WOOD AND CO. had a great variety of insecticides, sprayers and garden implements of all kinds, while the BUXTON LIME FIRMS CO. showed samples of lime preparations.

The well-known Four Oaks knapsack sprayers were included in an exhibit of such appliances and tools by the FOUR OAKS SPRAYING MACHINE CO. Mr. J. HAWS had an extensive display of his useful watering-cans. The "Ubel" sprayer

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was shown with other patterns by the UNITED BRASSFOUNDERS AND ENGINEERS, LTD.

Many model and full-sized greenhouses and garden frames were erected in the avenues, and they were often used as a harbour of refuge by the visitors who were able to appreciate their structure and design. Messrs. BOULTON AND PAUL had a well-designed amateur's greenhouse, which, being in sections, may be erected quickly and, if necessary, easily taken down and replaced elsewhere. Their frames were of a useful and substantial type.

Besides greenhouses and frames, Messrs. J. GRAY, LTD., showed perforated galvanised iron flower pots of great interest. For Tomatos they recommend a round bottomless pattern, while their Chrysanthemum pot is square and raised above the ground level to ensure perfect drainage. Useful glass structures were erected by Messrs. PRATTEN AND CO., while Messrs. A. SMELLIE AND CO. had their patent greenhouse repairing apparatus, with garden tools.

A good example of their well-known greenhouses was erected by Messrs. W. DUNCAN TUCKER AND CO., LTD., who also exhibited garden frames of equally good design and workmanship, together with an attractive garden shelter.

In the main avenue Messrs. DAVID SWAIN AND CO. showed a useful glasshouse adaptable for growing either plants or fruits, and also had excellent garden frames. Messrs. J. WEEKS AND CO. displayed glasshouses of good design complete with heating arrangements, and also garden frames. "Wire tension" greenhouses were exhibited by Messrs. SKINNER, BOARD AND CO. Valuable greenhouses and heating boilers with piping were displayed by Messrs. MESSENGER AND CO., while Messrs. C. P. KINNELL AND CO. had examples of their garden hose in addition to ventilators and other garden sundries.

A good span-roofed greenhouse and garden frames were erected by Messrs. DRUMMOND AND CO.

Garden netting on easily fixed supports was erected by the HOUSE AND GARDEN SUNDRIES CO. The various sizes are adapted for protecting seed beds and fruit quarters. Besides these they displayed their handy little seed sower and clips for attaching growths to walls.

Amongst the many exhibitors of garden furniture were Messrs. J. CARTER AND CO., who had seats and chairs of comfortable design and tables suitable for placing either in summer houses or out of doors. Messrs. J. CARTER AND CO. also showed their Ideal sprayer with various insecticides and manures. The ACME PATENT LADDER CO. and Messrs. DREW, CLARK AND CO. demonstrated the ease in use of their ladders. The CHASE CONTINUOUS CLOCHE CO. had their patent cloches. Other sundries exhibits included garden ornaments in lead and stone and wrought iron gates were set up by Messrs. T. CROWTHER AND SON; "Dryad" cane furnitude, "Italia" garden pottery, sundials and vases by Messrs. KELLY AND CO.; the "Betty Swing Couch" by Messrs. B. MAGGS AND CO.; various garden tools by Messrs. R. MELHUISH AND CO., LTD.; bird-baths and other stoneware by Messrs. A. H. MOORTON AND CO., LTD.; garden furniture by the PAPWORTH INDUSTRIES; garden tents by Mr. H. E. POCOCK; "Ravenscourt" garden pottery, trucks and barrows by Mr. H. C. SLINGSBY; seats and tables by Messrs. THOS. SYER AND CO.; garden seats and chairs by the CASTLES' SHIPBREAKING CO., Messrs. A. W. GAMAGE AND CO., Messrs. HARRODS, LTD., Messrs. HUGHES, BOLCKOW AND CO., and the HOMEBILT CO.; folding tables by Messrs. ABBOTT BROS., and stone ornaments by Messrs. SANDERS AND CO.

Amongst the various lawn mowers those driven by motors attracted considerable attention and nearly all were strongly made, simple to handle, yet light in construction. The principal exhibitors were Messrs. T. GREEN AND SON, LTD., who displayed their Silens Messor with other patterns; Messrs. C. H. PUGH, LTD., the makers of the valuable "Atco" mowers; Messrs. RANSOMES, SIMS AND JEFFRIES; Messrs. A. SHANKS AND CO. and Messrs. DENNIS BROS., LTD., who also had motor pumps. Turves of good fibrous loam were attractively set out by Mr. A. B. JOHNSTON, while Messrs. H. SCOTT AND SONS had loam and a new type of garden barrow. Messrs. BAKERS, LTD., showed a well-designed model garden. A pot Rose with the pot split so as to show the root development was exhibited by Messrs. FERTABS, LTD., who make "Pills for Plants." Their excellent fruit preserving appliances were displayed by Messrs. LEE, FOWLER AND CO. Various garden requisites were arranged by Messrs. THOS. GUNN, LTD. Mr. C. A. JARDINE, the WILKINSON SWORD CO. and Messrs. HOLTZAPFFEL AND CO. had sécateurs and other cutting implements of good make.

The KEY FERTILIZER CO. had a table of mown turf showing the value of their fertilisers. Included in the exhibits by Mr. H. PATTISSON were useful horse boots. Mr. J. PINCHES had a wide range of his well-known garden labels, and Mr. E. H. TAYLOR, LTD., showed beehives and fruit storing appliances.

The Gardeners' Chronicle, Ltd., displayed useful books on gardening, coloured plates, and bound volumes of the *Gard. Chron.* in an attractive new kiosk, near the entrance.

Scientific Exhibits at Chelsea.

In a smaller tent at the Embankment end of the larger tents, there were "Exhibits Illustrating the Work of the Society's Gardens at Wisley," and an "Information Bureau at which visitors may apply for help in garden difficulties and on points of horticultural practice." Besides these valuable features there were exhibits of interest and great value from other scientific quarters. Mr. F. T. BROOKS showed, from the Botany School, Cambridge, specimens of Silver Leaf disease, with notes on its life history and treatment.

Professor V. H. BLACKMAN, Imperial College of Science, South Kensington, had a "Technology Apparatus for Plant Physiology," which demonstrated the increased vigour and improved health of seedling plants when grown in air enriched with carbon dioxide. Alongside these were examples of the fungous diseases of cultivated Apples.

Dr. GEO. H. RODMAN, 10, Hazlewell Road, Putney, contributed a large series of excellent transparencies of pollen grains, illustrating the great variation in shape and size

Messrs. C. HEARSON AND CO., Bermondsey, staged their bulb bath for the treatment of bulbs infested with eelworm, and Messrs. ALLWOOD BROS. had boxes of young Carnation plants as packed for export.

Messrs. GEORGE BUNYARD AND CO. set out in an informative manner flowering and fruiting branches showing the species from which cultivated Red Currants have been derived.

The R.H.S. exhibits included diagrams and growing fruit bushes—mostly Apples and Plums—which showed that such fruits and Pears require foreign pollen to enable them to bear good crops. Many different plants suitable for cultivation for "green manuring" were displayed, and the relative value of such as Vetch, Rape, Red Clover, White Mustard and Black Medick could be seen at a glance. There were also herbarium specimens of the different leaf miners which attack such plants as Marguerites, Cinerarias, Hollyhocks, Carnations, Chrysanthemums and Celery, and also lifelike specimens of insects beneficial to gardeners; forest tree pests, and the germination of seeds and development of the embryo.

A series of pot plants showed the devastating effects of the Phlox eelworm, and there were coloured plates illustrating the different types of Dahlia.

Adjoining their display of greenhouse Carnations, Messrs. STUART LOW AND CO. had a particularly interesting and varied collection of New Holland and other greenhouse plants. These included floriferous standards, bushes, and quite dwarf examples of Metrosideros floribunda, Aotus gracillima, Asclepias curassavica, Raphiolepis ovata, the richly-coloured Bougainvillea Mrs. Batt, Leptospermum Nicholii, N. Boscaweni and Erica Cavendishii. Besides these, which are not so frequently grown as formerly, they displayed good plants of Gloxinias and Anthurium Scherzerianum varieties.

Obituary.

Rev. Canon. W. W. Fowler.—Our readers will deeply regret to learn of the sudden death of Canon Wm. Weekes Fowler, Vicar of Earley, Reading, who was taken suddenly ill in his vestry on Sunday morning, the 3rd inst., and died soon after the service had begun. The late Canon was a keen horticulturist and had a strong scientific bent. He was president of the Entomological Society of London in 1901-2, a vice-president of the Linnean Society, and a member of the Royal Horticultural Society's Scientific and Narcissus and Tulip Committees. As a gardener, Canon Fowler's chief interests were in late-flowering and old English Tulips. He was a well-known personality at the R.H.S. meetings, and it will be remembered that he addressed questions to the chairman at the last annual meeting of the Society. He was the son of the Rev. Hugh Fowler, Vicar of Barnwood, Gloucester, and was born in January, 1849. He was an old Rugby scholar, and a graduate of Oxford, where he obtained a first in Classical Moderations. He was appointed a master of Repton in 1875, and in 1880 was elected headmaster of Lincoln School, where he remained for more than twenty years. He was a Canon of Welton Brinkhall in Lincoln Cathedral, and had been Vicar of Earley since 1904.

Owen Thomas, V.M.H.—With a feeling of deepest regret I learned the news of the passing of this fine old member of our profession, and though I had known of his very severe indisposition for some while before his death, yet I hoped to hear of his recovery, and believed his fine constitution would help him to regain his health. Alas! It was not to be, and the call came for this exceptionally fine old gardener. Greatly esteemed by all, those who knew him well will always bear testimony to his gentlemanly and refined manner; by his death we have lost one who was a particularly skilful gardener, and a man of the highest integrity, who was ever ready to help members of his craft aiming and struggling to make headway therein, and would do all he could to assist them along the road to success. In his time he filled some of the best positions with complete satisfaction to his employers, and great credit to himself, crowning his career, just over thirty years ago, when he had the honour of being appointed gardener to Queen Victoria, at Windsor. A keen judge of a good fruit or vegetable, his help was always greatly appreciated by the Fruit and Vegetable Committee of the Royal Horticultural Society, of which Committee he was a member for many years. By his passing, another of the original holders of the Victoria Medal of Honour leaves the ranks, as he received this recognition in 1897. His death will be very greatly regretted by those, who, like myself, knew and respected him well. *Edwin Beckett.*

TRADE NOTES.

THE annual general meeting of the nursery firm of John Russell, Ltd., was held at the Haverstock Hill Nurseries on the 4th inst. Mr. J. B. Slade, of the firm of Messrs. Protheroe and Morris, chairman of John Russell, Ltd., presided. In presenting the accounts to the shareholders, Mr. Slade said that the position of the Company was now very favourable, a net profit of over eleven hundred pounds having been made during the year, and every account had been paid up at the end of April. There was about £600 in reserve, which almost amounted to the figure standing to the credit of goodwill, and certain bonuses had been paid to the staff over and above their wages in consideration of the good work they had done. A dividend of 25 per cent. was declared on the ordinary shares, over and above the 7 per cent. payable on the preference shares. The chairman observed that if any holder of shares in the company wished to dispose of part of his shares, or to increase his holding, it would be

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of assistance if he would forward his name to the secretary of the company at Haverstock Hill, N.W 3, so that he could compile a list of such shareholders and accommodate them as opportunity arose. The auditors were reappointed for the forthcoming year, and a vote of thanks to the chairman terminated the proceedings.

THE Ministry of Agriculture and Fisheries has had under consideration for some time past the question of the revision of the Orders made for the control of Wart Disease of Potatos in England and Wales. Potato growers and merchants will remember that the first step in this revision was taken in November, 1921, when an Order was issued allowing any variety of Potatos to be planted on land not infected with Wart Disease, whether in infected areas or not. Since that date, the consequential changes which must necessarily accompany such a relaxation have been carefully considered by the Ministry's Potato Advisory Committee, whose recommendations have been endorsed by the Agricultural Advisory Committee and accepted by the Minister. The Minister has now made an Order embodying these changes. This Order came into force on June 1, and revokes all previous Wart Disease Orders in the Ministry.

In a schedule to the Order is defined the main infected area in this country, which includes all Wales and Monmouth, the whole of the counties of Cheshire and Stafford, South Lancashire, North Salop, and the adjacent boroughs of Birmingham and Sutton Coldfield and parts of the counties of Worcester and Derby. In addition, all other lands scheduled under previous Orders are infected areas under this new Order. Briefly, the Order continues the existing regulations concerning outbreaks of the disease, the prohibition of the sale of diseased Potatos, and the planting of Potatos on infected land; and further provides (1) that the only Potatos which will be allowed to go out of infected areas into clean areas are "ware" Potatos of approved immune varieties, and also (2) that no Potatos may be planted, or sold for planting, anywhere in England or Wales unless they have been previously certified for seed purposes as laid down in the Order, or, in the case of foreign Potatos, unless their planting or sale for planting is licensed by the Ministry. Growers contemplating the sale of seed Potatos from the present year's crop should make early application for certificates, as in many instances the Ministry's officers will need to inspect the growing crop to ascertain its freedom from the disease before the certificates can be issued A grower will, however, not be prevented from planting his saved seed from a previous year. Restrictions are also placed on the sale of seed and "ware" Potatos imported from Scotland or Ireland.

ANSWERS TO CORRESPONDENTS.

DESTROYING LARGE RED ANTS: *C. S.* Many species of ant may be destroyed or driven away permanently by means of a strong solution of carbolic acid--one part of the acid to twelve parts of water. Disturb or break the top of the heap, and the ants will swarm out in enormous numbers. Then distribute the solution over the ants with a rose on the can, or by means of a syringe at a safer distance. Pour some of the acid into the centre of the heap so that it will sink deeply into the soil. The ants do not like the smell of carbolic acid; they also attempt to clean one another and get poisoned, so that the more of them you wet by this means the more will be destroyed The top of the heap may easily be uncovered by means of a long-handled hoe or rake.

DOUBLE BUTTERCUP: *G. H. J.* There are many double Buttercups, including Ranunculus asiaticus from the Levant; R. aconitifolius flore pleno, or Fair Maids of France, from the Alps of Europe; and R. bullatus flore pleno, from South Europe. All three are in cultivation, unless the last has been lost within the past few years. Three British Buttercups are very common, and all are in bloom at the present time. R. acris flore pleno, or Yellow Batchelor's Buttons, is the most popular in gardens. R. bulbosus flore pleno is recorded in gardening dictionaries, and so is the double form of R. repens flore pleno, or Creeping Crowfoot, but neither of these two is in cultivation. That you send is R. repens flore pleno, and is a very double form. Flowers with six to nine petals or more are not uncommon in the wild state, but the fully double form you send is not common. If it flowers freely it would be worth cultivating. Plant it in a sunny situation where the soil is not too dry.

FLANNEL WEED: *J. C.* Flannel weed may be killed by copper sulphate, but before applying this material you should remove as much as possible of the weed by skimming it from the water Ascertain the amount of water contained in the moat by multiplying together the average length, breadth, and depth, and multiplying the result (in feet) by 6¼, the approximate number of gallons in a cubic foot. This will give you roughly the number of gallons of water in the moat, and one pound of copper sulphate should be used to every 100,000 gallons. Break the copper sulphate into small portions, and tie it in a bag of loosely woven material, such as coarse sacking. Then tie the bag to the end of a long pole and draw it along in the water in parallel lines.

GARDENER'S NOTICE: *E. C.* It has been held by the High Court that a head gardener is to be regarded as a domestic servant, and must give or receive a month's notice. Whether this applies also to under-gardeners in a bothy has not been decided, and your head gardener is therefore not in a position to substantiate his statement to you. In any case, if you have other employment waiting for you, he ought not to stand in your way, as doubtless he can soon find a substitute.

MELON LEAVES DISEASED: *J. B.* The trouble with your Melons is not caused by a fungous disease, but is apparently due to some cultural mistake, which you will be in the best position to determine.

MILDEW ON VINE LEAVES: *Reader.* The fungus on the Vine leaves is the common grey-mould, Botrytis cinerea. All dead and decaying vegetable matter in or near the vine should be collected and burnt, as it provides a breeding ground for the fungus. Dust all the affected leaves with flowers of sulphur, and take care that ventilation is so arranged that cold draughts do not reach the foliage.

MYROBELLA STOCKS DISEASED: *C. W.* Examination revealed the presence of the fungus Fusarium on the roots of the stocks, but as the trees were dead there was no means of discovering whether the fungus was the cause of their death or appeared afterwards.

NAME OF FRUIT: *F. S. H.* Annie Elizabeth.

NAMES OF PLANTS: *F. F. B.* 1, Spiraea chamaedrifolia; 2, Cryptomeria japonica var. elegans; 3, Cytisus scoparius var. Andreanus; 4, Rhus vernicifera; 5, Acer pictum; 6, Genista hispanica (Spanish Gorse); 7, Populus canadensis; 8, Prunus japonica; 9, Prunus Padus (Bird Cherry); 10. Taxodium distichum (Deciduous Cypress); 11, Cytisus albus (White Spanish Broom); 12, Prunus Padus var. rotundifolia. — *L. H.* Polyporus squamosus.—*W. H.* Probably Tulip Catafalque. — *L. S. A.* 1, Poa pratensis (Meadow Grass); 2, Alopecurus pratensis (Fox-tail Grass); 3, Crepis taraxacifolia (Hawksbeard); 4, Cerastium vulgatum (Mouse-ear Chickweed); 5, Trifolium minus (Irish Shamrock).—*W. B.* Grevillea asplenifolia.—*L. G. P.* Clianthus puniceus.—*G. G. M.* Lonicera alpigena.—*A. V.* Probably Rhododendron intricatum.—*K. F. F* 1, Prunus Padus (Bird Cherry); 2, Clematis montana; 3, Lonicera involucrata; 4, Rhus typhina; the labels of 3 and 4 were stuck together; the plant in flower is the Lonicera —*F. M.* A form of Tulipa Gesneriana.

NATIONAL AURICULA SOCIETY: *C. L.* and *C. B. M.* Copies of the jubilee report will be supplied to non-members at 1s. each, and are obtainable from Mr. John Tonge, 22, Booth Street, Manchester.

PEACH AND NECTARINE LEAVES BLISTERED: *C. W.* Your Peach and Nectarine trees are suffering from an attack of the Peach-leaf Curl fungus (Exoascus deformans). Badly diseased leaves should be removed and burnt, and the trees encouraged to grow as freely as possible. Given warmer conditions, the new leaves will not be disfigured. Next season spray the trees toward the end of February with either Bordeaux or Burgundy mixture before the buds begin to swell.

POISON FOR MICE, RABBITS AND SLUGS: *Flowergrower.* You do well not to lay poison for mice and rabbits. Besides being illegal, one can never tell where vermin will carry it. Plants may be made distasteful to all these pests by spraying them with paraffin emulsion. This is made by boiling four ounces of soft soap in a gallon of water. When dissolved take the pot off the fire and gradually stir a gallon of paraffin into it. Churn the mixture forcibly with the syringe until the whole becomes like a creamy paint. To one part of this add twelve to fifteen parts of cold water, stir it well, and it will be ready for use. The remainder of the emulsion will keep in bottles indefinitely until required. See that no free paraffin comes to the top after twenty-four hours, and if so, add more soap. Do not use paraffin and water, because they will not mix, but do more harm than the vermin. Paraffin emulsion should not be used on Rose bushes.

POTATOS DISCOLOURED: *J. A. M.* No disease was apparent in the tubers forwarded. Somewhat similar discolouration is found occasionally late in the season, and is usually attributed to chemical changes in the tissues, due to over-maturity. How far this belief is warranted we are not sure, as the starch grains themselves are in no way discoloured, and badly discoloured sets when planted appear to produce healthy plants. In one of the tubers sent (the small one), these changes had developed further than in the others, but even so no mycelium was present. The trouble is quite distinct from "sprain."

PROPAGATING EPIPHYTAL ORCHIDS: *C. L. M.* Epiphytal or tree Orchids may be propagated by division at almost any season, although it is better in many cases to abstain from removing parts in the height of the summer or the dead of winter. The spring-time is usually found to be the most satisfactory period. The pseudo-bulbous Cattleyas, Laelias, Oncidiums, Odontoglossums, and genera of similar growth should have the leading growth with two or three pseudo-bulbs detached at the rhizome with a sharp knife, and these pieces can immediately be placed in small pots or Orchid pans and attended to as growing plants. A section of the dwarf Epidendrums, also Bulbophyllums, etc., are of this class. Epidendrum radicans and some others of the genus which root along the stems are of the class referred to as tree-climbing, and their propagation is effected simply by the removal of the portions required and making them into separate plants. Vandas, Aërides, Angraecums, and other true epiphytes with distichous leaves often produce young growths from the base of the parent plant, and these, after root action has been sufficiently advanced, make good material for fresh plants. Thunias, many Dendrobiums, and Orchids of similar habit may be propagated either by division or by cutting sections of the mature pseudo-bulbs 3 or 4 inches in length and placing them, a number together, like cuttings, in suspended

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pans, when, in due time, the nodes will send out young growths and roots. Masdevallias and other leafy species with rudimentary stem-like bases may be propagated very freely by division at almost any season. Most Orchids are the better for propagation, and, if stock is not required, those which have grown into hard tufts should be broken up, even if the parts are again potted together. They then form new centres, whereas, if left in one large mass, the worn-out centre decays and imperils the whole specimen. The best time to propagate Orchids is when they are being re-potted.

REMOVING A LARGE PORTION OF A VINE: *F. A. S.* The part of the vine which you wish to remove entirely from one house, a second portion being grown in another distinct house, should be divested of about one-third of its shoots now, and the remainder removed in, say, a fortnight's time. Allow the shoots on the portion of the vine which you wish to retain in the other house to grow more freely to utilise as much of the sap as possible. If you only wish to grow Tomatos in the house from which the vine is to be cut out, remove all the vine shoots as they appear, and cut the rod clean out when it is dormant. If necessary to remove the rod now, suppress any shoots that may appear, cutting the rod off a week or ten days later. Little or no bleeding will take place if the shoots of the other portion of the vine are allowed to grow freely; to make doubly sure apply a hot iron to the cut surface until it is charred, and afterwards paint it with Stockholm tar or painter's knotting.

RHODODENDRON FAILING: *M. M. B.* Your Rhododendron may have been dry at the roots, as that generally results in the tips of the leaves going brown; on the contrary, the soil may be exhausted and in bad condition generally. In such case the only remedy is to transfer the plant to fresh soil, either in a tub, or plant it out in a bed or border in a conservatory or greenhouse. When repotting it, some of the shoots should be cut back partially; this should result in fresh growths developing, especially if the plant is sprayed several times daily during bright weather. It may be that the plant, being very old, is past recovery.

SHOT-HOLE FUNGUS ON PEACH LEAVES: *S. B.* Your trees are affected with shot-hole fungus, Cercospora circumscissa. Spray the trees with lime sulphur, one part to 100 gallons of water.

VINE FOLIAGE DROPPING: *W. C.* Your Vine shoots and Grapes arrived in a shrivelled-up condition, which made examination difficult. Apparently the Grapes and shoots are suffering from a very bad attack of mildew, and, if the specimens sent are an average sample, nothing can save the crop this season. Prevention is often easy, but not a cure, as mildew spreads rapidly, especially in cold, damp weather. Last season it was very prevalent on account of the wet, sunless season. Dust the leaves and bunches with flowers of sulphur, and pay careful attention to watering and ventilation. Thoroughly cleanse the woodwork of the Vinery next winter with soft soap and sulphur dissolved in hot water, a good handful to each pail of water, and apply hot lime wash to the walls. Next season rub off the loose bark of the Vines after pruning them, and wash the rods thoroughly with Gishurst Compound. With careful management afterwards, your Vines should be free from mildew next season.

WASH FOR GOOSEBERRY BUSHES: *W. J. M.* The case of insects eating the flowers certainly seems to be unusual. We can only suggest some wash which, by its smell, would discourage the insects. Lime-sulphur at summer strength might answer. If not, a wash containing chlor-cresol could be tried with confidence. Messrs. Murphy and Son, Mortlake, London, S.W.14, supply a wash of this description.

MARKETS.

COVENT GARDEN, Tuesday, June 5, 1923.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday, by the kindness of several of the principal salesmen, who are responsible for the quotations.

It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.

Plants in Pots, etc.; Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.
Adiantum cuneatum, per doz.	10 0–18 0
—elegans	10 0–12 0
Aralia Sieboldii	10 0–12 0
Araucarias	30 0–48 0
Asparagus plumosus	12 0–15 0
—Sprengeri	12 0–18 0
Aspidistra, green	48 0–72 0
Asplenium, per doz.	12 0–18 0
—32's	24 0–30 0
—nidus	12 0–15 0
Azaleas, 48's per doz.	30 0–48 0
—60's	18 0–24 0
Boronias	21 0–27 0
Cacti, per tray, 12's, 15's	5 0– 7 0
Cinerarias 48's per doz.	10 0–15 0
Crotons, per doz.	30 0–42 0
Cyrtomium	10 0–15 0
Erica melanthera „ 48's per doz.	24 0–36 0
„ nivalis 48 „	24 0–30 0
Erica nivalis „ 60 „	10 0–15 0
„ Thumbs „	6 0– 8 0
Genistas 48's per doz.	15 0–18 0
Heliotropes	15 0–18 0
Hydrangeas white & pink, —48's, doz.	24 0–30 0
Marguerites, per doz.	18 0–24 0
Mignonette	10 0–15 0
Nephrolepis, in variety	12 0–18 0
—32's	24 0–36 0
Palms, Kentia	24 0–30 0
—60's	15 0–18 0
—Cocos	24 0–36 0
Pelargonium	18 0–24 0
Pteris, in variety	12 0–21 0
—large 60's	5 0– 6 0
—small	4 0– 4 6
—72's, per tray of 15's	3 6– 4 0
Spiraeas	15 0–18 0
Stocks, White & Coloured	12 0–15 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum, decorum, doz. bun.	12 0–18 0
—cuneatum, per doz. bun.	8 0–10 0
Anemone, St. Brigid, per doz.	6 0– 8 0
Asparagus, plumosus, per bun.	
long trails, 6's	4 0– 5 0
med. sprays	2 6– 3 6
short „	1 0– 1 6
—Sprengeri, per bun.	
long sprays	2 6– 3 0
med. „	1 3– 1 6
short „	0 9– 1 0
Carnations, per doz. blooms	5 0– 7 0
Cornflowers, per doz. bun.	4 0– 5 0
Croton leaves, var., per bun.	2 6– 4 0
Gardenias, 12's, per box	4 0– 5 0
18's, per box	2 6– 3 0
Gladiolus, The Bride, per doz. bun.	30 0–36 0
—Blushing Bride, per doz. bun.	24 0–30 0
—Peach Blossom, per doz. bun.	30 0–36 0
—Ne Plus Ultra, per doz. bun.	30 0–36 0
Fern, French per doz. bun.	1 0– 1 3
Forget-me-not per doz. bun.	4 0– 6 0
Heather, white per doz. bun.	4 0–10 0
Iris, Spanish, white per doz. bun.	36 0–42 0
—Spanish, blue, per doz. bun.	24 0–36 0
—Spanish yellow, per doz. bun.	30 0–42 0
—Spanish mauve, per doz. bun.	24 0–30 0
Iceland Poppy, per doz bun.	5 0– 6 0
Ixia, per doz bun.	3 0– 4 0
Lilium speciosum long per doz.	5 6– 6 0
short „ „	6 0– 8 0
Nigella, per doz. bun.	12 0–15 0
Lily of the Valley, per doz. bun.	30 0–48 0
Orchids, per doz. —Cattleyas	18 0–30 0
—Cypripediums	
Pæony, double white, 6's per doz. bun.	30 0–36 0
—double pink, 6's, per doz. bun.	18 0–24 0
—double red, 6's, per doz. bun.	18 0–24 0
Pelargonium, per doz. bunch, double scarlet	10 0–12 0
Pyrethrum, double white, per doz. bun.	10 0–18 0
—double pink, per doz. bun.	6 0– 8 0
—single pink, per doz. bun.	4 0– 6 0
—single red, per doz. bun.	4 0– 6 0
Richardias (Arums) per doz.	8 0–10 0
Roses, per doz. blooms—	
—Melody	3 0– 4 0
—Ophelia	4 0– 6 0
—Richmond	4 0– 6 0
Smilax, per doz. trails	6 0– 7 0
Stephanotis, per 72 pips	4 0– 4 6
Stock, per doz. bun. mauve	18 0–24 0
—white per doz. bun	12 0–24 0
Sweet Peas, per doz bun.	12 0–24 0
Violas, per doz bun.	1 6– 2 0

REMARKS.—There is almost a famine in cut blooms at the present time; prices for white blooms exceed those of last week. Carnations and white Roses are the scarcest subjects; 8s. per dozen blooms were realised for Carnations before the close of the market on Saturday last, and the outlook is not very favourable for the coming week-end. Double white Narcissus is practically finished, but small consignments of this flower are expected from Scotland during the next few days. Double white Pyrethrums should relieve the situation a little, but the supplies of these blooms are very small. Double white Stock is selling freely at abnormally high prices such as have never before been realised at this season. Only improved weather conditions will change the situation, and all florists are anxiously waiting for summer days. There are no new subjects to record this week. Consignments of cut blooms from all parts of the country are much below the average.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples— Victorian, N. S. Wales, Tasmanian & W. Australian	
—Sturmer	13 0–14 0
—Monroe's Fav.	13 0–14 0
—Jonathan	13 0–15 0
—Cleopatra	13 0–15 0
New Zealand	
—Jonathan	14 0–15 0
—Rome Beauty	14 0–15 0
—London Pippin	14 0–15 0
Apricots, crate	6 0– 9 0
½ sieve	7 0–12 0
Bananas, singles	16 6–27 0
—doubles	22 6–27 6
Cherries—	
Half-sieve	8 0–12 0
Boats	7 0–10 0
Box	1 6– 2 6
Figs special	12 0–20 0
best	6 0– 9 0
Gooseberries—	
—Non returnable Strikes	3 6– 4 6
—Kent, ½ sieves	6 0– 8 0
Grapes—	
—Belgian	2 0– 2 6
—Hamburgh	2 0– 5 0
—English muscat	4 0–12 0
Grape Fruit—	
—Jamaica	25 0 27 6
Lemons—	
—Messina boxes	8 0–10 0
„ cases	16 0–18 0
—Murcia	16 0–22 0
Melons, English and Guernsey, each	1 6– 4 0
Nuts—Brazils	45 0–47 6
Oranges—	
—Denia	18 0–26 6
—Murcia	18 0–30 0
—South African Naval	20 0–22 6
Peaches—	
—English, doz.	12 0–30 0
Pineapples, case	14 0–40 0
Strawberries spec.	8 0–12
„ best	4 0– 6 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Asparagus, bundle	
—Special Devon	10 6–14 6
—Spec. Evesham	8 0–18 0
—best „	3 6– 6 0
Beans—	
—Guernsey, lb.	2 0– 2 3
—Madeira basket	4 0– 6 0
—Worthing	2 0– 2 6
Broad Beans, ..	– – – 4
Beets, cwt.	2 6– 4 0
Cabbage, dozen	1 6– 2 6
—New, dozen	8 0–10 0
Cauliflowers, doz.	4 0– 8 0
Cucumber, Flat	10 0–14 0
Green Artichokes, dozen	1 6– 2 6
Greens, bag	2 0– 3 0
Lettuce, dozen—	
—English	0 9– 1 3
Marrows, doz.	10 0–18 0
Mint, doz.	3 0– 6 0
Mushrooms, lb.	1 6 –2 6
Onions—	
—Egyptian	9 6–10 0
Onion.	s. d. s. d.
—English, cwt.	5 0– 6 0
Peas, lb.	..
—Guernsey	2 0– 2 6
Potatos,	
—Canary Island case	10 0–12 0
—Spanish, cwt.	11 0–12 0
—Guernsey, new, lb.	15 0–18 0
—Jersey	15 0–18 0
—King Edward	£3 –£3 5
—Others	£2 5–£3 0
Radishes, doz.	1 0– 1 6
Rhubarb, Forced	2 0– 3 0
Spinach, bushel	3 0– 3 6
New Turnips, doz. bunches	10 0–12 0
Tomatos—	
—English	– –
—Pink and Pink and White	9 6– 9 6
—White	6 0– 7 6
—Blue	– – 7 0
—Guernsey	8 6– 9 0
—Canary Islands	8 0–10 0

REMARKS.—General conditions of trade have been very brisk in spite of adverse weather conditions, and a considerable volume of produce is moving satisfactorily. Australian and New Zealand Apples are a firm trade, the condition of the fruit being first-rate. Choice English fruits are increasing almost daily in quantity, although warmer weather would be welcomed to influence the demand. Strawberries, Figs, Peaches, Nectarines and Melons are maintaining steady values. English Tomatos are coming in the market slowly, and no doubt a warm spell would have the effect of considerably expanding daily arrivals, and prices would go lower. The Cucumber trade has been moderately good, and the tendency is towards lower prices. Forced vegetables have been in keen demand, and Peas, Beans and Marrows have been realising firm prices. Asparagus is cheaper, and its value is likely to go lower still. New Potatos from all sources are abundant. Gooseberries have sold fairly well but at lower rates, the competition of Dutch berries bringing down prices. Apricots are very plentiful, and fair quantities of French Cherries are available. Green vegetables are plentiful and cheap, but Cauliflowers are scarce and dear.

GARDENING APPOINTMENTS.

Mr. Geo. Hawes, for the past eight years and nine months Gardener to Miss FEILDEN, High Wall, Headington Hill, Oxford, as Gardener to Mrs. COWLEY, Mayside, Tubney, Abingon, Berkshire.

Mr. D. Crombie, for the past four and a half years Gardener to E. R. MOXLEY, Esq., and previously eighteen years Foreman to the Rt. Hon. G. W. PALMER, as Gardener to F. RENDLE, Esq., The Grange, Ascot, Berkshire.

Mr. T. W. Fuller, for the past three years and three months General Foreman at South Pickenham Hall, Swaffham, Norfolk, as Gardener to W. P. TISER, Esq., Dudbrook, Brentwood, Essex.

CATALOGUES RECEIVED.

M. ROWAN & Co., 51-2, Capel Street, Dublin.—Bee Keepers' Supplies, Lawn Mowers, Wheel Hoes and Cultivators.

WM CUTBUSH & SON, LTD., Barnet Nurseries, Barnet.—Bay trees; Hydrangeas; cut bushes; Polyantha Roses

Foreign.

DUMETZ, BROCCO AND GUIFENEUF, 129, Rue du Faubourg Saint-Denis, Paris.—Lilium candidum (wholesal

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THE
Gardeners' Chronicle
No. 1903.—*SATURDAY, JUNE* 16, 1923.

CONTENTS.

Aberdeen's parks superintendent	330	Moonock	340
Bark cloth, African	340	Orchid hybrids, new	334
Bracken and pigs	330	Painters, early Botanic	336
Bulb garden, the—		Plant collecting in the Auckland Islands	334
Nerine Bowdenii	335	Plant notes—	
Cabbage, the Skunk	338	Osteomeles anthyllidifolia	335
Cotton growing, studentships in	330	Plants new or noteworthy—	
Citrus crops in Greece	330	Pentactina rupicola	331
Edinburgh Botanic Garden, notes from	334	Primula Delavayi	331
Fly, St. Mark's	330	Propagation of "difficult" plants	333
Fruit garden, the market	338	Public parks and open spaces	334
Galsworthy's, Mr. Frank, garden and flower pictures	329	Rock garden? what is a	340
"Gardeners' Chronicle" seventy-five years ago	331	Sarawak, development of	330
Gardeners' wages	340	Seeds, vitality of	330
Garden substitute for farmyard manure	339	Societies—	
Indoor plants—		Royal Horticultural	341
Richardia	337	Yorkshire Gala	342
Thunbergia	338	Spraying, successful	330
Irving, Mr. Walter	330	Trees and shrubs—	
Kew, presentation of a herbarium to	329	Prunus rufa	335
		Week's work, the	332
		Wheat	329

ILLUSTRATIONS.

Cabbage, Skunk, fruit of, 338: section of the fruit showing embedded seeds 339
Irving, Mr. Walter, portrait of 330
Lilacs, Rabel's illustration of 336
Lily, Red, Rabel's illustration of a 337
Osteomeles anthyllidifolia 335
Pentactina rupicola 331
Primula Delavayi 333

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 58.6°.

ACTUAL TEMPERATURE:—

***Gardeners' Chronicle* Office, 5, Tavistock Street, Covent Garden, London, Wednesday, June 13, 10 a.m.: Bar., 30.1; temp., 64°. Weather—Dull.**

Wheat. A lecture delivered recently by Prof. Biffen before the Plough Club of the School of Rural Economy at Oxford, deserves a more universal audience. Prof. Biffen, as our readers know, has devoted some twenty years of his life to the improvement of the Wheat plant, and his efforts, which happily are still in progress, have already met with signal success. Work in plant breeding is of necessity very slow, and full of disappointments, and it therefore is eloquent testimony to Prof. Biffen's genius that he has produced varieties which are more adapted to cultivation in certain parts of this country than are any other known varieties. No one who is not able to formulate precisely the problem he sets out to solve is likely, except by happy accident, to find the solution. The problem which Prof. Biffen set himself is to produce varieties of Wheat which are more amenable to intensive cultivation by farmers than are any of the existing varieties. He recognised that, as judged by yield per acre, British Wheat growing leads the world—Denmark alone securing a higher average and that only on a relatively small area. Therefore the British farmer is a good intensive cultivator and is capable of producing yet heavier yields if suitable varieties can be provided for him to sow. But of what avail is it to grow a prolific variety if the miller and baker find it unsuitable for their requirements! Or of what use is it to aim at a yield of, say, forty bushels if the variety grown is one which goes down, that is, lodges in all but the most propitious seasons! Or why increase yield by intensive cultivation if the larger crop is liable to attack by rust and mildew! Thus the problem to be solved is one which involves the production of high yielding varieties of wheat, which when milled give a flour which the miller can sell to the baker and from which a loaf can be baked which the public will buy and enjoy. The variety must also be proof against yellow rust, a malady which if it attack Wheat may reduce the yield by so much as twenty per cent. It must also be resistant to mildew and it must be of a kind that will stand up and not, by going down when nearly ripe, put the farmer to endless trouble in the reaping and loss in the harvesting. Of our old varieties many are good yielders—Square Head Masters among the number—but they are weak, and not strong Wheats: that is, they yield a loaf which is more wizened and less portly than that given by the strong Wheats of other countries. A 2 lb. loaf made of English Wheat of these weak varieties is not much more than half the size of the two pound loaf made from strong varieties. It is, moreover, as the bakers say, "sad," more elastic, less open in texture, and to most palates less pleasing. Miller, baker and public agree that the loaf made from strong Wheat—or a blend—is better than that made from weak Wheat, and they back their opinion by a readiness to pay more for the former than for the latter, and even by a reluctance, in inland places, to purchase local grown Wheat. Recognising these facts, Prof. Biffen proceeded to combine by breeding the prolificness of high yielding English varieties with the strength of a Canadian Wheat. It was no easy task, for nearly all strong Wheats when grown in England lose their strong character. Fortunately, however, among strong Wheats one was found which has retained its strength even after growing for many years in this country. This variety, Red Fife, was used in the breeding experiments which resulted in combining in one variety high yield and strength. After the production of a variety with these characters, Prof. Biffen turned his attention to combining them with a power of standing up—that is, of refusing to lodge in the wet, stormy weather which not infrequently obtains before the crop is ripe for harvest. He had already concluded that lodging is generally due to the surface roots of the Wheat plant being too weak to anchor the plant so that it can ride securely through any gale. He observed that Wheats with stout straw—some of which Wheats he had obtained in the course of breeding experiments—had the power of standing up, and he was thus able to combine this character with the strength and prolificness of his new varieties. Susceptibility to yellow rust was also overcome by breeding. Some varieties, otherwise poor, were found to possess complete or all but complete resistance to yellow rust. They were induced by breeding to enter Professor Biffen's Mendelian syndicate—in other words, they were hybridised with varieties possessing other desirable characters, but susceptible to rust, with the result that the farmer will presently have at his disposal varieties not only possessed of these several virtues, but also able of being cultivated intensively. The national importance of the Wheat question was insisted by Prof. Biffen in his lecture. He pointed out that many great Wheat producing countries have already reached the limit of their production, and that therefore rising prices and increased consumption will, in a few years time, make it necessary for this country to produce much more of the Wheats which it requires than it does at present. This is an aspect of agricultural economics in which everyone cannot fail to be concerned, and thus the recondite researches of the laboratory are seen to have an interest for every person—no matter how urban his outlook—who inhabits Great Britain.

Presentation of a Herbarium to Kew.—The interesting collection of British plants belonging to the late Dr. George Lloyd, has been presented to the Royal Botanic Gardens, Kew, by Mrs. Lloyd, through the Bournemouth Natural History Society. Dr. Lloyd was born at Albrighton, Shropshire, in 1804, and although he graduated at Edinburgh in 1826, he did not practise medicine, but devoted his time to botany. Most of the plants were collected between 1825 and 1843. The herbarium numbers some two hundred and fifty sheets, which are for the most part in an excellent state of preservation. Amongst the more interesting species are Arthrolobium ebracteatum, Ononis reclinata, Sibbaldia procumbens, Eryngium campestre, Gentiana nivalis, Myosotis alpestris, Phyteuma spicatum, Salvia Marquandii and Eriophorum alpinum.

The Lake in St. James's Park.—Considerable progress has been made in the cementing of the base of the lake in St. James's Park. It will be remembered that during the war period the lake was drained and the site occupied with Government offices, which came to be known as the Lake Dwellings. After the removal of the buildings it was found that the bed of the lake no longer held water, consequently the area had to be drained and the base covered with ferro-concrete and cement. The whole of the area west of the suspension bridge appears to be finished and not much remains to be done at the eastern end, consequently there seems to be good ground for believing that the site will be filled with water before the end of the summer. Floral attractions in St. James's Park at present are large groups of Lupins, and in a few days there will also be effective groups of Foxgloves.

Mr. Frank Galsworthy's Garden and Flower Pictures.—Mr. Galsworthy's seventy odd pictures of gardens and flowers in water-colour made quite an attractive little show at the Walker Galleries, New Bond Street, from May 24 to June 6, and their brightness was all the more welcome during a period of cold, dull weather. Only twenty-two of the pictures represent garden scenes, the rest being of cut flowers in conjunction with pottery and the other small objects usually found in still life studies. As regards the gardens, these varied in attractiveness. No. 13, "A Vista at Hever," shows little but a grass path bordered by a thick, clipped Yew hedge, at the end of which a statue is placed in a stone niche. No. 9, "Manor House Forecourt in Lincolnshire," represents a pretty corner in a formal garden, with a riotous Clematis twining around the pillars of the wide doorway in the low wall, and Hollyhocks and Antirrhinums growing in unstudied grace at the foot of the wall. No. 18, appropriately named "Early June," shows a plantation of Azaleas and Rhododendrons, but the artist has just failed to make the most of the brilliant hues of these lovely flowers, though the deep shadows on the ground would suggest bright sunshine. No. 12, "The Closed Gates," represents a pair of wrought iron gates set in an iron railing, beyond which a view of enchanting country can be seen, whose charm is intensified by the fact that the portion of the scene inside the gates—part of a cultivated garden—is thrown into deep shadow by an overhanging tree, while the country beyond is in full sunshine. No. 17, "Rhododendrons and Irises," shows the Rhododendrons formed into a loose hedge, the Irises—purple and yellow—growing in masses in the foreground. The picture is pleasing, and the colours blend well, but here again the artist has failed to give the Rhododendrons the peculiarly brilliant tone which their posi-

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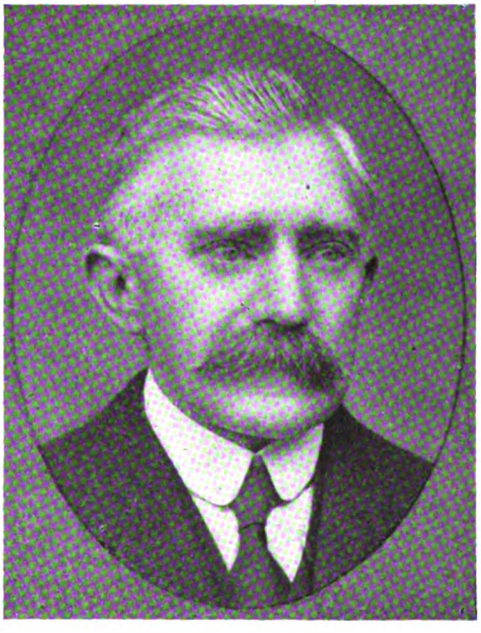
tion in full light should warrant. No. 8 represents a charming little corner in the old gardens at Hampton Court; a part of the wall with a pillared gateway, and in the foreground a bed of Azaleas set in the turf. "July in my Garden" (unnumbered) is a pleasant mêlée of garden flowers of the commoner kinds, set off by some smooth turf and a number of trees planted apparently at haphazard. No. 22, "The Loggia at Walhampton," is a neat bit of work, whose trimness is relieved by a wayward Rose or two of climbing varieties in the foreground. No. 25 is among the second series of drawings, and represents a glass vase of garden flowers which bloom in August—hence its name, "An August Medley." The predominating colours are red and yellow. No. 59, "Gillyflowers," shows a vase of neutral tint, in which are loosely arranged some variously coloured Pinks of the older border varieties. No. 63, "Some New Carnations," is well executed, and the colours carefully blended. A series of pictures, each bearing the name of a month, is intended to represent the flowers to be found in the garden at each period; the flowers are prettily posed, and "November" is especially pleasing, consisting chiefly of Chrysanthemums, mingled with the berries of various ornamental fruiting shrubs. No. 58, "Old Friends," is remarkable for its very beautiful setting. It represents red and yellow Tropaeolums loosely arranged in an earthenware bowl on a polished wood table. Close to the flowers, and partly behind them, is a brown earthenware pitcher, against which the colours of the flowers are thrown up in high relief; emphatically a picture one could "live with."

Citrus Crops in Greece.—The production of Citrus fruits in Greece has increased enormously since 1921, the amount last year showing an increase of 159 per cent. The number of Oranges harvested in 1922 was 152,000,000, compared with 53,000,000 in 1921, whilst Mandarins numbered 63,000,000 compared with 18,000,000 in 1921, and Lemons 49,000,000 compared with 31,000,000.

A New Climbing Rose.—Monsieur J. C. N. Forestier, conservator of the Paris Parks, writes as follows, from the Bois de Boulogne, Neuilly-sur-Seine, France, under date of May 25, 1923: "I read, at the foot of p. 289 of your issue of May 26, a description of a new climbing Rose, a hybrid of Rosa gigantea. I am of opinion that its name is neither Belle of Portugal nor Belle Portugaise, but Etoile de Portugal. If I am not mistaken, it was raised by Cayeux when he was head gardener at Lisbon. It is certainly an excellent climbing Rose, extremely vigorous, flowering in the south of France and in Spain, from April onwards. The foliage is hardy and very abundant, and the flower is of delicate form, like that of Zéphirine Drouhin, but larger, and the colour is pink, tinged with yellow. It is very agreeably scented. The blooms are produced in great numbers, but I fancy that this Rose, from a climatic point of view, is as exacting as Rosa Banksia. I planted it at the foot of the trellis-work in the gardens of Montjuich, Barcelona, three years ago, and it already covers the paling."

Development of Sarawak.—The interesting province of Sarawak, on the north-west coast of Borneo, has made rapid increase in its trade since 1842—the date when Sir James Brooke, the first Rajah, was proclaimed in Brunei. According to Mr. E. Parnell, in a paper read before the Society of Arts, the value of exports in 1842 was $60,000, whilst in 1920 the exports were valued at $18,067,121. The imports also show a phenomenal increase. In 1854, the first year for which figures are available, imports were of the value of $319,639, whilst in 1920 their value was $14,680,520. Amongst vegetable economic products are Rice, Pepper, Camphor, Damar, Ratans, and Sago. The Pepper industry has suffered a decline since 1905, when the value of Pepper exported was $2,638,414. The disease known as "black berries" is mainly responsible for the decline of Pepper exports, and although the disease was regarded as incurable and nothing was done to stop its spread, the Government Mycologist, who has inspected the gardens, reports that it is curable at a reasonable cost, and steps are being taken to carry out his recommendations. When the rubber boom came, hundreds of Pepper plantations were interplanted with rubber trees to the ruin of the existing Pepper vines, and to the detriment of the growth of the rubber trees.

Mr. Walter Irving.—Most of our readers who are keenly interested in the cultivation of herbaceous and alpine plants are aware that Mr. Walter Irving is an authority on these subjects and that he has for many years had charge of the special department concerned with these plants at Kew. Mr. Irving commenced his gardening career at Easton Park, Wickham Market, Suffolk, under his father, who was gardener to the Duke of Hamilton. After leaving Easton Park, he entered service at Sefton Park, Slough, and subsequently was employed at the Grange Gardens, Old Windsor, the home of Sir Charles Murray. Later on, after spending a period of twelve months at



MR. WALTER IRVING.

Messrs. Lee's Nursery, at Hammersmith, Mr. Irving went to Belvoir Castle, where he worked for three years under the late Mr. Wm. Ingram, and laid the solid foundation of his present wide knowledge of hardy plants. From Belvoir Castle he went to Kew, in October, 1890, and in March, 1893, he was appointed to succeed the late Mr. Daniel Dewar, as chief of the herbaceous department in the Royal Botanic Gardens, while in June, 1922, he was appointed an Assistant Curator. Mr. Irving has devoted a great deal of attention to British plants, of which he has an extensive and peculiar knowledge that has proved immensely helpful to very many young men, who have been employed at Kew, and who have taken an interest in our native flora. For a long period of years Mr. Irving has been a frequent contributor to our pages, and he has written a book on Saxifrages, while *Everyman's Book of the Greenhouse* is also from his pen. At this season of the year the rock garden is one of the great attractions at Kew, and that it is so is due to the assiduous attention and loving care Mr. Irving has bestowed upon it for so many years. Those who are acquainted with Mr. Irving are impressed with his modest, retiring disposition, and his willingness to place his extensive knowledge at the service of others. These qualities have endeared him to a host of friends far outside those who have been associated with him at Kew.

Studentships in Cotton Growing.—A number of research studentships have been offered to University graduates by the Empire Cotton Growing Association, and will be awarded in July next. These studentships are to the value of £250, plus certain extra allowances, and are intended to provide opportunities for training in scientific research bearing on subjects that may be of service in agricultural demonstration or in inspecting Cotton-growing countries. The students will be expected to spend a period of their studentship at the West Indian Agricultural College, Trinidad, or some other institution abroad selected by the corporation. Particulars may be obtained from the Secretary, Empire Cotton Growing Corporation, Millbank House, Millbank, S.W.1.

St. Mark's Fly.—The large black flies—usually called St. Mark's flies—which every May swarm in orchards and elsewhere, do no damage to the fruit trees. The fly itself is harmless. In its young, or "grub" stage, it is sometimes credited with causing damage to the roots of grass, herbaceous plants, etc., but even then it is a comparatively minor pest. Any reference to damage to fruit trees by large black flies may be entirely discredited.

Vitality of Seeds.—According to *Nature*, Mr. J. Houdas, in a paper read before the Academy of Sciences, Paris, stated that certain seeds which soon lose their germinating power after exposure to air will, if kept in sealed tubes in an inert gas, such as hydrogen or carbon dioxide, retain their vitality for a number of years. In the case of Gerbera Jamesonii, the seeds lose their germinating power after exposure to air for a few weeks, yet when placed in sealed tubes containing an inert gas, the vitality of the seeds remained unchanged after eleven years.

Bracken and Pigs.—The difficulty of eradicating Bracken from land needed for cultivation is ever present in certain districts, but, according to a writer in the May issue of the *Estate Magazine*, those who have Bracken land need never regard it as useless. If they will spend a few pounds on fencing and will turn a few pigs into the enclosures thus made, they will quickly find that such land can be turned to good account in a remarkably short space of time and at very little cost. If it is desired to get rid of the Bracken completely, the pigs will do it, if left long enough on the land, for they will in time completely rout out the roots which, by the way, have a fair feeding value. Bracken-infested land can in this way be quickly turned into sound pasture. After the pigs have done with it for the time being, the ground should be harrowed level, and if grass shows no sign of coming, seed may be sown. It is a remarkable fact, however, that the presence of pigs on any land seems to encourage the natural growth of Clover. Valuable pasture is therefore quickly created.

Aberdeen's Parks Superintendent.—Much gratification is being expressed in civic and horticultural circles in and around Aberdeen, that Mr. William B. Clark, the esteemed superintendent of the Aberdeen Parks and Links, is not to vacate his post yet awhile. Mr. Clark was on the short list for the superintendentship of Edinburgh parks, but has withdrawn his application. A great favourite with all concerned in the administration of the parks, the powers that be have determined that an increase in salary be granted to Mr. Clark. This has been unanimously confirmed by the Town Council.

Successful Spraying.—Messrs. Ernest Benn, Ltd., are shortly publishing an authoritative book by Mr. P. J. Fryer, F.S.C., F.I.C.E., under the explanatory title of *Successful Spraying*. Mr. Fryer brings a wide practical experience to bear on this important problem, which he will treat as a business proposition to be faced by every practical fruit grower and by all those who raise crops liable to be attacked by insects or fungi. The present position of the agricultural and horticultural industries makes the application of modern scientific methods more

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than ever essential, and we look forward with pleasurable anticipation to a new work from the author of *Insect Pests and Fungus Diseases of Fruit and Hops.*

Trial of Schizanthuses and Annual Larkspurs at Wisley.—The Royal Horticultural Society will carry out a trial of Schizanthuses and Annual Larkspurs for flowering under glass during the coming winter and spring. A packet of each variety for trial should be sent to The Director, R.H.S. Gardens, Wisley, Ripley, Surrey (from whom the necessary entry forms may be obtained), so as to reach him on or before June 30, 1923.

Appointments for the Ensuing Week.—Tuesday, June 19: Kent County Agricultural Society's show at Gravesend (three days); Winchester Horticultural Society's meeting. Wednesday, June 20: Croydon Horticultural Society's exhibition. Thursday, June 21: Manchester and North of England Orchid Society's annual meeting. Saturday, June 23: Southgate Rose Society's show.

PLANTS NEW OR NOTEWORTHY.

PENTACTINA RUPICOLA.*

THE rich and more accessible lands of Japan and China have contributed so much material to western gardens that the very existence of other countries in the Orient has almost been lost sight of. Korea is a country of considerable size, and its flora contains many ornamental species, yet singularly few Korean plants are known in the gardens of Europe. Until quite recently comparatively little was known concerning the flora of Korea, but since the annexation of the country by Japan, its vegetation, as well as other resources, have been fully inquired into. The fact that Viburnum Carlesii, Rhododendron Schlippenbachii, Cornus officinalis and Lilium cernum, are natives of Korea, should be a sufficient inducement to lovers of hardy plants for further inquiries into the floral wealth of the Korean peninsula. It was my good fortune to spend the greater part of the years of 1917 and 1918 travelling through Korea, which is different in many respects from either China or Japan, its immediate neighbours. The climate is continental, and except in the extreme south, the winters are severe. All the plants from Korea so far introduced in the Arnold Arboretum have weathered the vagaries and severities of New England winters, and our only regret is that we have not more of them.

The beauty spot of Korea is the Diamond Mountains, for centuries a Buddhist sanctuary and a place where the natural vegetation has not been interfered with or destroyed, which has been the case over the greater part of the country. It is a collection of peaks, the highest of which exceeds 6,000 feet, intersected by ravines and glens down which streams of the purest water flow. In all the East I know of no place more lovely and interesting than the Diamond Mountains. In the glens and ravines, on the cliffs and peaks grow a great variety of plants, and several like the subject of this note are not known to grow elsewhere.

The new and monotypic genus, Pentactina, grows on the steep cliffs near the Makaean Monastery. Pentactina rupicola (Fig. 158) is a tufted plant with slender, arching, and pendent stems, pink when young, changing to red-brown. The leaves are alternate, tufted at the base of the shoot, sessile or with a short petiole, without stipules, light green above, glaucous below, oblanceolate in shape, 1 inch to 2½ inches long, ½ to 1 inch wide, with broad-cuneate base and are deeply toothed above the middle. The flowers are borne in terminal, pyramidal panicles, each from 3 inches to 4 inches long. The individual flower is small and has a pale-coloured calyx with reflexed lobes; spreading, narrow, strap-shaped petals; about 20 stamens and 5 rose-coloured ovaries. The fruit is dry and surrounded by the persistent stamens which are reflexed. The blossoms are densely crowded on the rhachis; in the autumn the leaves change to a bright yellow. The winter-buds are woolly and the bark conspicuously red-brown. The genus is closely related to Spiraea, from which it is distinguished by its strap-shape petals, and by its 2-ovuled follicle dehiscent along both sutures.

This new plant flowers during the latter part of June and early July, and is both a pleasing and useful addition to the rockery. It was first discovered by T. Uchiyama in 1902, but was not named until January, 1917. In the late summer of that year I collected seeds and plants and succeeded in introducing it into the Arnold Arboretum, where in a rockery it has grown well and flowered freely since 1920. It is a dainty little shrublet, but more for the connoisseur than for gardens in general. *E. H. Wilson, Arnold Arboretum.*

* Nakai in *Tokyo Bot. Mag.* XXXI. 17 (1917).

FIG. 158.—PENTACTINA RUPICOLA.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Curatorship of Chelsea Botanic Gardens.* We have to announce the resignation of the Curatorship of the Botanic Gardens, Chelsea, by Mr. Fortune, engaged by the East India Company to proceed to China, for the purpose of procuring Tea plants and seeds for their Tea plantations in the Himalayas; and the appointment of Mr. Thomas Moore in his room, upon the recommendation of Dr. Lindley. We have also to add that Mr. Hartweg has returned to England with a collection of seeds for the Horticultural Society, after an absence of two years and eight months, the greater part of which time was passed in California. *Gard. Chron., June* 10, 1848.

Publications Received.—Silver Leaf Disease of Fruit trees and its occurrence in South Africa. By V. A. Putterill. *Science Bulletin* No. 27. Department of Agriculture, Union of South Africa. Government Printing Office, Pretoria. Price 3d.—*Bulletin of Peony News.* Nos. 18 and 19. American Peony Society, 200, West 58th Street, Minneapolis, Minn.—*Income Tax and Super-Tax*, 1842-1924. Oliver and Boyd, Tweeddale Court, Edinburgh. Price 1s. net.—*Fruit Cultivation in Trinidad and Tobago.* Issued by the Agricultural Society of Trinidad. Price 1s.—*Agricultural Rates Bill*, 1923: *Memorandum on the Financial Resolution.* H.M. Stationery Office, Imperial House, Kingsway, W.C.2. Price 3d. net.

PRIMULA DELAVAYI.

THE photograph of Primula Delavayi reproduced on p. 333 (Fig. 159) shows a young plant of the true species, about natural size, in flower during April, and growing outside in the garden here. It was raised from seed—"Farrer No. 1053"—sown in 1920. This Primula seems to be of rather slow growth, and has not flowered before. The solitary flower is large, and carried on a stalk 2½ inches high; it measures an inch across the petals, which are six in number, fringed, and of a clear violet purple; the trumpet is 1⅝ inch in length, dark violet-purple outside, and covered with minute crimson hairs which give a reddish-purple tone towards the petals; inside it is green, with brown streaks at the base. The calyx is pale green with brown stripes. The leaves are rounded, and covered with crimson hairs, as also are the stalks of both leaf and flower; the hairs on the lower part of the stalks become green, but retain their bright colour half-way up and at the top.

It would be interesting to know if this Primula has flowered elsewhere since its introduction. *Kenneth McDouall, Logan, Port Logan, Scotland.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Cool Dendrobiums.—Such species as D. Kingianum, and its variety, album; D. speciosum, and its variety Hillii, D. teretifolium, D. glomeratum, D. japonicum, D. Victoria-Reginae, and several others thrive in the cool house, especially at the warmer end. Any plants of those mentioned that are starting to grow may have fresh rooting material afforded them if they require it. A similar compost to that advised for Dendrobiums will suit their requirements. The plants may be grown in shallow pans or baskets, suspended in a light position, where the syringe can be used freely amongst their foliage during hot weather, as they delight in plenty of moisture whilst making their growth. D. teretifolium is best accommodated on a teak wood raft, with a little of the compost packed between the bars and under the base of the plant, the raft being suspended in such a manner that the foliage droops naturally. These terete-leaved Orchids are capable of withstanding a greater amount of sunlight than the ordinary leaved varieties. D. Victoria-Reginae, the Blue Dendrobium, does better in a shady position, and should be grown in a shallow teak wood basket, in a compost in which living Sphagnum moss predominates. These cool Dendrobiums require, when growing freely, a liberal supply of water at the roots; but should be kept on the dry side after their growths are completed. The young growths of the deciduous and semi-deciduous Dendrobiums should, as they develop, be looped up to the wire or to a stake; as if they are allowed to hang over the sides of the receptacles in which they are growing they are easily broken or damaged; moreover, air and light circulate more freely amongst them when the shoots are kept apart.

Maxillaria.—The genus Maxillaria comprises both large and small flowered species. Among the former is M. Sanderiana, which produces its flowers in a downward direction, hence the necessity of growing it in a teak-wood basket. In the latter section are M. Meleagris, M. sanguinea, M. tenuifolia, and others whose pseudo-bulbs are produced at intervals on ascending rhizomes. M. grandiflora and M. venusta, are also showy plants which carry good foliage, and well flowered plants of these Orchids are always admired. The compost usually employed for Cattleyas may be used, and repotting done soon after growth begins. Most of the Maxillarias will thrive in the Intermediate or Cattleya house, and they should be kept more or less moist throughout the year, as if allowed to become dry there is a danger of their evergreen leaves becoming marked at the tips. Shade the plants from strong sunlight, and allow them plenty of fresh air whenever the weather is suitable. These curious and interesting Orchids are much sought after at the present time, not so much for their beauty, but more as a contrast to the large, showy flowered species.

HARDY FRUIT GARDEN.

By A. J. HASTINGS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Fruits Dropping.—Fruits of certain Plums are either swelling irregularly or dropping freely, and the promise of a heavy crop is vanishing. Apart from cold and sunless weather, dropping of the fruits is very often caused through dryness at the root. It is very necessary to see that trees of all kinds are not suffering from want of moisture during the critical period after the fruits have set. It often happens that just at this time, cold, drying winds prevail. When these cease, spraying the trees with soft water will favour a quicker swelling of the fruits in warmer weather.

Small Fruits.—Currants and Gooseberries promise to be good crops, and are not at the moment affected very much by insect or fungous pests. Gooseberry mildew may be expected; spraying with sulphide of potassium (1 oz. to 3 gallons of water) will destroy the spores of the fungus. The practice of tipping shoots that are affected by American mildew is usually recommended to be done in August, but in the case of slightly affected bushes it is advisable not to rely too much on spraying, but to remove and burn the shoots at once. Badly affected bushes should have dry litter put in them and be burnt where they stand. It is probably a disease which will recur in cycles, as it seemed on the wane during the past few years. Strawberry plants will need copious supplies of water to enable them to swell their fruits. Although many of the early flowers were spoiled by frost, the berries that set later should be very fine if we have sunshine to develop the flavour.

Silver Leaf.—This disease still causes considerable losses to fruit growers. Legislation is being adopted to enforce its eradication, as in the case of American Gooseberry Mildew. In many parts of the country large plantations of one of the host plants—the Portugal Laurel—are allowed to carry infection to adjacent fruit plantations. Fruit trees showing unmistakable signs of the disease should have the affected shoots removed before the fall of the leaves. Shoots suffering from malnutrition may, however, be mistaken for the disease, unless signs of the disease were evident the previous season. Careful pruning and stopping or dressing the larger wounds or cuts will considerably lessen the chances of an attack of Silver Leaf.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Eupatoriums.—The Eupatoriums are very useful for autumn and winter flowering, and should now be propagated by means of cuttings, which are easily rooted in a close case, with slight bottom-heat. E. Weinmannianum (syn. odoratum) flowers during the autumn, and plants propagated early in the year make useful specimens for the conservatory. If propagated at this season they make good plants for next year. This is a shrubby species, which, if grown on from year to year, will make large specimens. These should be pruned hard back early in the year and during the summer months stood out-of-doors. E. Kaffiim and E. macrophyllum are both useful for winter flowering, their large heads of bluish purple flowers being very showy, and long-lasting. In their first season they make good plants for furnishing the stages; while fine large specimens for standing in the conservatory beds may be obtained by growing them on a second year. E. ianthinum is a smaller and slower-growing plant, and is at its best during its second year. E. grandiflorum, E. petiolare, E. riparium and E. trapezoideum are all white-flowered species, useful for furnishing the conservatory during winter or early spring. E. petiolare is the best and has the additional merit of being sweetly scented; if propagated now this will soon make fine large specimens for standing in the beds, while if propagation is delayed until August useful plants for the stages may be obtained. They are all easily increased by means of cuttings, which root readily in a close case in a cool house.

Scutellaria costaricana.—This plant is now very showy in the greenhouse, and is deserving of more general cultivation, as it is easily propagated at any time by means of cuttings, which root readily in a warm case. At one time this plant was given stove treatment, but it succeeds quite well in an intermediate house, and when in flower is best removed to the greenhouse. Other good species which succeed under the same treatment as advised for S. costaricana are S. coccinea and S. violacea.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Coleworts.—These greens constitute a most useful catch crop, often coming in useful just when the autumn Cauliflowers are finished. Seed should be sown now in an open position and netted against birds. Sow thinly. The young plants may be drawn from the bed and planted to follow early crops of Peas or Potatos. They are very hardy; the two best sorts are Hardy Green and Rosette.

Cabbage Christmas Drumhead.—Sow a pinch of seed of this most useful Cabbage at the same time as the Coleworts, and plant the seedlings on good ground. This Cabbage grows to a good size and is hardy; the name indicates its time of maturing and shape.

Mulching and Watering.—Where material can be had, it is wise to mulch crops, as it not only saves much labour in watering, but adds greatly to the yield, especially of Peas and Beans. Long stable litter is the best material to use, as it keeps the ground cool and allows the air to reach the roots. Failing this, half-rotted manure or leaves will do, but anything of a close nature should be avoided. If watering is necessary, it should be done copiously. One good soaking is worth more than half a dozen driblets. Overhead sprayings in the late afternoons are very beneficial to most crops when the weather is hot.

Turnips.—Continue to sow batches of Turnips about once a fortnight, small sowings being better than one or two large ones. They may be grown between the rows of Peas. Mulch the soil with short grass from the lawn mowings, and thin the seedlings when they are large enough to handle. Dust the soil with wood ash during showery weather; failing rain, damp the seedlings with water during the late afternoon, before applying the ash.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Early Peaches and Nectarines.—Immediately the fruits are gathered from the earliest trees of Peaches and Nectarines it is a good plan to cut out all exhausted and superfluous growths and, practically speaking, prune the trees. When this work is carried out with the trees in full foliage it can readily be seen which growths need to be removed to allow of the proper development of those intended for furnishing next season's crop. After pruning the trees, the young growths should be tied down to enable them to receive the full benefit of light and air. By removing superfluous growths it is possible to use the syringe with good effect, thoroughly washing every portion of the foliage. It is most essential that the trees should be thoroughly cleansed of all insect pests at the earliest opportunity, using a suitable insecticide up to its full limit of strength. Bad infestations of red spider may effectually be checked by vaporising with sulphur—Campbell's Patent Sulphur Vaporiser being an excellent apparatus for the purpose. The borders should be examined, and, unless they are found to be thoroughly moist, well watered, applying at the same time liquid manure, guano water, or a suitable kind of artificial manure. If the trees have received plenty of air during the time the fruits were ripening the ventilators may be left fully open, both by day and night. Thoroughly syringe the trees late in the afternoon, as a moist atmosphere during the night is most beneficial to them, provided there is a full current of air passing through the house.

Orchard House.—Thinning the fruits of Pears, Apples and Plums on trees which flowered freely and set heavy crops of fruit should receive prompt attention. Timely removal of superfluous fruits reduces the heavy strain on the trees and materially accelerates the swelling of those fruits intended to form the crop. With the exception of extension growths, pinching out

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the points is best done at the earliest opportunity, when the young shoots have made five or six leaves; if allowed to unduly extend, there will be a certain amount of check to the tree. Disbudding will be necessary where too many young growths are clustered together, because unless light and air reach the young foliage there will be a poor prospect of flower buds next season. Insect pests should be kept under, either by vaporising or spraying with a suitable insecticide. Caterpillars must be removed by hand picking. If the water supply permits the use of a hosepipe, give the trees a thorough washing during the afternoon whenever the weather is favourable; a cool, damp atmosphere during the night is most congenial to the trees and swelling fruits. The admission of air must be guided by external conditions; ventilate freely on mild, sunny days, leaving the top ventilators open a little during the night.

THE FLOWER GARDEN.

By G. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Fragrant Foliaged Plants.—A grouping of fragrant-leaved plants is appreciated in most gardens, and they should be planted at a corner or angle convenient for passers-by to gather a sprig or press the leaves. A choice may be made from the following plants: Lemon-scented Verbena, Sweet Gale, Bee Balm, Myrtle, and Sweet-scented Geranium. While the last would only be hardy enough to be employed in summer, the other subjects could be considered more permanent, giving protection in severe winters to the Myrtle and Verbena.

Flower-Boxes.—Although flower-boxes are much more extensively employed in towns than in the country, these receptacles are nevertheless often wanted in country gardens to add brightness to terrace steps, balconies, or an odd window-sill. Plants best suited for this purpose are, as a rule, those which will hang down, as, for example, the Verbena or Ivy-leafed Pelargonium, but when the effect has to be considered from a distance, erect subjects will be needed, but the two plants already mentioned are equally good for this use if trained upright. Many other plants are suitable, but whatever are employed they should be planted in fibrous loam mixed with decayed manure to help sustain their vigour during hot weather. The tendency to use several kinds of plants in one box should be avoided.

THE PROPAGATION OF "DIFFICULT" PLANTS.

(*Continued from p.* 318.)

Mutisia decurrens.

THE following is an extract from *Notes from the Royal Botanic Garden, Edinburgh*, Vol. VIII., No. XXXVII., pp. 137-138:—

The usual practice is to take as cuttings young shoots as they appear above the ground, and with them a piece of stolon is cut. In many cases such shoots may be obtained with roots already attached. This, however, is a crude method, and one which may result in damage to the parent plant. These shoots are those which produce the flowers. Every shoot of the kind that is removed means loss of so much flower. It is therefore essential, to ensure a good supply of bloom, that these shoots be allowed to remain on the parent plant. It has only to be known that portions taken from any part of the plant will give successful cuttings to put out of court this old wasteful method.

After the flowering season is over—that is to say, after the end of August or the beginning of September—it may be found advisable to thin out some of the old, flowering stems that have grown into a tangled mass. From these thinnings a supply of material suitable for cuttings may be obtained. Perhaps the most successful method of striking these is as follows:—

Select a frame with a shady exposure, and in it place one foot of drainage. Over this place some rough material, such as leaves, to prevent the drainage from becoming choked up, and finally a layer of pure sand, say about 8 inches deep.

In preparing the cuttings it is not necessary that they should be cut beneath a node, but anywhere that is most convenient. A suitable length for cuttings is from 6 to 8 inches.

After the cuttings are inserted, a steady temperature of about 58° F. must be maintained. Water of the same temperature as that in the propagating frame should be given—using a fine rose—in liberal quantities, at least once a day, or more frequently in bright weather. On warm, sunny days, or during drying winds, it will be found beneficial to give water every hour from 7 a.m. to 5 p.m.

The summit portion of a shoot roots more readily than does the basal portion, the reason being that the growing points have not yet become so woody and are thus in a better state for producing roots. If the older portions, however, are used, and the water supply kept up, they will root, although they may be a fortnight or three weeks later in doing so.

It is not advisable to leave the cuttings long in the sand after roots have commenced to form, but, as soon as these are 2 to 3 inches long, the plants should be potted up. A suitable compost for potting consists of three parts loam and one part crock dust.

After potting, which must not be done too firmly, the plants should be placed back into the frame in which they were struck and receive a thorough watering. Water must then be withheld from the roots until the compost in the pots becomes somewhat dry, but, in order to reduce transpiration and prevent flagging, the foliage should be frequently and lightly sprayed.

After an interval of about a week from the time of potting, the roots of many of the cuttings will appear at the sides of the pots. These plants can then be removed safely to a cool house, there to remain until they are required for planting in border or greenhouse.

AZARA MICROPHYLLA.

Table showing results from six cuttings inserted each month in a cool frame:—

January	..	All dead	(May)
February	..	,,	(July)
March	..	,,	(June)
April	..	,,	(June)
May	..	,,	(Aug.)
June	..	,,	(July)
July	..	,,	(Aug.)
August	..	,,	(July following year)
September	1	rooted	(Dec.)
	4	,,	(May following year) — rest died
October	2	,,	(Aug. following year) — rest died
November	4	,,	(July following year — rest died
December	1	,,	(Aug. following year) — rest died

Azara microphylla may be easily rooted if placed in an intermediate propagating frame where tuberous Begonias are rooted.

DESFONTAINEA SPINOSA.

Table showing results from six cuttings inserted each month in a cool frame:—

January	..	All died	
February	..	,,	
March	..	,,	
April	..	1 rooted	(July) rest died
May	..	All died	
June	..	,,	

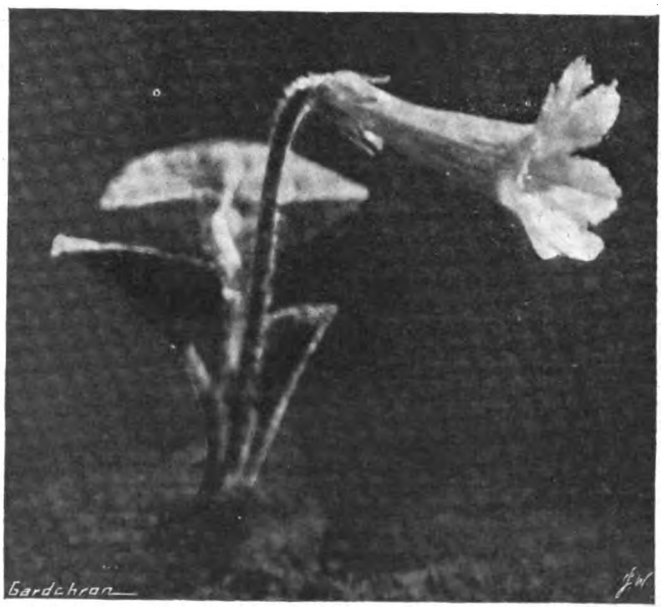

FIG.—159.—PRIMULA DELAVAYI (SEE P. 331).

July	1	rooted	(August) — 1 died
	4	,,	(Oct.) — 1 died
August	1	,,	(Oct.) — rest died
	3	,,	(Dec.) — rest died
September	5	,,	(May next year) 1 died
October	3	,,	(July next year) rest died
November	3	,,	(July next year) rest died
December	1	,,	(Aug. next year) rest died

BERBERIS VULGARIS.

Table showing the results from six cuttings inserted each month:—

January	..	All died	
February	..	1 rooted	(July) rest died
March	..	All died	
April	1	rooted	(August) — rest died
	1	,,	(Sept.) — rest died
May	..	All died	
June	..	All died	
July	..	3 rooted	(Dec.) rest died
August	3	,,	(Oct.) rest died
September	2	,,	(May following year) — rest died
October	6	,,	(April following year)
November	6	,,	(July following year)
December	3	,,	(August following year)

Although the above shows the results of propagation from cuttings, the best way to increase stock commercially is to raise plants from seed. Nevertheless, the table shows that October and November are the best months in which to insert cuttings. *L. B. Stewart, Royal Botanic Garden, Edinburgh.*

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NOTES FROM EDINBURGH BOTANIC GARDEN.

SEVERAL groups of Meconopsis are flowering in the rock garden at Edinburgh. M. integrifolia, a forest of stems, with numerous sulphur-yellow flowers, is particularly effective. The violet-coloured petals of M. simplicifolia are like silk, and contrast charmingly with the bunch of yellow stamens; M. grandis, M. rudis, and M. Prattii, are also flowering freely. The Celmisias are perennial herbs not generally cultivated. The flowers' heads are from 1 in. to 3 in. in diameter, the florets glistening white, disk yellow, foliage leathery in texture, and covered with a silvery tomentum. C. petiolata, C. viscosa, C. verbasciifolia, C. Munroi and C. coriacea are in bloom.

Haberlea rhodopensis, a tufted Gesneraceous plant, is bearing bluish-lilac flowers resembling a miniature Gloxinia. Sisyrinchium filifolium—a native of the Falkland Islands—figured and described in *Gard. Chron.*, March 10, Fig. 61, is flowering. Dwarf alpine plants flowering in clue Dodecatheon pauciflorum, D. frigidum (?), D Lemoinei excelsum, Saxifraga Wenlock Beauty, S. pedatifida, S. Lindsayana, and S. Wallacei, Arenaria montana, A. balearica, and A. populosa (?). Drifts of the white-flowered Iberis sempervirens, and Leiophyllum buxifolium enhance the vivid colouring of Aubrietia deltoidea J. S. Baker, A. d. Aubrey Pritchard and A. d. Dr. Mules improved.

There are many shrubs flowering, and of these the most noticeable are Vibernum Davidii, Potentilla fruticosa alba, Erica australis rosea, Pentstemon Bridgesii, P. Menziesii Scouleri, Andromeda polifolia angustifolia, Veronica Hulkeana, V. Fairfieldii, and Cytisus kewense, the last foaming over a bluff at the entrance to the rock garden.

Primulas and Rhododendrons are features of the garden, and are grown in combination. Primulas flowering profusely in the Rhododendron garden include Primula chrysopa, P. hapala, P. Veitchii, P. septemloba, P. lichiangensis, P. capitata, P. conica, P. erythrocarpa, P. muscarioides alba, P. m. tsarongensis, P. firmipes, P. japonica and P. involucrata. In the borders adjacent to the greenhouses Paeonia Delavayi, Incarvillea brevipes, and Omphalodes Luciliae are flowering. Here also is Lathyrus undulatus, a plant of local interest, from the shores of the Dardanelles. Two formal beds on the terrace are planted with Phlox subulata, G. F. Wilson and P. s. violacea; the densely tufted plants are covered with blossom.

Lathraea Clandestina, a showy parasite, with violet-purple flowers, is growing on the roots of Populus canescens and Salix alba; it flowers over a long period.

On the indoor rockery are choice rock plants and shrubs which do not thrive in the open. Interesting kinds noted flowering were Olearia nitida, O. myrsinoides, Hibbertia Readii, Linum monogynum, L. tauricum, Fabiana imbricata, Veronica Lavaudiana, Prostanthera rotundifolia, Omphalodes cornifolia, Wahlenbergia serpyllifolia and Tetratheca pilosa. The last-named is a soft foliaged, Heath-like plant, with purple flowers, which only open on fine days, closing again at evening or when rain is imminent.

On the wall in the corridor Viburnum macrocephalum is conspicuous with large, globose heads of snow-white flowers. Datura sanguinea is a showy wall plant, the long orange-coloured flowers being seen to advantage as they hang from the branches.

In the warm Orchid house species at present flowering are Vanda suavis, Cattleya Skinneri, C. Mossiae, Laelia purpurata, Oncidium Forbesii, Miltonia vexillaria, Epidendrum Burtonii, E. sceptrum, Dendrobrium thyrsiflorum, D. nobile Sir F. W. Moore, Laelio-Cattleya Aphrodite, L.-C. Fascinator, and Brasso-Cattleya Veitchii. —*Fred. W. Jeffery.*

PLANT COLLECTING IN THE AUCKLAND ISLANDS.

I EXPERIENCED the anticipations of opening a gift box when unpacking two boxes of plants from the Auckland Islands, which lie 290 miles to the south of New Zealand. This group has been well explored by botanists in the past, when access to the Southern Islands seems to have been more easily attained than it is in these days of public economy, but the interest in the flora of the different groups still remains, in fact, it seems to have been strengthened if we may judge by the inquiries from that home of gardeners—England. Farrer in *The English Rock Garden*, also stirs the interest by his remarks on Celmisia vernicosa.

The New Zealand Government steamer "Tutanekai," which attends to the lighthouse work, now visits the southern outlying islands once yearly to search for castaways, and to inspect the depots of provisions and clothing stored in shelter sheds for the use of unfortunates who may be wrecked on those inhospitable shores. There are no permanent residents on any of them. Previous to its last trip I secured the interest of Mr. McClay, the third officer, who promised to do what he could. I gave him as explicit directions as one who knows nothing about the locality can give to another who knows nothing about plants, and then waited his return in about six weeks. I had hopes that he might probably find Myosotis capitata, which Dr. Cockayne says is "perhaps the most beautiful plant in the New Zealand flora," and Celmisia vernicosa, but when the boxes arrived neither of the plants had been lucky enough to be transported to New Zealand.

It may be of interest to some of your readers to know what I received. There was a liberal amount of peat, for the soil of the Aucklands, at least on the lower levels, is peat. Being moist it was good for the clumps of plants and for the individual plants. I have also hopes that some stray seeds will germinate. Among the loose peat I found scraps or portions of plants with roots, which I have carefully planted. There were clumps of Stilbocarpa polaris, Chrysobactron Rossii, Anisotome latifolia and A. antipoda. There were also plants of Veronica elliptica, two varieties; Olearia Lyallii, with one plant of Dracophyllum longifolium. Probably next year I may try again. *Herbert Baillie, Public Library, Wellington, N.Z.*

NEW HYBRID ORCHIDS.

(*Continued from May 12, 1923, page 258*).

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Bedfordiensis ...	C. Dirce × B.-C. Digbyano-Mendelii	Sanders.
Brasso-Cattleya The Queen	B.-C. Digbyano-Mossiæ Alexandra × C. Lady Veitch	Sanders.
Brasso-Cattleya Villa Jeanne	C. Empress Frederick × B.-C. Dietrichiana...	Stuart Low.
Brasso-Laelio-Cattleya Miss Fitzpatrick	B.-L.-C. Veitchii × C. Mossiae	Sanders.
Brasso-Laelio,—Cattleya Mrs. J. T. Watson	L.-C. callistoglossa × B.-C. Mme. C. Maron ...	Sir H. Leon.
Cattleya Aurealis	nobilis × Dowiana aurea	Sanders.
Cattleya Lady Duncan	Helen Langley × Mossiae Wageneri ...	Mansell and Hatcher.
Cattleya Phillipa	H. S. Leon × Dowiana aurea	Sir H. Leon.
Cattleya Sohma	Empress Frederick × Mossiae	Flory & Black.
Laelio-Cattleya Almos	L.-C. Pallas × C. Mossiae	Sir H. Leon.
Laelio-Cattleya Cintra	Epicasta × Orion Othello	McBean.
Laelio-Cattleya Clarilaw ...	C. Schröderae × L.-C. Helius	McBean.
Laelio-Cattleya Emily Methuen ...	Apollo × Baldockiana	F. J. Hanbury, Esq.
Laelio-Cattleya Homily	Haroldiana × Medina Excelsior	McBean.
Laelio-Cattleya Maxim	L.-C. Hyeana × C. Schröderae	Stuart Low.
Laelio-Cattleya Tenemos	L. tenebrosa × L.-C. Domos	Sanders.
Laelio-Cattleya Vaison	C. Mendelii × L. Cowanii	McBean.
Lycaste Gratrixiae	plana × Lawrenceana	Sanders.
Odontioda Bantingii	Odm. Uro-Skinneri × Oda. Bradshawiae ..	Mansell and Hatcher.
Odontioda Murillo	Oda. Chantecler × Odm. Aglaon...	Cowan.
Odontioda Selina	Oda. Othello × Odm. Lady Roxburgh	Sir J. Colman.
Odontoglossum Crisarrillus	crispo-Harryanum × illustrissimum	Geo. A. Wood, Esq.
Odontoglossum Halcyon	amabile × Lawrenceanum	Sanders.
Odontoglossum Imperial	Colossus × gandavense	Pantia Ralli, Esq.
Odontoglossum Mirumense	Aireworth × Mirum	McBean.
dontoglossum Perseus	Rolfeæ × Leander	Sanders.
dontoglossum Selina	Maid of Gatton × (?)	Sir. J. Colman.
ph ro-Laelio-Cattleya Lena... ..	S.-L.-C. Laconia × C. Nena	Sanders.

PUBLIC PARKS AND OPEN SPACES.

SPRING FLOWERS AT BRIGHTON.

THE display of spring flowers in the public gardens at Brighton has been very greatly appreciated this season by the numerous visitors. The Valley Gardens provided the greatest attraction, where early and late-flowering Tulips, mixed, form the basis of the colour scheme. In most of the beds eight hundred Tulips were planted, together with twelve hundred carpeting plants. Some of the most attractive of the schemes of planting were as follow:—

Tulips Couleur Cardinal and chrysolora mixed, over double white Daisies; Tulip Keizerskroon, over dark Polyanthuses; Forget-me-Nots, with a mixed planting of Tulips Overwinnaar, Suzon and Europe; Tulips Keizerskroon and Arms of Leiden, mixed, over a carpeting of mixed Polyanthuses; Tulips Prosperpine, Sir Thomas Lipton and Madame Krelage, mixed, over a ground work of double pink Daisies; Tulips La Remarquable, Pink Beauty and retroflexa, mixed, over double white Daisies; Tulips Overwinnaar, and Madame Krelage, mixed, with a ground work of double Arabis proved very successful, as also did Tulip Sir Thomas Lipton mixed with Tulip chrysolora.

The double white Daisy served as an admirable ground work for a mixture of Tulips Overwinnaar, retroflexa and Wouwerman; Tulip Madame Krelage, with a carpeting of the double Daisy Firefly; Tulip Keizerskroon, planted with Orange Bedder Wallflower; Tulips Prince of Austria and Dusart, mixed, planted with dwarf, yellow Wallflowers; Tulip Prince of Austria and the dwarf Wallflower Vulcan; Tulips Duchesse de Parme and Sir Thomas Lipton, mixed, planted with dwarf, yellow Wallflowers; Tulips Proserpine and Sir Thomas Lipton, mixed, with a ground work of Wallflower Fire King; Tulips Pink Beauty, and Gesneriana rosea, mixed, planted with Wallflower Faerie Queene; Tulips Couleur Cardinal and chrysolora, mixed, over a ground work of double white Daisies; and Tulip Keizerskroon, with a carpeting of mixed Polyanthuses.

APPOINTMENT AT GREENWICH PARK.

The announcement made in a recent issue of the *Gardeners' Chronicle* that a new superintendent had been appointed at Greenwich Park was probably the first intimation gardeners had that a vacancy had occurred. No doubt many gardeners with extensive experience in public parks would have liked to compete for such positions as this, but, of course, have no opportunity of doing so if vacancies are not advertised in the *Gardeners' Chronicle*. It is obvious that those who hold the National Diploma in Horticulture desire to have their claims considered in connection with such appointments, but failing an advertisement, these opportunities do not arise, and young gardeners will consider it is hardly worth while spending much time and money in obtaining the Diploma, which is sanctioned by the Government, if positions under the control of His Majesty's Office of Works are not open to competition. *N. D. H.*

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THE BULB GARDEN.

NERINE BOWDENII.

THIS elegant Nerine, a coloured plate of which was given in *Gard. Chron.*, June 2, is one of the most useful of the genus, and its name is so well established in gardens that it should not be interfered with. But the question is: Is it a species or hybrid? If the collecting of it as a wild plant can be established and the locality given and verified, that would settle the question. But, failing that, I shall always consider it of hybrid origin. A few years before Nerine Bowdenii was figured and described in *Gard. Chron.*, November 26, 1904, p. 365, where its complicated nomenclature, chiefly as a hybrid, was set forth, I received from the late Mr. Chalwin, then of the Botanic Gardens, Cape Town, bulbs which he said might be called N. flexuosa major or N. flexuosa rosea. Messrs. Barr and others had a few of the bulbs, and, on flowering them, Messrs. Barr wanted more, and also the correct name and origin of the plant. I obtained more bulbs from Mr. Chalwin, but he said he was by no means sure where he obtained the plant, but the nearest guess he could give was that they were from the small lot of bulbs which I had given the Botanic Gardens some time previously as Nerine flexuosa hybrids. I believe Sir Trevor Lawrence obtained an Award of Merit for this plant under the name of Nerine flexuosa major. Mr. Gumbleton called his N. excellens major tardiflora (*Gard. Chron.*, October 22, 1904, p. 282). All these earlier arrivals were identical with the plant known as N. Bowdenii, a name which fits it much better than N flexuosa var. or N. excellens, although the latter, which was raised by me for Messrs. Henderson, and sent out by Mr. W. Bull, is closely allied. What is required to be determined is whether this Nerine is a species or hybrid. *J. O'Brien.*

TREES AND SHRUBS.

PRUNUS RUFA.

PRUNUS RUFA, a native of Central and Eastern temperate Himalaya, where it is found at a high altitude, is seldom seen in cultivation. Yet it should be common in gardens, considering it was introduced in 1897. I know it as a fairly well proportioned tree, 10 to 12 feet high. The reddish hairs on the twigs give this Prunus a marked and distinguishing character. The leaves are from 1 inch to 3¼ inches long, elliptic-accuminate, with serrate margin, the teeth being gland tipped and the leaf surface sparingly hairy. Another special character are the laciniate filiform stipules.

When first seen in flower, the tree has a resemblance to Styrax, with white flowers changing to pink, the blooms being somewhat pendant owing to the pedicels being rather long and the flower unusually heavy, due to a somewhat fleshy calyx-tube, which is smooth, urceolate to funnel shaped, becoming rougher as it diverges into the lobes, which are gland tipped.

According to description, I believe this Prunus to be near Prunus Puddum, one of the most beautiful in the genus, but seldom seen in good condition out of doors. *C. F. C.*

PLANT NOTES.

OSTEOMELES ANTHYLLIDIFOLIA.

THE genus Osteomeles has a very wide distribution, being found in the Andes of South America and in the eastern hemisphere from China to New Zealand. The Andean species have simple leaves, while the Asiatic and Antipodean species have pinnate leaves. They are distinguished from all other genera of the Pomaceous group of Rosaceae with pinnate leaves by the entire-margined and bristly-tipped leaflets. The leaves are closely allied to Crataegus, but the flowers differ therefrom in the shape of the petals, and the solitary ovule and persistent style, while the filaments in Osteomedes do not spread out as in Crataegus.

Osteomeles anthyllidifolia, the species upon which Lindley first founded the genus—and which at that time was the only species known with pinnate leaves—is a very interesting, as well as an ornamental evergreen shrub for the greenhouse, particularly if planted out in a border, as it will then grow from 6 feet to 12 feet high, and its long, graceful sprays of sweet-scented, white, Hawthorn-like flowers, which are borne during April and May in greyish, villous, terminal corymbs, from 3 inches to 4 inches across, are very decorative. Apart from the flowers, it is a graceful foliage plant, the pinnate leaves, from 2 inches to 4 inches long, consisting of 15 to 17 pairs of obovate-oblong, mucronate leaflets, ⅓ inch to ½ inch long, and these, arranged either opposite or alternate, are pubescent on both sides when young, becoming glabrous and lustrous above later, but still retaining the pubescence beneath. When not flowering O. anthyllidifolia resembles certain members of the Leguminosae.

The Cotoneaster-like fruits, which are pubescent, are green at first, turning red, and later to blue-black; the calyx is more or less bell-shaped, with five lance or awl-shaped persistent lobes. The shoots when young are densely villous, giving them a silvery appearance, the older branches and stem being a violet-brown colour.

O. anthyllidifolia is a plant very widely distributed, occurring throughout the south-eastern Pacific region, where it was first discovered by Menzies in 1792 near the summit of the Waiatua Mountain of Pahu in the Hawaiian, or Sandwich Islands, where it is known as "Uhi-Uhi." It extends across the Pacific, as by stepping-stones, to Pitcairn Island, Mangaia Island, the Bonin Group, and the Loo-chu Island, and is also very abundant in some parts of the Southern Shan States, where it is said to be a very conspicuous, but common plant, its profusion of white flowers in spring being reminiscent of our English Blackthorn. In certain localities it is a useful fodder plant, particularly around the neighbourhood of villages, where it is so freely eaten by cattle that the bushes become stunted.

FIG. 160.—OSTEOMELES ANTHYLLIDIFOLIA.

In Rees' *Cyclopædia* the species is described under the name of Pyrus anthyllidifolia, but it differs from that genus in having bony fruits.

A plant of more recent introduction is Osteomeles Schwerinae, from Western China, and this was at one time included under Osteomeles anthyllidifolia, but the last-named differs from the Chinese plant in having the petals more spathulate, and the fruit hairy. It is doubtful if O. anthyllidifolia could be grown satisfactorily out of doors in this country, even against a wall, whereas O. Schwerinae makes a delightful wall plant in many places. The Osteomeles are readily raised from seed by cuttings or by grafting, a good stock being Cotoneaster acuminata. *F. G. Preston.*

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EARLY BOTANIC PAINTERS.

No. 6.—DANIEL RABEL.

OF the progress of the Florilegium at the end of the sixteenth century, we can only judge from a few surviving examples. The small number of known collections indicates the possibility of further collections being discovered, as the period was undoubtedly a prolific one for botanic painting. The increasing use of copper-plate engravings as botanic illustrations, at the end of the sixteenth and the beginning of the seventeenth centuries, proved a new incentive to good botanic painting, as the engraver could then do fuller justice in reproducing the light and shade of delicate painted work. It is hard to believe that Van de Pas did not engrave the fine plates of the *Hortus Floridus* (1614) from equally fine, or perhaps superior, paintings done direct from nature. If his paintings could be discovered, no doubt they would rank high in the history of botanic painting. The Dutch appear to be unrepresented by any good surviving botanic paintings executed in the early years of the seventeenth century. The Gemeente-Museum at Delft possesses a painted album of Tulips, by an unknown hand about 1630. As botanic paintings these are poor, but are of interest as bearing names (many after admirals of the period), and including a painting of a Tulip sold for 410 Azen (Fl. 3,000) at the height of the "Tulip-mania." I have sought in vain for some really good English work of the same period. A MS. in the Bodleian Library (Ashmole 1461), known as "Tradescant's Orchard," although interesting from the point of view of the history of fruit culture, is of very inferior quality as botanic painting. It is significant that it is to France that we must once more turn our attention to find botanic paintings which reach real excellence and worthily carry on the tradition of the Florilegium.

A magnificent manuscript in the Cabinet des Estampes, Paris (MS. 2748), is without doubt one of the wonders of early botanic painting. Hamy, in his memoir in the *Nouvelles Archives du Muséum*, Paris, ser. 4, iii, pp. 1-20, gives a full appreciation of it, but words fail to describe its many beauties, and it must be seen. Splendidly bound in red morocco, decorated with the Royal Arms, and bearing on the back the title *Fleurs peintes par Rabel en* 1624 (which is confirmed by Rabel's name and the date written at the beginning of the volume), it consists of one hundred leaves of very fine, whitish vellum, a little more than 35 cm. high and 23½ cm. wide, interleaved with paper. A small silk tag (varying in colour) was at one time attached to each leaf of vellum, to obviate the necessity of touching the vellum with the hand in turning over the leaves; but many of these have now worn away. Originally in the possession of the Duc de Mazarin, and "le président de Rieux," at the death of the latter, in 1747, it was sold for "396 l. 5s.," or a little less than four francs per leaf; the livre being slightly less in value than the normal franc. At the death of Gaignat it reached the sum of 1,020 livres, and at the sale of the library of the Duc de la Vallière in 1783, it at length realised a price somewhat proportionate to its great merits, and was acquired for the Royal Collections for 7,400 livres.

Daniel Rabel was the son of a painter and engraver, and was born in Paris in 1578. Like many other artists of his time he held a title from his Sovereign, that of "*ingénieur ordinaire pour le Roy en ses provinces de Brie et de Champagne.*" He was also teacher of drawing to the son of the Duc de Nevers. The poet Malherbe wrote a most flattering sonnet to him, upon seeing the *Livre de fleurs*. The date of his death appears to have been 1637 (E. Piot, *Etat civil de quelques artistes Français*, 1873, p. 106).

FIG. 161.—RABEL'S ILLUSTRATION OF LILACS.

The first point worthy of note in regard to the *Livre de fleurs* is the wonderful freshness and purity of the colouring. During a careful examination I failed to find any traces of faded or darkened colouring. Three centuries have failed to dim his exquisite work. He was, therefore, a worthy painter who had thoroughly understood his materials. His work is also remarkable as being done almost entirely in water-colour wash. Where artists both before and since his time have fallen back upon body-colour to depict complex colour effects, he relied upon his deftness in applying washes and touches of colour just where they were wanted. His beautiful and highly-finished paintings are most delicate and true in colour; yet there is not the slightest trace of a "pretty-pretty" style about them. His exquisite work was the result of a fine restraint, a superlative mastery of the subtilities of colour, and an almost marvellous harmony between eye and hand. Few definite preliminary outlines are observable, but these were no doubt executed with the lead with such delicacy that the subsequent water-colour wash disguised them completely. His water-colour wash was applied fairly thinly, thus making full use of the whitish ground provided by the vellum. The delicate gradations of colour in the petals of the flowers were obtained by intermingling long, narrow touches of colour applied with a very fine brush. The leaves were often outlined with

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a very fine green line. That some of his leaves are slightly conventional in treatment is the only fault that can be found with this painter's work. Each page is enclosed by a narrow gold border, and the plant-names are written in gold. There is little doubt that the sustained excellence exhibited throughout this beautiful MS. marks it as the *chef d'œuvre* of a master of early botanic painting; and no naturalist could want more than is so faithfully rendered here, either as regards the flowers or the insects. The fine finish given to these studies is a legitimate one—*i.e.* the details appear as would be naturally seen from a fairly close view of the objects. Rabel fulfils in his work all the essentials of painting flowers in miniature.

As is usual with this type of botanic illustration, the flowers depicted are mostly those cultivated in the gardens of the period. A great array of Tulips, Narcissi, Anemones, Carnations, etc., are present. The first painting is a remarkable study of the Green Hellebore, the peculiar greeny-whiteness of the flowers being well represented. The collection contains several exotics—two species of Canna, two of Yucca, the Canadian Martagon Lily, a Cactus, etc.

The two photographs reproduced on p. 336 and p. 337, showing Lilac of two colours (Fig. 161), a red Lilaceous plant, and the famous Emperor Moth (Fig. 162) cannot give any idea of the exquisite colouring of the originals, in which their charm chiefly lies.

Rabel's insects are particularly well executed. As with his flowers, although the aim he had in view was the exact representation so dear to all true nature lovers, yet his fine artistic sense and restraint were in full play, and would not allow him to be satisfied with a mere slavish copy of the external aspect. To him neither plants nor insects became so much mere patterning to be imitated. His pictures are exact, but there is something more also; and in turning the leaves of his beautiful MS. one cannot but believe that he managed to include in his work some of his intense love for natural things. Beetles, grasshoppers, butterflies, moths, flies, caterpillars, etc., are all given a kind of immortality from his brush, for they appear as if still alive on his pages. His flowers are still fresh after the lapse of three centuries. The Abbé Rive, librarian to the Duc de la Vallière, more than a century ago called the attention of naturalists to the wonderful Emperor Moth, "*le papillon de nuit, appelé le grand paon, qui semble être endormi sur la page ou il est représenté.*" This fine piece of work is on folio 74, and shows the upper surface of the moth. Jacques Le Moyne's Emperor Moth shows the under surface, and has the antennae intact, which are missing in Rabel's painting.

Seven separate paintings of plants by Rabel are also known, dated 1631-32, these being preserved in the Muséum d'histoire naturelle, and the Cabinet des Estampes, Paris. He was also a painter of birds, for the poet Scudery wrote a poem entitled *Des Oyseaux peints en miniature par Rabel*, in which he remarks that they are so life-like that if a window could be opened they would fly away! No trace appears to be left of these paintings, but some day they may come to light.

The relation between Rabel's *Livre de fleurs* and the engraved book *Theatrum Florae*, Paris, 1622, is not generally known. The Abbé Rive was the first to make known that the engravings were identical with Rabel's paintings. The good Abbé was puzzled by the discrepancy between the dates, the engravings being two years earlier than the paintings; so he concluded that Rabel must have done the engravings first, and made the paintings from them? The discrepancy still exists, however, and one can only presume that the note at the beginning of the MS. is not Rabel's, or that he wrote it from memory at a later date. As Rabel is known as an engraver, the *Theatrum Florae*, which usually appears in bibliographies as an anonymous work, ought to be credited to him. The first edition is very scarce, but there are two others, those of 1627 and 1633, only differing from the original in the altered title-pages. *S. Savage.*

INDOOR PLANTS.

RICHARDIA.

RICHARDIAS (syn. Calla) are noble flowering plants, commonly known as Arum Lilies, and are particularly valuable when grown in pots for conservatory and other decorations. They are of easy culture, and with proper management many of them may be had in flower for several months of the year. The spathes are exceptionally useful for cutting purposes, lasting several days in water. R. Elliottiana, is a beautiful pure yellow spathed species, introduced from South Africa in the nineties of the last century. This Richardia attracted a large amount of attention, and was greatly admired when exhibited for the first time, but for some unexplained reason it is very seldom met with at the present day. It is a novelty in itself with its rich golden spathes, and trumpet-like tube four to five inches in diameter at the mouth. The spadix is of a deeper yellow than the spathe. The leaf is thick in texture, of a dark green colour, evenly spotted and marked with white.

The plant is easy of culture, and may be readily increased from seed; seedlings raised from seed sown early in the season will flower the following autumn, but the first spathes will not be of large size. The young tubers should be allowed to rest, and started again in the spring, when they will produce fine spathes in the summer. This Richardia may also be increased from suckers taken from the old tubers when repotting them in the spring. The plant should be allowed to rest after flowering.

The first batch should be started early in the year for early flowering; successional batches should be introduced to warmth to flower later. Two to three year old tubers give the finest inflorescences; after that period they begin to deteriorate, especially if the plants have produced a crop of seed.

After potting them place the plants in an intermediate temperature, water them sparingly until the roots are active, then give more water, and, when the spathe begins to show, a little liquid manure.

R. Pentlandii is a fine companion to R. Elliottiana, from which it differs in the foliage being wholly green without any spots. The spathe is pure yellow with a black band at the base. This species is not such a vigorous grower as the former, therefore it requires a little more care. Both species should be allowed a period of rest after flowering, allowing the soil to get almost dry, before starting them in the spring. In potting Richardias use thoroughly clean, well drained receptacles. Press the soil firmly and be careful not to over pot the plants, as they flower best in moderate-sized pots. Rich fibrous, turfy loam, mixed with a little decayed

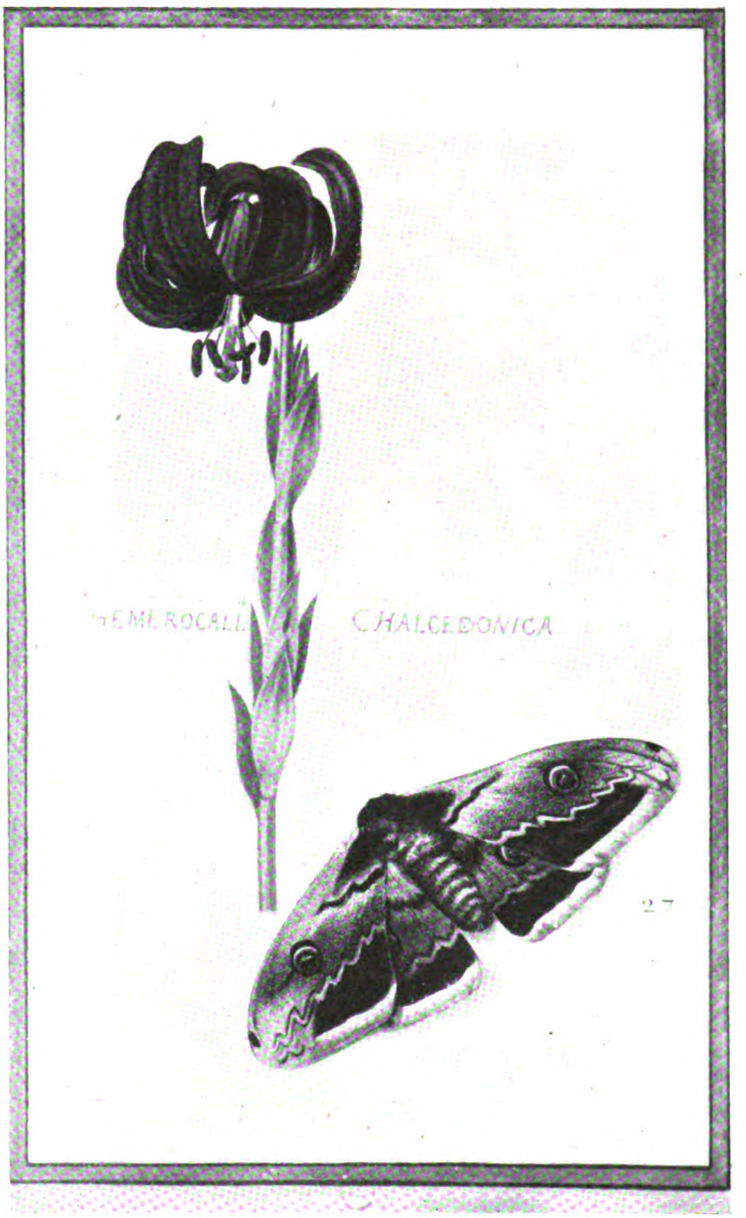

FIG. 162.—RABEL'S ILLUSTRATION OF A RED LILY.

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cow manure, and old leaf mould, provides a suitable rooting-medium.

There are several other species and varieties of this type, but none equal to those mentioned, either in size or colour. Amongst them are Mrs. Roosevelt, a pale yellow, vigorous growing variety; Solfatare, creamy-yellow; hastata, greenish-yellow; melanoleuca, spathe pale yellow, black at the base, spadix white; and albo-maculata, white, with silvery spotted leaves.

The greatest favourite, however, and the most popular, which has been known and grown in this country for nearly two centuries, is R. africana (syn. Calla aethiopica, C. africana), commonly known as the Arum Lily, and Lily of the Nile. The large spathes are creamy-white, and in great demand on account of their lasting properties, for the making of wreaths and other floral designs.

The common Arum Lily is cultivated by the thousand, and is invaluable to the florist. The plant is of the most easy culture, and when in active growth may be treated as a semi-aquatic; it is practically impossible to give it too much water. Liquid manure and soot water once a week will assist the development of the spathes when they commence to appear.

If desired to have the plant in flower in the spring it is necessary to repot the crowns in the autumn, and place them in a warm house. Water should be applied sparingly until the plants commence to grow actively, then a liberal supply of moisture is beneficial to them. This useful plant may be had in flower nearly all the year round. It is increased from suckers and division of the roots in spring.

When the plant commences to start into growth, the old soil should be shaken from the roots, and the plant repotted, afterwards placing it in a position where it will not get the direct rays of the sun. When well established this Richardia requires to be liberally supplied with water, and should be given liquid manure once a week.

Old crowns should be potted in rich soil, consisting of two-thirds good turfy loam, one third leaf-mould, and well matured cow manure, with silver sand. Provide plenty of material for drainage.

Arum Lilies do well planted out-of-doors in a moist, sheltered situation during the summer, in rich soil, lifting and potting them in the autumn. They require a considerable amount of moisture after they are lifted from the open ground, and should be placed in a close, moist atmosphere, until they are established. During the winter, whilst resting, they should be kept moderately dry for a time, in a temperature of about 45°, before starting them in the spring in a temperature of 60° to 65°. They may be grown in any ordinary greenhouse, but the flowers will not be so fine as when grown in a warmer house. Wherever grown, they thrive best with plenty of moisture.

A very pretty miniature form of the Arum Lily is R. africana "Little gem," with creamy-white spathes. This miniature form is particularly appreciated for use as cut flowers in the making of wreaths and other floral designs. It is not a strong grower, and does not require a large pot.

If green fly makes its appearance on the plants when they are coming into flower, fumigate the house, but be careful that the foliage and inflorescences are dry before doing this. *John Heal, V.M.H.*

THUNBERGIA.

THUNBERGIA ALATA and its varieties are easily-grown, warm greenhouse, twining annuals, flowering during the summer and autumn from seed sown early in the year. Light, rich soil, and frequent feeding of the roots when established, are essential for their continuous flowering. In the greenhouse they may be trained on the roof, pillars, the edge of the plant staging, or grown in baskets. Like other tropical plants of a scandent habit, whose season of growth is limited, they are of rapid growth, and require almost daily attention in the matter of training the shoots.

The flowers are produced in the axils of the leaves; they are tubular, with an oblique limb of five rounded lobes, coloured yellow, purple, white and orange.

The perennial Thunbergias are among the most showy of greenhouse climbers. They are strong growers, and when established flower freely; the spring-flowering species are particularly effective. T. coccinea and T. mysorensis flower during the late winter and early spring, the yellow and red flowers being produced in long racemes. T. Vogeliana flowers continuously, bearing deep violet flowers that have a yellow throat. The perennial Thunbergias thrive best when planted in a prepared border, the main growths being trained over a trellis. The young growth is naturally pendent, and may be assisted in this respect by placing lead rings at intervals along the stems. *Fred. W. Jeffery, Dalserf, Lanarkshire, N.B.*

THE SKUNK CABBAGE.

IN the *Gard. Chron.* for April 14, 1923, over the signature of *F. G. Preston*, of the Botanic Gardens, Cambridge, appears an article on

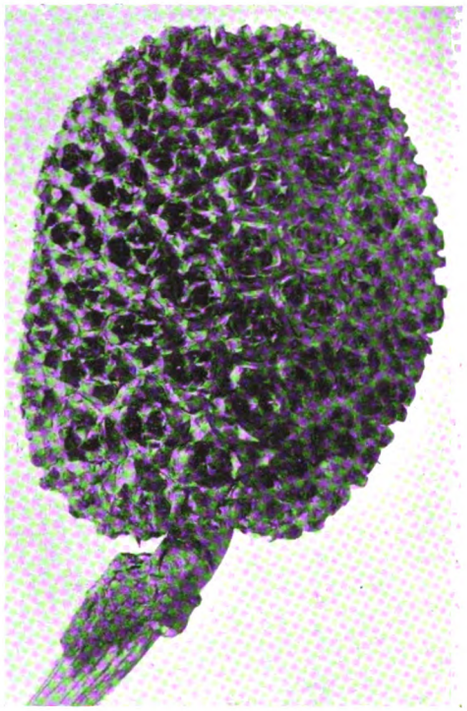

FIG. 163.—FRUIT OF SKUNK CABBAGE (SLIGHTLY REDUCED).

Symplocarpus foetidus, in which a quite erroneous impression is given as to the habits and fruit of this most interesting plant—a common wilding with us. The root stock does not normally branch, but grows upward in a single stem like the Palms, maintaining its position with the crown a little below the surface by thrusting down new roots each year, which, when well anchored, are contracted, dragging the trunk downward into the mucky soil.

A German botanical writer seems to be responsible for the misconception regarding the bloom, which is said to occur only in alternate years. As a matter of fact, the flowering spathes are produced by the successive conversion of the terminal bud, with always two leaves intervening, and so must continue with clock-like regularity so long as the plant lives. Some of these blooms are absorbed each season to permit the entire energy of the plant to be devoted to maturing the flowers and fruits not suppressed.

The habit of the Skunk Cabbage is to bloom annually, but the season of blooming may be any time from November to March if the climatic conditions are favourable, the foliage development occupying several months of spring and early summer, thus they are first seen in winter or early spring, with the one to several spathes adjoining a long, tapering, wintering-over bud that will later develop into the large, Cabbage-like mass of foliage.

It may also be interesting to know that these quaint and curious flowers are a long time forming, often requiring from two to three years to develop from the earliest stage at which they may be detected with the aid of a microscope, to the time of actual flowering.

Unlike their relative, the Indian Turnip, Arisaema triphyllum, the fruit is not developed into "a large head of one-seeded berries" as stated, but the entire inflorescence is aggregated somewhat after the manner of the Pine-apple (Fig. 163), so that the large seeds are completely embedded just under the surface of the spongy-fleshed fruit (Fig. 164).

The foetid odoriferous principle from which the common name is derived is very pronounced in the spathe when actually in bloom, without need of crushing, and is thought to serve as an invitation to carrion-loving flies, but the same odour, mixed somewhat with one of an Alliaceous character, is readily obtained by slightly crushing any part of the plant. *J. Marion Shull, Washington, U.S.A.*

MARKET FRUIT GARDEN.

FRUIT prospects underwent a decided change for the worse during May, owing to the low temperature and, in my district, the continual rainfall. Vegetation was almost at a standstill, so that a season which began by being forward is now backward. It was the wettest May of which I have any record. The total rainfall was 3.74 in., which is very nearly 2¼ in. over the average of the previous eight years. After the first week the sun was hardly seen, and there were several ground frosts and one heavy shower of hail.

INSECT PESTS SERIOUS.

Conditions were just such as to favour insect pests, already more numerous than for several years. The trees could not make progress against them, and the weather hindered spraying and often made it ineffective. The slow development of the Apple bloom gave every chance to the Apple blossom weevil, with the result that on some varieties 40 per cent. of the bloom proved to be "capped" and worthless. This, however, may not be of much consequence, as in most cases it does not amount to more than a useful thinning of the crop. I still have hopes of a fairly good crop of Apples, though it is too early to say for certain.

Caterpillars, which were numerous, have been thoroughly well controlled by spraying before and after blooming with arsenate of lead. I certainly gained, so far as caterpillars are concerned, by adding arsenate to the nicotine wash used on the former occasion; but, as this necessitated the substitution of casein spreader for the usual soap (which should not be mixed with arsenate), I probably lost in respect to the control of aphides. The bloom clusters were kept fairly clear, but there has been a lot of leaf-curling aphis on the trees since. I thoroughly believe in the use of casein spreader with arsenate of lead and Bordeaux mixture, but I am reluctantly forced to the conclusion that it is not a complete substitute for soft soap with nicotine. Another year I shall return to nicotine and soap for the first spraying given just before blooming. This wash immediately kills all aphides and young caterpillars that are touched by it. If this is followed directly after the fall of the petals by arsenate of lead and a spreader, to kill any surviving caterpillars, and those that have hatched out later, there should be little further trouble from insect pests.

There is every reason to expect that scab will be serious on Apples and Pears in districts where the May rainfall was excessive. A cold, wet May is well known to favour this disease. I found it on the leaves of Allington Pippin at the middle of the month, when the first spraying with Bordeaux mixture was being done. I intend to spray three times with Bordeaux mixture this year, instead of twice as usual, as

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nothing reduces the value of the crop for market more than scab.

BAD SEASON FOR PLUMS.

Plums have passed through a most trying time. As mentioned in last month's notes, the attack of leaf-curling Plum aphis was most severe. Here undoubtedly the omission of soap from the nicotine wash was unfortunate, for this is a difficult aphis to kill. Following the severe punishing of the trees by this pest came a swarm of Hop-Damson aphis, which massed on the underside of every leaf and in many cases on the fruit too. I have never before seen this aphis on Plums to any serious extent. Fortunately it does not curl the leaves, and so remains exposed. Copious spraying with nicotine and soft soap made almost a complete clearance.

Worse than the insect pests is the attack of brown rot on Plums. Probably drier districts have escaped this, but with me it is more severe than ever before. Pond's Seedling and President are the worst varieties, and cannot now bear any crop worth mentioning. Some trees of the latter variety are absolutely without green leaves. These trees will take several years to recover, if they live at all; and the labour of cutting out dead wood will be heavy.

There is apparently no efficient preventive of brown rot. I had thought that winter spraying with copper sulphate was a preventive; but all my Plums received this treatment shortly before blooming, and some of them had Bordeaux mixture just after blooming as well. It is said that if all the dead wood, leaves, and dried-up fruits are cut off and destroyed in autumn, the trees start the next season free from brown rot; but in the winter I noticed blotches of the disease on the young shoots. This, no doubt, was a result of the previous cold, wet season; and conditions during the past month were exactly suitable to the spread of the trouble.

The only varieties which now look like bearing full crops are Victoria and Monarch. Rivers's Early Prolific, which has borne heavy crops for many years in succession, has set only a very light crop, though it bloomed profusely. Czar and Belle de Louvain are resting after an over abundant yield last year. Pond's Seedling and President, which at one time promised well, are ruined by brown rot, as already mentioned.

Such a season serves as a reminder that, in spite of the most careful preparations and precautions, fruit growers are very much at the mercy of the weather and the pests and diseases which it favours. After giving every attention to manuring, pruning, and spraying, I have to admit disappointing results. However, bad fruit seasons are not always the least profitable. Reports from other districts, most of which are later than mine, become less cheerful every week.

GRASS ORCHARDS.

My grass orchard is the most promising for Apples this year. The abundant crop of grass is now being mown and allowed to lie where it is to rot into the land. Farmers who see this orchard always want me to run sheep in it, but they admit that the sheep would gnaw the lower branches of the half-standard trees, and would require fencing, dipping, attention to foot-rot, and turning out when spraying was in progress. A good many growers run pigs, which are certainly less troublesome. A neighbour is trying young pigs in an orchard of trees and bushes which has become very foul with creeping Bent-grass. They certainly do a great deal of cultivation, but do not treat the whole area evenly. Holes are made in places, and these become full of rain water, and badly puddled about, whilst other parts are neglected. It does not look as if the pigs would ever cultivate the whole orchard thoroughly, though they are fairly thick on it, and certainly eat down a great deal of the grass. Probably they need to be concentrated on a still smaller area.

The orchard cultivation question is always troublesome. In a season like this it is impossible to keep down weeds by horse cultivation and hoeing, and much expensive work is wasted. One orchard, ploughed last autumn, became so weedy before the land was dry enough to cultivate in spring, that little impression could be made on the rubbish. This has been ploughed again, as shallowly as possible; and yet countless roots were disturbed only 4 in. below the surface. This makes me wonder whether such an orchard of established Apples would not be better grassed down. If shallow ploughing injures roots, so must digging and even the horse cultivator. Grassing means rather smaller fruit, but there is ample compensation for this in higher colour. It is only in a season of prolonged drought that grass orchards suffer.

I am trying two orchards on a half-and-half system. The alleys between the rows are cultivated by horse-drawn implements, leaving the strips on which the trees actually stand to be mown instead of hoed. This does away with the expense of hand hoeing, whilst manures can be worked into the cultivated strips. I am anxious to see whether this plan gives any higher colour than full cultivation. If so, it would seem to combine the advantages, whilst avoiding the faults, of both grass and cultivated orchards.

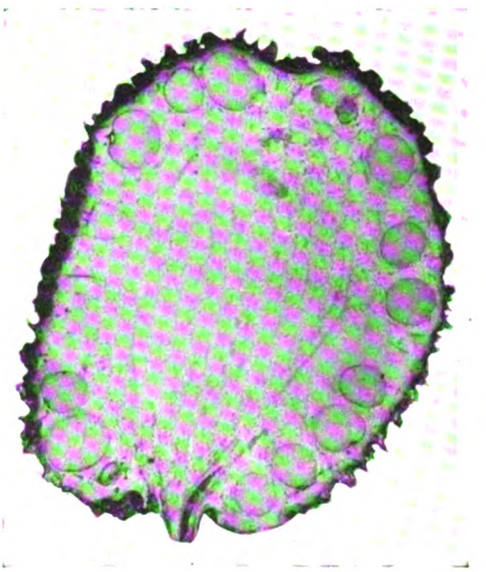

FIG. 164.—LONGITUDINAL SECTION THROUGH A FRUIT OF THE SKUNK CABBAGE, SHOWING EMBEDDED SEEDS. (SEE PAGE 338.)

POLLINATORS FOR COX'S ORANGE PIPPIN.

I am much obliged to *J. F.* (p. 290) for his list of varieties which can be planted as pollinators of Cox's Orange Pippin. I am very glad to know that Devonshire Quarrenden can be used with confidence for this purpose; and the choice will certainly fall on this variety. I have planted Devonshire Quarrenden in two young orchards, but they are only just beginning to bear; still, the young trees grow so well that it seems fairly safe to assume that the variety is suited to the locality. Certainly, the fruit will be readily marketable, as it is popular with the public. I prefer early dessert Apples to late varieties which have to compete with the full flood of imported fruit. Devonshire Quarrenden is subject to scab, but then so is Cox's Orange Pippin; and both will be ready for spraying at the same time.

DOUBLE-WORKED COX'S.

I have top-grafted Cox's Orange Pippin on to some trees of Royal Jubilee. The latter, planted as maidens on crab stock, were put in for this purpose. I want to see whether Royal Jubilee will transmit to the Cox's any of its immunity from canker. This is the healthiest variety in my orchards, not being troubled in the least by fungus diseases, and very little by insect pests. Caterpillars do not seem to care for it. It bears heavily in alternate years, and the fruit is very fine, but unfortunately does not sell well except in a season of scarcity, because it is a mid-season variety. *Market Grower.*

A GARDEN SUBSTITUTE FOR FARMYARD MANURE.

(*Concluded from page* 322.)

The treatment of the material classed as C calls for considerable attention, one drawback being the difficulty of consolidating the mass to promote fermentation. It is also essential that the material should be treated while fresh and green, as, if left exposed, lignification proceeds, and the breaking down of the tissue becomes much more difficult. To assist in the consolidation of the mass, it is wise to mix it with an equal quantity of partially decomposed material, such as would be derived from Class B, in the early stage of fermentation. If such materials as Rose prunings, Loganberry, Raspberry, and other fruit-tree summer prunings, shrub prunings, and hedge trimmings are stacked and consolidated in large heaps in this way, and left a year, the resulting product is equal to the foregoing, and decomposition is so complete that the uninitiated would have difficulty in determining its source of origin.

Although these processes may be carried out quite easily by means of open heaps, considerable advantages accrue from the use of bins, which may be constructed of either concrete, brick, or rough timber. These bins aid in conserving moisture, which is most helpful in treating the coarser materials. The size of the bins may be governed by local conditions, but a convenient size is 25 feet long, 12 feet wide, and 3 feet deep. These should be built with a slightly sloping floor, and provided with a discharge pipe at the lower end. A sunken pit should be arranged to collect the drainings from one or more bins. These drainings may be used to moisten the refuse in the bins when necessary, and when not wanted for this purpose they provide a useful liquid manure.

The turning of straw into manure without the intervention of the animal is an analogous process to that described for vegetable refuse. The Agricultural Developments Company, established at Harpenden, carries on this work on a large scale and produces, scientifically, an artificial farmyard manure. The raw straw is treated with chemicals to set up an artificial fermentation. In about three months the tissue becomes completely broken down, leaving a product similar in appearance and fertilising properties to partially decayed farmyard manure.

In discussing the subject of using this material as a substitute for farmyard manure, the question of cost must necessarily be considered. Even with the present restricted supply of farmyard manure, the would-be buyer is bound to ask himself—Which costs the most? In this case the advantage is distinctly on the side of the vegetable manure producer. The refuse must be dealt with in some way, and even destroying it by means of the bonfire costs something in labour. The price of farmyard manure is high at the source, the ultimate cost depending on the distance of transport, which cost is eliminated in the case of refuse. The experience at Pyrford is that a man can deal with a sufficient quantity of this material to produce approximately 250 loads of manure in a year. This works out at under 10s. per load, which compares very favourably with the price of farmyard manure, providing the fertility producing qualities are at least equal.

The results of the experiments set out below prove conclusively that weight for weight the vegetable manure is decidedly superior to farmyard manure. These experiments were carried out at Pyrford over a period of two years in boxes under glass, and also in the open field.

In the former the boxes used were 1 foot square by 9 inches deep, the crop grown was Mustard, and the method of comparing was the weighing of the dried plant tissue. In only one case, as shown in series III., has the result been in favour of farmyard manure, and the abnormaly low return from this application of vegetable manure is difficult to understand; but it was probably due to some toxic condition set up in the heap. The results, as a whole, prove beyond doubt that potential fertility exists in a very high degree in garden refuse, and that its

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ultimate value depends largely on the manner of decomposition, concerning which much still remains to be learned

In the open-field experiments two series of half-rod plots were laid down, and each series was manured alike. In one series Potatos were grown the first year and Mangolds the second year; in the other series Mangolds were grown the first year and Potatos the second, no further manure being used for the second crop in either case. Each series was grown in duplicate, the recorded crop being the average. The crops were weighed as lifted

The very low yield of Potatos in 1921 was due to the drought, the total rainfall recorded during the five months between the planting and lifting of the crop being only 3.47 inches. The Mangolds also suffered from the same cause, but made considerable weight after the Potatos had ripened.

From these tabulated results it would appear that applications as light as 10 tons per acre are not proportionately as beneficial as heavier applications, but one can hardly take this as final as the drought of 1921 created other factors. It seems clear that the application of 20 tons per acre is an economic one, and the maximum at which one should aim. So long as the land receives a reasonable dressing of organic matter, it is easy to supply elements needed for particular crops and conditions by the application of concentrated chemical fertilisers.

MUSTARD CROPS GROWN IN BOXES

Series.	Sown	Harvested	Manure used.	Rate p. ac.	Dry wt. of crop
I.	1921 April 14th	1921 May 29th	Farmyard ...	tons 32	22 grams
			Coarse vegetable refuse ...	,, ,,	51 ,,
			Grass and leaves 1 week in heap ...	,, ,,	60 ,,
			None (Control) ...	,, ,,	7 ,,
II.	May 19th	June 25th	Farmyard ...	32	25 grams
			Grass and leaves 2 weeks in heap ...	,, ,,	74 ,,
			Grass and leaves 3 weeks in heap ...	,, ,,	74 ,,
			Control ...	,, ,,	5 ,,
III.	July 28th	Sept. 16th	Farmyard ...	32	74 grams
			Coarse vegetable refuse ...	,, ,,	15 ,,
			Control ...	,, ,,	8 ,,
IV.	1922 April 13th	1922 May 29th	Farmyard ...	32	32 grams
			Coarse vegetable refuse 1 month in heap	,, ,,	27 ,,
			Coarse vegetable refuse 2 months in heap	,, ,,	30 ,,
			Grass and leaf 10 days in heap	,, ,,	41 ,,
			Control ...	,, ,,	6 ,,
V.	May 9th	June 15th	Farmyard ...	32	32 grams
			Grass and leaf 3 days in heap	,, ,,	32 ,,
			Grass and leaf 10 days in heap	,, ,,	41 ,,
			Fresh grass cuttings ...	,, ,,	31 ,,
			Control ...	,, ,,	10.5 ,,
VI.	Sept. 26th	1923 Jan. 31st	Farmyard ...	32	11 grams
			Coarse vegetable refuse 2 months in heap	,, ,,	20 ,,
			Coarse vegetable refuse 2 weeks in heap	,, ,,	20 ,,
			Control ...	,, ,,	4 ,,

OPEN FIELD TRIALS.

Series.	Manure; rate used per acre	Crop 1921: Weight roots	Weight foliage	Crop 1922: Weight roots	Weight foliage
		lb. oz.	lb. oz.	lb. oz.	lb. oz.
I.	None, control	Potatos 3 9	0 4	M'golds 35 12	7 12
	tons				
	Vegetable 10	,, 5 5	2 9	,, 70 4	19 12
	,, 20	,, 20 3	13 12	,, 200 12	26 12
	Farmyard 10	,, 8 13	2 9	,, 144 4	29 8
	,, 20	,, 10 1	4 4	,, 194 8	41 8
II.	None, control	lb. oz.	lb. oz.	lb. oz.	lb. oz.
	tons	M'golds 37 4	5 4	Potatos 22 12	3 8
	Vegetable 10	,, 84 4	18 4	,, 26 0	4 0
	,, 20	,, 144 8	26 8	,, 42 0	8 0
	Farmyard 10	,, 102 12	13 8	,, 43 4	7 0
	,, 20	,, 126 0	22 8	,, 57 12	16 12

W. Auton, Pyrford Court, Woking.

HOME CORRESPONDENCE.

African Bark Cloth.—The reference, on page 295, to "African Bark Cloth," reminds me that the natives of the Buganda Province of the Uganda Protectorate used bark cloth as clothing exclusively until recent years. It has now become almost entirely superseded by British and American Cotton goods. Several species of Ficus were grown for the purpose, but I never found any other trees used. They form large forest trees, and are epiphytic in their early stages. The natives, however, cultivate the trees they strip for cloth. Large poles 8 feet long and 4 inches in diameter are stuck in the ground and they quickly root and form trees. Every hut was surrounded by Ficus trees grown for this purpose, and in time they shaded out the Bananas growing amongst them. The native capital of the country is a Ficus forest and is known as "Kibuga," the name of the bark cloth being "Lubugo." It is now no longer the custom for Ficus to be planted when the hut is built, or Bananas to be planted by the prospective bridegroom. The stems are stripped of the bark to as high as a man can reach. Banana leaves are then tied round the exposed stem for a few weeks. The bark quickly renews and is repeatedly taken off. The first stripping gives only inferior cloth. In preparing the latter the strips of bark are beaten with mallets of different weights and differently grooved. To commence with, a heavy mallet with large grooves is used, then a lighter one with smaller grooves, finally a still lighter and more finely grooved one. The Ficus has another use in Uganda, as telegraph poles. Large poles are planted, and as they root, and grow, they have a much longer life, and are immune to attacks of white ants to a greater degree than ordinary, seasoned timber. They are, moreover, obtainable throughout the country. The only attention they need is the reduction of the head occasionally. *E. Brown.*

[With this note Mr. Brown sent three specimens of bark cloth, which, until carefully examined, have the appearance of woven material.—Ed.]

Gardeners' Wages (see page 291).—I am quite willing to supply particulars to *S. H. G.* in any way he wishes, but the point to remember is that this discussion is on gardeners' wages and conditions in general, with a word for the ex-Service man, and we should not base our opinions on individual cases. Like *S. H. G.*, and others, I am aware that many estates have been closed, sold or let, but that does not alter his observation on p. 203: "By then he is usually getting on in years, and a reason is found for discarding him for a younger, cheaper man." It was this remark that led me to ask him what class of private service *S. H. G.* was accustomed to. Such remarks as discarding old servants and gentlemen's servants filling the workhouses, when read by some of our employers, will not improve the gardener's lot, and if we are intent on improvement we must certainly use other methods. I did not ask *S. H. G.* about his position, but I would remind him that if some ex-Service men do get good pensions they would prefer to be as they were in pre-war days. *T. W.*

——This discussion is concerned with gardeners' wages generally and those of head gardeners in particular; therefore comparisons between ex-Service men and non-Service men do not apply. I am not under-estimating the services the soldier rendered, far from it; but there is another side to the shield, as I see it, and that concerns the man who stayed at home through no fault of his own. If he should get out of work, he is "up against it" with a vengeance, for he has only himself to rely on, and is handicapped in not being an ex-Service man, even though all ex-Service men did not go overseas. This seems to me to be the primary cause of low wages, and one which can hardly be altered in the case of a head gardener. In my opinion, no Union or Association can help him to higher wages; he must do what he can for himself. *Henry Arnold, The Gardens, Bedgebury Park, Goudhurst.*

What is a Rock Garden?—Mr. W. Watson's remarks on p. 323 are appropriate, and his ideas of a rock garden very much to the point. The rock garden should be the happy home of wild plants from aquatic to xerophyte, and therefore conditions should be found so varied as to accommodate different types according to their liking. Based on practical experience of 15 years I have come to the conclusion that 95 per cent. of alpine plants may be grown successfully on the flat without showing a single piece of rock above ground. I am sure it can be done. I would certainly not do it, because without a natural setting of rocks, the effect of even well-grown plants, would be less pleasing to the eye. Personally I liked Messrs. Tuckers' exhibit best at Chelsea show, as to my mind it showed to advantage the three essential points of a desirable rock garden, viz., rocks, plants judiciously placed, and the latter well grown. In Captain Symonds-Jeune's scheme there was an admirable piece of rockwork, geologically well planned, which would have been a fine feature in a larger rock garden. Being exposed, not many plants would feel happy on it for any length of time, except Sedums and Sempervivums. The point I wish to emphasise is that we often see too much rock and too little garden. *Amateur, East Mosley.*

——I was glad to see a mystery, which has exercised the minds of several spectators at the recent Chelsea Show, cleared up by the letter from Mr. Watson. No one will dispute that the weather-worn rock used by Capt. Symonds-Jeune was probably the best and most attractive boulder ever put up in Chelsea. It will be remembered an exhibit of recent years, in which were grassy slopes and a goat, was a subject of controversy. To the lay mind a rock garden is a collection of stones arranged as neatly as possible to produce a natural effect, and primarily to secure the successful cultivation of rare and other alpines. Provided this is obtained and no undue proportion of stone is used, neither size nor method of placement can be objected to. It is questionable whether water courses are a necessary adjunct to the rock garden. Judgment cannot fairly be given to an exhibit that most nearly imitates or is a copy of a grassy slope in Switzerland, the shaly sides of the Alps, or the heights of China. Having one of the largest rock gardens in the country under my care, which at the moment of writing show masses of colour, I think I may venture to say, such a garden will always be adaptable for alpine growing in England, and considered by experts as a real rock garden—a collection of alpines planted at varying heights and suitable aspects, with moisture-loving or bog plants at the bottom of the slopes, and rocks of varying size, weighing up to five tons, which, notwithstanding their large size, do not appear obtrusive. *A. J. Hartless, King's Walden Bury Gardens.*

Moonock (see p. 323).—This name is also spelled Moonog and Monox and applied to Vaccinium Vitis-Idæa and Empetrum nigrum, as well as to the Cranberry. The last named is known in Galloway (West of Scotland) by the same name. If Mr. Webster will refer to *A Dictionary of English Plant Names*, he will find the names discussed, and a reference there states that the word may be Celtic, "then the spelling would be monnaghs or monnoughs." In *The Gaelic Names of Plants*, "Muileag, a word meaning a little frog," is given as the Gaelic and Irish for the Cranberry, also "Monog, bog or peat berry, Mioriag, the small berry." Lightfoot, in *Flora Scotica*, gives the Gaelic name Mùileag. I should add that I have found the above *Gaelic Names of Plants* to be not always correct. *R. P. Brotherston.*

——This name (*vide* the late S. A. Stewart) is applied in the North of Ireland (Belfast) to Empetrum nigrum, which is also known as Monox Heather. Threlkeld gives it as the Irish name of Vaccinium Vitis-Idæa, and it is applied in Scotland to V. Oxycoccos (see *Dictionary of English Plant Names*, pp. 339-40). *James Britten.*

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SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 12 AND 13.—Regular visitors to the fortnightly meetings of the Royal Horticultural Society were surprised at, and highly delighted with, the extent and brilliance of the floral display provided for them at Vincent Square, on the above dates. The Hall was well filled with exhibits, the majority of which were of a high order of merit. An interesting inovation was the extended use of low tables for the display of plants and flowers, together with several arrangements made on the floor itself. Sweet Peas, Lupins and Irises provided the bulk of the display, and as many of these flowers are fragrant, perfume was added to grace and colour. Orchids, Roses, alpines and hardy border plants were also well shown. A remarkable feature of the exhibition was the display of Saxifraga longifolia made by Sir ERIC HAMBRO, and it is doubtful whether so many magnificent spikes on a given number of grandly-grown plants were ever seen at one time before. There were several interesting novelties on view, some of which gained awards.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. Jas. O'Brien (Hon. Secretary), Gurney Wilson (Assistant Secretary), Fred. K. Sander, C. J. Lucas, Chas. H. Curtis, T. Armstrong, J. E. Shill, H. T. Pitt, E. R. Ashton, Pantia Ralli, Frederick J. Hanbury, and the Hon. H. D. McLaren.

FIRST-CLASS CERTIFICATE.

Odontoglossum Goldcrest (*parentage unrecorded*), from Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tunbridge Wells. The finest of the wonderful set of improvements on the xanthotes forms of Odontoglossum raised by Messrs. Armstrong and Brown, the parentage of which cannot be given with certainty. The plant bore a fine spike of thirteen large flowers of fine substance; the pure white ground is closely spotted on the inner two-thirds with bright chrome yellow.

AWARDS OF MERIT.

Miltonia William Pitt (*M. Isabel Sander* × *M. Bleuana Reine Elizabeth*), from H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood). The plant shown bore its first flower, which showed it to be one of the very finest of hybrid Miltonias. The Committee also gave it a tentative Certificate of Appreciation. The flower is of true Miltonia form, the sepals white with violet markings, the petals deep violet with white outer parts and the lip white with the basal half violet and the crest yellow.

Odontonia Corona var. Rajah (*M. Warscewiczii* × *Odm. Harryanum*), from Messrs. CHARLESWORTH AND CO. A pretty hybrid with branched spikes of very attractive flowers, in which Miltonia Warscewiczii is very evident. The sepals and petals are chocolate-purple with yellowish tips, the showy lip pure white in front and purple at the base.

OTHER EXHIBITS.

R. GERRISH, Esq., Milford Manor, Salisbury (gr. Mr. W. Sorrell,) showed a plant of Odontoglossum Fabia var. The King (Aglaon × eximium), with a noble spike of flowers heavily blotched with ruby-purple on a white ground. Sir JEREMIAH COLMAN, Bt., Gatton Park (gr. Mr. Collier), sent Odontoglossum citrosmum gattonense, one of the finest forms of the species, with a heavy inflorescence of many wax-like flowers that are blush-white with a light rosy-mauve lip. This exhibitor also showed a superb form of his Dendrobium Gatton Sunray, which gained a First-Class Certificate at the Chelsea show.

Messrs. SANDERS, St. Albans, were awarded a Silver Flora Medal for a very interesting group with Dendrobium Dalhousieanum, D. chrysotosum and other Dendrobiums at the back. In the centre was a finely flowered specimen of Coelogyne albanense, with heavy sprays of Pea-green flowers, having black markings on the lip; Miltonias, Cattleyas and Laelio-Cattleyas were well shown together with a selection of rare species. Messrs. STUART LOW AND CO., Jarvisbrook, Sussex, were awarded a Silver Flora Medal for a very pretty and well-arranged group at the back of which were many elegant sprays of Oncidium pulvinatum with Odontoglossum Hallii and species of Odontioda, Cochlioda Noezliana, Miltonias, Cattleyas and Laelio-Cattleyas, some of the yellow forms of which were specially attractive. The interesting feather-lipped Bulbophyllum barbigerum, the stately B. Lobbii Colossus, with many flowers of large size, and on stems nine inches in height, and other rare Orchids were shown by this firm, which had also forms of Laelio-Cattleya Canhamiana alba and L.-C. Aphrodite.

Messrs. COWAN AND CO., Southgate, were awarded a Silver Flora Medal for a very compact group of specially good hybrids, the chief place being taken by the forms of their Brasso-Laelio-Cattleya Jupiter, by far the best yet shown being the variety Empress, with flowers nearly ten inches across; they are blush-white tinged with mauve, the broad lip being ruby-purple in front. Three good Cypripediums in this exhibit were C. Emerald, C. Alma Gevaert and C. Curtisii Sanderae.

Messrs. ARMSTRONG AND BROWN, Tunbridge Wells, showed the new and fine Laelio-Cattleya Princeps (L.-C. Ville de Bruxelles × C. Mendelii), a noble flower, broad in all its parts, white with deep ruby-crimson front to the lip The flower has all the good qualities of C. Mendelii improved.

Messrs. CHARLESWORTH AND CO. showed Miltonia Venus var. Princess Maude, the largest and one of the best forms yet shown.

Floral Committee.

Present: Mr. H. B. May (in the chair), Sir W. Lawrence, Messrs. W. J. Bean, G. Harrow, J. Heal, H. J. Jones, C. R. Fidler, W. Howe, D. B. Crane, W. P. Thomson, W. B. Gingell, H. V. Warrender, Clarence Elliott, Arthur Turner, Reginald Cory, Andrew Ireland, J. W. Barr, Jas. Hudson, W. B. Cranfield, J. B. Riding, Amos Perry, R. W. Wallace, Chas. E. Pearson, T. Hay, E. A. Bowles, A. G. Jackman, H. R. Darlington, H. D. McLaren, Gerald Loder, and G. Reuthe.

AWARDS OF MERIT.

Yucca gloriosa argentea.—An interesting and effective plant, in which the leaves are deep green with a central irregular base of clear greenish-white. Shown by Messrs. C. SMITH AND CO., Caledonia Nursery, Guernsey.

Lupinus arboreus Light of Lodden.—A beautiful tree Lupin, and one of the most brilliantly coloured forms we have seen. The large spikes carry an abundance of large, deep canary yellow flowers, which are sweetly fragrant. Shown by Mr. A. T. CARLISLE, Lodden Gardens, Twyford.

Pentstemon puniceus.—This is by no means a new plant, but it is not often seen in good condition. The stems are wiry, pale green, and carry the somewhat small flowers in axillary clusters; the leaves are glaucous green, and the flowers bright carmine-scarlet. Shown by Mr. C. T. MUSGRAVE, Hascombe Place, Godalming.

Saxifraga Cotyledon × *caterhamensis.*—An attractive hybrid, producing large, eighteen-inch, pyramidal spikes of blush-white flowers, with the petals freely spotted with crimson on the lower half; this latter colouring gives the spikes a pink tint as viewed from a short distance. Shown by Messrs. INGWERSON AND JONES, Bedwell Plash Farm, Stevenage.

Rhododendron insigne.—A rare species of which we believe there are but few examples in this country. It makes a low, free-flowering bush, and bears neat trusses of campanulata pink flowers. Shown by Lady ABERCONWAY AND Hon. D McLAREN, Bodnant, N. Wales.

Rhododendron dichroanthum.—A strikingly attractive Chinese species, said to be quite hardy. The flowers are tubular and wholly of a rich brick-red colour, borne in a loose cluster. The green leaves are ovate-lanceolate and grey beneath. Shown by Lady ABERCONWAY and Hon. H. D. McLAREN, Bodnant.

Pyrethrum Harold Robinson.—A strong growing single variety, with large blooms of rich crimson-scarlet colouring and golden centre. Shown by Mr. H. ROBINSON, Burbage, Hinckley.

Iris Thundercloud.—This is a particularly fine, large-flowered, bearded Iris, with bold and practically self-coloured blooms, on spikes, well over a yard high. The colour is deep, rich purplish-blue, with a satiny sheen. We understand this variety was raised by Mr. W. R. Dykes. Shown by the ORPINGTON NURSERIES, Orpington.

Rose Orange Queen.—A free-flowering polyanthus variety, which carries its shapely little double flowers in erect clusters. The colour is orange-salmon, paler, as shown, than in the case of Orange King (which received an award at Chelsea), but extremely like the latter variety in general appearance. Shown by Messrs. KERSBERGER BROS., Boskoop.

OTHER NOVELTIES.

Messrs. BAKERS, Wolverhampton, exhibited two varieties of Aster sub-coeruleus, named respectively Peggy and Kitty; the latter is a very fine form, with large blooms of soft bluish-mauve, but as each stem was supported by a stout white-wood stake, the grace of the plant was lost.

Messrs. DOBBIE AND CO. exhibited a very fine pure white Foxglove, under the name of Marshall's White; it has large flowers and bold spikes. The pretty Olearia semidentata, with large Daisy-like, blue flushed flowers, was shown by Mr. G. W. LODER, Wakehurst Place, Sussex.

GROUPS.

Sweet Peas were splendidly shown by many exhibitors, who had very attractive collections. Near the "New Plant" staging, Messrs. IRELAND AND HITCHCOCK set up a magnificent group. Beautiful pink colour was provided by such sorts as Gloriosa, Tangerine Improved, and Royal Scot, and other brilliant sorts were Hawlmark Pink Improved, Glory, and Mascott's Ingram. The same high quality was continued in many other varieties, particularly in Matchless and Annie Ireland (Silver-gilt Banksian Medal).

Just inside the door Messrs. ALEX. DICKSON AND SONS had a most imposing collection. They massed such sorts as Fairie Queen, Great Scot, Picture, Prince of Orange, Daisybud, and several "1924 varieties," which included Lucifer, deep pink shades; Champagne, pale primrose; and Purple Perfection (Silver-gilt Flora Medal).

Messrs. SUTTON AND SONS had a particularly fascinating display, in which they associated a large number of splendid plants of Clerodendron fallax with the Sweet Peas. The rich crimson flowers and the luxuriant foliage of the Clerodendrons served well to set off the delicate blooms of the Sweet Peas. Messrs. Sutton's chief varieties were Mascott's Helio, Frilled Beauty, Jean Ireland, Chelsea, Doris, Hebe and Tangerine Improved (Silver-gilt Flora Medal).

The central position in the hall was used to great advantage by Messrs. CARTER AND CO., where they arranged a large circular group of great charm and beauty. In the centre there was a graceful Bamboo surrounded by a large quantity of well flowered plants of Antirrhinum Nelrose. Next came big blocks of double-flowered Begonias, Gloxinias, Coleus, Petunia Queen of the Roses, and Calceolarias of several excellent types. Many well disposed stands supported graceful bowls of such Sweet Peas as Hawlmark Pink, Glory, Frilled Lavender, and George Shawyer (Silver-gilt Flora Medal).

Mr. H. J. DAMERUM arranged an attractive collection of Sweet Peas. The colours were very bright and fresh, illustrating desirable varieties and first-class cultivation (Silver Banksian Medal).

Irises, either as special exhibits or in association with other hardy flowers, were freely shown. The ORPINGTON NURSERIES Co. had a great many desirable, tall bearded Irises. A very large stand of the yellow and velvety maroon variety Lovely attracted a deal of admiration. Other varieties of the same type

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were Opera, Alcazar, Prosper Langier, and Ambigua. Besides these and many more varieties, they had some excellent seedlings and vases of the elegant little Iris Sintenisii (Silver Flora Medal).

Irises were pleasantly associated with many Delphiniums, Oriental Poppies, Verbascums and the beautiful Lupinus Sunshine, by Messrs. WATERER, SONS AND CRISP (Silver Banksian Medal). A great many excellent seedlings were displayed by Mr. AMOS PERRY, who also had spikes of such bearded Irises as Hakador, Comus, Ianthea, George Yeld, Mrs. H. F. Bowles and Hewodus. They also showed hybrids of the graceful Iris Watsonii, and I. tenax (Silver Flora Medal).

In an attractive miscellaneous collection, Messrs. WALLACE AND Co. included graceful spikes of Iris sibirica and its varieties alba maxima, Emperor and Perry's Blue, with many of the tall bearded type. They also displayed Lilium Willmottiae, L. bulbiferum, Ixiolirion Pallasii, and a small group of the new Rose Orange Queen (Silver Flora Medal).

With such good Irises as Golden Glory, Ossian, Princess Victoria Louise, Porsenna and giant Xiphium varieties, Messrs. BARR AND SONS showed many excellent Lupins (Silver Banksian Medal). Messrs. BUNYARD AND Co. included Alcazar, Riccardii and Eldorado, amongst their Irises, and also had some magnificent spikes of Eremurus (Silver Banksian Medal).

Sir EVERARD HAMBRO, Hayes Place, Hayes, Kent (gr. Mr. J. Grandfield), had a memorable collection of Saxifrages. There were many magnificent pot plants of Saxifraga longifolia, raised from seed at Hayes Place, and these bore immense spikes of bloom. S. longifolia cochlearis was also in beautiful bloom. Although not in flower, the pans of S. Boydii and S. diapensioides were of exceptionally high merit (Silver-gilt Banksian Medal).

On the opposite side of the gangway Capt. B. H. B. SYMONDS-JEUNE had a very beautiful display of Saxifraga Tumbling Waters, arranged most naturally amongst large boulders. The effect of the unusually long graceful racemes of white flowers was very successful (Silver Banksian Medal). Near by Mr. SYDNEY SMITH had a collection of succulent plants, similar to those we admired at Chelsea (Silver Banksian Medal). Messrs. DOBBIE AND Co. arranged many vases of long spurred Aquilegias of a splendid strain.

Beautiful Paeonies, chiefly P. albiflora grandiflora, P. Fire King and P. carnea, were set up by Mr. F. GIFFORD (Silver Banksian Medal). In the annexe Messrs. KELWAY AND Co. also showed herbaceous Paeonies, and besides many single-flowered varieties they had such doubles as Mrs. Baldwin, R. J. Campbell and Princess Mary. Adjoining the Paeonies were some good Delphiniums and choice Pyrethrums in variety (Silver Flora Medal).

Lupins, in similar varieties and of the same excellent strain, as at Chelsea, were displayed in quantity by Mr. G. R. DOWNER (Silver Banksian Medal). Mr. CLARENCE ELLIOTT showed splendid spikes of his scented Lupins (Silver Banksian Medal). Amongst the border flowers arranged by Messrs. B. LADHAMS, LTD., were a goodly quantity of Lychnis Viscaria plena, Mimulus luteus semi-plenus, and many beautiful garden Pinks (Silver Banksian Medal).

Garden Pinks in interesting and useful varieties were also shown by Mr. M. PRICHARD, who also had Kniphofias, Delphiniums, Heucheras, many alpines and Gazania splendens (Silver Banksian Medal). Mr. G. REUTHE included many hardy Orchids, principally terrestrial Cypripedium in his collection of hardy plants (Silver Banksian Medal).

Messrs. CHEAL AND Co. had two groups. One contained various shrubs of interest, such as Mitraria coccinea, Andromeda speciosa, and many Rhododendrons and Kalmias, while in the other there were seasonable border flowers, including Linum arboreum, Primula Cockburniana, P. cuspata, and bearded Irises. They also showed Star and Mignon Dahlias in bloom (Silver Flora Medal).

The herbaceous plants exhibited by Messrs. W. H. ROGERS AND SON, included Meconopsis aurantiaca plena, Irises, Primulas, Lupins, Anchusa italica Dropmore variety and Paeonies (Bronze Flora Medal). Messrs. CARTER PAGE AND Co. arranged a low, informal rockery, appropriately planted (Silver Banksian Medal). The Misses. HOPKINS also had a pleasantly designed rock garden.

Many Lupins, Delphiniums, Libertia formosa grandiflora, Campanula glomerata, and Pyretheums were arranged by Mr. W. WELLS, junr. Mr. E. SCAPLEHORN had excellent plants of such hardy species as Saxifraga longifolia, Celmisia holosericea and various Primulas (Bronze Flora Medal). Messrs. R. TUCKER AND SONS included in their exhibit Penstemon rupicola, Sedum pilosum and Cypripedium pubescens (Bronze Flora Medals).

Polyantha Roses were grouped very effectively by Messrs. WM. CUTBUSH AND SON. They had tall standards and bushes of such sorts as Mrs. W. H. Cutbush, Jessie, Juliana, Greta Kluis and their new Orange King (Silver Banksian Medal). The Rev. J. H. PEMBERTON also showed cluster-flowered varieties. The chief were Coral Cluster, Edith Cavell and Havering Rambler (Silver Banksian Medal).

Carnations, as usual, were freely shown in very fresh condition. Mr. C. ENGELMANN had many useful varieties (Silver Banksian Medal). Messrs. ALLWOOD BROS. had a large central stand of excellent blooms of Perpetual Malmaison varieties (Silver Flora Medal). Messrs. STUART LOW AND Co. included their new variety, Arnos Grove, and also staged interesting New Holland plants, Leptospermums, Justicia carnea and Cistus ladaniferus (Silver Banksian Medal).

Mr. H. J. JONES arranged a group of very well grown Hydrangeas, similar to those which were greatly admired at Chelsea (Silver Flora Medal).

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (chairman), Geo. F. Tinley, S. B. Dicks, G. Reynolds, F. Jordan, A. Bullock, A. Metcalfe, E. Beckett, F. Neal, W. Bates, W. H. Divers, E. A. Bunyard, W. Poupart, and Geo. Kelf.

The Chairman referred to the great loss the Committee has sustained in the death of Mr. Owen Thomas, one of the oldest members, whose opinions were of great value in the Committee's deliberations. Mr. Nix stated that Mr. Thomas was a splendid type of gardener, and a keen judge of a good fruit and vegetable. It was noteworthy that at the recent trial of Leeks in the Wisley Gardens, the variety Royal Favourite, raised by Mr. THOMAS, stood out conspicuously amongst the very best in the collection. Mr. Thomas, he said, had passed from us full of years and full of honour, and would be greatly missed. The Secretary was instructed to forward a letter of condolence, on behalf of the Committee, to the family.

The only exhibit was a collection of some fifty Melons, shown by Major PAM, Wormley Bury, Broxbourne (gr. Mr. F. Streeter), for which a Silver-Gilt Hogg Medal was awarded. The fruits were of moderate size, very clean and well finished. They were staged attractively on stands and dishes, with sprays of Smilax and Amelopsis foliage as decoration. The varieties were Superlative, Royal Favourite, King George, Emerald Gem, Hero of Lockinge, Best of All, Universal and Ringleader.

READING AND DISTRICT GARDENERS'.

THE first evening meeting of the summer session was held by the kind permission of S. B. Joel, Esq., at Maiden Erleigh on Monday last. This permission to inspect the gardens and pleasure grounds was greatly appreciated by the members, as was shown by an attendance of one hundred and fifty of the leading professional and amateur gardeners of the surrounding districts. The party was met by Mr. F. Johnson (head gardener) and members of his staff, and an inspection was at once made of the fruit and vegetable quarters where, under glass, splendid crops of Melons were noticed, the fruits being of large size and ready for table. Figs were also promising well. Out of doors the vegetable crops were good considering the lateness of the season, especially Cauliflowers, early Potatos and Peas.

Proceeding through the park, the visitors were conducted to the south front of the mansion, and a lovely floral picture was presented to their view. Extensive alterations have been made during the past few years, and much interest was manifested in the large herbaceous borders, the ponds and the views through the glades. Here were seen in perfection Lupinus polyphyllus hybrids, Pyrethrums, Poppies, Cistus (Rock Roses) in variety and two lovely batches of the blue herbaceous Geranium (Crane's bill). The rock gardens claimed special attention, and many of the plants were flowering profusely, such as Saponaria ocymoides, Cerastium tomentosum, and the blue Nepeta. The latter was growing extensively by the side of the miniature ponds and in the borders. The Rhododendrons planted in various parts of the estate were quite a picture in themselves.

At the close of the ramble Mr. A. H. Fulkes, chairman of the Association, voiced the feelings of the members by proposing a hearty vote of thanks to Mr. Joel for his kind permission to hold their meeting at Maiden Erleigh, to Mr. Geo. Laing for arranging such a pleasant evening's ramble, and to Mr. F. Johnson and his staff for so ably conducting the large party round. This was seconded by Mr. M. Goddard, and was carried with acclamation. Several new members were elected.

GRAND YORKSHIRE FLOWER SHOW AND GALA.

JUNE 13, 14 and 15.—In the early hours of the opening day of the Yorkshire Gala the City of York was visited by a severe thunderstorm. Fortunately this was of brief duration, and at 6 a.m. the sun was shining brightly; bright weather continued through the morning, but a gale of wind arose as the sun increased in strength and reached its height at about 11 a.m., just when the judges were completing their duties. The wind severely tested the big tent, which, as our readers are aware, is part of the erection used in London on the occasion of the International Exhibition of 1912. Those present who remembered the disastrous wind storm of a score or so of years ago, when, in an hour or two, the York Gala was levelled to the ground, had some fears lest a similar untoward fate should overtake this year's show. Fortunately, the tent stood the test, and soon after noon the force of the wind abated considerably.

We have seen larger shows and a more extensive competition at York than on this occasion, but non-competitive displays have rarely been finer, while the quality of the exhibits, taken as a whole, was very high. The leading features were the rock and water gardens, groups of hardy flowers, Carnations and Sweet Peas. The classes for fruits showed an improvement upon recent years, but Roses were rather poor owing to the lateness of the season.

It is always a pleasure to attend York Show, as Mr. Hodgson, Mr. Anderson, Mr. Hunt, Mr. Bushell and other officials have the happy knack of making exhibitors, judges and pressmen feel they are heartily welcome, thereby setting an example which the officials of certain other societies would do well to follow. Exhibitors are encouraged and helped; pressmen are welcomed and not regarded as a necessary evil.

At York the exhibitors and Press representatives are invited to lunch with the officials and judges on the opening day. On this occasion Mr. T. G. Hodgson presided, and was supported by the Lord Mayor of York, the Mayor of Ripon, the Mayor of Scarborough, the Dean of York (Dr. Foxley Norris), and representatives of various Yorkshire and other horticultural and floral societies. An excellent lunch was provided, and followed by the toasts of "The King"; "The President, Chairman, Vice-Chairman and Council," proposed by the Dean of York, and responded to by Mr. Hodgson; "Kindred Societies and Other Visiting Friends," proposed by the Lord Mayor of York, and responded to by the Mayors of

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Ripon and Scarborough; "Exhibitors and Judges," proposed by A. Rowntree, Esq., and replied to by Mr. Jas. Hudson, V.M.H.; and "Prosperity to the Grand Yorkshire Flower Show and Gala."

Regret was expressed that after this year it will not be possible to hold the York Gala at Bootham Park, where it has been held for sixty-one years, and hopes were entertained that the Gala Council will soon find suitable quarters for the Show of 1924.

Groups.

There were only two competitors in the class for a large group of flowering and foliage plants arranged for effect on a space of 300 square feet. In former years this class provided one of the great attractions at York Gala, but since the war there has been a reduction of interest in it, notwithstanding that liberal prizes of £20, £15, £12, £10, £8 and £5, respectively, are offered.

First prize was won by Mr. W. A. HOLMES, Chesterfield, with a group containing plants of very mixed quality. Some of the Crotons were poor, whereas Dracaenas were capital, and Clarkias, Hydrangeas, Heaths and Liliums were used to give floral colour. The general design included a bridge of cork, surmounted by Palms and Crotons, and draped with Selaginella and Clarkias. Under this a group of salmon Clarkias afforded a bright bit of colouring. The edging to the group was lacking in finish. Second prize was awarded to Mr. T. M. PETCH, Bradford, who used Crotons, Anthuriums and Orchids effectively.

Three competitors came forward in the class for a group of plants arranged for effect on a space 15 feet long by 6 feet wide. Messrs. J. CYPHER AND SONS, Cheltenham, were the winners of the chief award of £10, with a pleasing group, in which a light arch was the central feature; the arch was furnished with Palms and small Bamboos, Selaginella, Nandina domestica, and a few Orchids. The groundwork of the group consisted of brightly-coloured Crotons, Palms, Dracaenas, Rex Begonias, Ferns, Nandinas, Cattleyas, Laelio-Cattleyas, Miltonias Odontoglossums, and Kalanchoe flammea, all arranged in the light and elegant fashion which characterises the Cheltenham displays. Mr. W. HOLMES obtained the second prize, with a praiseworthy effort; and Mr. T. M. PETCH was awarded third prize for a very poor attempt.

In the amateurs' class for a group arranged on a space 12 feet by 6 feet there was but one exhibitor, JOSEPH ROWNTREE, Esq., Clifton Lodge, York (gr., Mr. F. Dean), to whom the judges awarded a second prize. Some good examples of Justicia and Haemanthus were included in this group, but the plants were crowded together in such a way as to entirely spoil the effect.

Orchids.

The display of Orchids was well up to the average, but we wish the officials in charge of this section would arrange the exhibits in a certain class together, instead of allowing an exhibitor to place all his plants together, no matter in which class they are entered. In our opinion the present method is not the best, as it does not give the public a fair chance of comparing plants which are in competition with each other.

Messrs. JAS. CYPHER AND SONS secured the chief awards. They won the first prize of £12 for a table of Orchids, 12 ft. by 5 ft., cut flowers admitted. In this attractive exhibit the Cheltenham firm displayed Oncidium Papilio, Thunia Marshalliae, Cymbidium Lowianum, Miltonias, Odontoglossums, Odontiodas and Laelio-Cattleyas in a pleasing manner with light and graceful foliage plants. J. MCCARTNEY, Esq., Bolton (gardener, Mr. C. Potts), won the second prize with a meritorious group in which we noticed good Miltonias, Odontiodas and Cypripedium bellatulum.

For ten specimen Orchids Messrs. J. CYPHER AND SONS were the premier prize-winners, and they showed capital examples of Dendrobium chrysotoxum, Thunia Marshalliae, Cypripedium Lawrenceanum, Laelia purpurata, L. Pecavia, Laelio-Cattleya Aphrodite, L-C. Aphrodite var. The Queen, L-C. Dominiana, L-C. Fascinator, and L-C. Canhamiana Rosslyn var. Messrs. A. J. KEELING AND SON gained second prize and their leading plants were of Cypripedium callosum Sanderae and C. St. Swithin, the latter of C. Stonei parentage.

There were three entrants in the class for six Orchids and here again Messrs. J. CYPHER AND SONS gained first prize, their selection on this occasion being Miltonia vexillaria leucoglossa, Thunia Marshalliae, Laelo-Cattleya Canhamiana, L-C. Aphrodite, Laelia purpurata and Brasso-Laelio-Cattleya Veitchii magnifica; Messrs. A. J. KEELING AND SONS, 2nd, and Mr. J. MCCARTNEY, 3rd.

Messrs. A. J. KEELING AND SONS won first prize for three Orchids, followed, in order, by Messrs. J. CYPHER AND SONS and Mr. J. MCCARTNEY. For one Orchid the chief award was made in favour of Mr. MCCARTNEY, who showed a handsome plant of Brasso-Laelio-Cattleya Roumania; Messrs. J. CYPHER AND SONS, 2nd, with Laelio-Cattleya Wigamiana.

In the amateurs' class for one Orchid Mr. J. ROWNTREE was successful with an Oncidium.

Greenhouse Plants.

Giant Pelargoniums are no more seen at York, but in their place are classes for various seasonable greenhouse plants.

Begonias were splendidly shown, and Messrs. BLACKMORE AND LANGDON'S first-prize group was a wonderful demonstration of skilful culture allied to varieties of the very best quality. The Bath firm filled an oval space 12 ft. by 6 ft., on the ground level, and their group included finely-flowered plants of such superb varieties as Lord Lambourne, B. McDougall, Mrs. J. Thorton white; Princess Victoria Louise, pink; and the exquisite Hilda Langdon.

Mr. JOSEPH ROWNTREE and Mr. ARNOLD ROWNTREE, Chalfonts, York (gardener, Mr. J. Armes), competed in the class for a group of tuberous and other Begonias, arranged on a space not exceeding 100 square feet. The former won first prize with an interesting exhibit in which a few tuberous-rooted Begonias were associated with plants of B. Lloydii, B. Haageana, B. coccinea, B. semperflorens, B. Weltoniensis, B. Pres. Carnot, B. corallina, varieties of B. Rex, and several other kinds. Mr. A. ROWNTREE confined his attention chiefly to tuberous-rooted and Rex varieties, but his flat arrangement was not pleasing. S. LEETHAM, Esq., The Mount, York, excelled for eight plants of tuberous-rooted Begonias and Mr. J. W. CLARKE, Skelton Street, Clifton, won second prize.

Dr. MACDONALD, Ouse Lea, Clifton, York (gardener, Mr. E. Bennett), was the only exhibitor in the class for a group of Calceolarias, and he fully deserved the first prize awarded him. He showed good examples of a fine strain of herbaceous Calceolarias with a background of C. Clibrani.

Mr .G. PALMER won first prize for eight Calceolarias with very well grown plants of a fine strain; Dr. MACDONALD won the second and Mr. J. ROWNTREE the third prize. Gloxinias were not shown so freely as usual. There was but one group of these plants, from Messrs. PADGETT AND WATSON, Low Ousegate, York, to whom the first prize was awarded. Mr. J. ROWNTREE was the most successful exhibitor of eight plants of Gloxinias.

Messrs. E. T. THEAKSTONE AND SON, Hull Road, York, were awarded first prize for their group of Carnations, in pots; the plants were of various sizes and carried blooms of fair quality.

Rock and Water Gardens.

Two exhibitors came forward in the class for a rock garden to occupy a space 30 feet by 12 feet. The class specification permitted the use of water, but did not allow competitors to make any excavations; in short, a low rock garden was desired. The most successful exhibitor was Mr. J. WINN, 18, Moorgate, York, who disposed his rocks in lowly fashion, with an irregular pathway running more or less through the centre of the arrangement. The design was one easily copied or adapted by those with limited space, while the plants used to furnish the garden were not of a kind likely to discourage a novice in the art of cultivating alpines, and they were disposed in fairly long drifts. Prominent subjects were Viola species, Ramondia pyrenaica, various dwarf Primulas, Saxifragas, Dianthi, Sedums and small Conifers. The second prize was awarded to Mr. R. V. ROGERS, Pickering, whose planting erred on the side of sparseness.

Another class provided for "An ornamental rock-work, decorated with hardy plants and flowers and other background; water may be introduced at the discretion of the exhibitor; cut Nymphaea only allowed; arranged on the ground—no digging permitted—to occupy a space not exceeding 30 feet by 12 feet." We confess to some sense of disappointment with the results of this competition. Mr. P. GARDNER, Ilkley, won the first prize; and Mr. S. PICKERING, York, the second. The former had a restrained design neatly planted. In Mr. Pickering's exhibit we were most interested in the groups of Sempervivums.

Hardy Flowers.

Messrs. BLACKMORE AND LANGDON, Twerton-on-Avon, Bath, displayed Delphiniums superbly in the class for a group of those flowers. The space allotted was 150 square feet. There was no overcrowding of the magnificent spikes, and probably no other competitive exhibit in the show was so greatly admired as this one. The varieties Yvette Guilbert, General Haig, Mrs. Christie Miller, and Millicent Blackmore, were represented, among others, by some of the finest spikes and flowers ever seen. Needless to state, although there was no other exhibitor, Messrs. BLACKMORE AND LANGDON received the premier award.

Considering the fine quality of the Sweet Peas now being staged by the specialists, it was unfortunate that only one exhibitor came forward in the class for a collection of these flowers arranged on a space of 100 square feet. The first prize was awarded to Messrs. E. W. KING AND CO., Coggeshall, for a bold arrangement in which stands of various sizes, and baskets, were used to display the flowers. The most attractive varieties were Austin Frederick Improved, Gladys, Giant Attraction, and George Shawyer. Judging was by points, and the maxima were 60 points for quality of bloom; 20 for harmonious blending of colour; and 20 for artistic arrangement and general effect; the points awarded were 35, 12 and 10, respectively.

First prize for a collection of hardy perennial flowers, arranged on a space not exceeding 350 square feet, was won by Messrs. HARKNESS AND SONS, who staged a great variety of subjects, but Lupins, Delphiniums, Poppies, Irises, Pyrethrums, and Verbascums figured prominently. Out of a possible 100 points they obtained 74. Messrs. GIBSON AND CO. gained the second prize with 60 points. Messrs. HARKNESS and GIBSON won prizes in order, as named, for a group of Lupins, and both made very attractive exhibits of these popular flowers. In a smaller class for hardy flowers than the one already referred to, Messrs. LONGSTER AND SONS beat Messrs. HARKNESS AND SONS, and the same firm was successful in the classes for two dozen and one dozen bunches of hardy flowers; Mr. R. KETTLEWELL being second prize winner in each class.

Messrs. HARKNESS AND SONS, Bedale, showed the best group of Poppies, and made a gorgeous display of finely grown flowers of varieties of Papaver orientale, in many shades of colour, with an edging of Iceland Poppies; 2nd Messrs. G. GIBSON AND CO., Leeming Bar, Bedale.

Roses.

In certain seasons, when the weather has been more kind than in this, Roses are shown in large numbers and excellent quality at York, but the weather of the past month has not favoured Roses, hence the display was neither extensive nor good.

Mr. ELISHA J. HICKS, Twyford, was the most successful competitor in this section, winning first prizes for seventy-two blooms, for forty-eight blooms, for two dozen distinct varieties, for eighteen blooms, and for a decorated table of Roses. Some of his best flowers were of Stanley Baldwin, Mrs. Winnett, Diadem, America, Mrs. C. Sawday, Capt. Kilbee Stuart, Ophelia, Margaret Horton, Daisy and Columbia.

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Mr. GEORGE PRINCE, Oxford, had the best thirty-six blooms, the best dozen blooms, and the best collection of Roses in pots or cut, and in this class he made a fine display, with Red Austrian Copper, Harrisoni, Irish Elegance, and Irish Fireflame. Mr. PRINCE was second to Mr. HICKS in several classes, and in other classes the positions were reversed.

Floral Designs.

The floral designs usually provide an interesting and attractive feature at York, and on this occasion the section was well up to the usual standard of excellence.

Mr. ELISHA J. HICKS had the best epergne suitable for a dining table, and his arrangement was of Mdme. Butterfly Roses; 2nd, Mr. M. STATHER, with pink Carnations and sprays of Thalictrum dipterocarpum. Mr. F. H. WARD, York, led in the class for a bowl of cut flowers, Orchids excluded, with crimson and pink Carnations. He also won first prize in the class for a bride's bouquet, with a pleasing design in Cattleya Mossiae Reineckiana and Odontoglossum crispum; 2nd, Messrs. PADGETT AND WATSON, with Sweet Peas and Odontoglossums.

Mr. M. STATHER, Cottingham, beat Mr. WARD in the class for a bridesmaid's bouquet, with a dainty design of pink Carnations and Thalictrum spikes; Mr. Ward used Cattleyas and Odontoglossums, but in this instance made rather too free use of Asparagus plumosus. However, Mr. WARD was again to the fore with a pair of ball bouquets, using pink Carnations and mauve Cattleyas respectively; 2nd, Messrs. PADGETT AND WATSON.

For a pair of hand bouquets, Mr. WARD won first prize with designs executed in mauve Cattleyas and Odontoglossums, and yellow Carnations and Odontoglossums; 2nd, Messrs. PADGETT AND WATSON. Mr. WARD also led in the class for a single bouquet with a nice arrangement in which highly coloured Odontoglossums and Odontiodas were used.

Mr. ELISHA HICKS showed the best bowl of Roses, and again used the lovely Mdme. Butterfly; 2nd, Mr. M. STATHER. Mr. M. STATHER secured the premier position in the class for a hand basket of cut flowers, with a bold and brilliant design in which the golden spathes of Richardia Pentlondii were associated with Eryngium alpinum and Japanese Maple; 2nd, Mr. WARD. In another class for a hand basket of flowers Mr. WARD and M. STATHER were placed first and second respectively.

Fruits.

About a dozen and a half classes were provided for fruits and vegetables, and in the principal one, for a decorated table of ripe fruit, Messrs. PADGETT AND WATSON put up the only exhibit and were awarded the first prize. Fourteen dishes of any kind of fruit, English or foreign, were required. The display, decorated with Sweet Peas, included Pineapples, Melons, black and white Grapes (the latter cut far too soon), Peaches, Nectarines and Strawberries, all without labels.

J. BRENNAND, Esq., Baldersby Park, Thirsk (gr. Mr. J. Hathaway), won first prize for a collection of eight kinds of fruits, with a good exhibit of Black Hamburgh and Foster's Seedling Grapes, Royal Sovereign Strawberries, Bigarreau Cherries, Goliath Plums, Early Rivers Nectarines, Brown Turkey Figs, Irish Peach Apples, Jordan's White Melon and Peregrine Peaches; H. CRAVEN, Esq., The Briery, Sunderland (gr. Mr. W. N. Hague), 2nd.

Mr. J. BRENNAND and Mr. H. CRAVEN won prizes in the order of mention for a collection of six kinds of fruits, and the former was successful in the class for four kinds, showing Fosters' Seedling Grapes, Hero of Lockinge Melon, Peregrine Peaches, and Early Rivers' Nectarines.

In the class for a dish of Peaches Mr. BRENNAND led with Peregrine in fine condition; 2nd, the MARQUIS OF RIPON, Studley Royal (gr., Mr. G. E. Thomas), with Hale's Early. Mr. BRENNAND was equally successful in the class for Nectarines, with Cardinal; 2nd, Mr. H. CRAVEN, with Lord Napier. Mr. BRENNAND was the most successful exhibitor of Black Hamburgh Grapes, and was followed by the MARQUIS OF RIPON and Mr. H. CRAVEN. The latter had the best White Grapes.

In the Melon classes Mr. BRENNAND led for a green-fleshed and for a white-fleshed variety, while Mr. H. CRAVEN showed the best scarlet-fleshed variety—Blenheim Orange. Mr. BRENNAND and Mr. CRAVEN won first and second prizes, as named, for Strawberries, and both exhibited the variety King George.

Medal Awards.

The non-competitive exhibits were numerous, attractive and interesting, and formed a large part of the show; the following is the list of awards made to them :—

Premier Prize.—Offered by the President, the Right Hon. Florence, the Lady Nunburnholme, for the best exhibit in the show: to Messrs. ROBT. BOLTON AND SON, for Sweet Peas. For quality of flowers, beauty of colour and arrangement, this was one of the finest exhibits of Sweet Peas we have seen.

Large Gold Medal.—To Messrs. E. WEBB AND SONS, Stourbridge, for greenhouse plants; to Messrs. S. BROADHEAD AND SON, Sunderland, for rock and water garden; to Messrs. J. PEED AND SON, Norwood, for Caladiums and Hydrangeas; to Messrs. ROBERT BOLTON AND SON, Halstead, for Sweet Peas; to Messrs. MANSELL AND HATCHER, Rawdon, Leeds, for Orchids; to Messrs. DOBBIE AND CO., Edinburgh, for Sweet Peas; and to Messrs. BACKHOUSE AND SON, York, for rock garden and formal Iris garden.

Gold Medal.—To Messrs. TOOGOOD AND SONS, Southampton, for vegetables and flowers; to Mr. W. WELLS, junr., Merstham, for hardy flowers; to Mr. C. ENGELMANN, Saffron Walden, for Carnations; to the DONARD NURSERY CO., Newcastle, Co. Down, for rare trees and shrubs; to Mr. R. V. ROGER, Pickering, for hardy flowers, and to Mr. JAS. DOUGLAS, Great Bookham, for border Carnations.

Silver Medal.—To Messrs. R. H. BATH, Wisbech, for hardy flowers; to Messrs. MAXWELL AND BEALE, Broadstone, for alpine plants; to Messrs. REAMSBOTTOM, West Drayton, for Anemones; to Mr. G. BURCH, Peterborough, for Roses; to Messrs. W. SIMPSON AND SONS, Birmingham, for Antirrhinums; to Mr. T. M. PETCH, Bradford, for Pansies and Violas; to Mr. H. N. ELLISON, West Bromwich, for Ferns and Cacti; to Messrs. BAKERS, Wolverhampton, for hardy flowers and model rock garden; to Mr. G. W. MILLER, Wisbech, for hardy flowers; to Messrs. JARMAN AND CO., Chard, for Sweet Sultans, etc.; and to Miss E. FISHER, South Kensington, for paintings.

THE WEATHER.

THE WEATHER FOR MAY.

MAY was mainly an exceptionally stormy month, with west-north-westerly winds, except towards its close, when northerly to easterly winds were experienced. Notwithstanding a few quiet days during the first week, the mean velocity of the wind was greater than in any previous May since the Anemograph Station was erected at Marshside, Southport, in 1897. Under such conditions, the daytime temperatures were extremely low, while on the other hand frost was prevented in the night, and the daily range of temperature was the smallest value for May in half a century's observations. The month was slightly dull, and not dry, though the rainfall was considerably less than that recorded at stations a little distance inland. The mean temperature was 48°, or 3½° below the average. There were 197 hours of bright sunshine, or 13 fewer than usual. Rain fell on 19 days, or 5 more than the normal number; and the total amount was 2.48 inches, or an excess of 0.35 inch. Ozone was remarkably abundant. Moderate gales occurred on three days, and hail fell on four, but frost in the open was restricted to two nights, and the ground was nearly as warm as usual. The subsoil water-level also was practically normal. A slight thunderstorm occurred on the night of the 12th. Visibility was exceptionally good. *Joseph Baxendell, The Fernley Observatory, Southport.*

THE WEATHER IN SCOTLAND.

MAY opened well with bright, mild days, but on the 9th the temperature fell sharply and remained abnormally low for the remainder of the month. The rainfall was slightly below the average, being 1.81 inch for 13 days, against a normal of 2.09 inches for 14 days; the 14th was the wettest day, with a fall of 0.36 inch. Of bright sunshine, there was an aggregate of 142.2 hours, giving an average of 4.5 hours per day and a percentage of 28—a marked deficiency from the normal for May of 35 per cent.; the brightest day was the 7th, with 13.4 hours. Barometric pressure varied from a highest of 30.37 on the 29th to a lowest of 29.18 on the 11th, and showed a mean of 29.86. The mean temperature was 47°— normal 49.4°—with a mean maximum of 55° and a mean minimum of 39°. The highest maximum was 68° on the 4th, and the lowest minimum 31° on the 10th, this last being the only night on which the temperature fell below freezing-point. On the grass the mean minimum was 35°, with a lowest of 26° on the 10th; there were 7 nights of ground frost. At 1 ft. deep the soil temperature showed considerable fluctuations, rising from 46° to 50° during the first 6 days of the month, falling to 46° again in the three following days and finally rising to 49°. Hail fell on the 14th. On the 15th there was a sharp thunderstorm, and thunder was heard on two other days. The winds were chiefly from the south and west, although towards the end of the month northerly winds prevailed. There was a gale on the 11th. *John Davidson, Director of Studies, Training College Gardens, Mayfield, Dundee.*

ANSWERS TO CORRESPONDENTS.

DISEASED DENDROBIUMS: *T. B. A.* As you state that the plants are in the best possible condition at the roots, and making vigorous growth, their unsatisfactory condition must be attributed to a severe check in their resting season, due to a cold, damp atmosphere, or some other cause. If the plants were taken direct from a warm glasshouse to the dwelling-house, this might be the cause of the trouble, especially if they were placed in a draughty position. The use of sulphur, tobacco powder, soot or lime will not be of much assistance, as apparently the disease is in the tissue of the pseudo-bulbs, but a slight dusting of sulphur might be tried as a remedy The only course that we would suggest is to propagate clean, healthy stock from aerial growths of the choicer hybrids whenever opportunity occurs, discarding the diseased plants as speedily as possible. We congratulate you on having plants of Vanda caerulea forty years old which flower well in their respective season; such specimens are undoubtedly a testimony of successful cultivation.

GREENHOUSE PLANTS FOR CUT BLOOMS BETWEEN OCTOBER AND MARCH: *A. S.* The following six subjects should provide a supply of flowers during the period mentioned: Bouvardias, Carnations, Freesias, Cyclamens, Ixias and Richardia africana, while various Narcissi, including Paper White for Christmas, Roman Hyacinths and Tulips furnish cut blooms over a long period.

NAMES OF PLANTS: *W. D. B.* 1, Cotoneaster moupinense; 2, C. Henryana; 3, Corokia Cotoneaster; 4 and 5, too small to identify; 6, Solanum jasminoides.—*F. P. D.* Specimens very poorly and badly packed. The tall, white-flowered plant is Veronica gentianoides, and a second one is a Geranium, but the third was unrecognisable.—*F. B.* We cannot undertake to name florists' flowers; send specimens to a Rose grower.—*A Twenty Years' Reader.* Prunus lusitanica (Portugal Laurel); the cause of the tips of the branches dying is drought at the roots.

RATEABLE VALUE OF NURSERY: *Tomato.* The Schedule A Assessment should be on the basis of annual value. As nurseries are so seldom let, the figure can only be arrived at by estimating the present capital value of the greenhouses, and then by taking a percentage on this value to arrive at a rental that the business could afford to pay. This percentage should not be higher than 5 per cent., and to this should be added the annual value of the land. If the pit is on brick foundations, then this should be included, but if on a wooden framework excluded. Without expressing a definite opinion, as the nursery has not been inspected, but assuming the greenhouses are in good condition, a reasonable assessment for your property would appear to be, gross £54, net £45.

Communications Received.—C. W. L.—P. R. I.—L. Y.—W. A. C.—Mrs. I.—H. D.—Thirty Years' Reader—A. Z.—W. W., Berks.—D. H., Bute—R. N.—H. A.—H. J. B.—G. J., thanks for 2s. for R.G.O.F. box—H. W.—W. W., Berks.—P. L. A.—F. A.—F. E.

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THE
Gardeners' Chronicle
No. 1904.—*SATURDAY, JUNE* 23, 1923.

CONTENTS.

Books, notices of—
Handbook of the Larger British Fungi 354
Dahlias, dwarf, for bedding 347
Erigeron mucronatum 356
Exchange, rate of, in France 345
Fertilisers, prices of .. 345
Finger-and-toe disease at Droitwich .. 355
Forst Rose show .. 345
French horticultural congress at Grenoble 345
Fruit culture in Sweden 355
"Gardener's Chronicle" seventy-five years ago 346
Indoor plants—
Browallia viscosa .. 349
Celsia Arcturus .. 349
Germany, gardening news from 346
Gnat bites, lotions for.. 346
Ireland, notes from .. 347
Iris lutescens—Stabellae 349
Iris sibirica 349
Ixiolirion 349
Lilies, hybrid 352
Matthews, Mr. Edward 346
Medals for fruit exhibits 346
Mice, a bait for .. 356
Further confessions of a novice 353
Mosaic disease .. 345
Obituary—
Callier, Eugène .. 358
Challis, Thomas .. 358
Jefferies, John E. .. 358
Priest, William .. 358
Orchid notes and gleanings 347
Potato skin spot and corky scab 355
New Jersey, notes from 354
Plant names, puzzles in 356
Plants new or noteworthy—
Rhododendron insigne 351
Prices Committee, interim report of the .. 345
Rock garden, what is a? 356
St. Cuthbert's Cole .. 356
Societies—
Chamber of Horticulture 357
Manchester and N. of England Orchid .. 356
Société Nationale d'Horticulture de France 356
Spinach, summer .. 355
Trees and shrubs .. 352
Trees for street planting 352
Violas 354
Wages, gardeners' .. 356
Ward's, Mr. F. Kingdon, plant-collecting expedition in Asia .. 350

ILLUSTRATIONS.

Chiang-Ka river, the 350
Iris Thundercloud 349
Matthews, Mr. Edward, portrait of 346
Rhododendron insigne 351
Rose Mrs. Tresham Gilbey 347
Saxifraga longifolia 353

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.5°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, June 20, 10 a.m.: Bar., 30.3; temp., 57°. Weather—Dull.

Mosaic Disease.

The disease, or group of diseases, known as Mosaic disease, affects large numbers of different plants. More than one hundred species are known to be susceptible to Mosaic disease, and of this number many are food-producing plants of great economic importance. One of the earliest known instances of Mosaic disease is that which occurs on Tomatos, although we believe it is correct to say that the most curious feature of this disease was not discovered until after investigations had been made on the nature of Mosaic disease of Tobacco and Potato. The peculiarity of Mosaic disease consists in the fact that although no micro-organism can be discovered in the tissues of plants affected with the disease, it is nevertheless infectious. The juice which exudes from a wounded plant carries the "virus" of the disease, and if inoculated into a healthy plant evokes speedily the characteristic symptoms. A careful investigation of Mosaic disease of Tomatos carried out at the Experimental and Research Station, Turner's Hill, Cheshunt, Herts.,* has shown that the symptoms of the disease are various. The foliage may be mottled with yellow spots, or the leaf margins may be distorted with or without a blistering of the surface, or the leaves may become tendril-like, while the weight and quality of the fruits are reduced in all affected plants. The infectiousness of the disease was demonstrated by extracting the juice from crushed Tomato plants and inoculating drops of it by means of needle-pricks into healthy plants. In every case the disease made its appearance in the hitherto healthy Tomatos. After filtering through a Chamberland filter—which is impervious to micro-organisms generally—the juice retained its power of infection, albeit to a somewhat impaired degree. Five out of twelve plants infected with filtered juice "took" the disease. In the course of these researches the interesting discovery was made that Mosaic disease carriers may exist among Tomato plants. Of forty healthy Tomato plants (Ailsa Craig) only thirty-seven showed symptoms of Mosaic disease after inoculation by means of the "virus." But the three immune were immune in appearance only. Although they showed exteriorly no sign of Mosaic, their juices were infected as was proved by their serving to communicate the disease when inoculated into other healthy Tomato plants. Thus, as in human maladies—diphtheria, for example—a carrier may distribute the disease without showing signs of suffering from it, so it is in the plant world with Mosaic disease. Experiments have also shown that in the ordinary course of operations in Tomato houses infection is bound to occur if diseased plants are present. Thus it has been proved that the workers engaged in stopping the plants—by pinching off the terminal shoot—pass on the malady from diseased to healthy plants. The pruning knife or the fingers serve to inoculate healthy plants and hence it is important that any manifestly affected by Mosaic disease should be destroyed—at all events if they are observed early in the season. If noted only later the mischief is already done; things must then be left to take their course and the grower must, perforce, be content with the smaller yield given by diseased plants. It has also been demonstrated experimentally that aphis and white fly transmit the disease from mosaiced to healthy plants—an additional reason for keeping down these pests. Mosaic disease of the Tomato is not confined to that plant. It may be communicated to various Solanaceous plants—Petunia, Tobacco, Black Nightshade and Bitter Sweet and from them it may be passed back to the Tomato. Whether the Potato, which has its own Mosaic disease, is also susceptible to that of the Tomato is apparently not yet certain. In any case, the desirability of excluding from the neighbourhood of Tomato houses all suspected weeds and plants is manifest. A Mosaic disease also attacks the Cucumber. In one form it causes yellow mottling of the leaves with little, if any, distortion, and causes but little loss. In another form it brings about mottling, wrinkling and blistering of the foliage and a dwarfing of the plant. Plants so attacked may go blind, that is, the growing point may fail to develop. Cucumbers may appear to grow out of the disease, producing after a time normal foliage, but their juices, as shown by cross-inoculation, are still virulent. In the case of the Cucumber, it is not known whether other plants are susceptible to its Mosaic disease, and it is suspected that the disease is transmitted in the seed—a contingency which does not appear to occur in the case of Mosaic of Tomato. Meticulous cleanliness on the part of workers, which can only be carried out if they are aware of the facts; cleanliness with respect to insect pests and neighbouring weeds; and vigilance in detecting an outbreak are evidently means of checking the spread of Mosaic disease.

* *Eighth Annual Report*, 1922, *of the Experimental Research Station*, Nursery and Market Garden Industries Development Society, Ltd. The Cheshunt Press, 1923.

"Clay" Cup for Roses.—The "Clay" Cup for scented Roses will be offered for competition at the Royal Horticultural Society's meeting of the 26th inst. The Rose must be of good form and colour, not in commerce, and possess the true old Rose scent.

French Horticultural Congress at Grenoble.—The fifteenth Congress of the National Federation of Horticultural Syndicates in France will be held at Grenoble from July 2 to July 4. Many visitors are expected, and it is anticipated that the town will be crowded to its utmost capacity. On the preceding Saturday a reception is being held at Lyons by the local Chamber of Horticulture for the visitors to the Congress, and excursions have been arranged for them to places of interest in the district. The agenda of the Congress is a crowded one, and a banquet and ball terminate the third day's proceedings; further excursions are arranged to fill up every available spare moment, and continue for some days after the Congress proper is finished, the programme closing with a *Diner d'Adieu*. As a normal time for the starting of the day's sight-seeing appears to be, according to the time-tables given, 6.45 a.m., those taking part in the whole week's festivities will not feel that they have wasted any time. For the organisers the proceedings will probably be a little strenuous.

Rate of Exchange in France.—The fluctuation of the value of the franc has, it would appear from statements made in the French horticultural Press, led Dutch bulb growers, when quoting prices to French purchasers, to quote in their own currency, or even in English sterling, fearing that prices quoted in francs may realise, when payment is tendered some weeks later, much less than was anticipated. The French dealers are unwilling to accept such quotations, as they would have to bear the whole loss in case of a depreciation of their own currency; but it is equally unfair that the Dutch bulb-grower should suffer. It is one of the many difficult problems raised by a see-saw currency.

Prices Committee: Interim Report on Fruit and Vegetables.—The Departmental Committee on the Distribution and Prices of Agricultural produce has signed a unanimous interim report on fruit and vegetables, and this report has been presented to the Minister of Agriculture. It is based upon exhaustive evidence and covers such subjects as the methods and costs of distribution of fruit and vegetables, transport rates and facilities, the co-operative movement among producers, the grading and packing of produce for market, the disposal of surplus produce, and the function of the wholesale markets in the general distributive system. The members of the Committee are: The Marquess of Linlithgow (Chairman), Mr. Percy A. Hurd (Vice-Chairman), Sir Basil Mayhew, Mr. A. W. Ashby, Mr. Ernest R. Debenham, Dr. Charles M. Douglas, Mr. Rowland R. Robbins, Mr. R. J. Thompson and Mrs. Wintringham.

Forst Rose Show.—The German Rose Society and some other societies are joining forces to produce a Rose Show, to be held at Forst, Lausitz (Germany), from July 7 to July 9. The site of the show will be the Wehrinsel Park, where a similar function took place in 1913; the Rose garden already contains some 30,000 permanent trees, and about 6,000 new ones, from the best firms, have been sent for the exhibition. These have been planted well in advance of the date, so as to be established by the time the exhibition opens.

Fertilisers Cheaper.—According to the Agricultural Market Report of the Ministry of Agriculture, most kinds of fertilisers have declined in price during the past twelve months. Basic slag has gradually become cheaper since the beginning of last year, representing a fall of about 8s. per ton for the twenty per cent. grade, whilst the thirty per cent. grade shows a reduction of about 15s. per ton. Steamed bone flour is also cheaper, but bone meal increased slightly in value during the past three months. The amount of basic slag imported into the country since the beginning of 1923 was 36,700 tons. The imports of phosphates of lime and rock phosphates have also been heavy this year. Nitrate of soda is appreciably cheaper than last

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year, the fall per ton being nearly £3. French kainit, with 14 per cent. of potash, was between £3 and £3 7s. per ton during the first five months of 1922, but this year the price dropped to £2 2s. to £2 7s. per ton. Kainit which has a lesser percentage of potash shows a similar decrease. Muriate and sulphate of potash are also obtainable at a much lower price. It is interesting to note that kainit is much cheaper than it was before the war.

National Chrysanthemum Society.—The annual show of this old floricultural society will be held on November 1, 2, in the R.H.S. Hall, Vincent Square, Westminster. The schedule, which is before us, includes forty-five classes, divided into various sections, four of which provide for open competition. The two remaining sections are restricted to amateurs, one of which is for growers who employ no paid assistance. The Affiliated Societes' class, for twelve vases of cut Chrysanthemums, has been altered to require four sections of Chrysanthemums, instead of four specified types, so that greater scope is offered exhibitors. The prizes are of the same substantial value as before, and the first prize includes a valuable challenge trophy. Liberal prizes are offered in the open classes from which traders are excluded, the chief of which is the William Wells Memorial Class for thirty-six Japanese blooms in twelve varieties. The George Monro Challenge Cup for twelve vases of large single varieties is open to all. A special prize is offered by the President, Sir Jeremiah Colman, Bart., in the amateurs' section, for a floral decoration suitable for a hall, hall table, or sideboard, and another interesting class is for a basket of Chrysanthemums shown by an amateur, in which Mr. Jeremiah Colman offers three prizes. A gold medal is again offered by Messrs. Clay and Son for the best non-competitive exhibit in the show. Copies of the schedule may be had on application to the secretary, Mr. Chas. H. Curtis, 5, Tavistock Street, Covent Garden, W.C.2.

Lotions for the Prevention of Gnat and Mosquito Bites.—Gnats and mosquitos are especially troublesome to garden workers, as they seem to harbour amongst vegetation, and especially grass, often causing great annoyance by their stings. The following lotions for the prevention of bites by these insects are recommended by the *Pharmaceutical Journal and Pharmacist*: Quinine-sulphate, 1 gm; 95 per cent. alcohol, 32 gms.; water, 11 gms. This lotion is applied all over the exposed parts; it dries quickly and is highly spoken of by those working in mosquito-infested districts. The second lotion recommended is a 1 in 16 solution of magnesium sulphate; for mosquitos 1 in 3 solution is necessary. This solution leaves a fine powder on the surface of the skin to which it is applied, and it is stated insects will not attack it. This solution is also said to subdue the inflammation of a gnat bite and heal it. Another lotion recommended is compounded of oil of citronella, 1 oz.; spirit of camphor, 1 oz.; and oil of cedar, ½ oz. Other lotions recommended are (a) castor oil, alcohol, oil of lavender, 1 oz. of each; (b) 1 fl. oz. eucalyptol, ½ fl. oz. oil of cedar; 1 fl. dr. glycerin; 5 fl. oz.; tincture of insect powder (1 in 5) with camphor water added by degrees until the faint opalescence is permanent.

Gardening News from Germany.—The annual meeting of the German Gardeners' Company is to take place at Wörlitz, near Dessau, from June 22 to June 26, and the German Landscape Gardeners' Association is also to meet at the same place on Sunday, the 24th. The National Society of German Gardencraft is to hold a "Gardeners' Day" in Erfurt on August 5, to take the form of a Congress to discuss the chief subjects connected with horticulture. The Reutlingen Pomological Institute, after sixty-three years of invaluable work, has been obliged, by the stress of present circumstances, to close its doors. This is a great blow to all interested in horticulture and pomology, as the Reutlingen Institute was in the forefront in promoting the progress of fruit culture. The buildings of the Institute are to be taken over for industrial purposes, but the fruit nurseries at Schlachters, near Lindau, have been taken on lease by Herr F. Lucas, therefore it may be hoped that at least not all the work of the past will be wasted.

Mr. Edward Matthews.—We have pleasure in publishing the portrait of Mr. Edward Matthews, who succeeded Mr. Whitton as Director of the Glasgow Public Parks and Open Spaces, and entered upon his duties on June 1. Mr. Matthews was born at Dunning, Perthshire, where his father has been estate agent to the Right Hon. Lord Rollo for the past 41 years. Deciding to become a gardener, he started his career in Duncrub Park, Perthshire, and followed up his apprenticeship there by serving in various capacities in the well-known gardens at Auchendennan, Dumbartonshire; Hopetoun House, Linlithgow; Castle Wemyss, Renfrewshire; Gosford House, East Lothian; and Castlemilk, Dumfries. His first head place of note was Ardtornish Towers, Argyll, where he worked in conjunction with the late Mr. Wm. Goldring, of Kew, the famous landscape gardener. On leaving Ardtornish, Mr. Matthews

MR. EDWARD MATTHEWS, THE NEW DIRECTOR OF THE GLASGOW PARKS.

became manager to Messrs. G. Gibson and Co., the hardy plant specialists in Yorkshire, and thereafter was appointed to take charge of the gardens at Newstead Abbey, Nottinghamshire. On the death of the owner of Newstead, Mr. Matthews was appointed to take charge of the Duke of Wellington's Gardens at Strathfieldsaye, where he turned his attention to the cultivation of fruits and vegetables in large quantities. He found time, however, to exhibit at the shows of the Royal Horticultural Society and other societies in the South of England. He kept the gardens at Strathfieldsaye up to a high standard for nearly five years before being appointed gardener-bailiff to the Dowager Countess of Wilton, Langwades Hall, Suffolk, but he was only there a short time before he was appointed by the Corporation of Glasgow as assistant to Mr. James Whitton, V.M.H. On Mr. Whitton's retirement at the end of May last, Mr. Matthews was unanimously appointed his successor. The Glasgow Corporation is a very progressive body so far as horticulture is concerned, and Mr. Matthews will have under his control over thirty public parks, including the Botanic Gardens, and about one hundred open spaces, in addition to which there is Ardgoil with its 14,700 acres, the gift of Lord Rowallan, situated about 35 miles from the city. The number of men employed in the Glasgow parks is about 1,250, and during the past two years the parks have found work for about 1,000 unemployed men. Although a very busy man, Mr. Matthews continues to interest himself in the affairs of the Glasgow Horticultural Society, being a director of that body.

Medals for Fruit.—Messrs. George Bunyard and Co., Ltd., of Maidstone, have presented medals to the Royal Horticultural Society which will be offered for award to amateurs for exhibits of Strawberries on June 26, of Cherries on July 10, of Gooseberries, Peaches and Nectarines on July 24, and of Plums and Apricots on August 8. The medals will be either of silver or silver-gilt.

Appointments for the Ensuing Week.—Tuesday, June 26: Royal Oxfordshire Horticultural Society's Commemoration show; Royal Horticultural Society's Committees meet (two days); Bournemouth Horticultural Society's show (two days). Wednesday, June 27: Mitcham, Tooting and District Horticultural Society's meeting. Thursday, June 28: National Rose Society's summer show in the Royal Botanic Gardens, Regent's Park; Royal Botanic Society's meeting; Gardeners' Royal Benevolent Institution's festival dinner at Hotel Victoria. Saturday, June 30: Windsor Rose Society's show; Muswell Hill Horticultural Society's show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Horticultural Exhibition at Chiswick.* A pouring rain and a sunless sky are not favourable to horticultural exhibitions under canvas; and therefore the meeting at Chiswick on Saturday last was a failure. Nevertheless, although the beating of the raindrops on the tents almost drowned the sound of the musical instruments, as well as the visitors, and although the lawn had become a swamp, 870 persons, among whom was the Duchess of Sutherland, Lady Howard de Walden, Lady Bridport, and Lady Charlotte Denison, had the courage to face the storm. But if it was a failure as a meeting, as an exhibition it was a triumph. The Azaleas were hardly missed, so rich and varied were the tints of the gaudy plants that took their place, and so admirable their cultivation. Of some of them, indeed, we want words to express the merits. It was on this occasion that Mr. Parker showed how Pelargoniums may be grown; no stiff and sticked formality was there, but the easy and graceful forms of nature, assisted only, not constrained. Roses, too, in pots, from Messrs. Paul, of Cheshunt, deserved much commendation for the same reason; they formed a group of beautiful bushes on one of the semi-circular tables, and were universally admired, although not large enough for the space allotted to them. Upon the whole, we are constrained to add that as flower growers gain ground, the fruit growers are losing it; that is to say, the fruit growers who exhibit. This is much to be regretted, and we trust that on the 12th of July the country gardeners will come forward to vindicate the reputation they have earned with so many years of industry and skill. It is lamentable that the visitors to these exhibitions should go away with the conviction that the spirit of the English fruit gardener has departed from him. That it is not so we know full well, and most willingly testify; but the public has no such information, and forms its opinion upon the specimens produced at the meetings of the Horticultural Society. This is a real and serious injury to the great country gardeners; and if we were one of them, we should regard it as a point of honour that the misapprehension should be removed without loss of time. *Gard. Chron., June* 17, 1848.

Publications Received.—*The Home Vegetable Garden.* By Ella M. Freeman. Price $1.75.—*First Book of Grasses.* By Agnes Chase. Price 6s. net.—*The Rose in America.* By J. Horace McFarland. Price 12s. 6d. net. The Macmillan Co., London and New York.—*Black Currant Culture.* By W. P. Seabrook. W. Seabrook and Sons, Ltd., The Nurseries, Chelmsford.—*Practical Plant Ecology.* By A. G. Tansley. Geo. Allen and Unwin, Ltd., Ruskin House, 40, Museum Street, W.C.1. Price 7s. 6d. net.

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NOTES FROM IRELAND.

THE second day of June gave us our first summer weather of the season, but there was a return next day of the cool conditions which characterised both April and May, with persistently north or north-easterly winds. Dublin's rainfall for the five months ending May 31, as registered at Glasnevin, was 13.62 inches, and May was free of frost, with but two mornings on which the thermometer fell to 33°.

The Botanic Gardens at Glasnevin are as beautiful and interesting as ever. Conspicuous in the extensive rock garden are colonies of Saxifraga cochlearis, in snowy drifts, contrasting with the intense colouring of hybrid alpine Wallflowers.

Various Celmisias, notably C. Munroi, all appear to have wintered well at Glasnevin, and early in the present month were coming into conspicuous bloom. Among alpine Primulas, P. Wardii, with slender stems springing from tufts of Sorrel-like leaves, was conspicuous with its soft lilac-coloured flowers. Meconopsis paniculata, with flowers of musty yellow colour, M. rigidiuscula, in steely blue, elegant Dodecatheons, tiny gems in Polygala calcarea in intense blue, with splashes of gold dust from Alyssum serpyllifolium, masses of Aubrietias and Iberis, and many Brooms ablaze with colour, all added to the beauty of this fine rock garden. Elsewhere Hippeastrum pratense was brilliant in vivid scarlet.

Early May found the People's Gardens in the Phœnix Park in all their glory of colour and climax of beauty, Mr. Anderson having this year concentrated effort and effect on a late spring display. One massive bed in particular, among the series of many fine beds, composed of Tulip Ronald Gunn over a carpet of Aubrietia Hendersonii, with a broad edging of double white Daisies, was especially pleasing. The long ribbon border margined with white Arabis and Royal Blue Forget-Me Not, enclosing bands of the brightest of the Wallflowers, and plentifully sprinkled over with many-hued Darwin Tulips, was very effective.

A massive bush of Fabiana imbricata, some 10 feet high, in the Rectory gardens at Malahide, by the sea, has been a lovely sight during mid-May. Archdeacon Lindsay has a rare collection of uncommon shrubs all labelled with meticulous care, his interest in nomenclature being shown in his recently published book, *Plant Names*. That sea influences temper the winds to half-hardy shrubs is well shown, too, in the interesting collection formed by Mr. H. E. Richardson at Rosedale, Shankhill, on the southern side of the county, and here, in May, I saw a glorious colony of Tulipa fulgens lutea, distinguished under its best form by the late Mr. F. W. Burbidge in memory of his artist friend's wife, Mrs. Moon. Among the many interesting shrubs in this garden I noticed Brachyglottis repanda (in full bloom), Exochorda Albertii, Lomatia pinnatifolia, Eucryphia pinnatifolia, many Veronicas, including the pretty hybrid Fairfield, and Deutzia gracilis rosea in full beauty.

Further inland, in the old-world gardens of St. Mary's Abbey, Trim, Co. Meath, the earliest flowers of Strawberries have been blackened by frost, while the precocious young growth of Griselinia littoralis have been cut back. For all that, nevertheless, these terrace gardens, falling sharply from the Abbey to the Boyne, are replete with interest in a varied collection gleaned and garnered by Mr. A. V. Montgomery around his lovely old Irish home, which is the new part of the ancient Abbey founded by St. Patrick in 432. Under the vicissitudes of time it became for a while a school, which the Duke of Wellington, who was born at Dangan Castle, three miles away, attended as a scholar.

It is a matter for regret that the Irish Forestry Society, founded by the late Dr. Cooper in 1903, and which for some years did excellent work in promoting afforestation, has, perforce, been dissolved for lack of interest and support. A general meeting of the Society was held at the offices, 5, Molesworth Street, Dublin, on the 5th inst., when the President, Sir T. Grattan Esmonde, Bart., summarised the situation, and the resolution for dissolving the Society was put and carried. *K., Dublin*

DWARF DAHLIAS FOR BEDDING.

THE dwarf Mignon Dahlias are extremely useful and effective for massing in beds or borders previously occupied by late-flowering Tulips or other bulbs. They are all uniform in height—about 15 inches—and have a bushy habit. The flowers have broad, smooth florets, evenly arranged, and the blooms stand clear of the foliage on stiff, wiry stems. These Dahlias give a wonderful display of rich colour in most districts until the end of October. If they are planted 15 inches apart, stakes or supports of any kind are not required. Manure water should be given the roots twice a week until the plants commence to flower, then very little attention is needed, except trimming off old blooms. The following varieties are all splendid:—Albion, pure white; Benbow, rosy crimson; Coltness Gem, crimson scarlet; Daffodil, rich yellow; Dazzler, orange scarlet; Etna, crimson scarlet; Janet, bright orange, a very pretty variety; Julius, bright rosy scarlet; Kathleen, rich deep apricot; Louise, pale primrose; Mincio, vivid scarlet; Roma, rich maroon crimson; and Regent, brilliant crimson. These Dahlias are invaluable to those who have no convenience to keep bedding plants through the winter, for the tubers may be wintered in a frost-proof shed. *R. H. Holton.*

ORCHID NOTES AND GLEANINGS.

ORCHIS INCARNATA PULCHELLA.

LINNÆUS was the author of the name Orchis incarnata, which he described as a species. He did not mention the colour of the flowers, but, judging from the specific name, the tone was pale or flesh-coloured. I have seen plants of this pale hue, but darker colours are quite common. Plants in Surrey, in Holmsley Bog, and on the heaths near Wareham, in Hampshire, have flowers of a dark rose or almost carmine-rose. Enthusiastic botanists and collectors in South Hants give the name O. incarnata pulchella to this dark form. It seems strange that we have so few successful cultivators of the more beautiful of our native Orchids. When planted in cool and fairly moist situations, or when grown in pots under those conditions, they grow larger than in their native habitats. *J. F.*

ODONTIODA J. EVERSFIELD.

MR. F. C. PUDDLE sends from Lady Aberconway's gardens, Bodnant, Tal-y-cafn, North Wales, a strong spike of a remarkable Odontioda raised between Cochlioda miniata, a supposed natural hybrid between C. Noezliana and C. vulcanica, and Odontoglossum Prince Albert. The spike bears a closely arranged head of fourteen flowers rather smaller than the ordinary type of Odontioda, but with bright cinnabar-red sepals and petals. The irregularly pandurate lip is pale yellowish lilac, the side lobes lighter in tint, and the ridged crest orange colour. The upper side of the column is purple, and over the whole flower there is a slight violet shade distinctly indicating the influence of Cochlioda vulcanica.

FIG. 165.—ROSE MRS. TRESHAM GILBEY : N.R.S. GOLD MEDAL, APRIL 20. 1923 (SEE P. 236). AN EXHIBITION H.T. VARIETY OF SALMON PINK COLOUR, SHOWN BY MESSRS. CHAPLIN BROTHERS.

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Cattleya and Allied Genera.—From a cultural point of view, these comprise Cattleyas, Laelio-Cattleyas, Sophro-Cattleyas, Brasso-Cattleyas, and the other numerous Orchids of which Cattleya is a parent. The unusual absence of sunlight during the past months has not been favourable to the well-being of this group of plants, which delight in an abundance of light at all seasons. Cattleya Trianae, C. Mossiae and C. Mendelii, with their innumerable hybrids, have either passed their flowering period or are at their maximum period of blooming. Unless these plants are strong and well rooted, it is not advisable to allow them to retain their flowers too long. These subjects should be slightly rested after flowering, placing them in a cooler house and reducing the supply of water to the roots slightly, but under no conditions should they be kept so dry as to cause them to shrivel. C. Warscewiczii (syn. gigas), C. Gaskelliana, C. labiata, C. Dowiana, and its variety aurea, with the many hybrids in which these species appear in their parentage are mostly in full growth, and should be grown in the warmest and lightest position in the Cattleya house—C. Warscewiczii and C. Dowiana at the warmer and C. Mossiae, C. Mendelii, and similar species at the cooler end. C. Warneri—a most useful species, which produces its flowers during the summer—is in flower. The autumn-flowering species and their hybrids should be afforded water whenever they become dry, to enable them to build up strong, robust growths, capable of carrying strong spikes of bloom. Brasso-Cattleyas produce their flowers at different seasons of the year, and, speaking generally, enjoy slightly more heat at all seasons than Laelias and Cattleyas. They should therefore also be grown at the warmer end of the Cattleya house.

Repotting.—In repotting the different members of this large family, the roots will be found to differ greatly in size and strength. This will give the cultivator some guide as to the size of receptacle needed for the individual plants. The strong-rooting kinds should be placed in larger pots than the small, thinner-rooting varieties. It is a safe general rule, and one that may be followed at all seasons, with the exception of the winter, to repot any members of this large family as the plants commence to develop new roots from the base of the current year's pseudo-bulb, which is the means of extending the work over the greater part of the year. The most suitable rooting medium I have found consists of equal parts Osmunda, peat, and A.1 fibre cut up according to the size of the plants to be repotted, with a small quantity of live Sphagnum-moss added. The plants should be potted firmly, as they fail to root satisfactorily in loose material, owing to the amount of water it takes up. For a short time after repotting, water should be applied with extreme caution, but the surroundings of the plants should be kept moist and the plants sprayed lightly once or twice daily during bright weather. These plants need plentiful supplies of fresh air at all times.

HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Gooseberries.—A considerable number of the branches of our Gooseberries are dying, and the symptoms appear to be similar to that caused by one of the fungous diseases now attacking Plums, only that the foliage remains persistent on the dying stems. Bushes are attacked on the higher ground, although a damp soil and a wet season are said to be conducive to the disease. Apart from this, the bushes are bearing good crops, and look well. We have finished picking fruit for bottling, and the remaining berries should swell rapidly.

Currants.—Both Red and Black Currants are promising crops, and the bushes should be given stimulants.

Stone Fruits.—Cherries and Plums should not be allowed to suffer from lack of moisture, especially as these crops have been thinned severely by inclement weather.

Loganberries and Raspberries.—Superfluous shoots of Loganberries having been cut away, the new fruiting growths should be made secure from damage by wind. They should be tied loosely and in such a way that the sun can ripen the wood, but without interfering with the development of the current year's fruit. This may soon need protection from birds. Raspberries, too, will require attention, and liberal supplies of water and liquid manure should be given the roots.

Strawberries.—In affording liquid stimulants to Strawberries, take care not to splash the berries. The season of this fruit is much later with us than in some districts, and at the time of writing the majority of plants are only just in flower.

Peaches and Nectarines.—Attention should be given to disbudding, stopping and training the shoots of Peaches and Nectarines. A close watch should be kept for the presence of red spider. Adequate soil moisture will tend to prevent this pest from increasing. Guard against over-cropping, especially in the case of recently planted trees.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Chrysanthemums.—Plants grown specially for the production of large blooms should be ready for transference to their flowering pots. Use a fairly heavy compost, mixed with old mortar rubble, and a six inch pot full of bone meal to every bushel of soil. As firm potting is essential, the compost, which should be prepared a week or two in advance of potting, should be in a moist condition, but not too wet. After potting the plants stand them closely together for a week or so at the bottom of a wall, and when the roots are established in the fresh compost set them out in their summer quarters, standing them on a bed of ashes, or on boards. They should then be staked, securing the stakes to wires strained to posts. Compost for potting the decorative varieties, which will soon be ready for their flowering pots, should be prepared in advance, and the required number of pots washed and got ready.

Gynura aurantiaca.—This plant has brilliant, orange-coloured flowers, but its chief charm is its foliage, which is thickly covered with fine, violet-coloured hairs, with a wonderful iridescent sheen. It is easily propagated by means of cuttings inserted any time during spring or summer; and it grows quite well in a cool greenhouse.

Pilea muscosa.—The Artillery Plant is a very useful subject for furnishing the front of plant stages, or where graceful green subjects are required in quantity for floral arrangements. Small specimens in pots are also very useful for table decoration. The plants root very readily from cuttings, and, if several large sprays are inserted in 3-inch or 4-inch pots, and stood in a close, warm house, they will make useful plants in a few weeks.

Centradenia grandiflora.—This pretty little stove plant flowers with wonderful freedom over a long period, and is very useful for house and table decoration. It is easily propagated at any time by means of cuttings formed of young side shoots. To obtain suitable growths for the purpose it may be necessary at times to cut over some of the flowering plants to get them to break into fresh growth.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Pests.—Keep a watchful eye on all crops at this time of the year, as pests will most likely be abundant after the mild winter. As soon as any troublesome insects are noticed, syringe the plants affected during the evening with a suitable insecticide, diluted according to instructions.

Potatos.—Keep the ground between the rows well hoed as soon as the plants are through the soil, and give the soil a dusting of Potato manure. Failing this, apply a liberal dressing of wood ash and soot. Leave the earthing up for as long as possible if rain falls, especially for the late varieties, as they will benefit greatly if not earthed up when the roots are on the dry side. Do not place earth too high up the stems, but allow it to lie somewhat flat round the stems, so that rains can soak down to the tubers. There is still time to plant late varieties in warm situations, and these will no doubt prove useful, especially as many of the earlier plants were damaged by frosts during the latter part of May.

Asparagus.—The cutting of Asparagus should now be discontinued, and the beds given a good sprinkling of some suitable fertiliser to encourage the plants to build up strong crowns for next season. Give the beds a thorough soaking with water if the weather is dry; a light mulch of half-spent Mushroom manure would be very beneficial to the plants during a dry season. Above all, keep the beds clean by hand weeding whenever necessary. Seedling plants should be given the same treatment, and the strongest growths supported in some manner to prevent them being damaged by rough winds.

Kohl Rabi.—This is an excellent substitute for Turnips, where the latter are difficult to grow. The stems have a nutty flavour, and are, moreover, thoroughly hardy. Sowings may be made in spring and early summer, and the plants thinned to one foot apart. The soil should be kept well hoed and watered. The roots may be pulled and used before they become large, and are very nice as a change to Turnips, more especially in winter.

Peas.—Maincrop varieties of Peas should receive every attention as regards staking, watering and mulching. The last will be a valuable aid to free growth if the weather continues dry, and it may take the form of half-rotted manure placed along each side of the rows. When the mulch of manure has been applied a good soaking of water will greatly benefit the crop. Tall-growing Peas should not be sown too thickly; they do much better and crop heavier if the plants are allowed ample room to develop. Make another sowing or two to furnish supplies during early autumn. At this time of the year it is a good plan to give the drills a copious watering before sowing the seeds to encourage their quick germination; another watering when the young plants show through the soil will also be advantageous to the crop.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BENTHALL, Esq., Woolverstone Park Gardens, Ipswich.

Fruit Trees in Pots.—As growth progresses more water and stimulants will be required. If the pots are full of roots afford a top-dressing of good turfy loam, adding a portion of spent Mushroom-bed manure, bone flour and wood ash; if pot space will not permit this, a narrow piece of tin may be placed inside the rim of the pot to accommodate the top-dressing. For planted-out trees the borders should be well mulched with half-rotted cow manure.

Cherries.—Trees which were started early and have had the aid of artificial heat will be carrying ripe, or nearly ripe fruits, and at this stage a drier atmosphere is necessary. Very little fire-heat is required, merely sufficient to maintain a buoyant atmosphere when the weather is cold or damp; an excess of moisture in the air with a sudden rise of temperature

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will cause cracking in thin-skinned varieties. After the crop is cleared thoroughly cleanse the trees with an insecticide, and encourage them by every available means to plump up their buds for another season. Trees in pots should have frequent applications of liquid manure, varied occasionally with soot water, guano water and artificial manure of a suitable nature, and this treatment should be systematically carried out until leaf growth is complete.

Melons.—When the earliest crop is over it is advisable to clear the house completely and prepare it for another crop. Successional plants on which the fruits are ripening should be kept drier, but not so dry as to prevent them from properly finishing; atmospheric moisture should be restricted, otherwise the fruits are liable to crack. A sudden burst of sunshine after a dull period will very often cause the leaves to flag when the plant is healthy and vigorous; when this occurs afford a light shade during the hottest part of the day, keeping the house well damped down in the case of plants on which the fruits are swelling freely. Later batches of plants should be encouraged by every available means to make healthy and sturdy growth. Seeds should be sown to produce plants for a late crop of fruits.

THE FLOWER GARDEN.

By G. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Francoa ramosa.—In two different counties this plant has failed to survive the winter with me when left in the ground. The damp of winter is too much for it, unless it is taken up and placed against a wall where the soil is quite dry. At Ampthill we pot and plunge the plants in ashes in a cold frame—in which position they do well and are now showing flower spikes. The flowers of Francoa are not gaily coloured, nevertheless the long, daintily flowered spikes are very pleasing. Bridal Wreath is the common name of this plant. Seedling Francoas are reasonably easy to obtain, and the plants are often grown in pots for the decoration of cool houses.

Fritillaria imperialis.—This plant resents being disturbed often, but removal is sometimes necessary, otherwise the clumps will become congested with growths, and the flowering be diminished. As the foliage has died down the dividing and replanting may be done now. Provided the soil is not too poor in quality, and of a reasonable depth, almost any kind of ground is suitable for this plant—though I have noticed it does especially well in a sandy loam. The semi-shade of a shrubbery affords a suitable position. If grown in the flower border a light growing annual should be planted close to the Fritillaria, to hide the ground when the latter plant has died down.

Lupinus arboreus.—Although this shrubby plant will grow and flower in any kind of soil, to maintain it in good condition for a number of years it is essential that the ground should be on the dry side, or well drained. In the course of a few years the plants will make specimens four to five feet in height, and a yard across—and practically every shoot will flower. Both the yellow and white forms are equally free blooming and attractive. Where this Lupin is prone to decay, young stock should be raised from time to time by sowing seed as soon as it is ripe, or by rooting a few cuttings after the flowering is over.

Herniaria glabra.—This is a neat-growing, evergreen creeper, and one that is sure to give pleasure where such a plant is required. It will succeed in any aspect, but much the best in shade. It may be used as a carpet plant in the foreground of groups of hardy Ferns, in odd, shady corners, or for masking artificial edgings of stone or brick. It is a close, low-growing plant, and always looks fresh and green, even in the hottest weather. Pulling off and inserting portions of the plant is a very easy means of increase

IRISES.

IRIS LUTESCENS—STABELLAE.

THIS Iris has bloomed very freely with me this year, and its pale yellow flowers, which in April herald the coming of its larger and brighter-coloured congeners, are very welcome so early in the spring. It is an accommodating plant and gives no trouble even in my heavy soil, but I fancy sometimes it would do even better in a lighter and drier situation. The flowers are primrose yellow; the plant is about a foot high, and the roots rhizomatous. It is exceedingly free in bloom, and is strongly to be recommended as a desirable garden plant. *T. D. T.*

IRIS SIBIRICA.

IRIS sibirica, although one of the commonest of Irises, is a most beautiful species. It succeeds in most soils, but prefers a deep, moist loam and is an admirable plant for the lake garden,

FIG. 166.—IRIS THUNDERCLOUD : R.H S. AWARD OF MERIT, JUNE 12 (SEE P. 341).

for which purpose it is largely employed in these gardens. Its thick, tufted leaves and dainty, veined flowers, borne on long, upright stems, are produced in great abundance, and when planted in irregular bands as a fringe to the shrubbery which encloses the lake garden it is very effective. The plant is easily raised from seed, and seedlings flower freely in their second year; it is not uncommon for five-year-old clumps to throw up as many as 50 flower stalks, bearing five or six flowers each. Seed-pods are produced very freely and should be removed immediately they develop in order to conserve the energies of the plant for next season's flowering.

In theory large clumps may be divided after flowering, but I find in practice that the plants suffer less if this is deferred until September. If the plants are heavily mulched after flowering the new roots that develop at the base of the stems are encouraged to ramify near the surface. When division of the clumps is done in early autumn these new roots may be kept intact and the plants in these circumstances quickly become re-established. *W. Auton, Pyrford Court Gardens, Woking, Surrey.*

IXIOLIRION.

As this pretty little Irid is about passing its prime it is well to draw attention to its beauty, especially as it is yet uncommon and frequently unknown in many gardens. It is a bulbous plant reaching to a height of 12 or 15 inches, with thin, grassy foliage somewhat resembling that of the Spanish Iris. The flowers are in loose heads and in varying shades of blue.

Three or four weeks ago I counted nine blooms open together on one stalk, and the freedom of flowering is surprising. I noticed the plants at Hampton Court in May and saw various tints of blue represented, ranging from sky blue to a gorgeous purple.

The cultivation of Ixiolirion (montanum?) is of the simplest, but preference should be given to a sandy soil and sunny situation. The bulbs are best planted in the autumn, in October or November, 3 inches or 4 inches apart, and 2 inches or 3 inches deep, and, being hardy, may be left without protection throughout the winter. I have found it necessary, however, in this locality (S.E.) to lift the bulbs as soon as the foliage decays, as they deteriorate if left in the ground. *T. D. T.*

INDOOR PLANTS.

CELSIA ARCTURUS.

THIS is a most valuable plant for the decoration of the conservatory or greenhouse, and its long spikes of bloom and greyish-green foliage never fail to attract attention. The rich yellow flowers, with their bright anthers, are borne on stems reaching two feet high.

Seed should be sown in well-drained pots or pans, and placed in a warm greenhouse, covering the seed-pans with a piece of glass and paper to conserve the moisture. As soon as the young plants appear, remove them to a frame, and when large enough to handle, prick them off singly into small pots, using a compost of loam, leaf-mould, sand, and a little mortar rubble.

Water the seedlings carefully, and afford them plenty of air as the weather becomes warmer

When the pots are filled with roots, transfer the plants to five-inch pots, using a rougher compost, with the addition of some old hotbed manure When well rooted, feed them with Clay's Fertilizer or diluted manure water.

Towards the autumn the plants will throw a central spike of bloom, and possibly several small ones Celsia Arcturus is a somewhat gross feeder, and develops plenty of roots; hence the reason for close attention in feeding, etc.

When the plants have finished blooming, cut the spikes off and repot them in receptacles a size or two larger, and grow them in a frame or greenhouse, where they will be safe from frost.

Keep all dead foliage picked off, and the following spring top-dress the plants with rich soil and grow them in a cool house. Good plants will develop as many as a dozen large spikes of bloom, and, if grown under cool conditions, will need no staking. The spikes arch over in a very graceful manner, and are most useful for associating with Schizanthus, Clarkias, etc. A pinch of seed should be sown every spring to maintain a supply of young, vigorous plants. *R. W. Thatcher, Carlton Park Gardens, Market Harborough*

BROWALLIA VISCOSA.

THIS pretty annual is very useful for furnishing the greenhouse, and by raising successional batches from seed it may be had in flower nearly all the year round. If a pinch of seed is sown at this time, the resulting plants will prove very useful for late summer flowering. This plant succeeds in any good potting compost, and good examples may be grown in six-inch pots. This is the largest growing of the annual Browallias, and flowers with wonderful freedom over a long period.

Browallia viscosa is sometimes known as B. pulchella and B. Czerwiakowskii; it is a native of the West Indies. *C.*

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. 16.—THE CHIANG-KA RIVER.

FROM Ya-ka-lo, the road to Bat'ang passes through a deep limestone ravine, and merges into a wider, cultivated valley above; but the country is very dry, and it is only on the alluvial plains, irrigated by streams from the high ranges, that cultivation is possible. After travelling for four hours, we camped at the lower edge of the Picea forest, at an altitude of nearly 12,000 feet. The first Rhododendrons appeared here, R. cephalanthoides, or a form of that species (K.W. 5,384), and a bushy species of the decorum type (K.W. 5,405). The seed only of these two was collected—the first Rhododendron seed of the campaign.

There was a Saxifraga opening its maroon flowers, a plant exactly like my Mu-li species (K.W. 5,904); also the rather disappointing Gentiana detonsa—a plant which looks as though it ought to be decorative, but somehow never is.

September 12 was a brilliant day. We climbed the steep forest path to the Kia La (15,800 feet), and after clearing the forest—Picea and Oak, there were no Pine trees—found the rocky slopes speckled with small bluish Poppies (no doubt K.W. 5,365, found on Damyon) and yellow Saxifrages. I am not convinced that K.W. 3,565 is M. Prattii; the petals are generally lavender-coloured, six in number, and the prickles are purple at the base, a character I do not recall in true M. Prattii. It is one of the Aculeatae, near M. rudis. From the summit of the Mekong-Yangtze divide—moorland, covered with Heath-like Intricatum Rhododendron—a gorgeous view of Damyon is obtained, a great snow-clad dome rising above the granite wall of the Mekong. The view northwards is more restricted, and we see only limestone cliffs and the low, red hills in the valley of the Chiang-ka River (Fig. 167).

Descending the sheltered flank, we come almost immediately to forest, similar to that on the other side, with the addition of Larch and Juniper trees. But there were sloping lawns and bogs as well, where Gentiana sino-ornata, that glorious blue trumpet, was just as abundant as are Daisies on an English lawn. For depth and purity of colour, for gorgeous effect, there is only one other plant to vie with it—Delphinium yunnanense, also of this country. In the bogs, another Gentian with large flowers of pale China blue formed bright mats and tussocks; it was not unlike G. heptaphylla, but better, and was growing under rather dissimilar conditions, too.

There were two other species of Gentian—purplish-flowered things in quite another class, and species of Cyananthus also. One of the most striking flowers was a Pedicularis of the siphonantha type, but with mixed flowers of lemon and orange, the curly "horn" (the upper lobe of the two-lipped corolla) being orange, the lower lip, which surrounds it like a bib, lemon. I dare say I collected this species in the Bat'ang region in 1911, but if so I had completely forgotten it. I have never seen it elsewhere. Meconopsis was as common on limestone, lower down the valley, as it had been on igneous rock on the other side of the range. But of Primulas I saw nothing new—P. vittata and P. pseudosikkimensis, both in fruit, crowded the becks, and much lower down in the forest I found a sturdy Nivalis Primula in fruit, probably P. sino-plantaginea, like the one found at the Pi-tu La; possibly something else. Anyway, I garnered seed of it, and mingled it with the Pi-tu La seed. Not till the following day, in a bog in the red sandstone valley just above the Chiang-ka River, did I find a Primula unknown to me; and then only a solitary plant, happily in flower—or rather, unhappily, for it was a bonny wee thing (as Mr. Forrest would certainly say), with large mauve flower, white eyed and fragrant, and seed of it would have been welcome. But perhaps I should have missed it altogether then. With it was the ubiquitous P. Wardii, with which I am thoroughly discontented; I really don't deserve it. How I envy Mr. Forrest *his* Primula!

The Chiang-ka River here flows at an altitude of between 10,000 and 11,000 feet. There were flowers and bushes on the dry, rocky banks, the most interesting thing I saw being an Incarvillea—rather a big one—in seed. There was also an Euonymus of weeping habit—a stunted tree, in full bearing.

After marching several miles up the Chiang-ka River, we reached a ruined village called Ru, on the provisional frontier between Lhasa territory and Chinese territory so-called. It had been destroyed by the Szechuan soldiery, during the recent war, for harbouring Tibetan levies—no doubt against the inclinations of the inhabitants; for to have Tibetan soldiers billeted on one is no sinecure. Anyhow, it had been rather thoroughly destroyed. The headman, who formerly lived in a castle (the debris testified to its size), now lived in a hovel; but he managed to give me a little room to myself off the kitchen, while my party and the extensive household packed into the other two rooms.

On September 14 we left the Chiang-ka river again to recross the Mekong-Yangtze divide by the Bi La, an easy pass, reached in three hours. It was not an unprofitable day, because on the limestone cliffs below I found a Suffruticosa Primula in seed, and collected a good sample. At first I thought it must be P. pulvinata, of the Mekong-Salween divide and Ka-ga-pu; but later in the month I collected that species again from its original home above the Ka-ga-pu glacier (I discovered it there in 1913; it is in cultivation), and compared the two plants. They are not the same. What the new one (K.W. 5,403) is like I cannot say, not having seen it in flower; but it is of the pulvinata type, or like the Mu-li plant (K.W. 4,275). Later, rather to my surprise, I found the new species at considerably higher altitudes, and on rock other than limestone, where indeed it was abundant and obviously flourishing.

FIG. 167.—ON THE GRASS-LAND PLATEAU; CHIANG-KA RIVER.

The Bi La turned out to be a wide, green meadow, gradually sloping down on either side to rich pastures, dotted with yak grazing. The sward was spangled with flowers, Saxifragas, Gentians, Primulas in fruit, Pedicularis—all the things we had seen before. I found nothing new of note. On the south slope, Oak forest had it all its own way; on the north slope, Picea predominated.

We camped just over the brow of the ridge in a wide, green meadow, and visited the yak-herders' tents.

The following day found us descending from the Bi La by a very steep and rocky path. Having reached the Mekong gorge, we kept for some time high above the river, where, on the sheltered slopes, Hemerocallis flava (or nana) was in fruit, with Eremurus, and in the gullies, many Euonymus trees. The Suffruticosa Primula grew on the limestone cliffs here, too. We reached the Mekong in the afternoon, but had still some miles to go to reach Ya-ka-lo, with a stiff climb at the end. However, by marching after dark we got back at eight o'clock.

From September 19 to 21 we made another

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17, July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, March 10, 24, April 7, 21, May 5, and June 2, 1923.

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flying trip over the Mekong-Yangtze divide, going through the limestone gorge on the Bat'ang road, and turning off before we reached the Kia La. After ascending by a rib through Thorn, scrub-Oak, Poplar, Caragana, Indigofera, Berberis, Cotoneaster, Clematis, Salix, Deutzia, Rosa, Rhododendron decorum, etc., with an undergrowth of Salvia, Pedicularis, Polypodium, Meconopsis, and clumps of papery-looking Compositae—we came to a more monotonous growth of Oak, Rhododendron cephalanthoides (here a bush 3 or 4 feet high), and, presently, Abies and Juniper forest; this last, however, confined to the other (sheltered) side of the pass. There were huge and ancient clumps of the new Suffruticosa Primula here, more floriferous than those met with on the limestone; some of the trusses carried eight or ten flowers, and there was plenty of fertile seed—this at 13,000-14,000 feet.

Descending from the pass through a belt of forest, where Rhododendron "smutty-twig" (K.W. 5,409) abounded, we came to a marshy meadow, spangled with pale blue Gentians, and with clumps of dwarf purple-flowered Rhododendron, now in fruit. It is the common alpine of this range, as also of Damyon. Probably it is near R. intricatum itself, but the flowers are not lavender-coloured. Proceeding over the next forested ridge, we crossed one or two green valleys, and presently descended into another yet wider pasture, where yak still grazed—though it was nearly time for them to descend to warmer levels. *F. Kingdon Ward.*

PLANTS NEW OR NOTEWORTHY.

RHODODENDRON INSIGNE.*

THE marked difference in the rate of growth of Chinese Rhododendrons in Great Britain and the period at which they begin to bloom has often been observed, and R. insigne affords an apt illustration of it. Though in no sense an old plant, since it was only discovered in 1908, many species found more recently have become parents and, in some cases, grandparents before R. insigne produced a flower.

Wilson came on the species originally in 1903 on Wa-Shan, the huge limestone bluff about 80 miles N.W. of Kiating, on the extreme west of China, whereof the account in *A Naturalist in Western China* (1913, Chap. XIX.), forms by no means the least interesting chapter in his remarkable book. Of the Rhododendrons on this conglomeration of limestone cliffs more than two miles high and resembling a huge Noah's ark, he wrote: "The gorgeous beauty of their flowers defies description. They were there in thousands and hundreds of thousands. Bushes of all sizes, many fully 30 feet tall and more in diameter, all clad with a wealth of blossom that almost hid the foliage. Some flowers were crimson, some bright red, some flesh-coloured, some silvery-pink, some yellow and others pure white. The huge rugged stems, gnarled and twisted into every conceivable shape, are draped with pendant Mosses and Lichens. . . . How the Rhododendrons find foothold on these wild crags and cliffs is a marvel. . . . Beneath them Sphagnum moss luxuriates. . . . On bare, exposed cliffs I gathered two diminutive species of Rhododendron."

No Rhododendron grower can look unmoved on the picture Mr. Wilson conjures up for us

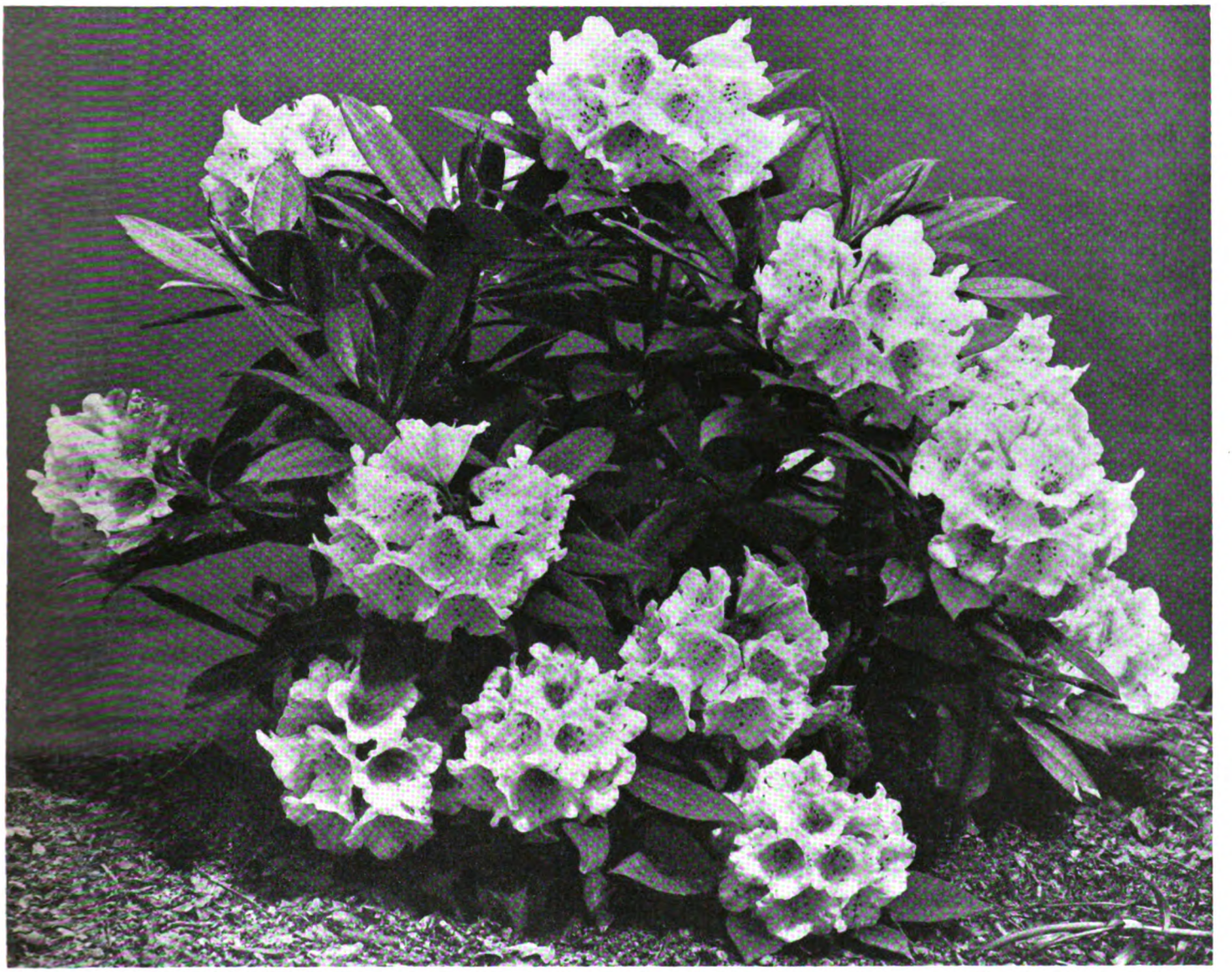

FIG. 168.—A FINE SPECIMEN OF RHODODENDRON INSIGNE IN THE GARDENS AT COOLHURST, HORSHAM.

*Rhododendron insigne, Hemsl. et E. H. Wils. *Bush*, 1.6 m. high; branches thick, straight. *Leaves* very coriaceous, often sub-opposite, lanceolate-oblong, very rarely broadest above the middle, excluding petiole, 9-13 cm. long, 3-5 cm. broad, shortly acuminate, base cuneate, margins reflexed, shining green above, uniformly clothed with dense, short, grey felt below; mid-rib immersed above, raised below, secondary veins prominent on both surfaces; petioles thick, 1-2 cm. long, flattened above. *Bud-scales* oblong or oblong-spathulate, 1.5-3 cm. long, acuminate, fleshy, brown, lowest filiform, flattened at base, upper ciliolate, more or less pubescent on inner surface. *Flowers* eight or more, in short, lax, corymbose racemes, pale or deep pink, 3-5 cm. across, bracteate; bracts oblong-lanceolate or oblong, lowest filiform, 1.5-2 cm. long, 7-10 mm. broad, fleshy, brown, tomentose without, often pubescent within; pedicels spreading or erect-spreading, 2-4 cm. long, reddish, sparsely pubescent. *Calyx* annular, sometimes truncately 5-toothed; teeth short, broad, rounded, pubescent. *Corolla* wide, campanulate, 5-lobed; lobes erect-spreading, rounded or emarginate. *Stamens* 14 or more, included; filaments 1.5-2.5 cm. long, villous in lower half. *Pistil* equal to the corolla in length; ovary 6-8 mm. long, densely clothed with a white, velvety pubescence; style stout, glabrous, reddish; stigma dark-coloured, flattened. *Fruit* not seen.

Szechuan, Mount Wa, at 2,300-3,000 m. above sea-level, Wilson, 3,965; Pratt, 349; A. Henry, 8,859.

An exceedingly distinct and very striking species, only known from Mount Wa. Neither Pratt's nor Henry's specimens are localised, but I happen to know that they were collected in the same place as my own. E. H. W., in *Kew Bull. Misc. Inf.*, No. 4, 1910, p. 112.

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of this remarkable mountain so exceptionally rich in floral treasures in general and Rhododendrons in particular. Of the latter Mr. Wilson found no fewer than sixteen species* in 1908, and several of these have already given proof of their quality. That the subject of this note is not the least remarkable of them we may be sure, for Mr. Wilson describes it as "an exceedingly distinct and very striking species."

Those who appreciate the habitual restraint this explorer places on the use of superlatives in his field notes, have awaited the *debut* of R. insigne with interest, none the less keen because of the comparative rarity of the plant in Great Britain and the fact that it has been recorded from a single station only (Wa-Shan), a peculiarity it shares with R. concinnum, R. ochraceum, R. Searsiae and R. Williamsianum.

The particular specimen from which the photograph (Fig. 168) was taken has an interesting, if brief, history. It formed one of a batch of seedling Rhododendrons sent to the writer by the late Sir Isaac Balfour in 1914, for trial in calcareous soil, and, at the writer's request, made after reading Mr. Wilson's story of this wonderful mountain of limestone, was included with nine other Wa-Shan species. When received in August, 1914, the specimen was a seedling only finger high, with no more than a scrap of earth about the roots. It was planted with the others in poor, chalky soil in a position sheltered from north and east winds, and not reached by the sun till midday. Except that the ground was kept moist by subterranean irrigation (with hard water), no attention was given to the plants, and they had to take everything but drought, as it came. It goes without saying, too, that they had to share in the general neglect to which gardens were perforce subjected in the four years of the war.

At that time the writer's object was more to see how much chalk the various Rhododendrons would tolerate than anything else; the experiment was needlessly severe, and the casualties consequently more numerous than might have been the case had less drastic treatment been adopted. Though the little plant of R. insigne made but tardy growth, it exhibited none of that tell-tale lightening of the leaf colour which Rhododendron growers know so well, nor any other signal of distress; during the five succeeding winters it passed unscathed through several severe if not prolonged spells of frost. At the end of 1919, still apparently in the best of health, the plant was only six inches high and as much across, but had formed a flower bud. Then it began to thicken out rapidly, and in the spring of 1920 threw a truss of bloom. Moved in November of the same year to the lime-free ground of Mr. Charles Scrase Dickins's garden, at Coolhurst, it grew on without a check, and four weeks ago bore 21 trusses of bloom. Neither leaves nor flower buds were harmed by the frost of the night of April 10, which singed a good many Rhododendrons planted near the specimen of R. insigne.

In Mr. Wilson's original description of the species under the number 3.965, the height was given as 1.6 metres, but when exploring Wa-Shan again in 1908, he found larger bushes of it, 4.6 metres high (No. 1.339).† The plant shown in the photograph is only 16 inches high and 18 across, so it has a long way to go before we can judge the mature habit of it. In general form the truss is not unlike that of R. calophytum, though not at present so large; the flower pedicels are erect at first, and inclined to droop after a few days. Both the pedicels and the petal midrib are highly coloured, and the general suffusion of deep rose about the petals is ample to warrant the impression that the species will justify Mr. Wilson's high opinion of it. He originally placed the species as near R. irroratum; later, in *Plantæ Wilsonianæ*, he placed it in the R. argyrophyllum series. Sir Isaac Bayley Balfour took the view that the species came into the R. arboreum group, and, if the plants in cultivation in Britain under the number 1.339 are typical, the silvery indumentum character on the under side of the leaf seems to bring R. insigne into that group. *A. Grove.*

* argyrophyllum, 1.210; calophytum, 1.224, 1.367; concinnum, 3.446, 3.448; Faberi, 3.436; lutescens, 1.345; lonzesquamatum, 1.361, 3.439; polylepis, 1.221; pachytrichum, 1.203, 1.349; ochraceum, 3.425; Searsiae, 1.343, 3.449; stamineum, 3.470; strigillosum, 1.341, 3.429; villosum, 1.342; Williamsianum, 1.350; Wiltonii, 1.353; insigne, 3.965, 1.339.

† Rhododendron insigne, Hemsley and Wilson, in *Kew. Bull. Misc. Inf.*, 1910, p. 113

Western Szech'uan: Wa-Shan, woodlands, alt. 2,300-2,600 m., June and October, 1908 (No. 1.339); bush 4-6 m. tall, flowers pink or white; same locality, alt. 2,300-3,000 m., July, 1903 (Veitch Exped., No. 3,965, type).

The fruit of this handsome species, which has not been described, is stout, cylindric, obtuse, 2-2.5 cm. long, about 1 cm. wide, 8-10 valved, with rather thin valves, crowned by the remains of the style, and densely covered with very short, brownish, crispate hairs; seeds oblong, 2.5-3 mm. long, yellowish-brown. Bark salmon-red, becoming grey with age, exfoliating in rather thin, small flakes. *Pl. Wils.*, Part III., p. 528.

TREES AND SHRUBS.

FAGUS SYLVATICA ROTUNDIFOLIA.

WITH the exceptions of the purple and copper Beeches, it is rarely that one finds planters specialising in the numerous forms of the common Beech. Quite recently I noted a healthy specimen in a front garden, bordering the highway, at Boscombe, Hampshire. It was ten to twelve feet high, and was so distinct in appearance as to arrest the eye amongst the numerous trees so freely planted everywhere in Boscombe and Bournemouth. Never have I seen so many trees before in a township, built practically on the cliffs overhanging the sea. Amongst the older specimens, Pinus Pinaster is the dominating tree; but large numbers of others seem quite capable of resisting the sea breezes. Pinus insignis alone seems unhappy, but I was informed that this species is subject to a disease that turns the leaves brown. Broad-leaved trees and shrubs are numerous in species, as well as Conifers. The round-leaved Beech does not seem to date prior to 1872, but is worthy of more extended cultivation on account of the small size of the leaves, their close arrangement on the branches, and the neat and elegant appearance of the tree. The leaves are round, emarginate at the base, and generally under 1¼ inch in diameter. *J. F.*

HYBRID LILACS.

SYRINGA HENRYI was obtained by the skilful French gardener, M. L. Henry, by crossing the Hungarian S. Josikaea with narrow leaves and small bluish-purple flowers in long narrow clusters, with S. villosa, which has large leaves and ample clusters of flesh-coloured flowers. These are both late-flowering species, as is the hybrid from them. Plants of this hybrid are large, vigorous, perfectly hardy and grow rapidly. The leaves resemble those of S. villosa, but the flowers are violet-purple or reddish purple and arranged in clusters from twelve to fifteen inches long and broad. The handsomest perhaps of this race, which has been named Lutêce, has deep violet-purple flowers, and is one of the most beautiful of all Lilacs. Eximia, another of the hybrids, has not grown in the Arnold Arboretum to such a large size as Lutêce, but it is one of the handsome late-flowering plants in the collection, with compact clusters of rose-coloured or reddish flowers which become pink after opening.

Lemoine has obtained another interesting hybrid Lilac by crossing forms of Syringa vulgaris with the violet-flowered form (var. Giraldii) of the north China S. affinis. The plants of this parentage grow rapidly and are tall, narrow shrubs. Like their Chinese parent they bloom early and the flowers are fragrant. The best known of these hybrids have been called by Lemoine—Berryer, Claude Bernard, Lamartine, Mirabeau, Pascale, and Vauban. Several of these flowered in the Arnold Arboretum during the early part of May, and promise to be important additions to the collection.

According to the Arnold Arboretum *Bulletin*, Lemoine's latest hybrid Lilac has been obtained by crossing the hybrid Lutêce with the Chinese S. tomentella, and Lemoine speaks highly of it.

TREES FOR STREET PLANTING.

TREES planted in our towns and cities give pleasure to everyone, and street planting has enormously increased of late years, because people love trees.

The cultivation of trees in large towns presents difficulties not met with in parks and gardens, but these can always be overcome if the right selection is made. The City tree has many things to contend with, such as pavements which exclude water, light and air, the removal of top soil when making the roadway, and careless digging near the trees when the gas, electric and water services are being attended to.

When a selection of trees is to be made those in authority should study three essential points. The trees should have an erect habit, a hardy nature, and either handsome foliage or bark; good spring and summer flowering or autumn colouring are desirable, and the trees should be rapid growers.

The writer has recently had the interesting experience of choosing a thousand trees for the central portion of a new town in the home counties in England, and in doing so, these points have always had to be taken into account, whilst due thought has had to be given to the ultimate width of the road, height of buildings, nature of soil, prevalent winds and general taste of the community. A large variety of trees was selected, comprising large trees for open spaces, early and late flowering trees to give a long period of bloom and those that will provide a fine autumnal effect. In England, while we owe a debt of gratitude to previous town officials who in past years have been responsible for planting trees in all possible positions in our streets, one defect is often apparent, and it is that only a very limited number of kinds has been chosen. The writer has greater London in mind, and when walking through its principal thoroughfares, the uninitiated would imagine that only one species could withstand stone pavements, city smoke and November fog.

The Plane is, of course, the one in question, and although very beautiful and possessing a wealth of association, being planted all about Westminster, Piccadilly and Buckingham Palace, the Londoner often feels that a little more originality might well have been displayed in the planting.

Next to the Plane, precedence has been given to the common Horse Chestnut, which has been planted everywhere, sometimes with charming results; but as it is a very large tree, and streets are often extremely narrow, its beauty is quite marred by the hard winter pruning that is necessary to keep it within bounds. The variety plantierensis is just as beautiful and more suitable for street planting, for when fully grown it is rarely more than 30 ft. high. In Paris, where there is some of the most successful street planting in the world, the Horse Chestnut is extensively used. The streets are often 100 ft. to 300 ft. wide, and this allows room for two double avenues to be planted. Standing at the Arc de Triomphe one is fascinated by the beautiful view of nine wide roads, each containing double avenues of this magnificent tree. This is an occasion when the planting of Chestnuts is not only justified, but to be highly commended, as there is ample room for the trees to grow practically undisturbed to their full height and width.

A good many of the British Dominions are adopting a bold plan in dealing with the street planting question. One notable example is in Christchurch, New Zealand, where the whole centre of the town, comprising one square mile, is enclosed by four broad streets, each with a central sidewalk, planted with double avenues of fast-growing trees.

When looking for trees of erect habit, the Jersey Elm, Hornbeam and Lombardy Poplar immediately suggest themselves. The Jersey Elm is the best example, often growing to a height of 60 ft. to 80 ft. The Cornish Elm also is worth considering, but it is more branching. The

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Hornbeam is a very similar tree and extremely hardy. Lombardy Poplars make a good formal avenue, and are much used on the Continent. They are great favourites with architects, owing to their quick growth. Populus alba pyramidalis has a white under surface to its leaves, and is a change from the usual Lombardy Poplar.

When choosing trees with handsome foliage, flowers and fruits, a wide field is open.

The Tree of Heaven (Ailanthus) comes first on any list of those with good foliage, and it is now being extensively planted as a street tree. It also possesses flowers and fruit, but these are really a secondary consideration. Paulownia imperialis also has large leaves and is a fine tree generally; it should not be planted in busy thoroughfares, as it requires good soil and more attention than is ordinarily possible. The Black Walnut, which is famous for its magnificent timber, will do well in an open street, only it must be remembered that it is a large tree and that it does not naturally take kindly to severe pruning.

For glorious autumnal effects the Scarlet Oak and Norway Maples (varieties Reitenbachii and Schwedleri) are unsurpassed, but the former should be kept to the suburbs, where it may be planted on the grass margin between the roadway and side walk. The most beautiful of all the flowering trees for street planting is Robinia Pseudacacia, which displays a lovely profusion of bloom in early May. The writer has seen this tree kept to a single stem and flourishing in busy thoroughfares in Paris. The Lime is becoming more popular, and quite rightly so, because of its flowers and sweet scent. Also, it may be treated formally with great success.

The Almond is earliest of all flowering trees, but the Whitebeam, the Mountain Ash and the Manna Ash all give a wealth of bloom. In large town streets the host of smaller flowering trees such as Laburnums, Thorns, Cotoneasters, etc., must be ruled out as unsuitable, and must be reserved for quieter suburbs. One or two variegated trees, such as Acer Negundo variegata, should be included, as their foliage forms a fine contrast to the green leaves of the other subjects

It is always interesting to have one or two streets planted with trees that are not common, but as some unusual trees are not considered very hardy and fast growing, town authorities may feel that it is a risk to plant them. Nevertheless, an experiment is always interesting, and if the trees do flourish, they will be a great feature to any town. Washington (U.S.A.) has been most enterprising, and has planted a fine avenue of Maiden-Hair Tree (Ginkgo biloba) which has been most successful. Rochester has planted Magnolias in the central part of the town.

It is a vexed question as to how far apart street trees should be planted. The alternative considerations are whether trees should be planted at a distance apart that will suffice when they are fully grown, or whether double the amount should be planted, or whether alternate trees should be of an especially fast growing variety. The latter method would give the street a well clothed appearance as quickly as possible, but the "alternates" should be removed at a later date. The writer has considered the question from every point of view, and feels convinced that it is best to decide on the space the trees will ultimately require, and plant them accordingly, as public opinion, not understanding the needs of trees, often objects strongly to having superfluous trees removed, so that if double the amount of trees are planted in the first place they are likely to be allowed to remain, until in the end the shape of all is spoilt by the severe pruning that is then necessary. The right distance to plant the smaller flowering trees is 35 ft. apart, while the larger kinds should be placed at 50 ft. (or even 60 ft. to 70 ft.) apart.

Great care should be shown in the actual planting of the tree. Next to the selection of proper kinds and varieties, the preparation of the hole is the most important detail of street planting, because the roots have only a very restricted area in which to spread. The soil in which they are planted should be as good and as liberal in amount as possible. In very heavy soil, drainage should be provided to prevent water from standing about the roots. A hole 3 ft. deep and 4 ft. square should be taken out, all the poor soil removed, and a substantial layer of good soil placed at the bottom of the hole to rest the roots on; then a stout stake should be placed in position, driving it well into the ground; the tree should then be placed absolutely upright in the centre, and good top soil, well mixed with rotten manure, placed over the roots gradually, treading in well each layer of soil. In a busy street a wooden or iron guard should be put round the stem to prevent injury. If a hot summer follows the season of planting, the trees should be watered freely.

It is not possible in a short article to even touch on many important aspects of this subject as it is a wide and interesting study. By judicious and wise street tree planting, the beauty of our towns and cities may be greatly enhanced. *J. Butterworth, Welwyn.*

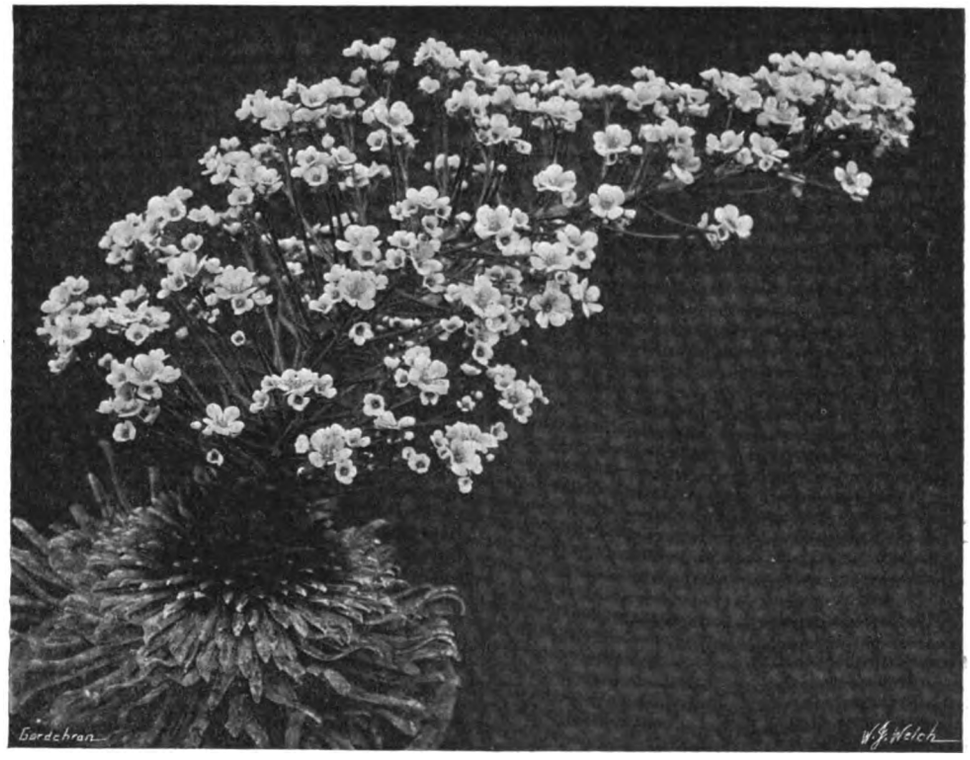

FIG. 169.—SAXIFRAGA LONGIFOLIA; A FINE SPECIMEN GROWN BY SIR EVERARD HAMBRO (SEE P. 342).

FURTHER CONFESSIONS OF A NOVICE.

ANYONE who with varying fortune is engaged in the creation of a garden may be likened to an explorer who embarks on a voyage through uncharted seas or unknown lands. It is true that as there were heroes before Agamemnon so heroic men have made gardens long before I began to make mine, yet despite the fact that they have left shining examples of their work, merely to copy and imitate can but result in the making of a garden which is theirs and not my own: for surely it should be the aspiration of every garden planner that, like Audrey, his garden shall be, if a poor thing, yet his own!

There are, it is true, landscape gardeners skilled in design, and in the knowledge of plants, who can lay out lovely gardens, stock them with the choicest plants, and depart in peace leaving their garden behind them for you to enjoy. Gradually their genial enterprise may be forgotten, and the owner, with no intention of guilefulness, becomes, by lapse of time, the sole begetter of the garden. Many such gardens have I seen and admired, and whilst admiring them, listening to the voice of Jacob, I have recognised the touch of the vanished hand of Esau. Other gardens that I know reveal, after twenty years of existence, the unhappy and inconsequent improvisations of the man who, plunging impetuously into the middle of things, began anyhow and ended nowhere. Here are the Scylla and Charybdis of the amateur garden maker. He may make his garden vicariously—letting Apollos plant, and contenting himself with the watering, or, undertaking it himself, he is apt to begin with details or special features—pergolas and herbaceous borders and rock gardens, for example—before his mind's eye has seen the garden that is to be as a whole. "*C'est le premier pas qui coute!*" Therefore I determined to make no *premier pas* till I had laid out my garden—first in my head, and then on paper, in the form of a rough sketch plan.

The sloping ground away from the house should be terraced, the terrace retained by dry walls, and beyond and encircling house and terraces on the southern side there should be an orchard of half-standard and bush trees, Apple and Crab, Pear and Plum, Medlar and Quince, enclosed on the distant side by a hedge of Hornbeam, following the contours of the terraces. Beyond the orchard would be the kitchen garden cut into comfortable sections by paths and hedges, and enclosed from the surrounding meadow land by boundary hedges of semi-wild looking plants, Gorse on the left and Tamarisk in front and on the right. It looked pleasing on the rough sketch plan and exquisite as seen ten years hence by the mind's eye; the terrace walls bright with a multitude of wall plants, some snug in crevices, others peeping over the top; the Hornbeam hedge 12 feet high or more, tall and slender and trimmed to ordered shape.

But in order that the imagined beauty of the vision should be realised in ten years' time, it was evident that the rough sketch which was its only basis in reality should be put to the critical test of line and level so that it could be converted into a finished plan. I have in my time plied many trades, and by so doing have become very wise on the subject of my limitations. Therefore I sought the advice of the man of architectural mind, with whom all the visions I have related had been shared, and

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in whose company they had indeed been evoked, and besought him to get the levels taken, and to convert the rough sketch into a finished, detailed scale plan. This done, both he and I had for all the months of a long dull winter a garden plan to scrutinise and ponder over.

They say that you learn to play cricket during the winter, and to skate during the summer, and I think they who say this are right; for it is in the leisured intervals between action that experience matures into judgment. In any case, when winter was gone I had made up my mind that although many details would need revision, the main lines of the plan were right. Needless to say this is the essential thing; plenty of ground left for subsequent playing with, but the ground included in the plan demarked once and for all. For form, I think, is the all important thing in plant and garden alike. Colour is very nice and very lovely, of course, but form is the ultimate thing that counts. This truth—if truth it be—had impressed itself on me during the years in which I laboured to make somebody else's garden mine. Despite all that I could do, it remained that other person's garden, and I felt myself only an occupier. The form which the designer had imposed upon that garden—good and bad alike—remained. I found that it was easy to make it worse, but impossible to make it better.

To all artists my discovery that form is the first thing and last thing in garden design is no doubt the commonest of common places. Yet I think that it deserves reiteration, for how many gardens are not marred by lack of spaciousness and economy of line! In speaking of form, I am not thinking of formality. It is as much the essential tribute of the wild garden as of the much-tended garden, and it comes into consideration, or should come in, not only with respect to the garden as a whole, and all its parts, but also with respect to the individual plants, and groups of plants which are planted therein. *A. N.*

NOTES FROM NEW JERSEY.

CHRYSANTHEMUMS generally are later in flowering out-of-doors here than in England, and it is a decided fault to propagate them too early. I root most of my cuttings in May. The commercial growers who plant on benches under glass do so in June or July, and the plants at that time are but a few inches tall. They grow with amazing rapidity, and early sorts, such as Advance, flower in September. Out-of-doors, recognised earlies like Normandie flower with me in late September or October. The heat seemingly affects the bud formation. I did, however, flower Cranford White in mid-September last year by taking the first crown buds. Left alone, these early buds do not usually develop. The Masse type, Roi des Blanc, etc., are useless here, but this season I am trying a number of large-flowering earlies.

I shall use rough frames covered with celo-glass—mosquito netting coated with collodion—to protect Chrysanthemums in the fall of the year. Celo-glass is a valuable, although not perfect, substitute for glass, and presumably similar to "window-white" which I see advertised in English papers.

Reference was made in *Gard. Chron.*, March 3, p. 123, to Asparagus beds being made up of all male plants. This is the plan usually adopted here. I have a bed coming into bearing this year, and I am removing all the berry-bearing plants, substituting them with seedlings of the new Washington variety. There are several Washington types raised by Prof. Norton at one of the Government stations. They are immune to rust, which is a plague here. One may buy seed and plants of these varieties, but it is understood that further selection is necessary.

As Mr. John Heal mentions on page 171, Cannas are gorgeous subjects, and I am beginning to think that they might well be used more extensively for outdoor bedding in England, the south especially. Here we certainly do get a few more degrees of warmth, but the way Cannas grow makes me feel sure they would do well most seasons in England. I have planted them out of 3-inch pots the second week in June, starved plants, which, by the end of July were nearly 3 feet tall and they continued blooming until the advent of frost. I have seen fields of Cannas at West Grove, Pa., the home of Cannas, for it is here that Antoine Wintzer has been raising them for 30 years or so. He has plants towering 7 feet high, and others, like Mrs. Conard and City of Portland, only 3 feet tall. The gorgeous salmons, orange, scarlet, cream and yellow shades in the Conard and Jones collection cannot be imagined. The new pink Mrs. Dupont is far ahead of any other variety. I am sure Mr. Heal would enjoy a visit to West Grove to see these Cannas and have a chat with old Antoine Wintzer, who has used several of the species for breeding. The giant Orchid type I think he developed from *C. placida*. His President is the best red variety to date. He was urged to take up Cannas by the late Dr. Van Fleet, and I think he has raised close upon 100 sorts. He is one of the few American plant breeders who have really accomplished something, and that without making a big noise. Nowadays, there are parties who, having secured the finest strains and varieties the world affords, now hold themselves up as producers of the world's best. Antoine Wintzer is no post Quarantine 37 wizard; he has spent a lifetime at it, and can really show results.

The illustration and notes on the Skunk Cabbage, page 199, interested me. All through the marshes I see this plant from the car window as I daily ride to New York. This plant was about the first to show itself when the snow went. It may be seen by the thousand in the bog land and by sides of streams. Shortly we shall see the blue Iris versicolor and then the pink Hibiscus Moscheutos, great blocks of them. Goldenrods and Asters follow. Hundreds of acres of marsh land lie just beyond Jersey City, and it is there the mosquitos breed. *T. A. W.*

NOTICES OF BOOKS.

Larger British Fungi.*

AT one time we were told that the genus Agaricus included something like a thousand species. Since then great advances have been made in the study of the Basidiomycetes or Mushrooms and Toadstools, and large numbers of genera have been described, instead of making them sections. The above-named book is issued by the trustees of the British Museum, and is founded on the *Guide to Sowerby's Models of British Fungi*, but is greatly enlarged, brought up to date, and has been practically re-written by Mr. Ramsbottom, who must have taken great pains to get such an amount of information within small compass. As a fungus flora it is orderly, and made greatly more intelligible by the drawings representing a species of most of the genera described. The characters of the genus are mostly obvious from a glance at the drawing. When two or more genera are similar the colour of the spores decides the difference. It may be some comfort to those whose trees are killed by Armillaria mellea to know that the Mushroom is edible. It will be a surprise to some that the deliquescing Coprinus comatus and the stinking Phallus impudicus (before expanding) are also edible. The common Fairy Ring Mushroom (Marasmius oreades) can be dried, stored and afterwards restored for use in winter by means of moisture. The drawing of the common Mushroom (Psalliota campestris) is very characteristic; but few would probably see the difference between it and the Horse Mushroom (P. arvensis). This is not surprising seeing that many people look upon the edible species as Mushrooms, and all the rest as Toadstools. Students are warned to make themselves sure of the species before making experiments in eating them. The book is well edited.

* *A Handbook of the Larger British Fungi.* By John Ramsbottom, O.B.E., M.A., F.L.S., Assistant, Department of Botany, London: British Museum. Longmans, Green and Co., B. Quaritch, Ltd., Dulau and Co., Ltd., The Oxford University Press, Wheldon and Wesley, Ltd., and Oliver and Boyd, Edinburgh. 1923. Price 7s. 6d.

VIOLAS.

THERE were several very good exhibits of these charming plants at Chelsea, and the interest manifested in them was considerable. About thirty years ago there was a very keen interest in Violas, with Viola associations, Viola shows and Viola trials in different parts of the country. There is evidence that interest in them and Pansies is reviving. I am not surprised, because they are such suitable subjects for the suburban gardener.

Recently, when on a visit to the garden of the Royal Horticultural Society, at Wisley, I had an hour to spare, and spent it in the trial of Violas which has been carried over from last year. It is the habit of many people to continuously decry the soil at Wisley. I grant they have some reason for it, but let us be fair. On the sandy soil I have often seen results with popular flowers like Violas, Sweet Peas and Antirrhinums which I have not seen surpassed anywhere else. Now the first two of these subjects are difficult to do well on light sandy land. The late Mr. S. T. Wright told me his plan to get Violas to do well was to remove, temporarily, the top four inches of soil, and then dig plenty of cow dung and some soot into the bed and replace the top soil. He argued that the roots almost immediately after the plants were put in began to search downwards for the cool manure below, and getting well established, lived healthily throughout the hot summer—which they did. Mr. Chittenden's methods must be something similar, because he obtained equally good results last year.

In that spare hour I have referred to, I was chiefly interested in the varieties which have stood well through the winter, and are now flowering freely. The clumps I made notes of are large, and in fine health, many of them quite a foot in diameter.

The self-coloured forms are by far the most beautiful and useful for bedding, and I only, out of consideration of space, mention them.

Much the best white on the day of my visit was White Swan, which has fine, large, pure white flowers, with small yellow eye, erect in habit with petals of thick, good substance, "thick cloth" as the Viola and Pansy men of long ago used to say. When purchasing this variety it is wise to secure the true form, as less substantial ones are sometimes sold for it.

Lady Knox is a beautiful rayless lemon-coloured variety, with a habit similar to that of White Swan.

Luiggi is a very large, rayed, lemon-coloured form, which will appeal to many.

Grievi, an old variety, is pale yellow, slightly rayed, and was carrying hundreds of flowers. It is very early and hardy.

Kingcup has clear, medium yellow, medium sized flowers, and an erect habit.

Moseley Perfection has very large, fine flowers, and is rather tall in growth, but nevertheless excellent, and is a superb exhibition variety.

Tangerine is the deepest coloured of all the yellow sorts at Wisley, but the plants are not quite so large as those of other varieties.

Maggie Mott, helio-blue, erect, tall, inclined to spread later, is a most effective and exceedingly popular sort. The flowers are fine for cutting.

Kitty Bell, with all lavender, medium sized flowers, is very free.

Mauve Radiance, with fine rich bluish-mauve flowers, has an ideal bedding habit, and is very distinct.

Winchmore Bedder is rather deeper in colour than the foregoing, but equally good in every other respect.

The deep blue and purple sorts had not wintered so well as the others. The best dark blue was Archie Grant, a very old variety, which has long held a premier place. It has fine foliage and fine long-stemmed flowers. William

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Daniels has a very erect habit, and is deep royal blue in colour.

The best purple was Jubilee—a very popular sort—medium in height, with fine rich flowers in abundance.

Violetta, the charming miniature Viola, raised and introduced by the late Dr. Stuart, of Chirnside, thirty years ago, was growing most vigorously, and throwing up its white, sweetly scented flowers in great profusion.

On the rock garden Mr. Clarence Elliott's beautiful white, erect flowering type, resembling a perfected V. cornuta, was extremely happy and giving pleasure to every visitor. *W. Cuthbertson, Duddingston, N.B.*

FINGER AND TOE DISEASE AT DROITWICH.

DURING my association with the Droitwich Experimental Garden one of the first troubles to manifest itself was Finger and Toe Disease (Plasmodiophora brassicae). This was so strongly established in 1902 on certain plots, that in 1903 strong measures were taken to reduce or eradicate it. The plot worst affected in the garden was chosen for the experiments. The Brussels Sprouts upon several plots were badly affected; and those on the plot selected for the trial had plants so badly diseased that the base of each stem was a mass of disease, varying from two to nearly four inches in diameter, and they were not half developed.

Quick-lime and gas-lime were agents first chosen, and the plot was divided into three sections. It was desirable to effect a decided improvement, if possible, without much delay, and two parts were dressed with quick-lime at the rate of 13 tons per acre, and one with gas-lime at the same rate per acre.

Each form of lime had long been looked upon as a remedy or preventive in the case of this disease; the general belief was correct in regard to air-slaked quick-lime, but incorrect in regard to gas-lime.

One small plot, No. 1, was dressed with gas-lime left on the surface; No. 2 was dressed with air-slaked lime left on the surface; No. 3 was dressed with air-slaked lime dug in. Each plot received an equal quantity of stable manure at the rate of 16 tons per acre. Plots Nos. 1 and 2 were manured and dug; the lime was then applied to the surface and left there. Plot No. 3 was limed and manured, and then dug. Thus the plot with gas-lime on the surface was alongside a plot dressed with air-slaked lime on the surface. The latter being also alongside a plot with the air-slaked lime dug in. By this arrangement no plot had any advantage over another in regard to the gas-lime and air-slaked lime.

The same variety of Brussels Sprout, raised from seed obtained from the same source as previously, was grown and planted each year of trial, on the same plots, dressed with the same kinds of lime so long as gas-lime was available. That supply ended with 1907.

During the period 1903 to 1907 inclusive, the lime had been applied to the plots at the following rates per acre:—

	Tons.		Tons.		Tons.
1903 ...	Plot 1 13	... Plot 2	13	... Plot 3	13
1904 ...	,, 6½	... ,,	6½	... ,,	6½
1905	,, 6½	... ,,	6½	... ,,	6½
1906 ...	,, 3½	... ,,	3½	... ,,	3½
1907	,, 3½	... ,,	3½	... ,,	3½

At the end of the season 1907, the following were the results: Clean-rooted and healthy plants—

GAS-LIME. Left on surface.	QUICK-LIME. Air-slaked and dug in.	QUICK-LIME. Air-slaked and left on surface.
2·38 %	52·38 %	64·28 %

Gas-lime being unobtainable locally after 1907, it was abandoned, not because it had not been a success so far, but because the supply of it had become unreliable. The gas-lime plot was made into two plots in 1908, and Apterite and Vaporite tried, though little success, if any, was expected from them, neither being a fungicide, and four years' trial proved their apparently low value in that respect. For the sake of the results from lime I append the whole results for those four years:—

	APTERITE. %	VAPORITE. %	QUICK-LIME. Air-slaked and dug in. %	QUICK-LIME. Air-slaked and left on surface %
1908	0·00	0·00	66·66	77·77
1909	0·00	0·00	71·14	76·19
1910	2·38	7·14	85·71	85·71
1911	5·00	5·00	97·82	97·82

In 1912 and 1913 commercial sulphate of iron was substituted for Apterite and Vaporite, when the advance was most marked; it leapt forward with a bound in the latter year, the following being the results, with healthy plants:—

	QUICK-LIME Air-slaked, left on the surface. %	IRON SULPHATE Left on the surface. %
1912 ...	69·00	... 7·42
1913 ...	87·50	... 71·42

These results were accepted as guides, and we had no further serious trouble with the disease. By spreading the lime on the surface some of it passes down with the roots when planting the Brassicas. *J. Udale.*

THE SUPPOSED RELATION OF POTATO SKIN SPOT TO CORKY SCAD.

IN a recent paper sent by Shapovalov on the "Relation of Potato Skin Spot to Powdery Scab" (*Journ. of Agric. Research.* XXIII. 4), the startling conclusion has been drawn that these two diseases are synonymous. The pustules of Skin Spot are stated to be immature sori of Corky Scab, in which different filamentous fungi and bacteria develop as secondary organisms during storage.

The significance of this theory is obviously great from a practical point of view, and is readily realised by an inspection of any consignment of Scotch or English seed Potatos where the familiar pustules of Skin Spot are always present to a greater or lesser degree. In our experience, in fact, it is almost impossible to obtain Scotch seed of such varieties as King Edward and Ally without finding an abundance of the disease. If, therefore, one must now regard such pustules as the primary stage of Corky Scab, it is evident that the latter disease, already sufficiently severe in its ravages, is being broadcasted all over the country. Such an outlook is decidedly alarming.

The theory, if true, is also of considerable personal interest to English mycologists. We have the greatest admiration for the work of our American colleagues, but, in the present instance, we must confess that we should have suffered some loss of *amour propre* in admitting the correctness of Shapovalov's conclusions and inferentially the inaccuracy of previous English work on the subject*. As it is, we believe we are in a position to say that we shall be spared this humiliation.

In the spring of 1922, and by the courtesy of Mr. A. D. Cotton, we received a copy of some friendly correspondence which had passed between him and Dr. Shapovalov on the subject of the latter's hypothesis. Realising its significance, we started a careful investigation of the subject with special reference to the question of the pathogenicity of Oospora pustulans. As a result of our experiments, we believe we have obtained overwhelming evidence that Skin Spot bears no relation at all to Corky Scab, but that it is caused solely by Oospora pustulans. It is hoped to publish details of the work in a forthcoming number of the *Kew Bulletin*, but we have been persuaded to make this preliminary statement in view of the widespread interest which Shapovalov's paper appears to have aroused. *W. A. Millard and Sydney Burr, Dept. of Agriculture, The University, Leeds.*

* Skin Spot disease was worked out in 1919 at Kew by Miss Nest Owen, who ascribed it to the fungus Oospora pustulans—a new species. A full account of the work will be found in the *Kew Bulletin of Miscellaneous Information*, No. 8.

FRUIT CULTURE IN SWEDEN.

BEING interested in the question as to how far north Apples are grown, I imposed on the kindness of the Swedish Legation in London for first hand information, and the Secretary has taken the trouble to send direct to Sweden for information. As his letter is of general interest, I give it in full as follows:—

DEAR SIR,—With reference to your letter of the 1st February, I have now received information from Sweden regarding your questions and beg to inform you that the Apple tree fruits in Sweden nearly up to the 66th latitude, where the White Astrakan (a good dessert Apple), Charlamovsky, Alexander, Klaräpple, Oranieäpple and Wealthy (a good cooking Apple) grow. In the middle of Sweden they grow a lot of Astrakan, Charlamovsky, Gravensteiner, Gragylling, Hampus, Ribston, Sävstaholms, Akeröäpple and in the south you get the same varieties as in the middle, but also Cox's Orange Pippin, Cox's Pomona, Golden Noble (a good cooking variety), Beauty of Bath, Signe Tillisch, Transparente Blanche and Wellington (a good cooker). Apple growing has even been tried at a place called Overtornea, about six Swedish miles south of the Arctic circle.

Further, I beg to refer to three pamphlets on the subject which I send you under separate cover.—Yours faithfully, S. LINDRATH. Secretary.

The literature so kindly sent in addition to the letter offers abundant evidence that fruit-growing in Sweden is conducted on the most up-to-date lines, and that the country contains a number of keenly interested enthusiasts, and with a very good magazine called *Sverige's Pomologiska Forenings Årsskrift.* The illustrations show incidentally that Sweden is a very beautiful country, and that the best methods of culture are practised, and perhaps are the more thorough because, being so far north, it is more essential to be in earnest than with us. Apple Gravensteiner appears to be a great favourite in Sweden, and I must say that this Apple is also a favourite with me, for it is one of the best varieties I know, and is, I believe, of Swedish origin. A very ingenious method of fastening Apple trees to stakes is given in one of the books sent to me. Some ordinary little corks are strung together in a row longwise on a string. These corks are wound around the stem of the tree, and the ends of the string are, after being crossed figure-of-eight fashion, tied around the supporting post, the corks encircling the tree and protecting it from rubbing against the post or being cut by the string. This is the first time that I have heard of this most useful device. The people of Sweden and ourselves have much in common, both in ancestry and ideals, and I am delighted to find that they are able to do so well in the fascinating pursuit of fruit culture. I feel sure that readers of this paper will appreciate as much as I do the very kind action of Mr. Lindrath. *W. J. Farmer, Ye Hive, Redruth.*

VEGETABLE GARDEN.

SUMMER SPINACH.

AFTER Peas and Beans probably no vegetable is in greater demand during the summer than Spinach. On light, sandy soils it is almost impossible to obtain in quantity the ordinary summer Spinach, as after mid-summer it is liable to run to seed quickly, and even with good cultivation it is very difficult to produce a crop of fleshy leaves.

Spinach Beet is a valuable substitute, and if sown in April may be relied on to give a succession of delicate leaves and provide an alternative dish when Spinach proper is difficult to obtain.

New Zealand Spinach also, if sown in May, will yield a supply of thick, fleshy leaves during the whole of the summer, and although not equal in flavour to ordinary Spinach is worth growing as an aid to the supply during the hot, dry months. *W. Auton.*

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HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

What is a Rock Garden?—In company with a keen and successful cultivator of rock plants, I visited the Chelsea Show, and in looking over the rock gardens we both agreed that the chief award was not given to the best rock garden. The *Oxford Dictionary* gives the meaning of a garden as "an enclosed piece of ground devoted to the cultivation of flowers, fruit or vegetables; often preceded by some defining word, as flower, fruit, kitchen, etc." The award was given to an undoubtedly skilful disposition of natural rock formation, but as a place for growing Alpines it left much to be desired. One or two of the other exhibits were much more suitable to the growth of plants, but the placing of the plants was not always sound instruction to those seeking hints as to how to plant their rock gardens. Too often plants requiring dry winter quarters were planted close to a running stream. I should like to see some notice taken by the judges as to a possible future display in the garden. As seen in recent years the Chelsea rock gardens have been nothing more than bedding out. *W. Butt.*

——I sincerely hope that Mr. W. Watson's letter (page 323) under the above heading will be widely read by all who are interested in rock gardening, and by all who are well wishers of the Royal Horticultural Society. It is an extraordinarily sound, wise and brief statement of what our aims and ideals should be in making rock gardens. It shows at once that the Council of the R.H.S. chose better than they knew when they appointed Messrs. Watson, Stern and Bartholomew to judge the rock gardens at Chelsea this year, and it shows what a monstrous tactical error the Council made in reversing the decision of the judges they had chosen. Personally, I think the idea of judging the rock gardens at all is foolish, even unnecessary. Why penalise the maker of a beautiful rock garden by causing him to pay a year's insurance premium on a large and curiously ugly silver cup? But why say which is the best, the second best, or the third best rock garden at Chelsea? Why not allow rock gardening to remain an art? To admit a challenge cup, and to compete for it, is reducing rock gardening to the level of a fat stock show or a beauty competition. I admit that I was not entirely without guilt myself, and was sentenced to some sort of silver gilt medal, though, not being a "first offender," the R.H.S. do not insist upon my actually getting the medal—unless I pay for it. If, however, we are to have competition and judging, then let us have the best possible judging, such as was provided at Chelsea this year. But it is hardly to be expected that competent, self respecting judges will continue to give their services if they know that after going solemnly round, considering, and carefully "pointing" the exhibits and sending in their well considered decisions, they are liable to have their decisions flatly reversed by the Council. *Clarence Elliott.*

St. Cutbert's Cole.—I have only just seen Mr. R. P. Brotherston's note on "Puzzles in Plant Names" (p. 201), which, like all that he writes on the subject, is full of interesting matter. With regard to "Cuthberdole" and "Cuthbertill," which he regards as forms of St. Cuthbert's Cole, would Mr. Brotherston please give a reference to the place where this name is published? Although it is new to me and finds no place in our *Dictionary of English Plant Names*, it seems to be fairly well known, as I find it in another form in the recently published little book on *Plant Names*, by Archdeacon Lindsay, who suggests that Hollyhock "derived its name from the Holy Island, Lindisfarne, or from the saint of that isle, after whom it was called St. Cuthbert's Kale." Obviously Althaea rosea, the plant usually known as Hollyhock, cannot be meant, and Mr. Brotherston may be right in suggesting that the name had been originally applied to the Marsh Mallow, but here again I should be grateful for a reference to such application, and also for the name "Seadock," which is also new to me. Perhaps at the same time Mr. Brotherston would say where the names for Sedum album are to be found. I should like to include them and the others I have mentioned in the supplement to the *Dictionary of English Plant Names*, which has assumed considerable dimensions, and which I hope rather than expect to publish. *James Britten*, 41, *Boston Road, Brentford, Middlesex.*

Puzzles in Plant Names (See p. 323).—The word Moonock as applied to the Cranberry in the North of Ireland, is evidently traceable to the Irish and Gaelic word "monog," the Bog or Peat Berry. The languages of both countries were originally identical, and within themselves are slowly breaking up into local dialects, as in this country. The g at the end of the word has the sound of k, so that the word is pronounced *Monock*. The first vowel has been corrupted by modern speakers of languages that are not cultivated in modern public schools. I could give numerous examples of similar phonetic changes of old English in two contiguous countries of Britain. The Welsh Cymry or Cwmry, also give g the sound of k at the end of words, and their language is cognate with Irish and Gaelic. *J. F.*

Erigeron mucronatum, etc.—How annoying it is that some common plants refuse to grow with one. The last time Erigeron mucronatum was reintroduced here was from a mass of seedlings growing in a path in the late Mr. Lindsay's garden near Corstorphine. I thought it looked a strange weed, and on inquiry Mr. Lindsay said, "Oh, it's Vittadenia triloba, quite a nuisance." I imagined it had died out here once again, but the other day it was pointed out to me growing in a flourishing condition on top of the garden wall. Erinus alpinus is another troublesome plant. There is no trouble where it grows from self-sown seeds, but when this is not the case, one has constantly to be renewing it. On a wall in a little churchyard some miles from here it grows in thousands, and strange to say, a few years ago, succeeding the re-coping of the wall with a layer of cement, it has taken possession of that seemingly unsatisfying material. One white variety appeared among the others last summer. Then there is Parkinson's "Pseudo narcissus Gallicus minor flore pleno," a few clumps of which have been growing here in a semi-wild condition for an indefinite period. They seem never to increase nor decrease, and annually bear their quota, each bulb, of "one faire double flower, consisting of six rowes of leaves every rowe growing smaller than another into the middle." I question if they would grow at all if cultivated. *R. P. Brotherston, Tyninghame Gardens, Prestonkirk.*

Field Mice.—Some little time ago one of your correspondents recommended pieces of Potatos as excellent baits on traps for field mice. I tried this, but the mice preferred the Potatos in the pits. I also used the baits which are successful with the indoor mouse, but these were also left severely alone. A few days ago I found some Barcelona nuts, and stuck a kernel on to each of the "Nipper" and other traps. In a few days I caught about forty mice. This bait is well worth trying by gardeners who are plagued with this pest. *W. G. H.*

Gardeners' Wages.—In reply to *H. P.* (p. 323), I quite agree with him that the best of gardeners do not always have the best chance. I could mention cases similar to those which *H. P.* refers to. Taking my own case, I have been out of a situation several months owing to no fault of my own. I have been employed as journeyman and foreman in some of the best establishments all my life, and, also like *H. P.*, had a very hard struggle with my family on a very low wage during the war, when the daily papers were advocating large families! I find it very difficult to obtain employment, with three boys, the youngest eight years old; I hope none of them will follow the gardening profession. *F. B.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THURSDAY, JUNE 7.—*Present*: the Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, J. Evans, W. Giles, Dr. R. N. Hartley, J. Howes, A. Keeling, D. McLeod, W. Thompson, J. Whitham and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum Mirimar, a fine variety with a heavy blotch on the lip; *Odm. crispum Apple Blossom*, a flower shaded rose-colour; *Odontioda Murillo* (*Odta. Chantecler* × *Aglaon*), a richly-coloured flower of good shape; *Cypripedium Antinea* (*Lord Derby* × *Godefroyae*), a pale yellow variety heavily spotted with burnt carmine and with a yellow pouch. From S. Gratrix, Esq.

Odontoglossum Radiant (*Alexandria* × *Dora*), a very pretty round flower, the sepals and petals being rose purple, spotted deeper purple, and with a large, flat, white lip; *Brasso-Laelio-Cattleya Jupiter var. Mrs. Hanmer*, a very large flower, the sepals and petals slightly flushed; the front lobe of the beautifully frilled lip is cerise purple, and the lip has a yellow throat. From A. Hanmer, Esq.

Odontioda Duchess of York (*Odta. Chantecler* × *Odm. hybrid*), one of the finest varieties of the type; *Miltonia Lady Veitch* (*Mem. G. D. Owen* × *Jules Hye-de Crom*), a very pretty variety, having a richly coloured mask on a light ground. From H. T. Pitt, Esq.

Cypripedium Goultenianum albens (*callosum-Sanderae* × *Curtisii Sanderae*), the flower is emerald-green in colour and has a yellowish green lip. From Messrs. Keeling and Sons.

AWARDS OF MERIT.

Odontoglossum crispum Annette; *Odm. amabile St Andre*; *Odm. eximium St. Alban*; *Laelio-Cattleya Surprise* (*L.-C. Aphrodite* × *L.-C. Canhamiana alba*). From S. Gratrix, Esq.

Cypripedium Marian; *Odontioda Chantecler Orchidhurst var.*; *Odontonia Gratrixiae* (*Odontonia Magali Sander* × *Odm. Rio Tinto*). From Mrs. Gratrix.

Odontoglossum Promerens var. Princess Mary; *Odm. Penelope, Rosslyn var.* From H. T. Pitt, Esq.

Odontioda Marina var. rubra. From A. Hanmer, Esq.

GROUPS.

S. GRATRIX, Esq., West Point (gr. Mr. J. Howes) staged a group for which a Gold Medal was awarded.

A. HANMER, Esq., Buxton (gr. Mr. W. Giles) was awarded a large Silver Gilt Medal for a group.

SOCIETE NATIONALE D'HORTICULTURE DE FRANCE.

THE Spring Exhibition of the French National Horticultural Society was held this year in Paris, from May 25 to June 3. It took place once more at the Cours la Reine, in a special marquee erected for the purpose, and the situation was found much more central and convenient than the large greenhouse in the Jardin d'Acclimatation, where the shows have been held for the past few years.

There were plenty of exhibits, and the scene was quite a gay one. Wide gangways were left for the public, and the exhibition was crowded during the whole time it was open.

Among the numerous stove plants, M. CHANTRIER, of Mortefontaine, showed his usual fine collection of Brazilian Caladiums, several with beautifully marked foliage; also a fine specimen of Nepenthes Tiveyi with the pitchers well developed.

Single and double tuberous Begonias were represented by the exhibits of MM. VALLERAND FRERES, of Taverny, and M. BILLARD, of Vésinet. Some of the plants bore immense flowers; among other varieties were North Pole and Gerbe Rose, both multiflora kinds.

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There were several very fine collections of Hydrangeas; M. HENRI CAYEUX, Director of the gardens of the town of Le Hâvre, contributed some new varieties, of which a number had received Certificates, with very large blooms. M. FARGETON, of Angers, sent the variety splendens, a very beautiful pink colour; Triomphe, a large bright pink variety; and La Marne, with flowers of a lovely blue. M. BARILLET, of Tours, also sent a number of unnamed sorts.

The Zonal Pelargoniums sent by M. POIRIER, of Versailles, were arranged in masses, each variety by itself; the exhibit as a whole was a blaze of colour. Among the many varieties were Sénateur Herriot, bright red; Monsieur Poirier, magenta-red; and Marguerite de Layes, white. There was only one exhibit of Carnations, that of MM. VACHEROT ET LECOUFLE, of Boissy St. Léger; these included fine blooms of Alaska, creamy-white; Vesuvius, purplish-red; and Maurice Lecoufle, magenta.

The Orchids were assembled in a smaller hall at the side of the main marquee. They formed, as usual, a collective exhibit from the principal French growers, arranged under the auspices of the Orchid Committee of the Society, of which M. Julien Potin is the President. Among other features of the display may be mentioned Laelio-Cattleya Truffautiana, pink, tinged with buff; Cattleya Mossiae Wagneri, pure white; Cattleya Marthe Gratiot, white, with fimbriate labellum; Odontioda G. Bultel, with large scarlet flowers; Cattleya Mossiae × Brasso-Cattleya Veitchii, pink, with large fimbriate labellum; all these were awarded a Certificate of Merit.

M. JULIEN POTIN showed a very interesting scientific exhibit, consisting of Orchid seedlings in glass vessels, which had first been sterilised and then infected by the special fungus which assists germination. There were Odontoglossums 28 months old, hybrid Cattleyas 20 months old, Vanda caerulea, etc., which had been raised in this way.

Messrs. VILMORIN, ANDRIEUX AND Co.'s exhibit occupied a central position in the marquee, and consisted of two fine groups, one on each side, presenting a striking medley of pleasing colours. From the main groups, smaller clusters emerged, consisting of such plants as Oriental Poppies, Chrysanthemum segetum Etoile d'Or, Schizanthus, and pink Lavatera, in addition to two lovely groups of cut Sweet Peas. A stone nymph stood beneath colonnades over which hybrids of Tropaeolum Lobbianum climbed; at the base was a pretty carpet of Androsace coronopifolia, with its little white flowers, varied with dwarf blue Ageratums.

MM. CAYEUX ET LE CLERC also showed a fine exhibit, in groups of plants all of one kind, including Clarkia Orange King, Nemesia, Tom Thumb Tropaeolums, Schizanthus, and Aster diplostephioides. Besides these, there was a fine collection of single Pyrethrums, including Ruth, with pink streaked petals, and James Kelway, red; the double varieties umbellatum (pink), and Marie le Clerc (white); single Paeonies; and Delphiniums.

The firm of FERARD put up a very pretty exhibit; it represented a little wall over which climbing Tropaeolums were growing, and behind the wall a rockery, abundantly furnished with various alpines. In the foreground was a row of blue Irises—I. filifolia La France—and a path paved with stone slabs in the interstices of which were planted dwarf species. The same firm also showed two large groups of mixed flowers, and a number of Cannas, among which were Oiseau de Feu, Oiseau d'Or, and Centurion.

Irises were well represented by the exhibit of MM. CAYEUX ET LE CLERC, and by that of MM. VILMORIN; the latter firm showed a series of the large-flowered seedling varieties raised at Verrières, including Ambassadeur, magnifica, Ballerine, and Medrano. MM. Cayeux et Le Clerc had an excellent group, comprising, besides the best-known French varieties, a number of new or unnamed varieties of their own raising; Bélisaire, Horace, etc., were well shown by this firm, as well as the English varieties, Lord of June, Sarpedon, Dawn, Caterina and others, and some German kinds, mostly of yellow colour, including Loreley, König, Prinzessin Victoria Luise, etc. M. MARON, of Brunoy, had a small exhibit, composed for the most part of hybrids of Iris Ricardi raised by the French specialist, M. DENIS.

Roses were represented by various exhibits of great merit; they were shown in various forms—umbrellas, weeping standards, pergolas, dwarfs, ordinary standards, etc. MM. LEVEQUE ET FILS, of Ivry, showed many varieties of first-rate quality; among others were Souvenir de Jean Croibier, a beautiful pink variety; Los Angeles, a Pernetiana hybrid; and Admiral Ward, deep red. MM. DEFRESNE, of Vitry, had also a fine collection, including Mme. Léon Pain, H. T., pale pink; and a series of Pernetiana varieties. MM. NONIN ET FILS, of Châtillon sous Bagneux, brought a fine collection of long-stemmed kinds trained in umbrella form, arches, and pergolas, beneath which were arranged little groups of dwarf varieties. Among other kinds were noted Souvenir de Georges Pernet, a very fine pink, and Louise Catherine Breslau, pinkish yellow.

A collection of Roses of great merit formed a part of the excellent exhibit of MM. MOSER ET FILS, of Versailles, the varieties being chiefly polyanthas, dwarf or pergola-trained. One of the varieties shown was Bordure, a dwarf Wichuraiana with pink flowers; and two novelties, raised by MM. BARBIER, of Orleans, were Eugène Barbier, with creamy white flowers suffused with yellow, and Rheims, with a large pink flower tinged with a yellowish shade.

MM. CROUX ET FILS, of Chatenay, had a large group composed of excellent Rhododendrons such as Robert Croux, blood-red; Annica Bricogne, mauve; Lady Eleanor Cathcart, a pretty pink, etc. The firm of MOSER arranged, at the entrance of the marquee, a modern garden scene, with pergolas adorned with climbing Roses and a background of various sorts of Rhododendrons and Azaleas.

M. WEISS, of St. Cloud, showed a little Japanese garden with a well, a wooden palisade, enclosure, rockwork, and the usual accessories, furnished with Japanese Maples, Bamboos, dwarf Conifers, and green turf.

M. THUILLEAUX, of La Celle St. Cloud, showed specimens of trees, among which were some very fine Conifers; and M. MARTIN, of Louveciennes, had very good Japanese Maples.

Vegetables were represented by the usual exhibit of the firm of VILMORIN, who had a fine and well-varied collection, set out with very good taste.

The exhibition was completed by a series of exhibits of garden tools and sundries, a number of plans for gardens, and, as usual, a little salon of paintings of flowers and outdoor garden scenes. The imitation flowers and vegetables of M. THEVENY also deserve mention; they were the best that have yet been seen, from the point of view of artistic and faithful reproduction.

The Grand Prix d'Honneur of the President of the Republic was awarded to MM. LEVEQUE ET FILS, of Ivry, for Roses.

Certificates of Merit were awarded to the following firms for plant novelties, by the various Committees of the Society:—

To MM. CAYEUX ET LE CLERC, for garden Irises Fédora, Fidelio, Horace, Idéal, Jacqueline Guillot, Mme. Abel Chatenay, Mascotte, and Marc Aureau.

To MM. VILMORIN, ANDRIEUX ET CIE, for Irises Châtelet and Grenadier.

To M. BARILLET, of Tours, for Hydrangeas E. L. Barillet, Mme. Louise Dutrie, Ma Petite Marie, and Beauté de Tours.

To M. HENRI CAYEUX, of Le Hâvre, for Hydrangeas Le Cygne and Matador.

To MM. CROUX ET FILS, for Rhododendrons Souvenir de Gustave Croux, Monsieur Jean Mercier, Maurice Croux and Monsieur Charles Prince.

Several handsome Caladiums, novelties raised by M. CHANTRIER, were also similarly honoured, notably Mme. Eugène Lasseaux and Mlle. Renée Mornay, and so was the pretty Viola bosniaca with pink flowers, shown by the firm of FERARD. *A. M.*

CHAMBER OF HORTICULTURE.

THE fourth annual general meeting of the Chamber of Horticulture was held at 18, Bedford Square, W.C. 1, on Wednesday, June 13, 1923, Mr. G. W. Leak presiding. Others present were: Messrs Joseph Rochford, Geo. Monro, R. H. Page, Milton Hutchings, W. E. Wallace, A. Harris, P. F. Bunyard, C. Engelmann, J. H. May, J. S. Brunton, H. Curtis, H. A. Grindrod, C. G. L. Du Cann, W. H. Page, R. Thomas, H. Jolis, H. J. Jones, H. H. Wardle, and C. M. Matthews (Secretary). Expressions of regret for non-attendance were received from: Alderman E. C. Moore, Lieut.-Col. H. R. Fletcher, Messrs. G. H. Barr, W. Nutting, John Harrison, jun., W. D. Woodrow, A. W. White, Chas. H. Curtis, F. R. Ridley and Geo. Shawyer.

The minutes of the previous annual general meeting were read and confirmed.

The President, Mr. G. W. Leak, in briefly reviewing affairs during his year of office, referred to the difficult position of the Chamber when he accepted the presidency, but during the year a series of conferences with affiliated associations had taken place, which resulted in proposals that should put the Chamber on a firm footing similar to that of other central associations. The success of the Chamber depended upon the co-operation and good feeling of the other associations. If the Chamber was not a co-ordinating body it was valueless and it could not co-ordinate unless it had the opportunity. Mr. Leak said it was agreed that a co-ordinating body was desirable and necessary, and if all the parties worked in perfect harmony there was a great future for the Chamber of Horticulture.

Referring to the annual report, the President said that important work had been done in Parliament, and success was met in placing the horticultural legislative programme before candidates at the last General Election. Parliamentary work, where it concerns more than one section, will still be an important function of the Chamber. Agricultural (with which is embodied horticultural) legislation is at the present time engaging much attention by reason of its great importance. As regards the produce prices inquiry, the Chamber, together with other associations, did all that could be done in the matter. Transport affairs, which again concern all sections, received a great deal of attention.

Speaking of the Technical Committee, Mr. Leak said that this Committee was one capable of doing as great work for horticulture as any committee could possibly do. This Committee already had done a great deal, and it was hoped to be of still greater use in the near future.

The adoption of the annual report was then formally moved by the Chairman, seconded by Mr. Geo. Monro, and carried unanimously.

The adoption of the annual accounts was proposed by the Chairman, seconded by Mr. W. E. Wallace, and carried after discussion, Mr. Du Cann pointing out the necessity for economy, to which the Chairman replied that the Finance Committee already had that need in mind.

In proposing Mr. H. O. Larsen to the presidential chair for the ensuing year, Mr. Leak briefly but comprehensively referred to Mr. Larsen's high position in the horticultural industry and his experience in horticultural organisation, qualifications ably fitting him to direct such an organisation as the Chamber. Mr. A. Harris, in seconding, paid tribute to Mr. Larsen's great experience, and similar support was given by Mr. Geo. Monro and others. The election of Mr. H. O. Larsen as President of the Chamber of Horticulture was then carried with acclamation.

In moving a hearty vote of thanks to the retiring President, Mr. Joseph Rochford said everyone knew what Mr. Leak had done during his year of office. He had done everything in his power to advance the interests of the Chamber, and his efforts were greatly appreciated. Mr. P. F. Bunyard seconded the motion, which was carried unanimously. Mr. Leak suitably replied.

Messrs. John Harrison, jun., C. E. Pearson,

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Joseph Rochford, A. W. White and W. E. Wallace were elected Vice-Presidents. Alderman Edward C. Moore was unanimously re-elected Hon. Treasurer, and Messrs. George Cobley, Kay and Co. reappointed auditors.

The Secretary reported the result of the ballot for the Insecticides Section Committee, and stated that there were two vacancies to be filled on the Technical Committee. Messrs. P. F. Bunyard and C. Engelmann were elected to fill these vacancies.

The following eight gentlemen were elected as representatives of the private members on the Council :—Messrs. Geo. Shawyer, G. H. Barr, W. H. Page, F. R. Ridley, R. H. Page, M. Hutchings, W. Nutting and C. Engelmann.

Obituary.

Thomas Challis, V.M.H.—On the 8th inst., after a long illness, Thomas Challis passed away in the home of his retirement, Herbert Cottage, Wilton. For nearly sixty years Mr. Thomas Challis was gardener at Wilton House, near Salisbury, and during that period he became one of the most famous gardeners of his time, and maintained the fame of the gardens over which he had charge for so long a period. He was an excellent cultivator of fruits and vegetables, and a splendid organiser. A man of the highest integrity, he had also a charming and outstanding personality which endeared him to all who had the pleasure of his acquaintance. As a judge, his services were in great request at the principal exhibitions in the land; he served on the R.H.S. Fruit and Vegetable Committee for many years. He was a capital speaker and was gifted with a voice of excellent carrying power; he was ever on the side of gardeners as a class, as some readers may remember who have heard him speak at R.H.S. luncheons at Holland Park and elsewhere. In December, 1915, having served successively Lady Herbert of Lea and George and Sidney, Earls of Pembroke, Mr. Challis retired to spend the evening of his days in the village of Wilton. On the occasion of his retirement the family he had served so well presented him with a suitably engraved commemorative cup. For some time Mr. Challis was Chairman of the Salisbury Gardeners' Society; he also took an active interest in the co-operative movement at Wilton and in the South Wilts Constitutional Association. For twenty-six years he held the position of Churchwarden at Fugglestone Church, where, on Tuesday, June 12, his remains were laid to rest, amid many tokens of regard and respect. Floral tributes were sent by the Earl and Countess of Pembroke, the Dowager Countess of Pembroke, the Hon. George Herbert, in addition to those from relatives and friends, members of his late staff, and of the societies he had been associated with.

Eugene Callier.—We regret to learn from the French horticultural Press of the death, on May 5, of M. Eugène Callier, who occupied a high position in horticultural circles in Roubaix. He had attained the considerable age of eighty years, and was still president of the Horticultural Club and of the Syndical Horticultural Chamber in his town. He had been created a Chevalier du Mérite Agricole for his many public services.

William Priest.—It is with sincere regret that we have to announce the death of Mr. William Priest, gardener at Eglinton Castle, Kilwinning, Ayrshire. He had been ailing for several weeks and expired suddenly on the 10th inst. He will be much missed by a wide circle of friends. In his younger days Mr. Priest was employed in the gardens of Lambton Castle; later he was appointed foreman to the late Mr. David Thomson at Drumlanrig Castle, and afterwards became gardener at Newbattle Abbey, where he carried out some notable improvements, but did not stay long enough to see the full results of his labours. From Newbattle Abbey he was appointed gardener to Lord Eglinton at Eglinton Castle, where he laboured for nearly forty years. A staff of twenty-two was employed then, but considerable reduction had to be made during later years and heavier duties devolved upon him. He possessed a most unassuming manner, and was esteemed by all who were acquainted with him. A large number of people attended the funeral on Wednesday, the 13th inst., when his remains were interred in the cemetery at Kilwinning. Amongst the mourners were several of his gardening friends, who had come long distances to pay their last tribute of respect.

John E. Jefferies.—After a long illness, Mr. J. E. Jefferies, of Oxford, passed away recently, at the age of 77 years. Son of the late Mr. John Jefferies, he was a native of Cirencester, and settled in Oxford as a seedsman and florist. He was passionately fond of horticulture in all its branches, and was particularly clever in the arrangement of floral groups. For many years he was an active member of the Royal Oxfordshire Horticultural Society and the Oxford Rose and Chrysanthemum Societies. During the war period he acted as secretary of the first-named society, and eventually took a prominent part in welding the Horticultural and the Chrysanthemum Societies into one strong body. The funeral was largely attended by relatives and by friends, who greatly admired the deceased gentleman, whose garden at Littlemore was always open to inspection by anyone fond of flowers and plants.

ANSWERS TO CORRESPONDENTS.

APPLE TREE DISEASED: *Rogate.* The tree is affected with silver leaf. The disease is not infectious until the fungus appears on the dead wood. The dead branch or dead tree should be burnt at once. There is no need to remove the soil

CHARCOAL: *A. M.* The material you send appears to be flue ash, and not pure charcoal. Certain kinds of flue ash contain fertilising properties, but an analysis would be necessary to determine this. In any case the material would be suitable for use on lawns, mixed with fine, dry soil, and used as a top-dressing.

GRAPES DISEASED: *Miss M. S. and R. N.* The berries are affected with spot disease, caused by the fungus Gloeosporium ampelophagum. Spray the vines and the bunches of Grapes with liver of sulphur at a strength of ½ oz. in two gallons of water, or dust flowers of sulphur on the leaves and bunches and again at an interval of 10 days. Next winter, when the vines are dormant spray the rods with iron sulphate in solution.

MAIDENHAIR FERN FRONDS SHRIVELLED: *A. E. S.* The fronds received show no traces of fungous disease, or attacks of insect pests, but their condition suggests that the plants have been subjected to an excess of water at the roots after they were repotted.

NAMES OF PLANTS: *V. H. L.* The specimen in flower is Rubus deliciosus; we cannot determine the other specimen without flowers or fruit.—*W. H. S.* 1, Raphiolepis ovata; 2, Photinia serrulata.—*F. E.* 1, Olearia stellulata; 2 Rhus typhina; 3, not recognised; 4, Lonicera flavescens.—*W. W., Berks.*, and *L. Y.* We cannot undertake to name florists' flowers.

FERNS DISEASED: *T. G.* Mealy bug was present on some of the Maidenhair Fern fronds received, and mildew was found on the Pteris fronds. Ferns need very careful attention with regard to watering and temperature after they are potted and until they have become re-established, and quite frequently they suffer as a result of excessive moisture at the roots. Scrupulous cleanliness is also necessary, especially while the fronds are in a very tender condition.

Communications Received.—J. H.—A. C. H.—W. H. C. T.—W. T.—J. M.—W. D. C.—G. R.—D. G. P.—W. D.—L. M. C.—C. J. D.—M. L.—T. R.—A. B.—A. L.—A. G

MARKETS.

COVENT GARDEN, Tuesday, June 19, 1923.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples— Victorian, N. S. Wales, Tasmanian, W. Australian and N. Zealand		
—Sturmer	14 0	15 0
—Monroe's Fav.	14 0	16 0
—Cleopatra	14 0	16 0
—Cox's	25 0	27 6
—Jonathan	15 0	16 0
Apricots, crate	8 0	12 0
½ sieve	10 0	15 0
Bananas, singles	14 0	22 6
—doubles	20 0	25 0
Cherries—		
Half-sieve	8 0	12 0
"Boats"	7 0	9 0
Box	1 6	2 6
Currants—		
—Black, ½ sieve	12 0	14 0
—Red ,,	12 0	14 0
Figs special	12 0	21 0
best	6 0	9 0
Gooseberries—		
—½ sieves	6 0	8 6
Grapes		
—Belgian	1 6	2 6
—Cannon Hall	6 0	18 0
Grapes—		
—Hamburgh	1 6	4 0
—English Muscat	4 6	8 0
Grape Fruit—		
—Jamaica	20 0	30 0
Lemons—		
—Messina boxes	7 0	9 0
,, cases	14 0	15 0
—Murcia	15 0	20 0
Melons, English and Guernsey, each	1 6	4 0
Nuts—Brazils	45 0	47 6
Oranges—		
—Berna	18 0	30 0
—Californian	16 0	18 0
—South African	15 0	18 0
Peaches—		
—English, doz.	4 0	18 0
Pineapples, case	14 0	40 0
Plums—		
—Spanish, crate	12 0	14 0
—Californian	16 0	18 0
Strawberries spec.	8 0	12 0
,, best	4 0	6 0
Southampton 3lb baskets	3 6	6 0
,, 2lb	3 0	4 0

REMARKS.—Considering the unfavourable weather, trade has been fairly good, most departments reporting considerable business, although prices in some instances have been unstable. Apples from Australia, New Zealand and Tasmania are slightly easier in value, but a good demand is maintained for these fruits. Choice fruits, such as Grapes, Peaches, Nectarines, Figs and Melons have, perhaps, been most affected by the dull weather, and their values are lower. Gooseberries have varied in price, according to the extent of the competition with Dutch-grown Gooseberries. Strawberries are more plentiful, and show a sharp decline in prices. Cherries from France and Apricots and Plums from Spain have sold well. Tomatos are increasing in quantities daily, and are quoted comparatively cheaply for the time of year. The Cucumber trade has not been brisk, but values have been fairly steady. Peas are more plentiful, and some good pods from out-of-doors are now arriving. French Beans are cheaper. Marrows are scarce and dear.

Plants in Pots, etc.; Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz.	10 0	18 0
—elegans	10 0	12 0
Aralia Sieboldii	10 0	12 0
Araucarias	30 0	48 0
Asparagus plumosus	12 0	15 0
—Sprengeri	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Boronias	21 0	27 0
Cacti, per tray, 12's, 15's	5 0	7 0
Crassulas, 48's pink, per doz.	24 0	30 0
red, ,,	24 0	30 0
Crotons, per doz.	30 0	42 0
Cyrtomium	10 0	15 0
Erica —candidissima	21 0	24 0
—Cavendishii	30 0	36 0
—magnifica	36 0	42 0
Heliotropes	12 0	15 0
Hydrangeas white & pink, —48's, doz.	15 0	24 0
Marguerites, per doz.	12 0	18 0
Mignonette	10 0	15 0
Nephrolepis, in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	24 0	30 0
—60's	15 0	18 0
—Cocos	24 0	36 0
Pelargonium	18 0	24 0
Pteris, in variety	12 0	21 0
—large 60's	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's	3 6	4 0
Roses Polyantha 48's, per doz.	24 0	30 0
—Ramblers, various sizes	7 6	20 0
Spiraeas	18 0	24 0
Stocks, White & Coloured	12 0	15 0
Verbenas, Miss Willmott 48's	15 0	18 0

REMARKS.—There has been a gradual fall in prices for most subjects owing to the increased supplies of Cornflowers, white Pinks, blue and white Nigella and yellow Marguerites. The newest subject to arrive is Scabiosa caucasica. Delphiniums and large-flowered Gladioli look very attractive. High prices are maintained for best blooms of Carnations, the supplies being still below the average, and best blooms are soon sold. Good blooms of Sweet Peas are scarce, and supplies very irregular. Roses are a much better trade, and prices for these flowers are again normal; the dull weather is most favourable for dispatching these blooms to provincial traders. Lilium longiflorum is offered at reduced prices; large supplies of this flower are being received from the growers. Richardias (Arums) are gradually finishing. Double white Pyrethrums and white Stocks are selling very freely. Outdoor Irises are now offered in better condition. Consignments of French flowers consist of a few Paeonies, Marguerites and mauve coloured Statice.

GARDENING APPOINTMENTS.

Correction.—Mr. G. HAWES points out that his appointment as Gardener to Mrs. COWLEY is at Wayside, Tubney, Abingdon, and not as printed on page 328.

Mr. P. McOnie for the past two and a half years Gardener to the EARL OF AIRLIE, Cortachy Castle, as Gardener to Sir ERNEST WILLS, Meggernie Castle, Aberfeldy, Perthshire.

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THE
Gardeners' Chronicle
No. 1905.—SATURDAY, JUNE 30, 1923.

CONTENTS.

Aldenham House Gardens	359	Pear midge, the, at Droitwich	366
Ants, to destroy large red	366	Potatos, sale of early, in Ayrshire	359
Books, notices of—		Propagation of difficult plants	361
Secretarial Practice	360	Rock garden, What is a?	366
Crombie, Mr. David	360	Rothamsted Experimental Station	364
"Gardeners' Chronicle" seventy-five years ago	360	Scotland, garden notes from S.W.	363
French fruit-growers' visit to England	360	Salvias	361
Gardener's wages	366	Societies—	
Iris Marjorie Tinley	361	Royal Horticultural	366
Lathyrus ordoratus zeylanicus	364	Strawberries "red plant" disease in	360
Liverpool's fruit and vegetable markets	360	Tomatos, a new disease of	359
Neill, Dr. Patrick	366	Wallace, Alfred Russel, memorial to	360
Oxford Physic Garden, Tercentenary of	359	Week's work	362
Plants new or noteworthy	365	Wisley, notes from	363

ILLUSTRATIONS.

Crombie, Mr. David, portrait of	360
Iris Marjorie Tinley	361
Paeonia Emodi forma	365
Psilotum triquetrum	363

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.1°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, June 27, 10 a.m.: Bar., 30.3: temp., 63°. Weather—Dull.

The Tercentenary of the Oxford Physic Garden.

Fine weather, a distinguished company of horticulturists and botanists, and a charming setting beneath the trees of the walled Botanic Garden, made the ceremony of celebrating the Tercentenary of the establishment of the Oxford Physic Garden both happy and memorable. It is indeed well that the foresight and generosity of the pious founders of such University Institutions should be commemorated, first because of their own worth, and secondly, *pour encourager les autres*; for in these days of rapidly advancing science and diminishing revenues, the need for pious benefactors was never greater than it is at present. The ceremony was presided over by Lord Curzon, Chancellor of the University. His address was one which appealed especially to gardeners. Surveying the gardens, and approving the scene of tranquil beauty that they present, Lord Curzon traced in brief but sure manner the changes in garden design which have taken place in this country since the far-off days—three centuries ago—when Henry, Lord Danvers gave the site of the Oxford Botanic Garden, and provided the means whereby it was enclosed by the stately freestone walls which to this day give both shelter and beauty to it. Lord Curzon was followed by Sir David Prain, F.R.S., late Director of Kew, who reviewed briefly and graphically the history of the Gardens from the day of their foundation—St. James' Day, July 25, 1622—to recent times. He paid a tribute, as generous as well deserved, to the first custodian of the Gardens, Jacob Bobart, who, appointed in 1637, immediately made the Physic Garden famous, establishing in it no fewer than 3,000 several sorts of plants "for the honour of our nation and Universitie and service of ye Commonwealth." The first Professor, Robert Morison, was not only a distinguished botanist, a pioneer in the study of systematic botany, but also a gardener. Bobart the younger succeeded him, and completed Morison's *History of Plants*. Of the other gardeners who have laboured and left their mark on the Gardens the names of Baxter, and Baker—the present Superintendent—deserve mention. The fomer has left a permanent mark in the gardens of Oxford, and the latter has done a great work in preserving the traditions, and exercising remarkable cultural skill in conditions which those who know the gardens best recognise as being by no means easy. Of modern holders of the Sherardian Professorship of Botany, mention must be made of Daubeny—whose name is honoured in the present Daubeny laboratory; Isaac Bayley Balfour, who, though he only occupied the chair for a short time, displayed that enterprise and vigour and skill in administration which distinguished him throughout his life; Dr. Sidney Vines, the distinguished physiologist; and the present professor, Sir Frederick Keeble.

Although of no large extent, the Botanic Gardens contain many interesting and valuable specimens. Of them, those in the Lily house were greatly admired, and testify to the cultural skill and good taste of the Superintendent. No fewer than twelve species of Nymphaeas are growing in the larger tank, which is the chief feature of the house. They include the beautiful and exquisitely scented dark blue Water Lily, Nymphaea zanzibariensis, and the light blue N. gigantea and N. stellata; N. dentata with large flowers and vigorous growth, the deep red N. Lotus rubra, N. devoniensis, N. hybrida, and rose-coloured varieties of N. zanzibariensis. As a background to the Water Lilies in the tank are superbly-grown clumps of Nelumbium speciosum, Cyperus Papyrus, and other plants of luxuriant growth. The interesting trees growing in the gardens deserve, and should have, a chapter to themselves, but no reference to the garden, however brief, may omit the gigantic specimen—one of the tallest in the country—of Sophora japonica, which spreads its great branches just opposite the beautiful Inigo Jones gateway which gives access to the garden. Needless to say, the opportunity presented by the large extent of wall has not been neglected, and the number of interesting plants which grow in this shelter is considerable. Among them may be mentioned the Chinese and Japanese shrubby climbing Akebias, A. quinata and A. lobata; the pale form of Ceanothus rigidus (var pallidus) which is somewhat tender; the yellow Rosa hemisphaerica, which, though it has been long in cultivation, is rarely met with owing to its tender habit; Veronica Hulkeana, perhaps the most graceful of all Veronicas, its slender sprays of pale mauve flowers showing at their best against the weathered freestone of the wall; Carpenteria californica, none too hardy; the free-growing Solanum crispum, and the no less free Actinidias, A. polygama and A. chinensis; the attractive Osteomeles anthyllidifolia; Lonicera Henryi, the silk vine, Periploca graeca; the rare Schizophragma hydrangioides, and the large, dark-leaved Loquat, Eriobotrya japonica, worth growing for its noble foliage. These and the fine collection of succulents attracted the attention and admiration of the guests at the Tercentenary celebrations. After interesting addresses by Sir Herbert Warren, the Chairman of the Curators of the Botanic Garden, and Professor Seward, of Cambridge, the formal proceedings of the Tercentenary terminated, and the guests, numbering upwards of five hundred, were conducted over the laboratories and the Herbarium, the latter under the enthusiastic care of Dr. Druce, who continues to add to the large and valuable collections of plants for which it is famous throughout the world.

Aldenham House Gardens.—The Hon. Vicary Gibbs has again kindly consented to the opening to the public of the gardens of Aldenham House on the Saturdays of July, August, and September, and on August Bank Holiday, on the same conditions as in previous years, viz., that children must be accompanied by a grown-up person, and that dogs will not be admitted. These facilities will not be available on Saturday, July 7, as this is the date of the Annual Floral Fête of the Elstree and District Horticultural Society at Aldenham Park, when admission is only by payment.

Phytopathological Excursion to Wye.—Members of the British Mycological Society, will visit the South Eastern Agricultural College, Wye, on Saturday, July 7, where Mr. E. S. Salmon, head of the Mycological Department, will conduct the party. The Principal and Governors of the College have kindly invited members to lunch and tea. All intending to take part in the excursion should inform the General Secretary, Mr. J. Ramsbottom, by July 4.

Presentation to Mr. James Sweet.—A very pleasant ceremony took place at White Lodge, Whetstone, Middlesex, on the 15th inst., when a handsome clock with Westminster chimes, which had been subscribed for by some of his old pupils, was presented to the veteran, Mr. James Sweet. Mr. Frank W. Ladds, of Swanley, who made the presentation, recalled the pleasant days spent under Mr. Sweet's tuition, and said Mr. Sweet was one of the finest growers of pot plants. Mr. Milton H. Hutchings, Hillingdon Heath, stated that whatever success he had attained was entirely due to the sound advice of Mr. Sweet, as to the building of glasshouses, the growing of produce, and the treatment of nursery accounts, especially as regards writing off depreciation. Mr. Alex. James Monro stated that not only had he received an excellent and thorough training under Mr. Sweet, in everything appertaining to a nursery, but Mr. Sweet's management of men, his patience and self-control, had been an example which had greatly benefited him and many others in conducting their own businesses. Mr. Sweet, who was deeply affected, expressed his great appreciation of the kindness shown to him by so many of his old pupils, and for the handsome gift, and wished success to all those who had at any time served under him. Mrs. J. Sweet, Mr. Sweet's two daughters and three grandsons, Graham, Andrew and Lionel Sweet (who are now carrying on the business and upholding the high traditions of the firm), and Mr. Charles Hosegood, of Messrs. J. and E. Page, Covent Garden, were also present, and many letters were read from old pupils who had shown their pleasure in subscribing to the presentation, but who were, unfortunately, prevented from being present at the interesting ceremony.

Large Consignment of Seeds to the Antipodes.—Messrs. Sutton and Sons, of Reading, have recently despatched a large consignment of agricultural seeds to their New Zealand agents, Messrs. J. G. Ward and Co., Ltd. The seeds, together with the packages, which included 25 galvanised iron tanks, had an aggregate gross weight of 36 tons, and eleven railway waggons were required to convey the seeds to the docks.

Early Potato Sales in Ayrshire.—Early Potatos growing on farms in South Ayrshire were offered for sale on June 22, and, although the prices were far below those obtained three years ago, they ranged from £24 to as much as £72 per acre. On one farm 145 acres sold for an average price of £44 per acre; on other farms the average price per acre was £40 7s. and £60 3s. The variety mostly grown is Epicure.

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French Fruit Growers' Visit to England.—A representative body of French agriculturists from the Rhône Valley will visit England next month for the purpose of conferring with railway and shipping authorities regarding the fruit trade, in which these growers are chiefly interested. All arrangements for the visit are being made by M. Raybaud, chief of the Agricultural Department of the Paris, Lyons and Mediterranean Railway Co., and M. de Kerdrel, the London representative of the company. The party will leave Paris on Sunday, July 1, and proceed to Boulogne to inspect the loading of cargoes for the South-Eastern and Chatham Railway and the Bennett Steamship Company. At Folkestone the unloading of the cargoes will be witnessed and the party will then travel to London on the fruit train. In the early hours of July 2 the travellers will see the goods unloaded at Gravel Lane, and later. watch their disposal at Covent Garden. The inspection of the Borough and Spitalfields Markets will take place on July 3. The party will proceed to Hull on July 4, and the following day will be chiefly spent in inspecting the docks and the unloading and checking of consignments of fruit, but will meet the members of several trade organisations during the afternoon before returning to London. Friday, July 6, will be devoted to Covent Garden and a meeting held under the auspices of the National Federation of Fruit and Potato Trades' Association and the London Markets' Association. There will be a visit to Chelmsford on Saturday, July 7, to inspect Messrs. W. Seabrook and Sons' Nurseries and fruit plantations, and early on Sunday, July 8, the party will commence its return journey to Franco.

Liverpool's Fruit and Vegetable Markets.—The *Report* of the Clerk and Superintendent of Markets, Liverpool, for 1922-23 shows that the quantity of fruit which was dealt with in the City's wholesale fruit market constituted a record, resulting in a profit, on a 15 months' basis, of £11,343 0s. 10d. New revenue derived from this market over a period of twelve months amounted to £4,402. The income of this market in 1918 was £4,569; in 1920 it was £7,726, this latter sum being nearly doubled in 1921, when the amount was £14,102, whilst in the period 1922-23 already referred to the income amounted to £18,344. The wholesale vegetable market shows increases almost as remarkable as in the case of the fruit market. In 1918 the estimated tonnage of the produce brought to the market was 37,604; in the 15 months 1922-23 it had grown to 120,754 tons, the value being £3,053 and £6,875 respectively. As the expenditure in 1922-23 only amounted to £4,076, there was a surplus sum of £2,799. The Liverpool markets collectively returned a profit of £57,165 5s. 2d., which sum has been available for the relief of the rates.

The Duties of a Company Secretary.—The Manual of the Chartered Institute of Secretaries, entitled *Secretarial Practice*,* will be found invaluable to secretaries of limited liability companies, whether experienced or not, for to the secretary of many years' standing it provides a reference book on many points which cannot remain permanently in the memory, and to the beginner it represents an efficient guide along a path beset with difficulties to one who tries to tread it alone. The new edition, besides the matter to be found in the earlier one, is provided with chapters on accounts, share warrants, the liquidation and reconstruction of companies, and how to fill in income tax and corporation profits tax forms—this latter will be a boon to many a worried secretary who has tried in vain to obtain any useful information from official sources. The instructions on the formation of companies, both public and private, are very clear, and will be appreciated by people accustomed to dealing more with the practical than with the administrative side of their businesses. The set of model forms is excellent, and the new form of Power of Attorney skilfully drawn up. In passing it may be observed that the common Form of Proxy, although given in "Table A" and in most companies' own articles, might usefully find a place among the other forms, for the sake of completeness.

**Secretarial Practice: The Manual of the Chartered Institute of Secretaries.* Second edition, revised and enlarged. Prepared by the Council of the Chartered Institute. Cambridge: W. Heffer and Sons, Ltd. Price 9s. net.

Mr. David Crombie.—The many friends of Mr. David Crombie will be interested to learn of his retirement from the charge of the Marquis of Waterford's beautiful gardens at Curraghmore, Co. Waterford, Ireland. This fine old gardener, who has been at Curraghmore for twenty-three years, commenced his gardening career as an apprentice in the gardens at Yester House, East Lothian, under the late Mr. Shearer. On the expiration of his apprenticeship he passed on to the Earl of Rosslyn's garden at Dysart House, Fife, where Mr. Pirrie, then gardener, excelled with very extensive bedding-out schemes—this phase of gardening being then in its hey-day. Leaving Dysart, he went to the gardens at Niddrie-Marischal, under Mr. Gordon. He eventually became foreman under Mr. A. McLeod at Newbattle Abbey, the Midlothian seat of the Marquis of Lothian, and after a further period spent as plant foreman at the Earl of Balcarres'

MR. DAVID CROMBIE.

seat, Haigh Hall, Wigan, where indoor plants and fruits were specialities, and where Pines were well cultivated, Mr. Crombie, still seeking experience, served for a season amongst the famous trained specimen plants of Mr. B. S. Williams' nurseries at Holloway. From there, to widen his knowledge of Grape growing, he journeyed to the Channel Isles to take up a position in the St. Lawrence Vineyards, Jersey. Returning to England, he spent three years as foreman at Netherby Hall, and was then appointed gardener to C. H. Scott-Plumer, Esq., at Sunderland Hall, Selkirk, where he remained for five years. At the end of this period Mr. Crombie was offered and accepted the charge of Viscount Powerscourt's garden at Powerscourt, Co. Wicklow, and its wonderful collection of shrubs and Conifers remained under his care for fourteen years, and then, in 1900, he was appointed to the care of the gardens at Curraghmore. During the twenty-three years spent at Curraghmore Mr. Crombie has carried out extensive alterations and improvements, besides planting a representative collection of hardy shrubs, some of which have developed into magnificent specimens. He also planted a large collection of Apples and Pears, all of which bear witness to his careful and enthusiastic culture. On March 31 of this year Mr. Crombie, as he himself quaintly put it, "handed in his spade," and the Beresford family marked their appreciation of his services by awarding him a handsome pension, whilst his fellow workers on the estate presented him with a gold watch as a token of their esteem. Mr. Crombie is now residing with his daughter, whose husband, Mr. J. McWnan, has recently been appointed gardener to Capt. Foljambe at Osberton Manor, Nottinghamshire.

Memorial Portrait of Alfred Russel Wallace.—On Saturday, June 23, a memorial portrait of Alfred Russel Wallace, a fellow worker with Darwin, was unveiled at the Natural History Museum, South Kensington.

"Red Plant" Disease in Strawberries.—MESSRS. E. BALLAD and G. S. PEREN, of the Research Station, Long Ashton, Bristol, write:—"With reference to the article on "Red Plant" in Strawberries, by Capt. R. Wellington, which appeared in the issue of *The Gardeners' Chronicle* of May 29, 1920, this condition has been identified as a phase of the already well-known 'Cauliflower' disease, sometimes called 'Bunch,' due to attacks of the eel-worm, Aphelenchus fragariae, Ritz. Bos., the less frequently occurring 'Cauliflower' stage being the only symptom recognised up to date. A detailed articie setting forth the evidence which has led us to this conclusion is appearing shortly."

Appointments for the Ensuing Week.—Sunday, July 1: Wakefield Tulip Society's meeting. Tuesday, July 3: Sevenoaks Chrysanthemum Society's meeting; Streatham and District Rose and Sweet Pea Society's exhibition; Royal Caledonian Horticultural Society's meeting; Royal Tunbridge Wells Horticultural Society's show (two days); Royal Agricultural Society of England's show at Newcastle (four days). Wednesday, July 4: Lewes and District Horticultural Society's meeting; Tooting and District Horticultural Society's show; Eastbourne Horticultural Society's Sweet Pea Show (two days). Saturday, July 7: Elstree and District Horticultural Society's show; Blackburn and District Horticultural Society's meeting.

"The Gardeners' Chronicle" Seventy-five Years Ago.—*Kew Gardens.* I do hope that the suggestions which your contributor made some time since in respect to these gardens may, on one point at least, be responded to by the authorities. I allude to the keeping of the gate fastened which separates the Botanic Gardens from the pleasure grounds. The latter will be open from Midsummer Day to Michaelmas Day, on Thursdays as well as Mondays, until dusk. And on the former days, when both the gardens and grounds are open, I really can conceive no plausible reason why there should not be free passage between the one and other at all hours, or why, when the Botanic Gardens are closed at six, the people visiting them should not, if they please, go through the gate for a cool evening ramble in the pleasure grounds, instead of going a mile or two round for the same purpose. No additional expense would be incurred, for the same man, who now stands on guard to see that no one climbs over the said gate, may just as well play the polite by its side while it is open. And it is not that there is a difference of admission to the respective grounds; the very same individuals have the same privilege of admission to both. Why then should not this much-wished-for boon be cheerfully and gracefully conceded at once? *Hortulanus, June* 15. *Gard. Chron., June* 24, 1848.

Publications Received.—*Carnation Culture Up-to-Date.* By Montague C. Allwood. Cable Printing and Publishing Co., Hatton House, Great Queen Street, W.C. Price 2s. 6d.—*Secretarial Practice.* Prepared by the Council of the Chartered Institute of Secretaries, in conjunction with His Honour Judge Sherwell Cooper. W. Heffer and Sons, Ltd., Cambridge. Price 9s.—*Botanical Society and Exchange Club Report for* 1922. By G. Claridge Druce, LL.D., Secretary. T. Buncle and Co., Market Place, Arbroath. Price 10s.—*The Glory of the Garden.* By M. G. Kennedy-Bell. A. and C. Black, Soho Square, W. Price 5s.

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THE PROPAGATION OF "DIFFICULT" PLANTS.

(*Continued from p.* 333.)

ASTRAGALUS POTERIUM.

THIS spiny Leguminous xerophyte is an ideal plant for a rock garden, and forms a dense cushion. Many find difficulty in propagating this plant from cuttings, but much of the success depends on the length of the cutting taken. Cuttings should, therefore, never be longer than 1 inch to 1½ inch long, as it will be found after that length is passed that the stem becomes very woody and they take a very long time to root. The shorter the cuttings the more quickly they root, but it has been found in this garden that those about an inch long are of the most successful length. The best time of the year to take the cuttings is July and August, when there will be no difficulty in getting 75 per cent. to 80 per cent. rooted.

This plant roots very quickly in a sun-frame. Cuttings inserted in July are ready for potting early in September. The August cuttings usually root in October, but a few may root in late September. If, however, the cuttings are placed in a cool frame they take from six weeks to two months longer to root.

These remarks apply equally to Astragalus massiliensis.

RESTIO SUBVERTICILLATUS.

This lovely plant is a native of South Africa, and although not hardy here is a very graceful subject for the cool greenhouse.

The plant growing in Edinburgh must have been the source of its distribution in this country. It is a male plant, and I do not know of a female plant in Great Britain. Being a male it must therefore be propagated by cutting, and when the plant reaches a good age, rooted young plants may be found along the stems, formed on the grass-like, lateral branches. Advantage was taken of this habit to increase the stock here until recent years. Of course, few people have a plant of sufficient age to produce rooted plants on the stems.

Propagation may, however, be effected by selecting the young grass-like shoots of a plant a few years old, from near the base of the upright stem. It is better to prepare the branches a month or two before growth starts by cutting 1 foot to 15 inches from the ends of the branches. This checks the flow of sap and forces the lateral branches into strong growth. By keeping the branches moist with a watering-can or syringe the young stems are softened, and they root more readily. The parts of the stems which are cut off may be used for decorative purposes.

After the cuttings have been removed from the parent plant the best method is to pot them individually in thumb-pots in pure sand. They should then be placed in an intermediate propagating frame having a temperature of 60° to 65°.

The cuttings should be kept well watered and on no account allowed to get dry as the Restio resents drought at any time. The cuttings will root about the third month after insertion, but much depends on their vigour. Weakly cuttings very seldom, if ever, root, and therefore only the strongest ones should be potted.

After they have rooted it will be found that the roots have formed a nice mat round the edge of the pots. The sand should then be substituted by ordinary compost, the young plants being left in this until they have taken hold of the soil, when they may be moved into a greenhouse or cool frame.

Pot plants of Restio subverticillatus are very decorative for greenhouse or indoor decoration.

ANACYCLUS FORMOSUS.

A number of years ago cuttings of this plant were presented to this garden by A. C. Bartholomew, Esq., Reading, as being difficult to propagate. For a short time they proved to be very stubborn under the treatment given them in the cool propagating case, where the conditions seemed ideal for many of the other woolly-leaved composites of a similar nature.

After a period had elapsed and no result was obtained, several of the cuttings were transferred to the sun frame, and after a few days of bright sunshine they presented a very dead-looking appearance. They were on the point of being thrown out, but on examination it was discovered that the lateral buds on the stem below the level of the sand had started to grow, and within a month several had rooted. The remaining cuttings in the cool case were then transferred to the sun frame and all rooted in a similar manner.

Potting was done as quickly as possible, after which the young plants were again placed in the sun frame until they began to establish themselves. The potting compost consisted of half loam, one-quarter sand, and one-quarter crock dust. Anacyclus formosus seems to like a stony or sandy place to grow in, and therefore requires an open compost. After potting, the young shoots very soon made their appearance above the soil. It was necessary in bright weather to cover them over during the day with a piece of newspaper laid loosely over the top of the young plants, in order to prevent the young shoots from burning, which very soon takes place if this precaution is not carried out.

Anacyclus formosus is the exception to the rule with regard to rooting cuttings successfully in a sun frame. I have tried cuttings of all the hairy-leaved plants belonging to the Natural Order, Compositae, which are growing here in the sun frame, and have had very poor results. Many root if the weather is not too sunny, but they become so weak and need so much nursing before they are good plants ready for planting out that they are better treated in the manner described above. *L. R. Stewart, Royal Botanic Garden, Edinburgh.*

FIG. 170.—IRIS MARJORIE TINLEY.

IRISES.

IRIS MARJORIE TINLEY.

THE beautiful Iris illustrated in Fig. 170 was raised by Mr. Amos Perry, who considers it one of his finest novelties, of which he has a considerable number, derived from several thousand crosses made during the past few years. The variety under notice is exceedingly tall—well over 4 feet. The mother parent, a seedling pallida Iris growing in Mr. Perry's home garden, is of exceptional size and vigour, and, besides Marjorie Tinley, has given other progeny of great promise, and with tall spikes and large flowers. The flowers of the variety illustrated have arching standards of a pleasing lavender blue, with a soft yellow sheen; the falls are dark mauve, and they are beautified by a conspicuous yellow crest. The spike branches freely, and a typical inflorescence bears a goodly number of the beautiful blooms. The variety is classed amongst those that flower in mid-season.

SALVIAS.

SALVIA SPLENDENS and its varieties are very useful for autumn flowering, and they will continue in bloom for a long time in the conservatory.

Where large specimens are required the type, and its fine variety pyramidalis, are best; the variety violacea has violet-purple flowers. Where smaller plants are required for the plant stages, one of the good dwarf varieties, such as Glory of Zurich, should be selected. This variety comes into flower quickly, and stock raised from cuttings at this time make useful plants for the autumn.

Those intended to be grown as large specimens should now be put in their flowering pots, when they should be stood out of doors on a layer of ashes in an open situation, partly plunging the pots to prevent them blowing over. If preferred they may be planted out in rich ground; from which they may be lifted during September and repotted.

Salvia leucantha, S. rutilans, S. Greggii, S. involucrata var. Bethelii, S. azurea var. grandiflora, and S. Heeri are all useful species for autumn and winter flowering, although in the immediate neighbourhood of London they are very uncertain, as one night's fog usually spoils them.

Salvia rubescens is one of the finest winter-flowering species, but at Kew it always gets spoiled by fogs, and for this reason I tried sowing the seed during September; the resulting plants are now fine, large specimens, and are showing their flower spikes. *J. Coutts, Royal Botanic Gardens, Kew.*

THE ALPINE GARDEN.

SEDUM PILOSUM.

IT was not surprising to observe the charming Sedum pilosum well represented at the recent Chelsea Show, although probably the majority of the visitors failed to notice it owing to its diminutive size and its position in front of the exhibits, where the crowds on the opening and second days prevented the smaller plants from being readily seen. This jewel among the Stonecrops is not common in cultivation, although it is by no means a scarce or expensive plant to procure. It has been extolled by some of the most critical writers of Alpine flowers, and one of the highest repute and of sometimes caustic criticism asserts that "it is perhaps the loveliest of the race."

Sedum pilosum forms charming cushions of small, rosetted foliage, its appearance resembling a Houseleek in some degree, and it produces inflorescences about two or three inches high, with many little wax-like flowers of soft pink.

This plant is, like many of the race, a rock-lover in its native mountains in the Caucasus and Armenia, and succeeds in a dry and sunny position in light soil, or in a moraine or wall garden. It has proved hardy, and may be raised from seeds or cuttings. *S. Arnott.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Vanda teres.—This charming Orchid is now in bloom, and as soon as the flowering period is over growth begins, when the work of repotting may receive attention. In growing this plant it is advisable to fasten the stems to teak rods, or some other hard wood, to which the clinging roots may attach themselves. The stakes should be fixed firmly in the pot, which should be filled two-thirds its depth with crocks for drainage, filling the remainder with clean, chopped Sphagnum Moss pressed firmly. The stakes should be of sufficient length to allow for 18 inches or so of growth. The plants may either be placed singly in pots or several together to make large specimens. Where sufficient plants are grown, it is a good practice to plunge the pots in a bed of live Sphagnum Moss. This Orchid will withstand much sun heat, light, and moisture whilst making its growth. When growth is completed the temperature and amount of atmospheric moisture should be gradually reduced, and only sufficient water given the roots from time to time to prevent the plants shrivelling. During the hottest part of the day it is advisable to use a thin blind to prevent scorching. During the winter the plants are best rested in a dry Cattleya house, having a temperature of about 60°.

Vanda Hookeriana.—This Orchid and its hybrid Miss Joaquin, with plants of similar nature, such as Renanthera coccinea, will thrive under similar treatment to that afforded V. teres.

HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Fruit Pergolas.—The training of newly-planted trees will need constant attention. Central shoots of three-branched trees may be stopped to allow the even distribution of sap in the other growths. The young shoots should not be tied direct on to metal supports, but on Bamboo canes arranged perpendicularly against the wires as previously recommended. Only a small quantity of fruit, if any, should be allowed to remain on the trees their first season.

Fruit Packing.—Commencing with the Strawberry season, the packing of soft fruits for transit by road or rail, sometimes for long distances, has to be done in some establishments. One of the chief points is to pack firmly. Strawberries of first grade should be placed separately, each in a leaflet. Boxes are made to hold one and two layers. Peaches and Nectarines travel well in boxes with separate compartments for each fruit. With a proper adjustment of wood-wool, and each fruit covered with a piece of soft paper, these fruits should travel without damage. Peaches, Nectarines and Figs should not be quite ripe when they are packed for sending long distances; if desirable the probable dates when they will be ready for use can be sent with them.

Peaches and Nectarines.—Continue to train the shoots of Peaches and Nectarines as they develop, removing those not required. Shoots of undue length or those of a coarse nature should be stopped. A final thinning of the fruits should be done, if required. At no time should the trees suffer from dryness at their roots, or red spider will soon spread, and the fruits receive a check. Syringing or spraying the trees late in the afternoon will prove of great benefit, both to the trees and the fruit. Plums which have suffered from an attack of Aphis should be given every attention to enable them to make free growth and will derive considerable benefit also from spraying.

THE FLOWER GARDEN.

By G. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Violas.—These plants should have their dead blooms and seed pods removed frequently or their flowering will be seriously checked. Violas are blooming well this year, and the blossoms are lasting in good condition longer than usual, the cool weather suiting them. Strong two-year-old clumps are exceptionally fine, the tufts approximating in size to average-sized dinner-plates. The propagation of these tufted Pansies should be commenced by the third week in July, this being, I am aware, about six weeks or more earlier than is generally practised. Rooted thus early, more vigorous and bushy specimens are obtained than when the cuttings are struck at the end of September. Moreover, these plants may, if desired, be put in their flowering place in autumn, whereas the late-rooted cuttings are not developed sufficiently for planting then, except under the most favourable conditions. If on examination it is found that there is not a supply of shoots suitable for use as cuttings, encourage their growth by putting sandy leaf-mould in the hearts of some of the plants, water them on frequent occasions, and cut away part of the old growths if need be. By adopting these means, plenty of shoots will soon develop, many of which will be found, when severed, to have already made a number of roots. Light, sandy, soil is the best rooting medium for the cuttings.

Lilacs.—Grafted plants of Lilac should have all suckers removed, or they will stunt the growth of the grafted part of the bush. If, however, the Lilacs are on their own roots, these suckers should be encouraged to develop. In the event of an excess of these latter shoots, pull up one or two and plant them elsewhere to form shrubs similar to those from which they have been detached.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Chorizema.—Young plants of Chorizema should be potted on as they require more root room. The compost should consist of half light loam and half peat, with sufficient sand to render the soil porous. The pots should be well drained, and firm potting is essential. Young plants should be stopped frequently to promote a bushy habit. Large specimens trained on trellises or around stakes are very showy for the conservatory, and last in flower a long time. They are seen at their best when planted out in a well-drained bed or border in a conservatory. The stronger-growing species are excellent for furnishing pillars or covering low walls. They are propagated by means of half-ripened twiggy shoots inserted in pots of sandy peat, standing them under bell glasses in a cool house. There are not many species in cultivation, the best being C. ilicifolia and C. cordata, of which there are several varieties.

Souvenir de la Malmaison Carnations.—As these plants pass out of flower, strong, healthy specimens should be selected for layering. This is best done in cold frames, turning the plants out of their pots and planting them in a bed containing plenty of sand and leaf-mould. If the plants are heeled over on their sides the operation of layering will be rendered much easier. When the layers have been made and pegged to the ground, they should be well watered to settle the soil about them. The frame should be kept fairly close and warm for a week or two; gradually admitting more air as rooting progresses. In establishments where large specimens are desired, a suitable number of young plants that have finished flowering should be retained for potting on. The potting compost for such plants should consist largely of good mellow loam that has been stacked for some considerable time, with sufficient sand or old mortar rubble to render it porous; adding a six-inch potful of bone meal to every bushel of soil. Water the plants with extra care until the roots are well established in the compost.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Strawberries.—With the close of the forcing season of pot Strawberries, preparations for next year's forcing should be commenced. The best runners for early fruiting are obtained from plantations made the previous year, from plants which have not been allowed to flower. When sufficient runners are available, their layering may be done forthwith. It is a matter of opinion whether the layers should be placed direct in the pots in which they will fruit, or in small pots or pieces of turf, to be transferred to the fruiting pots in July and August. I prefer to layer direct in the pots 6 inches in diameter, and they should be crocked carefully to ensure good drainage. A sprinkling of soot over the crocks will act as a deterrent to worms entering the drainage holes. The compost should consist of turfy loam, slightly on the heavy side, roughly pulled to pieces, bone-meal, and a good sprinkling of wood-ash or burnt garden refuse. The plants set apart for the production of runners should be watered copiously during dry weather. King George V. and Royal Sovereign are two excellent varieties for forcing, and President is a good sort for later cropping.

Cucumbers in Frames.—Cucumbers planted in beds of fermenting material and afforded adequate protection during cold nights should soon be bearing freely, and with careful management will continue to do so throughout the summer months. Frames may be utilsed in which Potatos or other vegetables have been forced. These may be cleared and planted as they become available. On warm, bright mornings ventilate the frame early, but place the light in position again early to secure a temperature of 85° to 90° at closing time. Syringe the plants thoroughly as a preventive of red spider, for if this pest spreads it will soon destroy the plants. Material from a spent Mushroom bed spread over the surface of the soil will have a beneficial effect on the well-being of the plants. The roots should not lack moisture, and when applying water use it warmed to a temperature of about 85°. Train the young growths thinly to allow space for training in the lateral shoots, which should be stopped closely, rubbing off growths that are not required.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Endive.—The ground about early Endive should be kept well hoed, and the plants well watered in the absence of rain. The ridges between rows of Celery form an excellent site on which to grow early Endive, and another sowing may now be made on ground that has been cleared of early Potatos or Peas. Broad-leaved Batavian is the best kind to sow for late autumn and winter use. Treat the plants as advised for the early sowing.

Onions.—Where Onions are required to produce large bulbs, every attention should be given the plants to encourage them to make free growth. Mulch the bed with sifted manure from an old mushroom bed, and, if necessary, water the soil copiously. Onions sown out-of-doors should be thinned before they become too large. Dust the rows with soot, and water the soil to settle it about the plants. Keep the surface soil between the rows loose by hoeing.

Brussels Sprouts.—Every effort should be made to have strong plants by the autumn, as only robust, healthy specimens will produce good "buttons" over a long period. Water those already planted, if they need it, and keep them upright by staking or earthing up in the same manner as for Potatos. Plants from a second sowing will now be ready for planting out, and should be set in rich ground and the soil kept well hoed to promote quick growth. These later plants will provide good sprouts in the early spring when the others are finishing. Sutton's Dwarf Gem is one of the best sorts for all gardens.

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GARDEN NOTES FROM S.W. SCOTLAND

ERINUS ALPINUS deserves all the praise bestowed upon it by your correspondent, *T.*, (page 319), for although it spreads far and wide, and appears to take possession of more space on the wall garden than is consistent with the safety of other Alpines, it interferes with their welfare no more seriously than does the yellow-flowering, annual Saxifraga Cymbalaria. Neither of these is strongly rooted, and both cast slender shade; it is easy to remove them if they encroach unduly upon feebler growths. In the note referred to *T.* writes only of the mauve-pink flower, which, I suppose, is the type; but the variety carmineus is a much prettier thing and comes true from seed. Its flowers are bright rose.

Far more serious to the welfare of other plants in the rock garden is the irrepressible spread of the Mexican Daisy, Erigeron mucronatus. As a persistent flowerer it has few equals, and would be valued for the long succession of crimson and white blossoms it only these were barren; but the myriad seeds take root in every available cranny—and such roots! The thin, wiry fibres of great strength thrust a foot deep and more between the stones, which have to be pulled down before the roots can be extracted. It is described in some gardening books as doubtfully hardy, which almost makes one wish for a really hard winter to kill it out; but I fear it has established itself too firmly to be ousted by any frost.

Primula burmannica is a recent addition to our list of whorled Primulas—at least that is the name under which Mr. Magor kindly sent me seedlings two years ago. It is a fine thing, after the style of P. japonica and P. Beesiana, but the whorls are more densely flowered; the colour is a rich red purple, with a large yellow eye. In one place we have it in fine contrast with P. helodoxa; in another it happens to have been planted under an eight-foot bush of Rhododendron villosum; the bush and the herb are flowering simultaneously and as the flowers of both are of the same strong colour, the arrangement is not felicitous. Of this Rhododendron Mr. Millais remarks that "the colour is more striking than beautiful." True, is comes dangerously near magenta, but viewed with sunlight striking through the blossoms, it is the hue of a pigeon's-blood ruby. R. villosum makes a fine companion to the sulphur-coloured R. triflorum, the two flowering simultaneously in June.

It is often a puzzle in jumbled borders such as we have here to avoid unpleasant clash of colour. It was only last week that, after many shifts, a fitting contrast was found for Hippeastrum (Habranthus) pratense, for so strident is the orange-vermilion of that splendid Chilian Amaryllid that it is out of place against many strong colours and makes more delicate tints look dingy. But the rich dark purple of Iris chrysographes holds its own well against the other, and so does the ultramarine of Cynoglossum nervosum.

It is somewhat surprising that more use is not made of Incarvillea for the early summer border. One would have expected that a plant as hardy as a Dandelion, as easily raised from seed, and with flowers as showy as a Gloxinia, would have been in constant demand; but in north-country gardens, at least, one seldom meets with it. This may be owing to the fact that I. Delavayi is so late of showing above ground that, unless securely and permanently labelled, it is sure to be uprooted or its tubers badly bruised and broken in forking over the borders. I brevipes (I am not sure whether it is not I. grandiflora) flowers three weeks earlier than I. Delavayi, is of lower stature, but quite as beautiful.

Never have I seen such a display of Primulas as is now at its height in Mr. McDouall's demesne at Logan. A broad carriageway that winds through a wood for a quarter or third of a mile between the garden proper and the sea is bordered throughout its length with myriads of P. japonica and P. pulverulenta, self sown, in every shade of rose and red, with pure white. The introduction of P. Bulleyana and P. helodoxa will be sure to extend the range of colour.

In mild districts near the sea Calceolaria violacea is well worth growing for the profusion of its bloom in May and June. The flowers, pale lavender and white outside, hang on their purple stems in such a position that the beauty of the interior is only revealed to bees and other flying things; but they are produced in such lavish abundance as to make the bushes very showy. The said interior presents a wonderful appearance under a lens, the lower lip being spread with a sparkling golden carpet and the back of the corolla richly spotted with purple, whilst the purple stamens, supporting large orange anthers, rise out of a touzle of white hairs. *Herbert Maxwell, Monreith.*

NOTES FROM WISLEY.

A GOOD definition of a weed is "a plant out of place," for it may happen that a garden plant of outstanding beauty will flourish and increase to such an extent as to take possession of ground required for other plants, and in consequence has to be "weeded" out. This trouble is frequent in a rock garden where neighbour's landmarks are not defined, and particular plants require careful restraint from encroachment. It can be avoided sometimes by restricting plants of rampant growth to places where there is little soil, which may result in increase of flower.

In the Wisley rock garden, for example, Hieracium aurantiacum and H. rubrum, when they have any depth of soil, will spread at an alarming rate and make little show of bloom; but a patch of the latter, planted in a mere sprinkling of soil on a flat rock, is now flowering splendidly. Aquilegias, with notable exceptions such as A. Helenae, are a regular nuisance here, and though pretty enough in the wild garden they spring up all over the rockery, where they are out of place.

In spite of the time of year and adverse weather, or perhaps on the latter account, there is now a fine display of flowers in the rock garden, provided chiefly by Cistuses and Helianthemums. One of the largest and finest flowered of the Cistuses now blooming is C. × purpureus, with its big pink blossoms and dark blotches. Another blotched flower is the yellow C. formosus, of which there is a plain yellow variety named unicolor. Another beautiful species is C. crispus, with rosy lavender petals and a bright orange centre. A fine variety of the latter, with flowers of a deeper shade, is inappropriately named Sunset. Among the white-flowered species C. florentinus is very floriferous, while C. corbariensis is remarkable for its pink calyx, giving the shrub an attractive appearance before coming into flower. The white petals of C. salvifolius form a pronounced cup, reminding one of the flower of Ranunculus amplexicaule.

In the moraine, which has lately been remodelled, Dianthus alpinus and Asperula nitida are flowering freely, and on the sides of the adjoining paths Erinus alpinus is thoroughly at home and is spreading considerably. In the bog some big groups of Primula Beesiana, with its mealy stems, and flowers which are of a less fiery red than those of P. pulverulenta, are to be seen, also a very fine form of the yellow P. helodoxa.

One of the most exquisite of all the Primulas, P. nutans, of recent introduction and of very doubtful hardiness, was planted out in the open last autumn in a specially prepared rock bed. Almost immediately after it had taken up its outside quarters a sharp frost blackened the foliage and it was given up for lost. Happily, however, this did not prove fatal, and the plants have come up strongly this year, and are open-

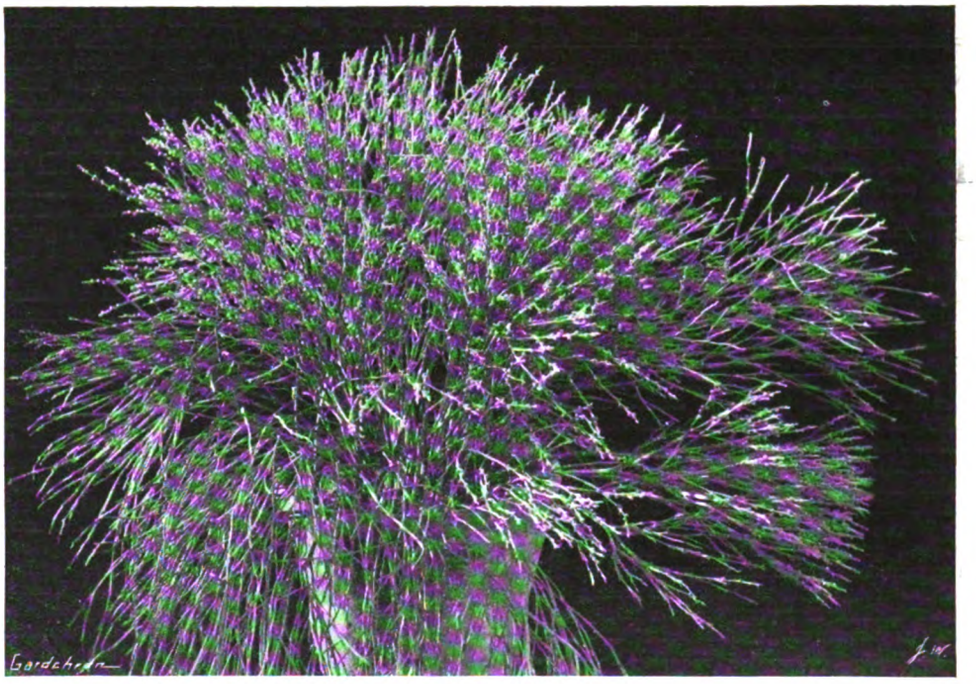

FIG. 171.—PSILOTUM TRIQUETRUM IN THE CAMBRIDGE BOTANIC GARDEN (SEE P. 365)

ing their flowers, which are nodding bells of a delicate blue and covered with a white meal.

Other good rock plants now in flower include the pretty blue Linum collinum, which is smaller but no less attractive than L. narbonense, and a broad-leaved, orange Poppy, Papaver pilosum, which has flower buds all up the stem. Remarkable massed colour effects are produced by the arresting Lychnis Viscaria splendens fl. pl. and Viola gracilis var. Mrs. Bowles.

A plant of Rosa multiflora, with pale pink flowers, was raised from seed sent by Farrer from Thibet. It is now in full bloom, as is R. fimbriata, with flowers like Carnations.

While shrubs such as Kalmias and Rhododendrons are now in flower in the wild garden, near relatives are making their new growth. This often produces colouring little inferior to the fine autumnal tints. Shrubs which are effective in this respect are Pieris japonica, the much larger Pieris formosa, Vaccinium ovatum and Gaultheria procumbens, which is putting forth bright red shoots. A less common species than the latter, Gaultheria pyroloides, is now flowering and showing promise of an unusually large crop of its white fruits, which are as large as Cherries. Pernettya mucronata is also flowering very well this year, and its white blossoms are conspicuous in the wild garden.

Under glass there is a good display of Salpiglossis, made by plants raised from seeds sown last August and grown in pots without heat. *J. E. G. White.*

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INSPECTION OF ROTHAMSTED EXPERIMENTAL STATION.

THE annual inspection of the Rothamsted Experimental Station was held on Wednesday, June 13, when, at the invitation of Lord Bledisloe, the Chairman of the Lawes Agricultural Trust, over 60 guests visited the fields and laboratories. Among those present were: Sir James Currie, Mr. and Mrs. T. H. Riches, Sir Matthew Wallace, Mr. J. H. Ismay, Mrs. Hugo Müller, the Earl and Countess of Strafford, the Marchioness Townshend and General Sir Richard Ruck, C.M.G.

Owing to the building operations now in progress the function was on a smaller scale than usual. It is the custom on these occasions to visit one or two of the classical fields and some typical new plots, as the extent of the experimental fields and the size of the laboratories make a complete inspection of both impracticable in the time available. The plots examined this year were selected to show how the classical experiments started many years ago by Lawes and Gilbert gave important information which can be utilised in laying out subsidiary experiments to provide data on a number of questions of immediate practical importance. The classical fields selected were Broadbalk and Hoos, which have been continuously under Wheat and Barley respectively for many years. The former field raises a number of problems in connection with the increases in crop yield to be expected from increasing amounts of nitrogenous fertiliser, and with the effect of time of application of fertiliser on the yield.

The quantities of fertiliser used annually on Broadbalk are greater than customary in modern farming practice, and the value of the Broadbalk results for statistical analysis would be greatly affected if any change in procedure were made. Additional plots are therefore laid out on adjacent fields, where these problems can be investigated. Among the experiments inspected was a set indirectly connected with the Broadbalk results, in which the residual values of various artificial and organic manures are tested over a full course rotation. The field is at present in Clover, and the outstanding result this year is the remarkable effect of farmyard manure, and especially of cake-fed dung. Work in the Bacteriological Department under Mr. Thornton indicates that the farmyard manure has a stimulating action on the nodule organism, and this effect is being further investigated.

The permanent Barley experiments on the Hoos field have for many years past shown that for Barley grown under these conditions phosphates have a pronounced effect in the early stages of growth and hasten the maturity of the plant. In connection with an extensive series of experiments conducted under a uniform plan at a number of centres throughout the country on the production of malting Barley it has been shown that the influence of soil and season may mask the above effect, especially as the Barley is not grown continuously on the same land, but forms one crop in a rotation.

The inspection of the field plots occupied the morning. After luncheon Lord Bledisloe briefly addressed the company. In the course of his remarks he laid stress on the efforts the Trust Committee and the Director, Sir E. J. Russell, were making to ensure as close a contact as possible between the farming community and Rothamsted—an association that would be for their mutual benefit. The results of these efforts so far had been most encouraging. Lord Bledisloe illustrated this part of the Station's activities by referring to the outside centres where certain typical experiments made for some years past at Rothamsted were being repeated on a definite plan. The work, although comparatively new, had been of great value, as it gave information on the extent to which the conclusions drawn from the Rothamsted experiments were modified under different soil and climatic conditions. After mentioning some of the practical problems that were being attacked in the laboratories, Lord Bledisloe reminded his audience that the work of the Station was not only to provide the practical farmer with information that he could utilise in his business. Its scope was more extensive than this, and in a sense it embraced the whole of the rural community and touched intimately the life of the landlord who farmed his own land, the tenant farmer, the agricultural colleges and the agricultural labourer. It was his aim to make the annual gathering at Rothamsted representative of these great interests, and for this reason he called upon three of his guests for any remarks or suggestions they might care to offer.

Sir Matthew Wallace said that, as a farmer, he was greatly indebted to the work of Stations such as Rothamsted. He had been farming since 1880; there was no time when the experiments and recommendations of agricultural scientists were more valuable to farmers than they were to-day. The present depression in agriculture was, in his opinion, no worse, if so bad, as that when he began farming. He was convinced that the remedy lay not in cutting down, but in extending the acreage under cultivation; if this were done, not in any haphazard way, but with due regard to the findings and advice of the workers in agricultural science, he had no doubt but that success would follow.

Principal Dunstan, of the Royal Agricultural College, Cirencester, then spoke of the relations between Experiment Stations and the Agricultural Colleges. As a teacher he knew how valuable this co-operation was to teaching institutions.

Mr. George Dallas, of the Workers' Union, said that he was more than gratified by the efforts now being made by the authorities to extend the educational facilities for farm labourers. Only by these means could they hope to keep the better class of workers on the land.

Sir E. J. Russell then reviewed the recent work of the Station. He referred in detail to the work now being carried on at the outside centres, and said that they were endeavouring to push their investigations beyond the usual limits of measurements of yield into the more difficult region of the quality of the crop. In the typical cases of malting Barley and Potatos the expert valuer recognised, and was prepared to pay for, differences in quality that, so far, could not be detected with certainty in the laboratory. With the two products mentioned their scheme of experiments included such valuations by experts of the crops obtained from their various plots both at Rothamsted and elsewhere, and, further, they had arranged for the malting of typical samples of the Barley and for cooking tests of the Potatos under the supervision of an expert London chef. He hoped that these tests would give the chemist and others a clue as to what line of investigation to pursue in the laboratory examination of the factors concerned in quality and their relation to manurial treatment. He also stated that considerable attention was being devoted to the problems of soil cultivation. The work was conducted both in the fields and in the laboratories. In the field, dynamometer measurements were made of the resistance to ploughing offered by soils of known manurial history, and the work was being extended to include the effect of implement design on the draught. The problems associated with the tilth were the subject of study in the Physical Department. Sir John had pleasure in stating that the Empire Cotton Growing Corporation was so convinced of the value of these fundamental investigations in their own problems that they had made a substantial grant to the Station for the extension of the work. The Director then briefly reviewed the other activities of the Station. He referred especially to the valuable aid they had received from Mr. E. D. Simon, who had placed at their disposal an extensive farm—Leadon Court, Herefordshire—on which they were studying the soiling system in detail.

At the conclusion of the Director's remarks the guests were conducted round the laboratories and were shown the nature of the work in progress.

LATHYRUS ODORATUS ZEYLANICUS.

THE SWEET PEA OF CEYLON.

THE question of the discovery of the Sweet Pea in the Island of Ceylon, as affirmed by Linnaeus, Miller, Curtis, and many others, has a fascinating interest for the student of Sweet Pea history, and is, apparently, as far off as ever from a satisfactory settlement. For more than a quarter of a century I have pursued the subject, both at home and abroad, but with very little definite result. At the same time many very interesting facts have been brought to my notice. These facts centre round the decade 1731-1740, during which period a specimen of the Painted Lady variety was included in a herbarium sent from Ceylon (at that time a Dutch East India Company's possession) by a collector named John Hartog, to Cornelus Vos, who was at that time Curator of the Botanic Gardens at Amsterdam. Before his death Vos presented this herbarium to John Burman, M.D., Professor of Botany in the Medical Gardens at Amsterdam, who included Lathyrus odoratus zeylanicus in his *Treasury of Ceylon Plants* published in 1737.

In this work the plant appears as follows:—*Lathyrus Zeylanicus, hirsutis, flore variegato, odorato, Herb. Hart.*, and Burman states, "This plant differs from the L. odoratus of Cupani only in the variety of the flower, and since it has been well described and set forth in the *Hort. Medici Amstelodamensis*, Part 2, we do not further describe it here, since also in addition these plants are well known to all, since they frequently occur in our gardens."

Regarding the reference Herb. Hart., Burman states: "Hartog or Hertog is a herbarium which I keep, and which it is certain contains very many Ceylon plants sent once by him (Hartog) to Cornelus Vos, the gardener at Amsterdam."

As it is now well established that the Sweet Pea is not a native of Ceylon, the question naturally arises—how and where did Hartog obtain the specimen that he sent to Vos? I am of opinion that some official of the Dutch East India Company had obtained some seeds of this plant from Holland, where it was at that time very popular, and sown it in his garden, and that Hartog had seen it growing in the aforesaid garden, and, deeming it worthy of mention, had sent a plant home.

I am confirmed in this opinion by a somewhat similar case connected with another Dutch colony, which has been brought to my notice by Mr. A. J. Van Laren, the able Curator of the Botanic Gardens at Amsterdam. Writing to me on the question, "From what source did Linnaeus, Burman, and Miller obtain the Ceylon idea in the name of the Sweet Pea?" Mr. Van Laren writes: "I formerly corresponded in this matter with Dr. Hallier, one of the Conservators of the Government Herbarium at Leyden. I wanted to know something of that kind for my book on Sweet Peas which was published in 1916, and he informed me then that 'there is in the mentioned Herbarium a specimen of the L. odoratus collected by Blume in a garden at

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Batavia,' so he thinks it is not impossible the species might be also cultivated in the 18th century in gardens at Ceylon, from where it was collected by Hartog."

Blume, born at Brunswick in 1796, was appointed, in 1822, Director of the Government Botanic Gardens at Buitenzorg, Java, of which Batavia is the capital. Returning to Holland in 1826, he became Professor of Botany and Director of the Government Herbarium at Leiden. He did much for the knowledge of the flora of the East Indies.

Some surprise has been expressed that, although Burman published his *Treasury of Ceylon Plants* in 1737, in which L. zeylanicus was quoted, Linnaeus did not include it in his *Flora zeylanica*, published in 1748. As, however, the latter work is merely a catalogue of the plants collected in Ceylon by Paul Herman from 1670-1677, this is easily accounted for. In his *Hortus upsaliensis*, published in 1748, Linnaeus included L. zeylana entirely on the authority of Burman. It is evident from the detailed description of the flower that the plant growing in the garden at Upsala was of the Painted Lady variety—"*Vexillum rubrum, alae albae, carina alba, apice rufescente.*"

In the *Bulletin of the Cornell University*, No. 320, entitled "Sweet Pea Studies," by Alvin C. Beal, which was reviewed in *The Gardeners' Chronicle* of January 18, 1913, pp. 40, 41, it is stated that "in Miller's Gardeners' Dictionary, first folio edition, 1731, is found the following, referring to the culture of Lathyrus tingitanus and Lathyrus distoplatyphyllos: 'The sweet-scented sort is the most valuable, both for beauty and fragrancy of its flowers. *Of this sort there are two other varieties: one of these has pale red flowers called by gardeners Painted Lady Peas: the other hath entire white flowers.*'" And to this Mr. Beal adds, "From the preceding, it is clear that three varieties were known at least as early as 1731."

Having carefully examined the first four editions of Miller's Dictionary, I am able to state that, so far as the sentence commencing "Of this sort" is concerned, the above statements are quite incorrect. The only variety mentioned by Miller at that time was the purple, and Cupani's *Hort. Cath.* is the only authority given. I have not been able to consult the fifth and sixth editions of Miller's work, but in the seventh edition, published in 1759, and in the later editions the words objected to appear as quoted; Burman's *Treasury* is given as the authority for the Painted Lady, and Ceylon as the country of its origin. The white variety had been mentioned by H. B. Ruppius in his *Flora jenensis* in 1718.

As a final word respecting my investigations, I am convinced that Lathyrus zeylanicus is not a myth; neither is there any evidence of fraudulent dealing on the part of Hartog, Vos or Burman, by whom it was introduced to public notice.

In one of his most interesting letters Mr A. J. Van Laren writes: "In the Library of the University of Amsterdam I found in a collection of coloured drawings of flowers entitled "*Arbores, fruitices, bulbi et plantae ad vivum coloribus pictae atque collectae, cure et labore; Henri d'Acquet, Senator ac Consul, Delfensis*, under No. 136, a hand-painted drawing of the Sweet Pea, under the name of Lathyrus odoratus major, signed 'A. v. L., 4 July, 1706.' It shows a flowering stem with two leaves and three flowers, with a purple-hooded flag and blue wings, and is probably the oldest coloured drawing of the Sweet Pea."

It would appear from this that Linnaeus was not the originator of the name Lathyrus odoratus. The only illustration of the Sweet Pea older than this is the fine drawing in Commelin's *Horti medici amstelodamensis* (1700), which is reproduced on page 40 of *The Gardeners' Chronicle* for January 18, 1913.

It is somewhat remarkable that, although the Sweet Pea is classed by Linnaeus under section bifloris, the painting of d'Acquet, and a hand-painted drawing on Batty Langley's plate for June, have each three flowers on a stem. *S. B. Dicks.*

PLANTS NEW OR NOTEWORTHY.

PSILOTUM TRIQUETRUM.

PSILOTUM TRIQUETRUM (see Fig. 171, p. 363) belongs to an interesting class of plants; it is erect or sub-erect, with angular stems ⅛ to ¼ of an inch thick, and with many times dichotomously forked, triquetrous branches, on the angles of which are placed, laxly, a few rigid, linear, minute leaves, which are so small that they are practically useless as assimilating organs. The function of carbon assimilation is performed by the outer cortex of the green branches. The subglobose sporangia, which are vertically trivalved, are borne singly in the axils of two small, leaf-like, forked sporophylls. The plant is rootless, the root function being performed by an underground, leafless rhizome.

The species is a native of the tropical regions of both hemispheres, extending to Florida, Japan and New Zealand, and growing either in rich, organic soil, or as an epiphyte. It was introduced into this country in 1793. At Cambridge it succeeds as a pot plant in fibrous loam and peat; it is easily increased by division, or by pieces of the underground rhizome, or by branches cut into short lengths, but nothing seems to be known of its propagation from spores.

The genera Psilotum and Tmesipteris constitute the class of Pteridophytes known as Psilotinae; and since the gametophyte of the Psilotinae is unknown, nothing certain can be stated about the relationship of these plants to the other classes of Pteridophytes. In habit they bear a resemblance to the Lycopodinae (and the species already mentioned is the Lycopodium nudum of Linnaeus); but in Lycopodiums the sporangia are reniform and one-celled, while in Psilotum they are turbinate and three-celled; but in the structure of the sporophylls and sporangia they more nearly resemble the Equisetinae and Sphenophyllales.

The Psilotinae would appear to be relics of a former epoch, yet the rocks apparently throw little or no light on their origin or age. *F. G., Preston.*

PAEONIA EMODI FORMA.

THE beautiful, but by no means common Paeonia Emodi, a native of the Himalayas, is one of the most attractive members of the whole genus. A plant sent here some years ago under that name, but recently identified as Paeonia Emodi forma (Fig. 172), is equally beautiful, with flowers of satiny white. The petals are so delicate in appearance that they are almost transparent, and much more fragile-looking than in the type, and I believe I am quite safe in stating that P. Emodi forma is quite distinct from any other Paeonia in cultivation.

Although there is a great resemblance between P. Emodi and P. Emodi forma, at the same time there are strong points of difference. The flowers, so far as I have observed them in P. Emodi forma, are borne singly, while P. Emodi usually has more than one flower on each stem, similar to the allied species P. albiflora. As in P. Emodi, the carpels are tomentose, but while the last-named plant has only one carpel (although occasionally two have been found), in P. Emodi forma the carpels appear to be all in pairs. The foliage is like that of P. Emodi, bright green at first, turning bronzy with age. The cultivation of the plant is not difficult, but, like the type, it derives benefit from the protection of a wall, and as Paeonias suffer more from sudden thawing than from direct frost, a position in front of a wall facing east is not suitable. *F. G. Preston, Botanic Gardens, Cambridge.*

FIG. 172.—PAEONIA EMODI FORMA.

SILENE CALIFORNICA.

ALTHOUGH a native of the Pacific Coast of America, from Oregon to Northern and Central California, Bailey, in *Standard Cyclopedia of Horticulture*, states it is doubtful whether Silene californica is in cultivation, yet the plant is now in bloom in Mr. Amos Perry's nursery at Enfield. This beautiful showy-flowered Silene has flowers of the most brilliant scarlet, and the petals are cut almost to the base, giving the bloom a fringed appearance. The individual blossoms measure 1½ inch in diameter, and they are produced on procumbent or semi-erect stems. The leaves are ovate-elliptic, narrowed at the base and slightly pubescent. *T.*

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HOME CORRESPONDENCE.

Destroying Large Red Ants (see p. 327).—Large black ants are very numerous in this district. Creosote is a certain destroyer of these insects. There are always large numbers out foraging, when the nest has been treated, and those returning home forsake the nest at once, whilst those in the nest perish. Creosote quickly clears the immediate surroundings of the ants, but it needs to be used with care, as it is deadly to plants, and the fumes inside frames, etc., are also destructive to plant life.—*G. H., Ferndown, Dorset.*

Dr. Patrick Neill.—I very much regret that in my article on Dr. Patrick Neill (see p. 320) I made the unfortunate mistake of spelling his name as "Niell," instead of "Neill." It was a slip for which I can find neither reason nor excuse, and so I apologise for it. In connection with Dr. Neill the following episode is noteworthy. The Aesculapian Club of Edinburgh, in 1814, came to a decision to sow seeds of a variety of Alpine plants and shrubs among the rocks of Adthur's Seat and Samson's Ribs, and to extend the walks in the King's Park in order to make access more easy. Dr. Neill was a member of the committee appointed to carry out this proposal. The Earl of Haddington, hereditary keeper of the King's Park, was approached for permission to allow the work to be done. He refused because his tenant had complained of strangers disturbing sheep, and for other reasons. But it is not improbable that what he would not permit was done surreptitiously so far as seed sowing was concerned. Dianthus caesius, for instance, is not mentioned in *Flora Scotica* and other early botanical books until Balfour's *Flora of Edinburgh*, where it is mentioned as growing on Arthur's Seat, but introduced. The white deltoides and other Dianthi have long been known to flourish there. Whether the proposal was wise is a question that admits of differences of opinion, but it is interesting as showing how keen were a section of Scotsmen at that period to improve the amenities of the city. *R. P. Brotherston.*

What is a Rock Garden?—The Council of the R.H.S. would do well in future to stick closely to the well-established rule of all flower shows to let the decision of the judges be final, unless some condition of the competition has been transgressed. If it is to be merely a case of re-judging by the Council, then it is an affront to ask competent men to place themselves in the position of having their decisions overruled. There is sufficient executive work at such a show as Chelsea to occupy the members of the Council without interfering with the work of the judges, and if a little more initiative had been displayed by those running the show there would not have been such a lamentable state of affairs both inside and outside the tents, for wet weather threatened days before the exhibition opened. On a previous occasion when Chelsea met with unfortunate weather boards were procured, and it seems to me that it would be money well spent to have a stock of boards in hand, such as were employed at the old Temple shows, to meet the contingency of wet weather. *Fellow.*

Gardeners' Wages.—*H. P.* (p. 323) fails to see "that the best gardeners get the best chances." I did make that statement, but I added, "although not in every case," and his experiences regarding a builder's labourer, poultry farm hand, farm labourer, and a grocery hand only coincide with my remarks regarding half-trained gardeners. I have, to my bitter disappointment, served on two occasions under inefficient men in what should have been comfortable establishments. I know of no greater set-back for a young and ambitious gardener to experience than that to which I refer. We have many good and efficient men in our profession, but there are also many who are inefficient. If all qualified men, head and under, combined throughout the British Isles, it would be better for the profession in general, and employers would have a better opportunity of obtaining qualified men in all cases. Then perhaps wages and conditions might improve. Regarding those who never leave their birthplace to gain a better knowledge, it is a pity, but there are stay-at-homes everywhere. It is to be hoped that in the near future more bothies will be opened and gardens run more on pre-war lines with encouragement for the gardeners of the future. With all due respect to *H. P.* and others, nothing will alter my opinion that it is usual for English ladies and gentlemen to treat with consideration their gardeners who have served them well and long. I have read of and know several gardeners who are in receipt of pensions from their employers. *T. W.*

THE PEAR MIDGE AT DROITWICH.

IN 1907 the larvae of the Pear Midge (Diplosis pyrivora) was very destructive to the fruits on young bush Pear trees in the experimental garden at Droitwich, and, as many complaints concerning the pest were received from fruit-growers, it was decided to attempt to deal with the pest in three different ways, viz.:—Firstly, by rendering the buds and flowers objectionable to the Midge without injuring them; secondly, by gathering and burning all affected young fruits as soon as they could be detected; and thirdly, by the application of 8 lb. of kainit to the surface of the soil under each tree, the soil being first pricked over very lightly.

The offensive odour of dissolved liver of sulphur was relied upon to keep the midge at a distance, as also was soluble kerosene. It was known that the timely gathering and burning of the affected fruit would be effective. A dressing of kainit to the trees acted as a stimulant to their activity, and would, it was hoped, be harmful to any larvae with which it came into contact.

Four different varieties of Pears were selected for treatment, and they were—Doyenné du Comice, Maréchal de Cour, Pitmaston Duchess, and Williams's Bon Chrêtien. Of the first three varieties there was one bush tree each, of the fourth variety there was one bush tree and one standard tree.

Spraying, gathering, and burning affected fruits, and dressing with kainit all combined to produce satisfactory results in three years.

In each case and each year, to 1911 inclusive, the spraying was commenced on the same day on which the flower-buds would open. Second or third sprayings were given as the buds arrived closely to the opening stage.

In 1912 the trees were sprayed on April 20 and again on April 25. On June 15, 8 lb. of kainit was spread on the soil over the roots of each tree under treatment. In 1913 no spraying was done, and the Midges reappeared in fair numbers.

The following small table shows the behaviour of the Pear trees under treatment from 1907 to 1911 inclusive:—

	Burned. Affected young fruit.	Ripe fruit gathered.
Williams's Bon Chretien	286 in 3 yrs.	643 lbs. in 5 yrs.
Doyenné du Comice	20 ,, 3 ,,	527 ,, 5 ,,
Pitmaston Duchess ...	6 ,, 2 ,,	461 ,, 5 ,,
Souvenir du Congres ...	65 ,, 3 ,,	408 ,, 5 ,,
Maréchal de Cour ...	51 ,, 3 ,,	108 ,, 4 ,,
	428	2,147 lbs.

The liver of sulphur (potassium sulphide) was used in the proportions of 1 ounce to 1 gallon of water, or of 1 pound to 16 gallons of water. Soluble kerosene was used as a 2 per cent. solution. Potassium sulphide was used on Doyenné du Comice, Pitmaston Duchess and Maréchal de Cour; and the kerosene solution on Souvenir du Congres and Williams's Bon Chrêtien (one bush and one standard), both trees being planted in the spring of 1896.

It is obvious that large standard trees in orchards could not be so easily dealt with as small trees. But it does not follow that no good results would be obtained if similar treatment were carried into effect so far as possible whenever there is an infestation of Pear Midge. *J. Udale.*

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 26 AND 27.—As compared with recent meetings the one held on the above dates lacked nothing in either extent, brilliance or interest. Sweet Peas were an outstanding feature, while Poppies, Delphiniums, Campanulas, Pinks, Paeonies, Carnations, Salpiglossis, Crassulas, flowering shrubs, alpines and Orchids were all presented in goodly numbers. The Floral Committee had a busy time, as no fewer than sixty-seven plants and flowers came up for judgment, and forty-one medals—including a gold one—were awarded to groups.

Orchid Committee.

Present: Sir William Lawrence, Bart. (in the chair), Messrs. Jas O'Brien (Hon. Secretary), Gurney Wilson (Assistant Secretary), Arthur Dye, Fred. K. Sanders, Chas. H. Curtis, J. E. Shill, Pantia Ralli, T. Armstrong, A. McBean, H. T. Pitt and the Hon. H. D. McLaren.

FIRST-CLASS CERTIFICATES.

Laelio-Cattleya Mrs. Willoughby Pemberton, The Dell variety (*L.-C. Baroness Emma* × *L.-C. eximia*), from Baron BRUNO SCHRÖDER, The Dell Park, Englefield Green (gr. Mr. J. E. Shill). One of the finest of the many beautiful hybrids raised at The Dell. The plant bore a noble spike of three flowers of perfect shape, each measuring eight and a half inches across. The sepals and broad petals are light, rosy mauve; lip broadly expanded, ruby purple in front and lighter on the side lobes, the disc being chrome yellow.

Odontoglossum Orosius magnificum (*Solon* × *Maillardeanum*), from Messrs. J. AND A. MCBEAN, Cooksbridge. A fine example of a perfect hybrid and of fine culture. The plant bore an arching spike of fourteen flowers, perfect in shape and broad in all the segments. The sepals and petals are ruby-crimson, with a violet shade, the margins having a narrow irregular white band. The broad lip is white in front, ruby purple on the basal half and the crest yellow.

AWARDS OF MERIT.

Odontoglossum Ernest Bristow (*Lambardianum* × *Uro-Skinneri*), from Messrs. ARMSTRONG AND BROWN, Tunbridge Wells. A very distinct cross, and one of the prettiest of the section, the flowers showing much evidence of the O. Uro-Skinneri parent. Sepals and petals claret colour, with thin transverse, wavy white lines. Lip broader than long, white, densely spotted with rosy-mauve, the median area having a white band; column white densely spotted with dark claret-red on the upper side.

Cattleya Hentschelii, Rosslyn variety (*Warscewiczii* × *Dupreana*), from H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood). C. Dupreana is from Warneri × Warscewiczii, and the fine flowers of the plant shown well displayed the enlarging influence of C. Warneri, while retaining the main features of the other parent. The sepals and petals are rosy-mauve, the front of the broad lip ruby-purple and the disc yellow.

CULTURAL COMMENDATION.

To Mr. J. E. SHILL, gr. to Baron Schröder, for a grand specimen of Laelio-Cattleya Mrs. Willoughby Pemberton. To Mr. THURGOOD, gr. to H. T. Pitt, Esq., Rosslyn, Stamford Hill, for a remarkably beautiful specimen of Miltonia Phalaenopsis, with twenty-three white and rose flowers.

OTHER EXHIBITS.

H. T. PITT, Esq., was awarded a silver Flora Medal for a very pretty and interesting group. There were several species of Thunia at the back with slender Epidendrums. In the centre were two plants of the graceful yellow Platyclinis (Dendrobium) filiformis, with a profusion of flowers; various pretty Miltonias, the best of which was

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M. Lady Veitch (vexillaria var. × Jules Hye de Crom), a large white flower with dark mask at the base of the lip; some showy Odontoglossums, including the fine O. Corona. Showy Odontiodas and a very remarkable selection of rare species, including the white Epidendrum Endresii and species of Masdevallia and Bulbophyllum were also noted, with good examples of Vandas tricolor, suavis and coerulea.

PANTIA RALLI, Esq., Ashtead Park (Orchid gr. Mr. Farnes), showed Odontoglossum Adula Rubicon (eximium × Doris), with a good spike of finely coloured flowers. The cross was first shown by Dr. Lacroze as O. Cordoba in 1918.

Mr. Ralli also showed Odontioda Alcantara var. Prince of Orange, with pretty orange-red flowers.

J. N. HARTLEY, Esq., Pemberton, near Wigan, sent Miltonia A. C. Burrage, a very showy hybrid of unrecorded parentage, with large Peach-blossom coloured flowers, with very dark claret mask on the lip. The plant was a fine example of good culture.

Floral Committee.

Present: Mr. H. B. May (in the chair), Sir W. Lawrence, Messrs. W. Howe, G. Harrow, J. F. McLeod, H. J. Jones, C. R. Fielder, John Heal, R. C. Notcutt, Jas. Hudson, J. B. Riding, M. C. Allwood, R. W. Wallace, D. B. Crane, H. D. McLaren, Amos Perry, D. Allan, G. W. Loder, W. B. Cranfield, H. R. Darlington, Chas. E. Shea, G. W. Leak, W. P. Thomson, Chas E. Pearson, and E. A. Bowles

AWARDS OF MERIT.

Lupinus Harkness' Strain.—This strain is remarkable for the charming shades of chamois, amber, rose, pink, salmon and yellow in the flowers. All the varieties are of sturdy growth. Shown by Messrs. HARKNESS AND SONS

Papaver orientale var. Mrs. H. G. Stobart.—A bold, large-flowered variety with crumpled and slightly fringed margins. The colour is rich cerise with rose tinting, and there is a large black blotch at the base of each broad segment. Shown by Messrs. HARKNESS AND SON, Messrs. GIBSON AND CO., and Messrs. BARR AND SONS

Papaver orientale var. Miss Ethel Swete.—A handsome variety, of good form and beautiful cerise-pink colouring, with a black blotch at the base of each segment. Shown by Messrs HARKNESS AND SON., Messrs. GIBSON AND CO., and Messrs. BARR AND SONS.

Delphinium Mrs. Townley Parker.—In this variety the single flowers are of large size and set closely together on a big, branching spike. The flowers are clear soft blue, with a white eye. Shown by Messrs. BLACKMORE AND LANGDON.

Delphinium Blue Boy.—Another strong-growing, single variety of rich sky-blue colouring and white eye. Shown by Messrs. BLACKMORE AND LANGDON.

Delphinium Unique.—A distinct variety, with rounded, semi-double flowers set loosely upon a long spike. The colour is deep dusky blue, with black centre. Shown by Mr. T. CARLILE.

Campanula persicifolia The King.—The flowers of this variety are of cup-and-saucer shape, and widely expanded. The colour is deep blue. The variety will appeal to those who have a preference for formal flowers. Shown by Messrs. B. LADHAMS.

Kolkwitzia amabilis.—An elegant, free-flowering shrub akin to Abelia and Diervilla. The small, pink flowers are very like those of a Diervilla in shape and have a little orange colouring in the throat. This species was discovered in the Chinese Province of Shensi, 1890-1895, by Père Giraldi, and introduced to cultivation by Mr. E. H. Wilson when collecting for Messrs J. Veitch and Sons. Shown by Lt.-Col. MESSEL, Nymans, Handcross, Sussex.

Lilium hybridum Golden Orb.—A hybrid of Mrs. Backhouse's raising and belonging to the Hansonii group. The flowers are about three inches across, pendant at the ends of the footstalks, light yellow, freely spotted with maroon. The flowers are fleshy and expand flatly until the pollen is ripe, when the segments recurve somewhat. Shown by Messrs. R. WALLACE AND CO.

GROUPS.

Sweet Peas added materially to the attractions of the show, for they were shown in generous quantity and of such superb quality as to augur well for the success of the National Sweet Pea Society's show at Bath on July 11 and 12 next. The best collection was displayed by Messrs. SUTTON AND SONS, who had a large and exceedingly attractive exhibit. Their countless blooms were all of high quality and the colour associations particularly happy. The principal varieties, so well displayed, were Burpee's Giant White, Doris, radiant cerise pink, Hawlmark Pink, Hebe, bright rose pink, Jean Ireland, creamy buff with picotee edging of rose pink, May Unwin, orange scarlet, tinted with rose pink, Mrs. Tom Jones, Delphinium blue, Ravenswing, very dark maroon, Valentine, blush pink, and Warrior, chocolate maroon (Gold Medal).

In a noteworthy collection contributed by Messrs. DOBBIE AND CO. there were three especially good new varieties. Youth, which was shown on behalf of Messrs. C. C. MORSE AND CO., of California, is a very uncommon variety of first-class form. It is a good white with the standard edged with bright blush pink. Royal Sovereign is a rich orange yellow with more than a suggestion of scarlet. Mary Rose is also a fine type and bears large shapely flowers of deep pink shades. Of the many recent standard varieties, Hawlmark Fink, Orchid, pale mauve shades, New Marquis, deeper shades of mauve, and Mrs. Tom Jones, rich blue-mauve, were splendid, but there were many more, all deserving mention did space permit (Silver-Gilt Flora Medal).

A smaller, but highly meritorious collection of Sweet Peas was arranged by Messrs. R. BOLTON AND SON in the annexe. There were splendid vases of Comrade, a delicately tinted pink variety, Daffodil, a pleasing yellow variety, Colne Valley, a substantial mauve sort, and Wizard, deep orange scarlet (Silver Banksian Medal).

In the body of the hall Messrs. J. K. KING AND CO. showed good vases of George Shawyer, Picture, Powerscourt, and Elegance, with many others (Silver Banksian Medal).

An unusual exhibit, and of great excellence, was that composed solely of Salpiglossis sent by the Society from the Wisley Gardens. They were pot plants which had been grown in a cool greenhouse. The plants were exceptionally sturdy and bore splendid heads of large blooms of entrancing colours. Although this large circular group contained practically all possible shades and combinations of colours, yellows seemed to be in the ascendancy, and this gave a delightful golden tone to the exhibit, which reflected the highest credit on the grower (Gold Medal).

Baron SCHRÖDER (gr. Mr. E. J. Henderson), The Dell Park, Englefield Green, exhibited a magnificent group of Crassula coccinea minor with occasional specimen plants of Cordyline (Dracaena) Lindenii rising above them. Very many plants were contained in the extensive group, and all displayed expert cultivation, while considerable skill and taste were evidenced in their arrangement (Silver-Gilt Banksian Medal).

Next to the New Plant Stand Messrs. L. R. RUSSELL, LTD., arranged a very attractive collection of miscellaneous tropical plants. Those grown for their handsome foliage predominated, and included Anthuriums of several sorts, many Cordylines (Dracaenas), Caladiums and Cissus discolor, whilst amongst flowering plants were Clerodendron Balfourianum, Gloriosa Rothschildiana, Thunbergia grandiflora and Medinilla magnifica (Silver Flora Medal).

The Hon. VICARY GIBBS (gr. Mr. E. Beckett, V.M.H.), Aldenham House, Elstree, exhibited a large number of Streptocarpus hybrids, which illustrated a very excellent strain and high-class cultivation (Silver-Gilt Banksian Medal).

Carnations were shown in goodly quantity and of the high quality that is almost invariably seen at the fortnightly shows. Messrs. ALLWOOD BROS. staged many vases of distinct greenhouse varieties such as Mary Allwood, Edward Allwood, Chintz and the new Sussex Leander of old rose colour; they also had a couple of large stands of mixed Perpetual-Malmaison varieties arranged very attractively (Silver-Gilt Banksian Medal). Messrs. WM. CUTBUSH AND SON gave the central position in their collection of Carnations to their new Prince of Wales, a large-flowered border variety of silvery puce colour. Amongst their greenhouse sorts a large vase of Baroness de Brienen was very effective (Silver Banksian Medal).

A great many varieties of perpetual-flowering Carnations, especially the sorts favoured for market gardening purposes, were well displayed by Mr. C. ENGELMANN (Silver Banksian Medal).

A number of vases of excellent border Carnations was exhibited by Mr. JAMES DOUGLAS, and these included Bookham Flame, Orangeman, Topaz, Grenadier, Princess Mary and Fragrance (Silver Flora Medal).

In view of the nearness of the summer show of the National Rose Society and the untowardness of the season, it did not occasion surprise to find only one exhibit of Roses. This was from Messrs. FRANK CANT AND CO., and included vases of Ophelia, Golden Ophelia, Isobel and a few other sorts (Silver Banksian Medal).

Although not shown in such quantities as at recent meetings, Irises were fairly plentiful. Mr. AMOS PERRY had a large group associated with Japanese Maples. His chief varieties were of the orientalis, squamosa and flavescens sections, and these made a very attractive display (Silver-Gilt Banksian Medal). Messrs. WALLACE AND CO. had various tall bearded varieties and good forms of Iris sibirica. They also showed such Liliums as L. Mrs. R. O. Back-

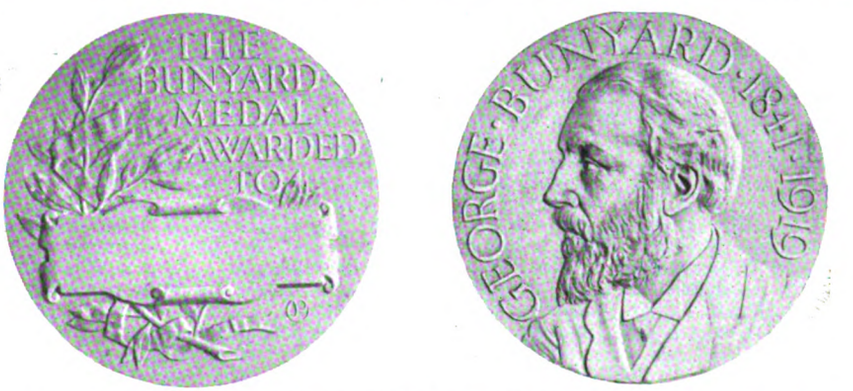

FIG. 173.—THE BUNYARD MEDAL FOR FRUIT EXHIBITS: WON BY MRS. ASCROFT FOR STRAWBERRIES, ON JUNE 26.

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house, L. umbellatus erectus, L. Martagon and its varieties (Silver Banksian Medal).

Delphiniums of great merit were staged by Messrs. BLACKMORE AND LANGDON. They had magnificent spikes of the new varieties Blue Boy and Mrs. Townley Parker, with Queen of Bath, pale blue, Queen Mary, King Bladud, dark blue, and The Alake (Silver-Gilt Banksian Medal).

Messrs. KELWAY AND CO. associated Delphiniums with single and double-flowered Paeonies. Amongst the latter were Belgium, Summer Day, Shirburnianum and Glory of Somerset (Silver Banksian Medal).

The CHALK HILL NURSERY Co. had a very interesting collection of miscellaneous border flowers, such as Paeonies, Geums, Verbascums and Sweet Williams, with a good pan of Muehlenbeckia nana, various Sempervivums, Sedums and Gazania splendens (Bronze Flora Medal). Spanish and Dutch Irises in named varieties, together with border flowers, were shown by Messrs. BARR AND SONS (Silver Banksian Medal).

Some especially good double-flowered Paeonies were displayed by Messrs. R. H. BATH, LTD., and amongst them immense blooms of the blush-pink Lady Carrington were very prominent. Paeonia edulis superba with grandiflora varieties Razialla and La France were also of great merit (Silver Flora Medal). Mr. G. REUTHE had his customary exhibit of new and rare shrubs and alpines, including a little group of Ericas (Silver Banksian Medal). Mr. C. SCAPLEHORN had a good central group of Kalmia latifolia amongst his exhibit of herbaceous plants (Silver Banksian Medal). Campanula Telham Beauty with other varieties was well shown by Mr. M. PRICHARD (Silver Flora Medal). Mr. F. G. WOOD also had this valuable Campanula and associated it with Lychnis Flos-Jovis and L. chalcedonica. Amongst his dwarfer plants Primula Burnettii was particularly attractive (Silver Banksian Medal). Dianthus Pirbright Glory, a pretty, free-flowering, pink variety, was prominent in a collection arranged by Messrs. SKELTON AND KIRBY (Bronze Banksian Medal).

Mr. T. CARLILE had a good collection of Delphiniums, including such sorts as Fair Lady, Loddon Guard, Mrs. A. C. Kenrick and Barbara (Silver Flora Medal). Mr. W. WELLS, junr., displayed Delphiniums, Erigerons and Heucheras (Silver Banksian Medal). The CENTRAL GARDEN SUPPLIES Co. staged Violas in variety (Bronze Flora Medal). Messrs. MAXWELL AND BEALE showed border Pinks, Mesembryanthemums, Campanulas and alpines.

In a corner space Messrs. CARTER PAGE AND CO. had an attractive group of Geums, Nepeta Mussinii, Heucheras, Delphiniums and other border flowers (Bronze Flora Medal). Their showy tree Lupin Sunshine was again displayed by Messrs. WATERER, SONS AND CRISP. They also had good batches of Pentstemon heterophyllus and Inula glandulosa grandiflora (Silver Flora Medal). Messrs. HARKNESS had a beautiful group of the Lupins for which they had received an Award of Merit (Silver Banksian Medal). The Misses HOPKINS made an attractive rockery in the annexe (Bronze Flora Medal).

Messrs. B. LADHAMS, LTD., staged an interesting variety of their excellent garden Pinks, and also showed Campanulas of merit (Silver Flora Medal). Messrs. W. J. GODFREY AND SON staged Canterbury Bells, Oriental Poppies and Solanum Wendlandii (Silver Banksian Medal). Verbascums Cotswold Queen and Cotswold Gem associated with Hesperis matronalis alba plena were effectively arranged by Messrs. R. TUCKER AND SONS (Silver Banksian Medal).

A collection of hardy shrubs, shown by Messrs. J. PIPER AND SON, mostly those with silvery foliage, was an attractive feature (Silver Banksian Medal). Messrs. BAKERS, LTD., displayed their "Sunbeam" Poppies (Bronze Flora Medal). In the annexe Mr. CHAS. TURNER displayed various garden Pinks of merit. Messrs. LOWE AND GIBSON staged spikes of Gladiolus primulinus hybrids (Silver Banksian Medal). The DONARD NURSERY Co. arranged very floriferous branches of Leptospermum Nichollii, several species of Escallonia, Pittosporums, Olearia semi-dentata and other uncommon shrubs with some excellent spikes of Dierama pulcherrima (Silver Banksian Medal).

Messrs. CARTER AND CO. had a tasteful arrangement of their strain of Iceland Poppy (Bronze Flora Medal). In the annexe Mr. S. SMITH again showed a collection of interesting succulent plants (Silver Banksian Medal).

The competition for the Clay Cup did not bring forward any new seedling Rose of outstanding merit. The conditions stipulate a variety of good form and colour and possessing the old rose fragrance. Three varieties were entered by Messrs. FRANK CANT AND CO., and none fulfilled the first condition, though this failure may be due to the inclement season. Rosemary, a rich pink-coloured Rose, which when fully open discloses a distinct eye, was the most fragrant.

Fruit and Vegetable Committee.

Present: C. G. A. Nix (Chairman), J. Cheal, Geo. F. Tinley, S. B. Dicks, W. F. Giles, F. D. Tuckett, T. Pateman, Edwin Beckett, G. Reynolds, H. Markham, W. H. Divers, H. Prince, and A. N. Rawes.

The Chairman expressed his deep regret of the death of Mr. Challis, an old and valued member of the Committee, a fine old gardener who was highly esteemed by all who knew him. It was resolved to send a letter of condolence to the members of Mr. Challis' family.

There was only one exhibit of Strawberries for the award of the Bunyard Medal (Fig. 173, p. 367), the poor response being partly due to the lateness of the season and the fact that few were aware that such a competition was arranged. The exhibitor was Mrs. R. W. ASCROFT, Orchard Cottage, Effingham, Surrey, and the variety shown Royal Sovereign. The Silver Bunyard Medal was awarded. The Committee expressed the hope that a better response will be made at the next fortnightly meeting in the competition for Cherries.

Messrs. BARR AND SONS, King Street, Covent Garden, were awarded a Silver Knightian Medal for a collection of vegetables, comprising some 30 dishes. The produce was good considering the unfavourable season, and included Canadian Wonder Beans, Midlothian Early Potatos, Early Frame and New Intermediate Carrots, White Spanish and The Queen Onions, Green Favourite Lettuces, Scarlet Beauty Tomatos, Beets, Peas, Cucumbers, Spinach, Mushrooms, and Marrows.

ANSWERS TO CORRESPONDENTS.

PRESERVATION OF NATURAL FOLIAGE.—For preserving leaves and flowers in their natural state the following is recommended for trial: One litre of fine white sand is sifted, washed and dried, then the following solution is made: 3 gms. of stearin, 3 gms. of hard paraffin, and 3 gms. of salicylic acid in 100 gms. of absolute alcohol, dissolved by aid of heat. With this solution the sand, previously heated, is treated little by little, until all the grains are moistened, when the whole is exposed to the air to dry. The leaves or flowers to be preserved are placed in a suitable box on a layer of the prepared sand, and more of the sand is sprinkled over them, so as not to disturb the natural position, until they are completely covered. The box is then stood in a warm place (30° to 40° C.) for two days, after which time the sand is carefully drawn off, the best means of doing this being to provide the box with an opening in the bottom, from which a cork or other suitable stopper may be withdrawn.

VERMOREL KNAPSACK SPRAYER: *E. W.* The Vermorel Knapsack sprayers may be obtained from Messrs. Cooper, Pegler and Co., Ltd., 24-26, Christopher Street, Finsbury Square, E.C.2.

Communications Received—A. Z.—T. B.—T. W.—W. H. C.—E. W.—A. G.—T. R.—E. H. W.—P. & S.

MARKETS.

COVENT GARDEN, Tuesday, June 26, 1923.

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus, bundle —Special Devon	15 0	25 0
—Spec. Evesham	10 0	25 0
—Best ,,	3 6	6 0
Beans— —Guernsey, lb.	1 0	2 0
—Madeira basket	2 6	3 0
—Worthing	1 3	2 0
Broad Beans, ½ bus.	2 0	2 6
Beets, cwt.	2 6	4 0
Cabbage, dozen	1 6	2 6
Carrots, new— doz. bunches	2 6	8 0
Cauliflowers, doz.	2 6	6 0
Cucumber, Flat	14 0	16 0
Green Artichokes, dozen	1 6	2 0
Greens, bag	2 0	2 6
Lettuce, dozen— —English	1 0	2 0
Marrows, doz.	12 0	18 0
Mint, doz.	3 0	4 0
Mushrooms, lb.	1 6	2 6
Onions— —Egyptian	10 0	12 0
Peas— —Blue, bag	12 0	15 0
Potatos, —Guernsey, new, lb.	16 6	12 0
—Jersey	10 6	12 0
—King Edward	£3	£3 5
—Cornish bushel	7 0	8 0
Radishes, doz.	1 0	1 6
Rhubarb,	0 9	1 0
Spinach, bushel	3 0	3 6
New Turnips, doz. bunches	9 0	10 0
Tomatos— —English	—	—
—Pink and Pink and White	7 0	8 0
—White	5 6	6 0
—Blue	5 0	6 0
—Guernsey	—	7 0
—Canary Islands	10 0	15 0

REMARKS.—Weather conditions were, for a few days, more favourable for the fruit trade, and a more confident tone was reported from most sections. Consignments of Strawberries are heavier, and their prices lower. Apricots from Spain are plentiful, and their value is easier. Apples from Australasia are selling satisfactorily at easier rates. Grapes, Peaches, Nectarines and Melons are selling fairly well, but the competition of Strawberries usually has a retarding effect on the sales of these choice fruits. Cherries have made their appearance and have realised good prices. The Gooseberry trade has suffered acutely from the competition of Dutch berries, and prices have fallen sharply. Tomatos have recovered somewhat in price, a few warm days stimulating the demand. Cucumbers have also slightly improved in price. French Beans have not met with such a keen inquiry as heretofore. Outdoor Peas are fairly plentiful, although the pods are poorly filled. The lateness of the season has doubtless encouraged growers to continue cutting Asparagus, of which fair supplies are available.

Plants in Pots, etc.; Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz.	10 0	18 0
—elegans	10 0	12 0
Aralia Sieboldii	10 0	12 0
Araucarias	30 0	48 0
Asparagus plumosus	12 0	15 0
—Sprengeri	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Boronias	21 0	27 0
Cacti, per tray, 12's, 15's	5 0	7 0
Crassulas, 48's pink, per doz.	24 0	30 0
red, ,,	24 0	30 0
Crotons, per doz.	30 0	42 0
Cyrtomium	10 0	15 0
Erica —candidissima	21 0	24 0
—Cavendishii	30 0	36 0
—magnifica	36 0	42 0
Heliotropes	12 0	15 0
Hydrangeas white & pink, —48's, doz.	15 0	24 0
Marguerites, per doz.	12 0	18 0
Mignonette	10 0	15 0
Nephrolepis, in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	24 0	30 0
—60's	15 0	18 0
—Cocos	24 0	36 0
Pelargonium	18 0	24 0
Pteris, in variety	12 0	21 0
—large 60's	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's	3 6	4 0
Roses Polyantha 48's, per doz.	24 0	30 0
—Ramblers, various sizes	7 6	20 0
Spiraeas	18 0	24 0
Stocks, White & Coloured	12 0	15 0
Verbenas, Miss Willmott 48's	15 0	18

REMARKS.—Supplies of all subjects have increased considerably during the past few days, and prices for all grades are easier, especially for Roses, Carnations and Sweet Peas. The finer weather has resulted in large supplies of Roses, and many of the blooms were sold very cheaply owing to their advanced condition. Owing to this it is difficult to give correct quotations for Roses, and the same remark is true of Carnations and Sweet Peas, although these are now in excellent condition. Double white Pyrethrums are practically finished for this season. Double white Stock and white Pinks are taking the place of the white Pyrethrums. There is an abundant supply of Delphiniums, Cornflowers, Gypsophila elegans, Gladioli, Nigella, and Lilium longiflorum. The newest arrivals are Gaillardias, Scabiosa caucasica, and Sweet Sultans. All Irises are in good condition, and some fine Paeonies are arriving from home growers. Supplies of both these flowers are larger now than for some time past.

GARDENING APPOINTMENTS.

Mr. F. L. Thurston, for the past three years Gardener-Bailiff to the Rt. Hon. LORD WAVERTREE, Horsley Hall, Gresford, Wrexham, has been appointed Gardener-Bailiff to CAPTAIN FRANK BURGES, Farncombe, Broadway, Worcestershire.

Mr. J. A. Gates, for the past ten years Gardener to Colonel MAUNSELL WOODS, at Shephalby, as Gardener to Mr. HOWARD CARTER, at Ardeley Burt, Stevenage, Hertfordshire. (Thanks for 2s. for R.G.O.F. Box.—EDS.)

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THE

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(ESTABLISHED IN 1841.)

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LONDON

5, TAVISTOCK STREET, COVENT GARDEN, W.C.2.

1923.

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INDEX OF CONTENTS.

JULY TO DECEMBER, 1923.

(FOR SPECIAL HEADINGS SEE UNDER ANSWERS TO CORRESPONDENTS; BOOKS; CERTIFICATED PLANTS, ETC.; NURSERY NOTES; OBITUARY; PLANTS, NEW; SOCIETIES; AND ILLUSTRATIONS.)

A

ACIDITY, SOIL, 296, 312
Aconitum Fischeri, 298
Afforestation area, new, 154
African plants, notes on East, 205
Agricultural conference at High Leigh, Hoddesdon, 245
Agricultural Credits Act, 1923, 112
Agricultural development and unemployment, 227
Agricultural economics, 15
Agricultural scholarships, 139
Agriculture in the Sudan, 317
Albert Medal, presentation of the, 52
Alberta Wheat crop, the, 126
Albinos of Miltonia vexillaria, 35
Allium flavum, 187; A. triquetrum, 333
Allotment holders aid to a London Hospital, 154
Allotments: ancient, 318; new bill on, 198
Alocasia macrorhiza, 263
Alpine garden, the, 23, 38, 53, 99, 133, 157, 245, 261, 280, 305, 321, 339, 349
Alstroemerias, 366
Alyssum spinosum, 39
America: the Dahlia in, 288; wart disease of Potato in, 16
Amsterdam, International Horticultural Congress at, 112, 181
Anderson, Mr. Robert, 154; presentation to, 181
Androsace, 280
Anemone ranunculoides, 169; A. sylvestris, 220; the Snowdrop, 200

Answers to Correspondents:—Abutilon and vine leaves damaged, 109; Analysis of soil, 110; Aphis on Roses, 32; Apple infested with a grub, 254; Apple twig mildewed, 78; Asparagus "Ferns," 315; Asters diseased, 78, 109; Azalea, fungus on an, 32; Azalea mollis, pink-flowered, 270; Begonia Mrs. Petersen, propagating, 358; Begonia with rusty leaves, 226; Begonias dropping their buds and leaves, 123; Big bud mite of Black Currant, 372; Blowflies among fruit crops, 254; Brassicas, fungus on, 344; Bulbs in the axils of Lily leaves, 242; Bumble bees in glasshouses, 315; Cabbage butterflies, 315; Cake dust, 151; Caper Spurge, the, 123; Carnations: soil for, 138; Souvenir de la Malmaison, 78; "Cat-tail," exterminating, 286; Cauliflower plants, grubs attacking young, 32; Celery: diseased, 270; with pithy stems, 242, 344; Christmas flowers, 109; Chrysanthemum buds failing to open, 372; Chrysanthemum shows at Westminster, 50; Chrysanthemums: fertiliser for, 254; for successional cutting, 14; Cinders and coal ash in soil, 286; Claytonia sibirica and C. perfoliata, 50; Clematis, early and late flowering, 286; Clover in a tennis court, 95; Commelina and Ceratostigma, 254; Coriaria terminalis, 315; Costs of garden work, 151; Cymbidium Lowianum, 302; Cypripediums, twin-flowered, 270; Dahlia tubers, protection of, 254; Dahlias, the propagation of, 316; Delphinium, a fasciated, 64; Delphiniums, white or cream flowered, 242; Employer's licence for a gardener, 344; Evergreen shrubs for a hedge, 254; Fertiliser for Chrysanthemums, 254; Fig tree diseased, 123; Flowers: for Christmas, 109; for market, hardy, 138; Foxgloves with cup-shaped terminal flowers, 64; Fruit trees, checking woody growth in, 330: Gardener's: claim for expenses and bonus, 254; holiday, 78; lodge, 242; notice, 64; union, 64; Garden work, costs of, 151; Germination of Tomato seeds, 270; Golf courses, Starweed on, 316; Gooseberry bushes dying, 109; Gooseberries failing, 64; Grape: Prince of Wales, 330; Muscat of Alexandria shanking, 71; Grape vines, failure with, 344; Grapes: with brown markings, 286; and other indoor fruits for a large institution, 64; shanking in, 196; shrivelling of, 123, 242: Greenhouses, rental of, 138; Green scum on a hard court, 195; Grubs: attacking Cyclamen, 286; attacking young Cauliflower plants, 32; Hardy flowers for market, 138; Horse Radish, 123; Humea elegans, 50; Lake: scum on a, 166, 224; weeds in a, 316; Lawns: moss on, 124; soot as a fertiliser for, 166; Leeks at a flower show in July, 138; Lilium candidum, 242; L. longiflorum var. formosum, 315; Liverwort on a lawn, 195; Loofah plants, 50; Marble and stone statues, to clean, 95; Melon leaves diseased, 109, 242; Melons growing one-sided, 195; Moss: on lawns, 124; in flower pots, 372; Mulberry, 124; Nectarine: fruits splitting, 95; Lord Napier, 151; Nectarines failing, 138; Night soil, 166; Oak from Turkey 286; Oak tubs, ornamental, 226; Ox-Eye Daisy, fasciation in, 78; Paeony diseased, 50; Palms, potting, 372; Pansies diseased, 78; Passion fruit, edible Australian, 270; Peach: and Nectarine fruits falling, 64; Peach, Early Rivers with split stones, 95; a large, 64; leaf curl of, 138; leaves of, diseased, 14, 302; leaves of, falling, 196; leaves of, perforated, 95 Peaches: deficient in flavour, 32; diseased, 14; with split stones, 151; Pears, failure of, 151; Pelargonium Rossway, 64; Phloxes failing, 95; Pine Weevil, 96; Plane trees, lopping, 286; Planting on the sea front, 358; Plumbago unhealthy, 96; Plum leaves discoloured, 138; Plums diseased, 32; Potatos with scabby skins, 254, 344; Pyrus Aucuparia casting its bark, 226; Red spider attacking vines and Peaches, 330; Rhododendrons for sandy soils, 196; Roses, failing to open, 110; aphis on, 32; Hybrid Tea for bedding, 242; Scum: on a hard tennis court, 195; on a lake, 166, 224; Sea front, subjects for planting on the, 358; Shrubs: hardy evergreen, 242; hardy flowering, 242; Snail plant, the, 110; Soil: for analysis, 110; for Carnations, 138; sterilisation of, to kill weeds, 152; Soot as a dressing for lawns, 166; Spruce shoots, unhealthy, 152; Starweed on golf courses, 316; Statues, cleansing marble and stone, 95; Sterilisation of soil to kill weeds, 152; Stocks, Brompton, 64; Strawberry runners from barren plants, 96; Street trees, 196; Sulphate of ammonia as a dressing for lawns, 254; Sweet Peas failing, 316; Tennis court: Clover in a, 95; green scum on a hard, 195; the marking of a hard, 196; Timber, prevention of dry rot in, 96; Tomato seeds, the germination of, 270; Tomato with terminal flowers, 14; Tomatos, diseased, 14, 110, 152, 226, 254 failing to set, 96, 110; withering of, 124; with hard, yellow patches, 166; Tree seeds, failure with, 166; Trees: shrivelled, 152; street, 196; Tub, water in a tarred, 330; ornamental Oak, 226; Vine: infested with red spider, 330; growth on, 50; leaves of, discoloured, 96, 152; Violas, diseased, 110; Vitriol for spraying a garden path, 50; Weeds: in a lake, 316; sterilisation of soil to kill, 152; Woodlice, 96; Woody growth in fruit trees, checking, 330
Anthurium 291
Antirrhinum plant, a large 257
Aotus gracillima 60
Aphis, woolly, 369
Aphides: nicotine powder as a destroyer of 34; plague of, 121
Apple canker, 167
Apple crop, the Canadian, 227
Apple cultivation, tradition and fashion in, 44
Apple cuttings, 341
Apples: highly coloured, 369; hybrid, 378; little known methods of keeping, 144; market, 354; proposed tax on imported, 288
Apples: Allington Pippin, 369; Broad-Eye Pippin 327, 355; Bushy Grove, 297; Calville Rouge d'Automne, 222; Forge, 354; King of Tompkin's County, 369; Loddington Pearmain, 297; Nanny, 354; Sops-in-wine, 222, 312.
Apricot, pruning the, 366,
Aquilegia caerulea Mrs. Nicholls, 58
Asimina triloba, 295
Asparagus, the culture of, 282
Asphodel, the, 307
Aster diplostephioides, 58; A. ericoides praecox, 381; A. Farreri, 38; A. subcaeruleus Apollon, 58
Astilbe simplicifolia, 53,
Avondale Forestry Station, the, 164, 119
Auricula, the woolly aphis of, 312
Autumn, Holland in, 215, 232; late in the rock garden, 377
Autumn tints, 232

B

BAGATELLE, ROSE TRIALS AT, 198
Balfour, Sir Isaac Bayley, memorial to the late, 244, 336, 346
Barker, Mr. S., 112
Bath, fruit trees for the public parks of, 2
Bauhin's *Pinax*, the tercentenary of Gaspard, 40
Baxter exhibition, the, 126
Bayley-Balfour Memorial garden, 244, 336, 346
Beans: Broad, 44, 354; Early Dwarf, 368; Runner, 84, 121, 163
Bedding plants in the London parks, distribution of surplus, 214
Bedford Park, 147
Begonia species, some, 368
Belgian plant import regulations, new, 126
Bellis rotundifolia coerulescens, 305
Bernhard-Smith, A. (*Poisonous Plants of all Countries*), 42
Besant, Mr. William, appointment of, 244
Bewley, Dr. W. F., 198
Bidder, the late Rev. H. J, 270, 282
Bignonia grandiflora, 273
Biology at Cambridge, 229
Boenninghausenia albiflora, 251, 281
Bo'ness, gift of a park to, 69
Books, high prices for floral, 288
Books, Notices of:—An Elementary Text-book of Australian Forest Botany (*C. T. White*), 99: A Handbook of Coniferæ (*W. Dallimore and A. Bruce Jackson*), 361; Apple Growing (*M. C. Burritt*), 375; Bagatelle et ses Jardins (*J. C. N. Forestier*), 58; Botanical Magazine, 153; Canada of To-day, 97; Canker Control Trials (*S. P. Wiltshire*), 167; Delphiniums and How to Excel with Them (*A. J. Macself*), 69; Dwarf and Slow-growing Conifers (*Murray Hornibrook*), 115; Flowering Plants of South Africa, 16, 345; Flowers: A Garden Note-book (*Sir Herbert Maxwell*), 319; "Fruit Grower" Directory and Handbook, 1924, 360; Journal of the Royal Horticultural Society, 256; Kew Guild Journal, 33; Methods of Seed Analysis (*C. B. Saunders*), 112; National Hardy Plant Society's Journal, 346; New Zealand Native Flora (*Sir G. Fenwick and James Speden*), 255; Plant names (*T. S. Lindsay*), 21; Poisonous Plants of all countries (*A. Bernhard-Smith*), 42; Poplars (*Forestry Commission Bulletin*), 86; Practical Plant Biochemistry (*Muriel Wheldale Onslow*), 271; Practical Plant Ecology (*A. G. Tansley*), 303; R.H.S. Gardeners' Pocket Diary, 360; Sterility in Lilies (*A.B. Stout*), 308; The Flower Lover's Guide to the Gardens of Hampton Court (*Eric Law*), 206; The Physiology of the Ascent of Sap (*Sir Jagadis Bose*), 99; Trees and Shrubs (*Count E. S. Turanoff*

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and Dr. C. Schneider), 127; The Flora and Folklore of Shakespeare (*F. G. Savage*), 158

Border, an effective, 169
Bose, Sir Jagadis (*The Physiology of the Ascent of Sap*), 99
"Botanical Magazine," 153
Botanic Gardens, the oldest, 198
Bougainvilleas, 132
Box Hill Preservation, 167
Brassicas, leaflets on the cultivation of, 256
Brasso-Cattleya Lady Vezey Strong, 319
Brighton Aquarium, 185
British forest-tree nursery trade, critical position of the, 139
Broccoli, protecting, 326
Brompton Park Nursery, 218
Brooms of late summer, 206
Brotherston, Mr. R. P., 126
Brussels Sprouts, 311
Buddleia auriculata, 279
Bulb garden, the 19, 59, 99, 113, 133, 157, 187, 199, 222, 237, 250, 260, 289, 307, 321, 333, 353, 366
Bulbs: British or Dutch?, 163; importation of, into Holland, 317; in fibre, the cultivation of, 133; planting hardy, 157
Bunyard medals for fruit, 15
Burritt, M. C. (*Apple Growing*), 375
Buttercups, double, 10, 27, 45

C

CABBAGE, ROOT FLY, 25, 45, 60
Cabbage trials at Kirton, spring, 52
Cabbages, spring, 105
Calandrinia umbellata, 349
Calceolaria Scarlet Beauty, 189
Callicarpa purpurea, 67
Callirrhoe linearilobа, 69
Calochorti, 289
Camassias, 276
Cambridge, biology at, 229
Camellias, 260; in the open, 339
Campanula pumila, Perry's Pigmy, 185
Canada: grain harvest in, 332; Apple crop in, 227; florists and gardeners in, 34
Canadian plant import regulations, new, 80
Cannizaro, Wimbledon, 21
Cannon Hall Muscat Grapes, 239
Carbon dioxide and plant growth, 1
Carey, William, 370
Carnation culture in Natal, 37
Carnations: 143, 305; at a South African Flower show, British grown, 98
Caryopteris Mastacanthus, 206
Castanea sativa heterophylla, 309, 342
Castanopsis chrysophylla, 89
Castle Huntley Park for the public, 79
Catalpas, 359
Cattleya ardens, 275; C. Gladiator, 69
Cauliflowers, 105
Ceanothus Gloire de Versailles, 89
Cedar chests, value of, for keeping clothes from injury by moths, 272
Cedar grove on Mount Lebanon, 272, 325
Celmisias and Olearias, 255
Cerastium tomentosum and sparrows, 61
Cercidiphyllum japonicum, 183, 224, 370
Cereus Schelhasii, 117

Certificated Fruits and Vegetables:—Black Currant Hatton Giant, 240; Red Currant Perfection, 240; White Currant White Versailles, 240; Carrots: Amsterdam Forcing, 94; Early Parisian Forcing, 94; Long Forcing, 94; Cucumbers: Aviator, 94; Early Frame, 94; Blair's Prolific, 204; Covent Garden, 94; Everyday, 240; Frogmore Prolific, 94; Lord Roberts, 94; Perfection Ridge, 240; Pride of the Market, 94; Royal Osborne, 94; Telegraph, 240; French Beans: July, 241; Phenomena, 241; Lettuces: All the Year Round, 94; Brittany Winter White, 94; Density Cos, 94; Goldring's Bath Cos, 94; Hammersmith Hardy Green, 94; Stanstead Park, 94; White Madeira, 94; Winter Density, 94; Winter Giant, 94; Onions: Anglo-Spanish, 240; Premier, 240; Rousham Park Hero, 240; Silver Globe, 240; Runner Beans: Bounteous, 240; Colossal, 240; Czar, 240; Prizewinner, 240

Certificated Plants:—Aristolochia gigantea, 63; Armeria cephalotes Miss Max, 29; Asters: Aldenham Pink, 239; A. alpinus Dunkle Schone, 29; October Dawn, 239; Snowdrift, 208; A. sub-coeruleus Venus, 29; Berberis Autumn Beauty, 208; B. brachypoda Gibbsii, 239; B. Comet, 269; B. Tom Thumb, 239; Brasso-Cattleya Floss Flora, 268; B.-C. Sofrano var. Primrose Queen, 225; Brasso-Laelio-Cattleya maculata magnifica, 343; B.-L.-C. maculata, The Dell variety, 207; B.-L.-C. Muriel var. Perfection, 151; B.-L.-C. Thompsonii alba, 225; B.-L.-C. Tucuman, Claygate Lodge var., 150; Buddleia auriculata, 269; B. Golden Glow, 208; B. Moonlight, 208; Campanula Hallii, 93; C. persicifolia Ryburgh Bells, 30; Carnations: Ivan Low, 77; Mrs. Edmund Charrington, 77; Mrs. Groom, 30; Cattleya Abekeniae, 151; C. Aeneas var. Goliath, 207; C. Diana var. Brilliant, 151; C. Dupreana alba, 241; C. Hesperus var. Duchess of York, 241; C. Isabel Sander var. Brugense, 29; C. Juno var. The King, 29; C. Mrs. Gratrix, 239, 285; C. Tagus var. Cupid, 207; C. Thebes, 225; C. triumphans var. Evansiae, 151; C. Venus, Orchidhurst var., 285; Chimaphila maculata, 122; Chrysanthemums: Abercorn Beauty, 381; Alcade, 381; Aldyth, 283; Almirante, 381; Amber Queen, 301; Babia Ferrer, 381; Bernard Hicks, 301; Brightness, 356; Bronze Age, 357; Bronze Goacher, 381; Candida, 381; Charming, 381; Claret, 381; Chestnut Glory, 343; Chieftain, 381; Crimson Marie Masse, 381; Crimson Polly, 381; Dick Barnes, 381; Doreen Woolman, 208, 224; Dorothea Edwards, 283; Dr. Jacobs, 241; Duchess of York, 301; Elsie, 239; Elstob Yellow, 381; Ernest Baltet, 381; Ethel Blades, 381; Excelsior, 381; Exmouth Pink, 269; Felicia, 283; Firebrand, 381; Firefly, 381; Flame, 283; Flora, 381; Florrie Wilkinson, 381; Framfield Early Primrose, 381; Framfield Early white, 381; Framfield Orange, 283; Framfield White, 381; Freda, 381; Garnet, 381; Gigantic, 283; Gloriosa, 283; Glorious, 381; Goacher's Crimson, 381; Godfrey's Gem, 239; Golden Almirante, 381; Golden Firebrand, 381; Golden Marvel, 269; Golden Polly, 381; Goldfinder, 381; Heloise, 300; Hollicott Beauty, 381; Hollicott Yellow, 381; Horace Martin, 381; Isolde, 300; Jamie, 381; Jeannie, 381; Jean Pattison, 283; J. Woolman, 381; Lichfield Bronze, 224; Lichfield Purple 381; Little Bob, 381; Lynette, 343; Maggie, 381; Midnight Sun, 381; Minstrel, 208, 224; Miss A. Wisbey, 300; Miss B. Miller, 381; Miss Golby, 300; Miss Joyce Moore, 300; Mme. Marie Masse, 381; Monarch, 343; Mr. A. Robertson, 301; Mr. J. Barrell, 357; Mr. P. Matcham, 300; Mrs. A. B. Hudd, 283; Mrs. Arthur Brown, 343; Mrs. Bailey, 381; Mrs. Charles Fox, 343; Mrs. E. Reeves, 269; Mrs. E. W. Catlow, 283; Mrs. Harold Wells, 301; Mrs. Jack Pearson, 208, 224, 381; Mrs. J. Fielding, 381; Mrs. J. Palmer, 300; Mrs. S. Smith, 381; Mrs. T. Hancock, 269; Mrs. W. Seymour, 283; Mrs. W. Sydenham, 381; Nona 269, 301; Norman, 300; Norman Davis, 283; Normandie, 381; Orange Pet, 381; Pearl, 381; Philip, 381; Phoenix, 381; Pink Beauty, 300; Polly, 381; Progress, 283; Radiant, 300; Raleigh, 269; Ralph Curtis, 381; Red Almirante, 381; Roi des Blancs, 381; Royal Salute, 224; Ruby, 381; Sanctity, 381; September Glory, 381; September White, 381; September Yellow, 224; Shirley Conquest 381; Shirley Sunset, 224; Shirley Terra-cotta, 224; Silver Lining, 381; Southover Yellow, 381; Star of Gold, 343; Sulphur Queen, 301; Sunstar, 381; Taplow White, 381; The Wizard, 283; Tuckswood Early, 381; Verona, 381; Vinestone Bronze, 381; Well's Scarlet, 381; W. H. Bilney, 343; White Masse, 381; Willington Early Yellow, 381; Cladrastis sinensis, 53; Cypripedium Albion, Bodnant var. 239; C. Bright Eyes, 343; C. Chrysostom, Chardwar var. 356; C. Chrysostum var. Amy Moore, 328; C. Chrysostum var. Richard Fort, 328, 371; C. Daisy Barclay, Gratrix var. 151; C. Godefroyae amabile, 94; C. G. ochroleuca, 225; C. G. splendidissimum, 94; C. Gwen Hannen, 328; C. Gwen Hannen, Chardwar var. 356; C. J. M. Black, West Point var. 343; C. Madrigal, 343; C. Major Keppel, 343; C. Maudae, Westonbirt var. 343; C. Mrs. James Wood, 343; C. Mrs. Keppel, 343; C. Papyrus, 343; C. Phantasy var. Sobriety, 268; C. Prince Albert, Chardwar var., 356; C. Prince Albert var. Mecca, 328; C. Warrior var. H. Green, 356; Dahlias: Coltness Gem, 193; Crimson Glow, 193; Denys, 193; F. Graham Bird, 193; Gatton Star, 193; Glow, 193; Jhr. G. van Tets, 193; Juweeltje, 193; Mac, 193; Mamie, 193; Peach, 193; Radium, 193; Raider, 193; Snowdrift, 193; Tipsy, 193; Vesuvius, 193; Delphiniums: Johan, 94, Lady Astor, 94; Mrs. Willy van Egmond, 94; My Lady, 30; Sylph, 30; Dendrobium melanodicus var. Kathleen, 29; Dianthus Allwoodii, Clarkson Pink, 122; Dierama pulcherrima var. Heron, 63; Gladioli: Circe, 241; Herbstzauber, 241; Imperator, 241; Lilac Wonder, 241; Mrs. C. P. Alkemade, 241; nanus King of Spain, 241; Palestine, 208; primulinus grandiflorus Flaming Sword, 241; p. Pysche, 241; p. Rosaura, 241; p. Vinula, 241; p. Wilhelmina Regina, 241; Quo Vadis, 241; Red Star, 241; Veilchenblau, 241; Iris filifolia, 29; I. hispanica Bianca, 94; I. hispanica Blue Giant, 94; I. hispanica Leviathan, 94; I. Hoogstraten, 29; I. pallida Riese van Connern, 29; I. squalens Ambassadeur, 29; I. Ten Cate, 29; I. van Scorel, 29; Ixiolirion Ledebouri, 29; Laelio-Cattleya Appam var. Golden Crown, 285; L.-C. Dodona, 151; L.-C. Eastern Monarch, 343; L.-C. Glory, var. Golden King, 343; L.-C. Litana var. Golden Dawn, 151; L.-C. Marina var. majestica, 207; L.-C. Momus var. Mirimar, 225; L.-C. Mrs. Medo, 224; L.-C. Mrs. Medo, Low's var., 150; L.-C. Mrs. Medo var. Sovereign, 207; L.-C. Papyrus, 29; L.-C. Profusion, 268; L.-C. Zero var. splendida, 151; Ligustrum Quihoui 208; Lilium pseudo-tigrinum, 241; L. umbellatum splendidum, 29; Miltonia Bleuana, Rutherford's var., 94; Montbretia Cecil, 122; Nerine White Knight, 269; Odontioda Flamingo var. ignea, 29; O. Helma, 285; O. Verulam, 94; O. Vesuvius, 29; O. Windsor, 29; Odontoglossum Alcimeda superba; 94; O. crispum var. Nora, 29; O. c. var. Rosy Rapture, 343; O. c. var. Orestes 285; O. c. var. Sunspot, 151. O. Desdemona II. var. Rubens, 268; O. Doreen var. Blue Bird, 94; O. Doreen var. Dreadnought, 29; O. Eros maculatum, 29; O. Felicity, 151; O. Helma, 224; O. Ithone, 299; O. Miguelito Invincible, 29; O. Mrs. James Wood, 343; O. Princess Patricia, 94; O. promerens rotundum, 343; O. p. var. Suubeam, 343; O. Schlieperianum citrinum, 94; O. Zenith, 94; Odontonia Malby var. Decora, 94; O. Papillon, 343; O. Philospher, 268; Oncidium Gardneri, Hartley's var. 29; Paeonia Whitmanniana rosea, 29; Papaver orientale Wilhelmina Regina, 95; Promenaea stapelioides superba, 94; Pyrethrum Eileen May Robinson, 29; Pyrus Aucuparia munda subarachnoideum, 239; Ranunculus asiaticus superbissimus Mahony, 95; Roses: Allen Chandler, 47; America, 122; Aurora, 191; Bessie Chaplin, 11; Betty Hulton, 47, 191; Fragrance, 47; Fred. J. Harrison, 47; Gwynne Carr, 11; Joan Howarth, 47; Lady Roundway, 11; Little Joe, 11; Mabel Turner, 191; Maud Cuming, 11; Oliver Mee, 191; Phyllis Bide, 191; Shot Silk, 11, 191; Victor Waddilove, 191; Salpiglossis: Chamois, 94; Chamois, rose carmine centre, 94; Dwarf Large-flowered Mixed, 94; Purple and Gold, 94; superbissima aurea, 94; superbissima Light Blue, 94; Velvety Red Gloxinia-flowered, 94; Violet d'Iris, 94; Yellow, 94; Yellow, edged White, 94; Scolopendrium vulgare muricatum fimbriatum capitatum, 239; S. v. ramo-crispissimum conglomeratum, 239; Sophro-Laelio-Cattleya Eileen, Low's var., 356; S.-L.-C. His Majesty var. Flammea, 207; S.-L.-C. Pervanch, 268; S.-L.-C. Thyone, 225; Sweet Peas: Annie Ireland, 193; Bunty, 193; Butterfly Spencer, 193; Charming, 193; Mrs. C. P. Tomlin, 193; Donald McNaughton, 193; Elsie, 193; George Shawyer, 193; Gloriosa, 193; Hawlmark Scarlet, 193; Illumination, 193; John Ingman, 193;

Digitized by Google

Liberty, 193; Mascott's Scarlet, 193; May Unwin, 193; Mrs. H. Richards, 193; New Miriam Beaver, 193; Pimpernel, 193; Ryburgh Lemon Picotee, 193; The Cardinal, 193; Thomas Stevenson Improved, 193; Wild Rose, 193; Tropaeolum Fireball, 300; Tulips: Jeanne Desor, 29; l'Aurore, 29; Mongolia, 29; Red Monarch, 29; Turner, 29; Vuylstekeara insignis var. picta, 30, 94
Cestrum elegans, 347
Ceylon, the Sweet Pea of, 145
Chalkwell Park, Westcliff-on-Sea, Chrysanthemums in, 327
Challenge cup for Orchids, 271
Chamber of Horticulture: new President of the, 65; new Secretary of the, 256
Cherry, Apple and Pear blossom, pollination of, 120
Cherries, the pollination of, 149, 177
Chickweed, the eradication of, 282 342
Chicory, 312
Chimonanthus fragrans, fruiting of, 89
Chinese influence on horticulture, 125
Chinkerichee, the, 333
Choisya ternata, 220
Christmas fruits in Covent Garden market, 369
Chrysanthemum, an early single, 233
Chrysanthemum shows, absence of coloured blooms at, 327
Chrysanthemums: at Southport, 341; choice exhibition, 324; early-flowering, 9; in Chalkwell Park, Westcliff-on-Sea, 327; in the Glasgow Parks, 327; new, 288; the best twelve early-flowering, 289
Chrysanthemums: Dr. Jacobs, 245; Mrs. Charles Read, 145; Roi des Blancs, 220; Shrapnel, 233; uliginosum, 249
Cimicifuga, 220
Cineraria Beauty of Cambridge, 84
Cistus, 277
Cladrastis sinensis, 70
Clark, Mr. W., 288
Claytonia perfoliata, 61
Clover: appearance of white, after drought, 107; Bokhara, 85, 136, 163, 326; Welsh Red, 214
Cobaea scandens, hardiness of, 177, 224
Cockayne, Dr. L., 374
Coconut husks, new use for, 111
Coconut industry in Southern Mexico, 2
Cole, St. Cuthbert's, 27, 136, 177, 224
Colin-Pullinger Mouse-trap, 327
Cologne, proposed belt of trees and shrubs around the city of, 3
Confessions of a novice, 20
Cordyline australis in south-west Scotland, 42
Coreopsis grandiflora, 217
Cotoneaster frigida, 177
Cotton, Empire, and research, 34
Coutts, Mr. J., 272
Covent Garden market, Christmas fruits in, 369
Crassula coccinea, 117; C. falcata, 117
Crocus longiflorus, 321
Crocuses, pheasants attacking yellow, 199
Crops, the condition of the, 98
Croydon Horticultural Society and the Entertainment Tax, 289
Cultural memoranda, 10, 60, 176, 217, 366
Currant: Laxton's Perfection, 135; Red, 90; reversion in Black, 24, 106
Curtis, Mr. C. H., honour for, 255
Cydonia japonica flowering on a sucker growth, 239
Cypresses of Monterey, the, 41
Cytisus kewensis, 292

D

DAFFODILS, NOTES ON SOME OF THE NEWER, 173, 224
Dahlia Coltness Gem, 136
Dahlia, the development of the, 204, 221, 238, 250, 265
Dahlias: in Holland, 213; in Hyde Park, 140; in the United States, 228, 288; new, 98, 155
Dallimore, W. (*A Handbook of Coniferæ*), 361
"Daily Telegraph" Gardens Competition, 15
Daws Hill Park, 129
Deinanthe coerulea, 157
Delphiniums and Tulips at Wembley, 346
Deutzia Wilsonii, 292
Development Commission, the, 139
Devon garden, notes from a south, 84
Dianthus Atkinsonii, 70; D. petraeus fl. pl., 53
Dicentra spectabilis, 115, 217
Dierama pulcherrima, 461
Diervilla rosea, 367
Disas, 118, 147, 186
Draining land as relief work, 227
Dyer, Sir William T. Thiselton-, 52, 79

E

EAST CRAIGS, POTATO TRIALS AT, 80
East Malling, distribution of surplus pedigree fruit true stocks at, 198
Eckford Memorial Medal, award of the, 255
Edinburgh Botanic Garden, 236
Edinburgh public parks, new superintendent at, 1
Educational garden at Reading, 15
Egypt, plant exports to, 182
Elm trees, treacherous, 288
Engelmann, Mr. C. G., 359
Englishwoman Exhibition, garden pictures at the, 304
Entertainment tax and horticultural shows, 1
Epidendrum Endresio-xanthinum, 307; E. vitellinum majus, 60
Erica ciliaris var. Maweana, 277; E. vagans var. St. Keverne, 219
Erigeron hybridus Elsie, 53
Erigerons, 99
Erinacea pungens, 339
Erodium corsicum, 157, 280
Eryngium, 363
Erythraea Massonii, 339
Eucalyptus, the genus, 66
Eucalyptus whittingehamensis, 352
Euonymus europaeus, 325
Eupatorium Weinmannianum, 292
Euphorbia polychroma, 99
Evergreen shrubs: at Malonya, Czechoslovakia, 172; with white flowers, 347
Evergreens, planting, 145

F

FABIANA IMBRICATA, 99
Fatshedera Lizéi, 352
Feltham garden suburb, 126
Fenwick, Sir G. (*New Zealand Native Flora*), 255
Fertilisers, 91; and Feeding Stuffs Act Committee, 16
Ficus, 232
Fielder, Mr. C. R., 34
Fig trees at Lambeth Palace, 381
Fires, forest, 112
Floralies Gantoises, 2
Floral decorations, 236, 298
Floral paintings, early, 126
Florists' flowers, 143, 155, 247, 324
Flower border; the hardy, 23, 38, 58, 69, 99, 115, 133, 141, 169, 185, 203, 220, 233, 249, 257, 338, 375; the mixed, 338, 353, 363
Flower garden, the, 4, 19, 36, 54, 68, 83, 100, 114, 128, 142, 157, 170, 185, 200, 217, 231, 246, 259, 274, 290, 306, 320, 334, 348, 362, 376
Flower shows, 97, 136
Flowers: for late summer, 131; in season, 111
Food, bird's nests as, 140
Forcing by means of hot-water springs, 167
Foremarke Challenge Cup, the, 111
Forest botany, a text-book of, 121
Forest fires, in the south of France, 112; in the United States of America, 2
Forest-tree nursery trade, 139
Forestier, J. C. N. (*Bagatelle et ses Jardins*), 53
Forestry and unemployment, 181
Forestry Commission, 340; famous woods acquired by the, 197
Forestry conference, Imperial 1923, 324, 340
Forrest, Mr. George, American honour for, 228
Forst Rose show, 98
Foxgloves, 38
France, luxury tax on flowers in, 272
Fremontia californica, 277, 353
French Chrysanthemum Society, 244
French Oceania, production of phosphates in, 287
Frost: at Tichborne Park in summer, 107; November, 331
Fruit and vegetable crops, the condition of the, 140; in the Netherlands, 97
Fruit, Bunyard medals for, 15
Fruit crops: report on the out-door, 15, 65, 71, 89, 106, 120, 134, 149, 162, 176, 190, 206, 223; the manuring of, 125
Fruit culture, economic, 106
Fruit-drying, 153
Fruit garden, the: 10, 25, 36, 90, 120, 312, 341; market, 24, 90, 161, 222, 296, 350; work in the, 5, 18, 36, 54, 68, 82, 101, 114, 128, 142, 156, 170, 184, 200, 216, 230, 247, 258, 274, 290, 306, 321, 335, 349, 362, 372
Fruit pests, importation of, 312
Fruit register, 60, 135, 297, 326, 354
Fruit tree stocks, distribution of surplus pedigree, at East Malling, 198
Fruit trees: for the public parks of Bath, 2; stakes for, 297; the pruning of, 238, 312
Fruits: bush, 91; Christmas, in Covent Garden market, 369; observations on soft and stone, 90; under glass, 18, 36, 55, 68, 82, 100, 114, 128, 142, 156, 170, 184, 200, 216, 230, 246, 258, 274, 290, 306, 320, 334, 348, 362, 376
Fuchsia procumbens, 305
Fungous pests, the advance of knowledge of, 197
Fungus foray, autumn, 182

G

GAMES IN THE LONDON PARKS ON SUNDAYS, 17
Gardener: honour for a French, 289; the gentleman, 56
Gardeners and the Imperial War Graves Commission, 266
Gardeners' Chronicle seventy-five years ago, 3, 17, 35, 53, 66, 81, 98, 113, 127, 141, 155, 168, 182, 199, 214, 229, 245, 257, 273, 289, 304, 318, 332, 346, 360, 374
Gardeners' holidays, 107
Gardeners: hours worked by, 136; legacies to, 16, 98, 228, 331; mutual improvement societies, 380; unemployed, 107; wages paid to, 10, 60, 160,
Gardeners' Royal Benevolent Institution, 13
Gardening Illustrated, new Editor of, 228
Garden notes from S.W. Scotland, 57, 116, 202, 248, 323
Gardiner, Mr. F.A., 304
Gaultheria procumbens, 231
Gaultherias, some, 367
Genista aetnensis, 89
Gentiana Farreri, 185; G. lagodechiana, 349; G. sino-ornata, 261; G. pneumonanthe, 133,
Gentians, the Ornate, 85, 121
Gentleman gardener, the, 56
Geranium, the Walney Island, 321
Geraniums in autumn, hardy, 256
Germinatiou in light and darkness, 374
Ginkgo biloba, a fine specimen of, 159
Gladiolus, the, as a decorative cut flower, 143
Gladiolus primulinus hybrids, 353
Gladioli, new, 155
Glasgow Parks; Chrysanthemums in the, 327; new assistant-director of the, 244
Glasnevin, notes from, 295
Gloriosa, 368, 370
Gloucestershire Root, Fruit and Grain Society, diamond jubilee of, 331, 370
Gloxinias and Streptocarpus, 191
Gordon Castle Woods, 139
Gordon of Birnie, Dr., 337
Gostling, Mr. William Henry, 140
Gothenburg exhibition 272
Gough, Mr. G. C., honour for, 255
Government subsidy for commercial lorries, 97
Grain harvest, Canada's, 332
Grape Cannon Hall Muscat, 239
Grapes from Aldenham, the R.H.S. award to the, 327, 342
Grass orchards old and new, 222, 281
Gypsophila cerastioides, 39

H

HAKEA SUAVEOLENS, 351
Hale, Mr. S. W., appointment of, 256
Hall, Dr.: collector of Japanese plants, 33
Hampton Court: the gardens of, 206; the vine at, 140
Hardy flowers, planting, 366
Harrison, Mr. John, appointment of, 65
Hawthorns, dwarf, 287
Hay crop, the, 279
Heath garden, the, 293, 355
Heaths, autumn-flowering, 220
Heleniums, 69
Helichrysum humile, 60
Helleborus niger, the Christmas Rose, 338, 363
Heloniopsis grandiflora, 261
Herbs, the cultivation of medicinal, 111
Heuchera, 185
Hill, Mr. E. Guerney, honour to, 182
Hippeastrums, 8
Hogg, Dr., 218, 252
Holland: importation of bulbs into, 317; in autumn, 215, 232; phytopathological and entomological conference in, 52; the Dahlia, in, 213
Holland Park Hall exhibition, the, 213, 238, 252, 266, 283, 298
Hollyhocks, 233
Honeysuckles, climbing, 183
Honess, Mr. W. H., 228
Hop crop, the, 256
Hops, acreage of, 140
Hornibrook, Murray (*Dwarf and Slow-growing Conifers*), 115
Horticultural College, Swanley, 288
Horticultural Education Association, 168
Horticultural shows and entertainment tax, 1
Horticultural societies in Ontario) 126
Horticultural Trades Association 15
"Horticulture," U.S.A., 80

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Horticulture: and phytopathology, the relations between, 264, 280; at Cambridge University, 288; at the British Empire exhibition, 312; Chinese influence on, 125; young lads and, 380
Hot beds, 312
Hot water springs, forcing by means of, 167
Humea elegans, 305
Hyacinth, Van Tubergen's scarlet, 59
Hyacinths, scarcity of Roman, 198
Hyde Park, Dahlias at, 140
Hydrangea Mousseline, 135
Hypericum Hookerianum var. Leschenaultii, 135

I

ILEX GENICULATA, 235
Imperial College of Science, donation to, 66
Imperial Forestry Conference, 1923, 324, 340
Imperial Fruit Show, 33, 97, 112, 197, 267
Indian Correspondence, 27, 160, 322
Indian garden in autumn, the, 322
Indian worms, habits of, 104
Indoor plants, 8, 17, 42, 67, 84, 117, 132, 146, 160, 186, 232, 260, 273, 291, 305, 338, 347, 368
Insectivorous plants, 160
Insect pests, 227
International Horticultural Congress at Amsterdam, 112, 181, 191
Inventions, new horticultural, 32, 95, 138, 195, 254, 330
Iris florentina, 81; I. Kaempferi, 38, 77; I. pumila, 218, 233; I. unguicularis, 304
Irises: bearded or flag, 9; for successional blooming, 292
Irving, Mr. W. G., 98
Island of Lewis, the future of the, 167
Ixora macrothyrsa, 331
Ixoras, 42

J

JACKSON, A. BRUCE (*A Handbook of Coniferae*), 361
Jackson, Mr. B. D., 244, 282
Jeffrey, Mr. John T., 165
Johns, Mr. W. H., 66
"Journal" of the Royal Horticultural Society, 256

K

KALANCHOE FLAMMEA, 117
Kalosanthes coccinea, 117
Keen, Dr. B. A., appointment of, 1
Ken Wood, 182
Kew Guild, "Journal," 33
Kew: notes from, 8; visit of Queen Mary to, 374; visitors to, 1
Kingcups, 103
King of Sweden's visit to the Linnean Society, 272
Kinnoull Hill, Perth, 80
Kirengeshoma palmata, 203
Kirton, trial of Spring Cabbages at, 52
Kitchen garden, the, 4, 18, 37, 55, 68, 82, 100, 114, 128, 142, 156, 170, 184, 201, 216, 230, 247, 258, 274, 291, 306, 320, 334, 348, 362, 376
Kniphofias, 141
Kolkwitzia amabilis, 7

L

LABURNUMS IN THE UNITED STATES, 42
Lachenalias, 60, 91, 160
Lads and horticulture, young, 380
Laeken, the waterfall at, 417
Laelio-Cattleya Baron Coffinet, 229, L.-C. Biddy, 69; L.-C. Golden Eagle, 275; L.-C. Morvyth, 171; L.-C. Nanon, 103; L.-C. oxfordensis, 147; L.-C. Rosy Morn, 229; L.-C. Sargon, Westonbirt var., 203
Lagenarias, edible, 311
Lake in St. James' Park, the, 214
Lakeland beauty spot for the nation, 228
Lambeth Palace, Fig trees at, 381
Lambourne, the late Lady, 181
Land drainage, relief work in 1922-23, 227
Lapageria rosea, 368
Lathyrus odoratus zeylanicus, 145, 201
Law, Eric (*The Flower Lover's Guide to the Gardens of Hampton Court*), 206
Law Notes: A rate of exchange problem, 78
Leeks, 105
Legacies to gardeners, 16, 98, 228, 331
Leptotes bicolor, 203
Lettuces, winter, 148
Leucojum autumnale, 222
Lewis, Island of, 167
Leycesteria formosa, 352
Ligustrum Quihoui, 231
Lilies, autumn-flowering, 199: sterility in, 308, 242
Lilium giganteum, 19; L. White Knight, 113
Lily, a new hybrid, 113
Lily season in southern Scotland, the, 133
Linaria origanifolia, 305
Lindley up-to-date, 77
Lindsay, T. S. (*Plant Names*), 21
Linnean Society, King of Sweden's visit to the, 272
Liverpool, two additional parks for, 69
Lobjoit, Mr. W. G., 140
Long Ashton research station, 155
Lonicera delavayi, 104
Loudon's second tour to Scotland, 172
Lupins, sunset, 58

M

MacKellar, Mr. A. 346
Macself, A. J. (*Delphiniums and How to Excel with Them*), 69
Magnolia Thompsoniana, 374
Maidenhair Tree, a fine specimen of the, 159
Manchester public parks and gardens, 280
Map of wart disease infected areas, 155
Markets', London, harvest festival, 244
Maxwell, Sir Herbert (*Flowers: A Garden Note-Book*), 319
McMillan, Mr. Alexander, 332
Meconopsis cambrica, 38
Medals for fruit, the Bunyard, 15
Melon canker, 25
Memento of two distinguished biologists, 303
Menthella Requienii, 349
Mexico, large estates in, 272
Milla uniflora, 187
Miltonia Endresii, 84; M. vexillaria, albinos of, 35
Miltonioda Hilda, 361
Mimulus, a white, 85; M. cardinalis, 186; M. glutinosus, 84
Morina longifolia, 58
Moths, value of Cedar chests for keeping clothes from injury by, 272
Mouse trap, the Colin-Pullinger, 327
Mowing in orchards, 24
Mulching, 10
Murrell, Mr. P., 2
Muscari Heavenly Blue, 289
Muscari in pots, 217
Musk, loss of scent in the, 273, 342

N

NARCISSUS NERO, 237
Natal, Carnation culture in, 37
National Diploma in horticulture, examination for the, 65
National Hardy Plant Society's "Journal," 346
Natsopa convalescent home and its gardens, 186
Nepeta Mussinii, 58
Nerines, 276
Nerium Oleander, 146
Netherlands, fruit and vegetable crops in the, 97
New Zealand: plants of, 245; seed and plant collecting in, 6, 20; seeds for, 3
Nicotine powder as a destroyer of aphides, 34
Nomenclature of cultivated plants, 287
Notospartium Carmichaeliae, 206
Novice, confessions of a, 20
Nursery Notes: Perry, Mr. Amos, Enfield, 26; Woodcock, Mr. F. C., Walmer, 43
Nursery site, an old suburban, 182
Nursery stock, display of, 112

O

Obituary: Begg, William Robertson, 286; Bidder, the Rev. H. J., 270, 282; Braun, Siegfried, 109; Brown, James, 357; Caselton, George, 95; Challis, Thomas, 13; Chapman, Mungo, 49; Charlton, J., 153; Cheeseman, T. F., 343; Clibran, Joseph Hargate, 253; Coomber, William, 212; Daniels, G. F., 137; Douglas, William, 165; German, Nicholas, 78; Hamilton, Mrs. Findlay, 109; Harris, James, 286; Hay, Alexander, 14; Jaques, John, 371; Jones, Herbert, 302; Lambourne, Lady, 181; Laxton, W. H. L., 371; MacNeill, Dugald, 357; Malcolm, James, 382; Mortimer, S., 95; Paton, Robert Johnston, 253; Roehrs, Julius. 329; Scott, William, 64; Wyllie, George, 109; Yates, John, 253
Olearia nummularifolia, 57, 91
Odontoglossum Beryl, 335; O. Broteham, Broadlands variety, 229; O. crispindia, 335; O. Desdemona II. var. Rubens, 275; O. grande and its allies, 60; O. Inselayi, 60; O. Purple Emperor, Pitt's variety, 103; O. Purple Gem, 35; O. Schlieperianum, 60
Odontoglossum flowers abnormal, 275
Oglethorpe, General, 252
Oncidium Marshallianum, 35; O. tigrinum, 60; O. varicosum, 307
Onions for pickling, 341
Onslow, the Hon. Mrs. Wheldale, (*Practical Plant Biochemistry*), 271; Swedish prize awarded to, 272
Ontario, horticultual societies in, 126
Opoix, M., honour for, 289
Orchards: grass, 24, 222; old and new, 281
Orchid Club at Manchester, 332
Orchid houses, the: 4, 18, 36, 54, 68, 82, 100, 114, 128, 142, 156, 171, 184, 200, 216, 230, 246, 258, 274, 290, 306, 320, 334, 348, 362, 376
Orchid notes and gleanings: 3, 35, 60, 69, 84, 103, 118, 129, 147, 171, 186, 203, 229, 275, 307, 319, 335
Orchid shows, 214, 227, 361
Orchids, challenge cup for: 271; European, 257; from Rosslyn, 203; new hybrids, 84, 171, 260, 307, 380
Ormskirk Potato trials, 1923, 34, 111
Ornithogalum lacteum, 333; O. nutans, 222; O. thyrsoides, 333
Orris root, which is the, 113
Oxalis floribunda, 84
Oxford Botanic Garden, history of the, 22

P

PALMS: LONG-LIVED, 252; of the Riviera, 189
Parks and open spaces, public, 5, 69, 79, 129, 147, 175, 185 222, 280, 327, 341
Paeonia Wittmanniana, 141
Paeony in America, the, 154
Paintings, early floral, 126
Pancratium, a good hardy, 333
P. illyricum, 333
Pateman, Mr. T., 256; presentation to, 167
Paulownia imperialis, 231
Peach, a large, 227
Peaches and Nectarines, 25; for growing out-of-doors, the best late, 10
Pear trees, red spider and Pear mite on wall, 91
Pears: Bergamotte Esperen, 326; Sanguinole, 326; second crop, 224
Peas: Senator, 266, 326; The Gladstone, 239; autumn sown, 266
Pelargonium Rollisson's Unique, 84, 107, 136, 163, 177, 191, 236, 364
Pentas, 305
Pethybridge, Dr, George H., appointment of, 112
Petroleum, the origin of, 288
Phalaenopsis amabilis Rimestadiana, 229; P. Lindenii, 84
Phosphates in French Oceania, production of, 287
Phygelius and other things, 355
Phygelius capensis, 183, 224, 266
Physostegia, 185
Phytopathological and entomological conference in Holland, 52
Pictures at the Englishwoman exhibition, 304
Pinks, old and new, 37
Pinus sylvestris aurea, 231
Pieris formosa, 277
Plagianthus Lyallii, 119
Plant exports to Egypt, 182
Plant import regulations: new Belgian, 126; new Canadian, 80
Plant names, some old Scottish, 278, 312, 342
Plant notes, 38, 60, 85, 248
Plant Quarantine Order, U.S.A., and the, 97
Plants: climbing, 27; jottings on new or rare, 248; of New Zealand, 245; of the Republic of Salvador, notes on the cultivated, 88, 101, 118, 132; the ecology of, 303; the nomenclature of cultivated, 287; under glass, 4, 18, 36, 54, 68, 82, 100, 114, 128, 142, 156, 170, 184, 200, 216, 230, 246, 258, 274, 290, 306, 320, 334, 348, 362, 376

Plants, New or Noteworthy:—
Alocasia macrorhiza, 263; Asimina triloba, 295; Boenninghausenia albiflora, 351; Buddleia auriculata, 279; Cereus Schelhasii, 117; Erica vagans var., St. Keverne, 219; Fatshedera Lizéi, 352; Hakea suaveolens, 351; Ilex geniculata, 235; Kolkwitzia amabilis, 7; Prunus Dielsiana, var. laxa, 279; Rhododendron dauricum var. mucronulatum, 41; Rhododendron Fraseri, 103; Rubus mesogaeus, 219; Spiraea trichocarpa, 87; Symplocos paniculata, 262
Plum stocks, 359
Plums: 90; and Apples, 161; late, 10; local, 161; stocks for, 79
Poa annua, is it a perennial? 149, 224
Polemonium himalaicum caeruleum, 363
Pollination of Cherry, Apple and Pear blossom, 120
Polygonum campanulatum, 363; P. sino-capitatum, 349
Pomological congress at Strassburg, 190
Ponds, scum on, 224
Poplars, and their cultivation, 86

Digitized by Google

Potato, awarded a gold medal, new, 167
Potato, black heart of, 228
Potato crop, the, 256, 287; in Scotland, 304
Potato imports, 112
Potato trials: at East Craigs, 80 at Ormskirk 1923, 34, 111
Potato varieties, list of, 140
Potatos: Catriona, 312; Ben Cruachan, awarded a gold medal, 167
Potatos: a fine crop of Arran Comrade, 252; fewer, 332; forcing, 368; importation of into Uruguay, 304; imports of, 53; seed, 34; soot as a cheap fertiliser for, 282
Potentilla alpestris, 157; P. aurea, 339; P. Tonguei, 39
Primula: Marven, 23; P. Bulleyana, doubling in, 33; P. sinensis, 243
Pruhonice Park, Czechoslovakia, 310
Pruning fruit trees, 238
Prunus Dielsiana, var. laxa, 279; P. Puddum, 159; P. triloba, 217; P. species suitable for forcing, 353
Pseuderanthemum seticalyx, 232
Publications Received, 35, 53, 66, 81, 113, 127, 182, 229, 245, 273, 289, 304, 332
Pylewell Park, 39
Pyrus diversifolia × cultivated Apple, 377
Pyrus Malus Gibbs's Golden Gage, 277

Q

QUARRY PARK, SHREWSBURY, 129

R

RAILWAYMEN'S HORTICULTURAL EXHIBITION AT SOUTHPORT, 140
Ranunculus, 375; R. amplexicaulis, 339; R. Lyallii, 23
Raoulia australis, 261
Raspberries, 90; in Scotland, 111
Reading, an educational garden at, 15
Red plant disease in Strawberries, 44, 88, 134, 149, 252, 326
Regent's Park, war buildings in, 303
Reigate Gardeners' Association, coming-of-age of the, 244
Research Station, Long Ashton, Bristol, 155
Rheum nobile, 257
Rhododendron dauricum, var. mucronulatum, 41; R. Fraseri, 103; R. insigne, 24; R. Pink Pearl, 19
Rhododendrons, propagation of alpine, 144
R.H.S award to the Grapes from Aldenham, 327, 342
R.H.S. Gardens Club outing, 52
Richardia africana Beyton Purity, 342
Rock garden, late autumn in the, 377
Rock garden? what is a, 10
Romneya Coulteri, 133, 159
Rosa cerasocarpa, 55; R. wichuraiana, 187
Rosarian, honour to an American, 182
Rose garden, the, 55, 67, 127, 159, 169, 187, 215, 233, 249, 261, 292, 319, 333, 365, 375
Rose season in southern Scotland, the, 67
Rose, the Christmas, 338, 363
Rose trial garden at Wisley, 181
Rose trials at Bagatelle, 1924-1925, 198
Roses: America, 127; Dr. A. J. Petyt, 375; Elizabeth Cullen, 292; Fanny Oppenheimer, 319, 370; Florence Izzard, 187; Joan Waddilove, 215; Leonie Lamesch, 249; Mme Colette Matinet, 169; Mrs. Tom Smith, 187; Pax, 159; Sensation, 365; Souvenir de Mme. Verschuren, 292; W. E. Wallace, 187
Roses: at Bagatelle, new, 86; autumn-flowering, 252; fragrant, 261; in America, the best, 333; in a University Garden, interesting, 333; pot, 169; rambling, 9; single, 292; some good bedding, 233; thornless stock for, 303; three new, 187
Rosmarinus prostratus, 245
Rothamsted Experimental Station: 271; and agricultural science, 345; assistant director at, 1
Rothschild, Hon. N. C., bequests by the late, 332
Roupala Pohlii, 368
Royal Society of Arts, 52
Rubus mesogaeus, 219
Ruscus androgynus, 338
Russell, Sir John, 303
Rust of Wheat, 255
Ruta patavina, 245

S

SAFFRONS, THE MEADOW, 105
St. James' Park, the lake in, 214
Salvador, notes on the cultivated plants of the Republic of, 88, 101, 118, 132
Salvia interrupta, 17
Saunders, C. B. (*Methods of Seed Analysis*), 112
Savage, F. G. (*The Flora and Folklore of Shakespeare*), 158
Schizostylis coccinea, 321, 370
Schneider, Dr. C. (*Trees and Shrubs*), 127
Scilla peruviana, 289
Scotland: Raspberries in, 111; garden notes from S.W., 57, 116, 202, 248, 323, 366; the Lily season in southern, 133
Scottish Horticultural Society, bequest to the, 79
Scottish plant names, some old, 278, 312, 342
Scum on ponds, 224
Sedum pulchellum, 141; S. spectabile, 141
Seed and plant collecting in New Zealand, 6, 20
Seeds and plants imported into the United States, 228
Seeds for New Zealand, 3
Senecio glastifolius, 84
Shakespeare's plants, 158
Shimadzu, Prince, 214
Shrubs: at Malonya, Czechoslovakia, a garden of evergreen, 172; evergreen, with white flowers, 347; for decorative purposes, branches of 339; late-flowering, 251
Siamese plant names, 52
Sidalcea Listeri, 203
Silver leaf disease, 227
Slade, Mr. J. B., 80
Smith, Mr. A. C, 244
Snails and plants, 346
Snell memorial medal, award of the John, 255
Snowflake, the autumn, 222
Snowy fly and big bud in Vancouver, 131
Société Nationale d'Horticulture de France, 1
Societies:—Banff Horticultural, 151; Beckenham Horticultural, 78; Bermondsey Flower show, 192; Birmingham Chrysanthemum, 313; Birmingham Horticultural, 91; Brighton, Hove, and Sussex Horticultural, 34, 301; Bristol and District Gardeners' 253; British Carnation, 137; British Mycological, 62, 253; Bury St. Edmunds, 47; Cardiff Gardeners' 151, 241; Derbyshire Gardeners' 342; Elstree and District Horticultural, 61; General Bulbgrowers' of Haarlem, 29, 94, 241; Glasgow and West of Scotland Horticultural, 164; Hitchin Chrysanthemum, 15; Hove Horticultural and Allotment Holders, 193; Hull and East Riding Chrysanthemum, 328; Imperial Fruit show, 267; Ipswich and East of England Horticultural, 61; Kent County Agricultural, 29; King's Walden Bury Flower, 123; Llandudno Allotment Holders', 35; Manchester and North of England Orchid, 29, 94, 151, 224, 241, 285, 342; Marlow Chrysanthemum, 314; Muswell Hill Horticultural, 34; National Carnation and Picotee, 49, 77; National Chrysanthemum, 140, 224, 240, 283, 343, 357; National Dahlia, 163; National Potato, 314; National Rose, 11, 46, 191; National Sweet Pea, 45, 284; Newcastle Horticultural, 241; Newport (Mon.) and District Gardeners, 35, 123; North of England Horticultural, 137; Orchid Club, 371; Portsmouth Horticultural, 285; Reading and District Gardeners', 49, 122, 151, 241, 284, 342, 382; Redruth Horticultural, 49; Royal Agricultural 27; Royal Caledonian Horticultural, 28, 49, 123, 179, 193, 241, 315, 381; Royal Horticultural, 30, 62, 93, 121, 151, 177, 193, 207, 224, 239, 268, 328, 356, 381; Royal Horticultural of Aberdeen, 136; Royal Horticultural of Ireland, 137; Royal Lancashire, 93; Royal Netherlands Horticultural and Botanic, 193; Royal Oxfordshire Horticultural 29, 165, 301; Royal Scottish Arboricultural, 28, 357; Saffron Walden Horticultural, 77; Saltaire and District Rose, 47; Scottish National Sweet Pea, Rose and Carnation, 92; Sheffield Chrysanthemum, 301; Sheffield Horticultural, 93; Shropshire Horticultural, 107; Smithfield Club, 370; Société Nationale d'horticulture de France, 298; United Horticultural Benefit and Provident, 47, 193, 240, 285, 371; Wolverhampton Horticultural, 48.
Soil acidity, 296, 312
Soil sourness, 263
Soot as a cheap Potato fertiliser, 282
Southport: Crysanthemums at, 341; generous gift of plants to, 318; floral fete and water carnival 1924, 197, 243, 359; railwaymen's horticultural exhibition at, 144
Sparaxis tricolor, var. Angelique, 133
Sparmannia africana, 368
Sparrows and Cerastium tomentosum, 43, 61
Spear, the King's, 307
Speden, James (*New Zealand Native Flora*), 255,
Spiraea japonica, 220; S. trichocarpa, 87
Spring, cause of the unseasonable, 2
Stachyurus chinensis, eccentric growth of, 89
Stakes for fruit trees, 297
Staking young trees, 161
Statice Suworowi, 38
Stenoglottis longifolia, 171
Stonehenge, freedom of access for local residents to, 52
Storing Apples, little known methods of, 144
Stout, A. B. (*Sterility in Lilies*), 308
Strassburg, pomological congress at, 190
Strawberries: 90; red plant disease in, 44, 88, 134, 149, 252, 326; The Earl, 60; Utility, 60
Summer time, 1924, 256
Sunday games in the London Parks, 17
Sunshine, the deficiency of, 2
Superintendent of the Edinburgh Parks, new 1
Swallows nests as a food in China 140
Swanley Horticultural College, 66
Sweden, King of, at the Linnean Society 272
Swedish prize awarded to a British scientist, 272
Sweet Pea nursery on the south-east coast, 43
Sweet Pea of Ceylon, the, 145
Sweet Pea The President Harding, 201
Sweet Pea trials in 1924, 198
Sweet Peas under glass, 247
Sweet Williams, 116
Symplocos paniculata, 262
Synthyris reniformis, 305
Syringa villosa, 339

T

TACSONIAS, 17
Tansley, A. G. (*Practical Plant Ecology*), 303
Tarouca, Count E. S. (*Trees and Shrubs*), 127
Tecoma radicans, 146
Tets, Jonkheer G. F. van, 214
Teucrum fruticans, 23
Thornless stock for Roses, 303
Thrift, the giant, 58
Tichborne Park, summer frosts at, 107
Tilia kinsiana, 135; T. Maximowicziana, 135
Timber of ancient date, British, 252
Timber trade, the home, 1
Tints, autumn, 232
Tomatos: a new disease of, 1; imports of, 140
Torquay, notes from, 259
Town planning conference, 288
Trade notes: 31, 50, 165, 194, 225, 240, 253, 270, 286, 302, 315, 329, 343, 359, 371, 382
Trail, the late Prof., memorial to, 360
Tree planting, road-side, 16
Trees and shrubs: 19, 41, 55, 70, 89, 104, 119, 135, 146, 159, 174, 183, 206, 220, 231, 277, 292, 309, 325, 339, 352, 367, 375; proposed belt of, around the City of Cologne, 3
Trees, northern, in southern lands, 51
Trees, staking young, 161
Trials at Wisley, 80, 98, 141; of commercial varieties of fruits, 2
Tuberisation said to be due to the association of the plant with fungi, 273
Tulipa Batalini, 222; T. biflora, 187; T. linifolia, 133
Tulips: Darwin, 237, 250; fragrant, 99, 121; May-flowering Cottage, 260

U

UNITED STATES: AND THE PLANT QUARANTINE ORDER, 97; Dahlias in the, 228; forest fires in the, 2; Laburnums in the, 42
University, bequest to a, 318
Upjohn, Mr. W. B., 318, 370

V

VANCOUVER, SNOWY FLY AND BIG BUD IN, 131
Vegetable garden, the, 25, 36, 105, 148, 282, 311, 326, 341, 354, 368
Vegetable seeds, the testing of, 112
Vegetable trials at Wisley, 25
Veronica pedunculata, 367; V. salicifolia, 309, 355, 375
Viburnum Carlesii, 206; V. tomentosum, 220
Viger, presentation to M., 214
Vine at Hampton Court, the, 140
Violas, 99, 148
Virus diseases in plants, 168

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W

WALHAMPTON, 56
Walking sticks, manufacture of, as a rural industry, 198
Walnuts, imports of shelled, 102
Ward, Mr. A. J., 374
Ward's, Mr. Kingdon, seventh expedition in Asia, 6, 40, 102, 188, 130, 234, 262, 294, 322, 378, 378
Wart disease: in America, 16; the inheritance of immunity to, 373
Wart disease infected areas, map of, 155
Wasps and aphides, 161
Watercress in streams, 326]
Waterfall at Laeken, 317
Water, hot, 204
Watt, Sir George, 153
Weed, a new, 229
Welsh garden, notes from] a, 8, 146, 202, 276, 352
Wembley, Delphiniums and Tulips at, 346
Weston, Mr. J. G., 182
Wheat crop of Alberta, 126]
Wheat: rust of, 255; the improvement of home grown, 317
White, C. T. (*An Elementary Text-book of Australian Botany*), 99
Whitton, Mr. James, presentation to, 287
Wiltshire, S. P. (*Canker Control Trials*), 167
Wisley: notes from, 83, 146, 202, 235, 310, 380; Rose trial garden at, 181; trials at, 80, 98, 141; trials of commercial varieties of fruits at, 2; vegetable trials at, 25
Wistaria multijuga, 19
Winterstoke Gardens, Ramsgate, opening of, 5
Woodcock, Mr. F. C., Walmer, Kent, 43
Woodlice, 15
Wood, the preservation of, 304
Woods for Forestry Commission, famous, 197
Woolly aphis, 369; of the Auricula, 312
Worms, habits of Indian, 104
Wound dressings, 278

Y

YOKOHAMA NURSERY COMPANY, THE, 181
Young lads and horticulture, 379

Z

ZYGOPETALUM CRAWSHAYANUM 3

LIST OF ILLUSTRATIONS.

A

ACOKANTHERA SPECTABILIS, 347
Aerial bulb, a giant, in East Africa, 221
Alocasia macrorhiza, 265
Amate tree in a San Salvador street, 101
Anderson, Mr. Robert, portrait of, 154
Anthurium Veitchii, 291
Antirrhinum, a large, self-sown, 257
Apples: Forge, 355; Loddington Pearmain, 297; Nanny, 355
Asimina triloba: flowering branch of, 293; in the Cambridge Botanic Gardens, 295
Aster diplostephioides, 58

B

BARKER, Mr. S., PORTRAIT OF, 112
Basket of cut Roses—Mrs. Campbell Hall, 43
Bayley Balfour Memorial Garden, views of the, 335, 336, 337
Bedford Embankment Gardens, 147
Berberis Autumn Beauty, 209; B. brachypoda var. Gibbsii, fruiting spray of, 251
Bewley, Dr. F. W., portrait of, 198
Brotherston, Mr. R. P., portrait of, 126
Buddleia auriculata, 279
Butterflies on a group of Sedum spectabile, 141

C

CALCEOLARIA SCARLET BEAUTY, 189
Callirrhoe linearilobа, 69
Campanula Hallii. 99
Capsules and seeds of Lilium auratum and L. speciosum, 308
Carnations: Ivan Low, 77; Lady Hermione, 142
Carnations in raised beds at Pietermaritzburg, the cultivation of perpetual-flowering, 37
Castanea sativa heterophylla, 309
Cedars on Mount Lebanon, as sketched by Capt. S. P. Oliver in 1879, 325
Cereus Schelhasii, 117
Chimaphila maculata, 131
Chrysanthemums: Doreen Woolman, 211; Mrs. Charles Read, 145; Mrs. T. Hancock, 289; Dr. Jacobs, 245; Jean Pattison, 273; Majestic. 283; Mrs. F. J. Yarrow, 375; Norman, 307; Radiant, 305
Chrysanthemums in the Conservatory at Hesketh Park, Southport, 341.
Cladrastis sinensis, 70
Clark, Mr. William, portrait of, 288
Clematopsis Stuhlmannii in its natural habitat, 203
Colchicum speciosum, the white variety of, 105
Coutts, Mr. J., portrait of, 272
Crocus longiflorus, 321
Cypripedium Albion, Bodnant variety, 247; C. Prince Albert, Chardwar var., 361

D

DAHLIAS: MRS. PERRY, 163; THOS. EWBANK, 155
Darlingtonia californica, 160
Delphinium candidum in East Africa, 217
Diervilla rosea, 367
Disa sagittalis, 129
Dyer, Sir William T. Thiselton, portrait of, 52

E

EUPHORBIAS, GIANT, ON THE NGORONGORO CRATER, 205

F

FERNS EXHIBITED BY MR. AMOS PERRY AT THE CHELSEA SHOW, HARDY, 27
Fielder, Mr. C. R., portrait of, 34

G

GARDINER, MR. F. A., PORTRAIT OF, 304
Gentiana Farreri in a Perthshire garden, 185
Gentiana sino-ornata in a Perthshire garden, 261
Ginkgo biloba, a fine specimen of, 159
Gladiolus Alice Tiplady arranged with Gypsophila, 143
Gompa La, the, 102
Gostling, Mr. William Henry, portrait of, 140

H

HAKEA SUAVEOLENS, 351
Heliamphora nutans, 161
Honess, Mr. W. H., portrait of, 228
Hyacinth, van Tubergen's Scarlet, 59
Hypericum Hookerianum, var. Leschenaultii, 135

I

ILEX GENICULATA, 235
Iris florentina, 81; I. Kaempferi Pyrford Gem, 35
Irises at Mr. Amos Perry's nursery, seedling, 26
Irrawaddy, the western branch of the, near Hkamti Long, 294
Irving, Mr. W. G., portrait of, 98

J

JACKSON, MR. B. DAYDON, PORTRAIT OF, 244
Jeffrey, Mr. J. T., portrait of, 16
Johns, Mr. W. H. A., portrait of, 66

K

KOLKWITZIA AMABILIS: FLOWERS OF 4; flowering branch of, 5; in the Arnold Arboretum, 7

L

LEPTOSPERMUM ERICOIDES AT MONREITH, 56
Lilium auratum and L. speciosum, capsules and seeds of, 308
Lily White Knight, 113
Lonicera periclymenum, var. belgica, 183

M

MACKELLAR, MR. A., PORTRAIT OF, 346
Mali Kha and the Monsoon Jungle, 379
McMillan, Mr. Alex., portrait of, 332
Montbretia Jessie, 199
Mortimer, Mr. S., portrait of the late, 95
Murrell, Mr. P., portrait of, 2

N

NARCISSUS NERO, 237

O

ODONTOGLOSSUM BROTEHAM, BROADLANDS VAR., 229; O. Desdemona II. var. Rubens, 275
Olearia macrondonta at Monreith, a tree-like specimen of, 57
Ornithogalum thyrsoides and O. lacteum imported from S. Africa, spikes of, 333

P

PALMS, AVENUE OF YOUNG ROYAL, IN A SAN SALVADOR PARK, 100
Paris Chrysanthemum exhibition, view in the, 299
Pateman, Mr. T., portrait of, 256
Pelargonium Mme. Salleroi and a variegated sport therefrom, 364
Pelargonium Rollisson's Unique, 365
Plagianthus Lyallii, a fine bush of, 119
Polygonum campanulatum, 363
Potentilla alpestris, 157
Primula Marven, 21
Pyrus diversifolia × cultivated Apple, 378
Pyrus Malus Gibbs's Golden Gage, 277

R

RANUNCULUS LYALLII IN NEW ZEALAND, 23
Rheum nobile, 259
Rhododendron dauricum mucronulatum, 41; R. Fraseri, 103; R. Pink Pearl, 19
Romneya Coulteri, 158
Rosa cerasocarpa, flowers of, 54; growing on the house wall in Sir William Thiselton-Dyer's Garden, 55
Roses: America, 127; Betty Hulton, 187; Christine, 233; Fanny Oppenheimer, 319; F. J. Harrison, 39; Joan Howarth, 115; Joan Waddilove, 215; Lady Roundway, 3; Little Joe, 53; Maud Cuming, 67; Mrs. Campbell Hall, 43; Phyllis Bide, 249; Shot Silk, 11; Sunstar, 85
Ruwenzori mountains, a scene on the, 219

S

SALVIA INTERRUPTA, 17
Sedum spectabile, butterflies on a group of, 141
Slade, Mr J. B., portrait of, 80
Solidago missouriensis, 207
Sparaxis tricolor, 133
Spiraea trichocarpa, 87
Stachyurus chinensis, eccentric growth of, 89
Sweet Pea The President Harding, 201
Symplocos paniculata, fruiting branch of, 263

T

TARON: THE DESCENT TO THE, 188; the George of the, 234
Tets, Jonkheer, G. F. van, portrait of, 214
Trail, the late Prof., memorial tablet to, 360

U

UNWIN CHALLENGE SHIELD PRESENTED TO THE NATIONAL SWEET PEA SOCIETY FOR COMPETITION AMONG AFFILIATED SOCIETIES, 45
Upjohn, Mr. W. B, portrait of, 318

W

WAHLENBERGIA VINCAEFLORA, A POT SPECIMEN OF, 83
Ward, Mr. A. J., portrait of, 374
Waterfall in the King of the Belgians' Garden at Laeken, 313
Webb and Sons' Gold Medal exhibit of Potatos at the National Potato Show, 311
Weston, Mr. J. G., portrait of, 182

SUPPLEMENTARY COLOURED ILLUSTRATIONS.

Pears Maréchal de Cour and Beurré Clairgeau (September 1, 1923).
Ixora macrothyrsa (December 8, 1923)

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CONTENTS.

Books, Notices of—
"Jottings from a Gardener's Notebook" 3
Buttercups, double ... 10
Carbon dioxide and plant growth 1
Chrysanthemums, early-flowering 9
Coconut Industry in Southern Mexico ... 2
Cultural memoranda—
Mulching 10
Edinburgh Parks, new superintendent of ... 1
Floralies Gantoises ... 2
Forest fires in the U.S.A. 2
Fruit crops, report of the 2
Fruit garden, hardy—
Late Plums 10
The best late Peaches for growing out-of-doors 10
Games in the London Parks on Sundays ... 2
"Gardeners' Chronicle" seventy-years-five ago 3
Gardeners' wages ... 10
Horticultural shows and entertainment tax ... 1
Indoor plants—
Hippeastrums... ... 8
Irises—
Bearded or Flag Irises 9
Kew: notes from, 8; visitors to 1
Murrell, Mr. P. 2
Obituary—
T. Challis 13
Alexander Hay ... 14
Orchid notes and gleanings—
Zygopetalum Crawshayanum 3
Parks and Open spaces—
Opening of Winterstoke Gardens, Ramsgate 5
Plants new or noteworthy—
Kolkwitzia amabilis ... 7
Rock garden? What is a 10
Roses in pots, rambling 9
Rothamsted, Assistant Director at 1
Seed and plant collecting in New Zealand ... 6
Seeds for New Zealand 3
Societies—
Gardeners' Royal Benevolent Institution... 13
National Rose ... 11
Spring, cause of the unseasonable 2
Timber trade, home ... 1
Tomatos, a new disease of 1
Vegetable garden—
Vegetable trials at Wisley 10
Ward's, Mr. Kingdon, seventh expedition in Asia 6
Week's work, the ... 4
Welsh garden, notes from a 8
Wisley, trials of commercial varieties of fruits at 2

ILLUSTRATIONS.

Kolkwitzia amabilis: flowers of, 4; flowering branch of, 5; in the Arnold Arboretum 7
Murrell, Mr. P., portrait of 2
Roses: Lady Roundway, 3; Shot Silk 11

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.9°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, July 4, 10 a.m.: Bar., 30.2; temp., 65°. Weather—Dull.

Carbon Dioxide and Plant Growth. It is a commonplace of vegetable physiology that green plants obtain the carbon which they use in the manufacture of their organic substance from the carbon dioxide of the atmosphere. Inasmuch as the amount of this gas present in the atmosphere is relatively small—in 10,000 parts of air there are only about 3 parts of carbon dioxide—it has often been suggested that plant growth might be increased were a larger supply of carbon dioxide available. This suggestion has at sundry times been put in practice, as, for example, in the Riedel plant for glasshouses; and it is claimed that with increase of carbon dioxide increased crop production is secured. Before, however, the expense of installing a carbon dioxide generating and distributing plant is incurred, it is desirable to have more experimental evidence than is available at present, and we therefore welcome the investigations which are now being made at the Experimental and Research Station of the Nursery and Market Garden Industries' Development Society at Turner's Hill, Cheshunt. These investigations, although they have not got beyond the initial stages, are already proving of interest. Evidently the first thing to determine, before any attempt is made to increase the carbon dioxide content of the air, is the actual content. Chemical measurements of carbon dioxide reveal the fact that often in glasshouses the carbon dioxide tends to be stratified, more being found at the lower than at the higher levels. It is natural, also, that it should be found that houses contain a lower percentage during the day, when assimilation of carbon goes on, than they do during the night, when this manufacturing process of the green plant is in abeyance. The actual quantities of carbon dioxide in the houses the atmosphere of which was analysed are found to be considerably higher than those in the open air, reaching, near the soil level, to so much as 9 to 14 parts in 10,000. The next point made in the course of these preliminary investigations was that carbon dioxide added to the house tends to disappear very rapidly. In point of fact it may be said to tend to tumble down, owing to its weight being greater than that of an equal volume of air, and to accumulate in the soil. It will therefore be necessary, probably, to keep up a constant supply, and to maintain an active movement of the air by means of electric fans or other mechanical device. It is, we think, useful to draw attention to these preliminary experiments, both because they show the need for very thorough investigation if results likely to be of commercial value are to be achieved, and also because they indicate that the investigations at the Experiment Station are being conducted in a thoroughly scientific spirit. We trust that those in charge of the station will provide the equipment necessary for the prosecution of these investigations, for although it remains uncertain whether an artificial increase in the carbon dioxide content of the air around plants will lead to an increase of growth, it is a question which ought to be resolved one way or the other without undue delay. So far as plants grown in the open air are concerned, it seems likely that no increase of carbon dioxide will help; for in this country at all events, light and temperature probably limit, in most weathers, the rate of manufacture by the plant; and it is a well-established fact of plant physiology that if, in a given process, factors A, B, C etc. are involved, it is no use increasing factor A, if factor B or C is already determining the rate of the reaction. But in glasshouses, where temperature may be controlled, and where light is, as it were, focussed on the plants, it may well prove that the relatively simple experiment of providing the air with carbon dioxide may result in higher or more rapid crop production.

Visitors to Kew.—Despite the by no means favourable weather the Royal Gardens, Kew, are very well patronised by visitors, especially on Saturdays and Sundays. During the week-ends in particular, now that the Gardens remain open until 9 p.m., the Woodland Walk, the Queen's Cottage Grounds, and the Rhododendron Dell are popular walks on fine evenings. The Rock Garden is a source of pleasure and interest to hosts of lovers of this phase of gardening. The feature which has, perhaps, attracted most attention from visitors during the past month is the display of Pansies and Violas which carpet the new Rose beds in the Italian Garden on the west side of the Palm House. The dull, and at times cold, weather has favoured the growth of the plants, resulting in a wealth of colour. Two large beds contain good strains of mixed seedling Pansies. The Violas are planted in distinct colours, the most showy sorts being Maggie Mott, White Swan, Redbrae's Yellow, Primrose Dame, Castle Kennedy and Betty Nichols. The increasing number of visitors makes it much more difficult to maintain the smooth gravel paths which have always appealed to town visitors to Kew. Tar-spraying is in progress on some of the principal paths, but a liberal use of shingle is being rolled in so that the tarring is scarcely noticeable.

Horticultural Shows and Entertainment Tax.—Sir W. Joynson-Hicks, Financial Secretary to the Treasury, stated in the House of Commons on Monday last, in respect of remitting the entertainment tax on certain exhibitions, that in the case of flower shows and agricultural exhibitions the whole question was whether they were really for the purpose of improving agriculture or horticulture. He further stated that sports would not be permitted in conjunction with flower shows, although to these exhibitions it might now be permissible to add a performance of music by a band. He pointed out that hitherto a horticultural show, held in a village by a local horticultural society, had been free of the tax, but it run by the women's institutes of the village it would not have been free of the tax, because the exhibition must be provided by a society established solely for the purpose of looking after the particular industry; that distinction was now swept away. With regard to the date on which the clause would become operative, the right hon. gentleman stated it would come into force the moment the Bill was passed.

Edinburgh Parks New Superintendent.—The Parks Committee of the Edinburgh Town Council has recommended the Council to appoint Mr. John T. Jeffrey, Castlemilk Gardens, Lockerbie, to the superintendency of the Public Parks of Edinburgh in succession to the late Mr. J. W. M'Hattie. Mr. Jeffrey is gardener to Sir Robert W. Buchanan Jardine, Bt., at Castlemilk, Lockerbie, where he has charge of one hundred and fifty acres of pleasure grounds, including a golf course and tennis courts.

Home Timber Trade.—In a lecture before the Surveyors' Institutions at Edinburgh, Mr. J. D. Sutherland, Assistant Forestry Commissioner for Scotland, stated that Great Britain imported slightly less than one million tons of timber in 1922, whereas fifty years ago the quantity imported was only five hundred tons. The prices paid by this country for imported softwoods, which could be well grown in Britain, had gone up between 1890 and 1922 from 105 per cent. to 200 per cent., and in the case of Archangel red deals so much as 270 per cent. Manufactured home softwoods had increased in the same time by from 73 per cent. to 80 per cent., and standing timber of the same class was 80 per cent. to 90 per cent. dearer than in 1890. Increasing consumption, combined with the curtailment of supplies, must tend to raise the value of wood grown in this country, and therefore benefit the enterprising planter.

Assistant Director at Rothamsted.—Owing to the increase in the work of the Rothamsted Experimental Station, Dr. B. A. Keen, head of the Physics Department, has been appointed Assistant Director.

Societe Nationale d'Horticulture de France.—The annual Horticultural Congress of this Society was held recently in Paris, M. Abel Chatenay in the chair. The attendance was small, but several papers of interest were read, among others one on "The Genus Siphocampylus," by M. Ad. van den Heede; on "The Genus Chamaedorea," and on "Principles of Horticultural Nomenclature," by M. Guillaumin; and on the "Use of Various Horticultural Washes," by M. Chabrolat. Questions were asked as to the part being taken by the Society in the restoration of the devastated districts in northern France, and in reply the President stated that it was not possible for the Society to assist publicly in the work, which was being undertaken entirely by the Ministry of Agriculture.

A New Disease of Tomatos.—The report of the Mycologist of the Experimental and Research Station, Turner's Hill, Cheshunt,* contains a description of a disease of Tomatos due to the fungus Sclerotium setosum, a new species named by its discoverers, Messrs. Bewley and Shearn. In plants affected by the fungus the leaves turn yellow and die at an early age, and new growth which is formed subsequently is weak and of a pale

* *Eighth Annual Report*, 1922. Experimental and Research Station, Cheshunt.

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colour. At later stages the stems become hollow and yellow, and may show on the outside a dark discoloration, which is usually confined to one side of the stem. Finally, the leaves wither and the plants die. In the later stages of the disease, numerous, minute, globular, black sclerotia may be found embedded in and external to the wood. Cultures of the sclerotia show that the mycelium which they produce infects the roots of healthy plants and reproduces the symptoms of the disease. It appears that the fungus gains entrance to Tomato plants through the soil, and that its development in the soil may be favoured by the presence of straw manure, in which it grows readily. In support of this latter view is the observation that the disease was present in Tomatos grown in plots which had received annual dressings of stable manure, but was absent from those to which no stable manure had been added for five years.

Report of the Fruit Crops.—Following our usual custom we are sending to fruit growers in all parts of Great Britain and Ireland forms for tabulating the condition of the fruit crops. Cultivators of fruits who are desirous of taking part in the census are invited to apply for the necessary form to the Editors, 5, Tavistock Street, Covent Garden, W.C.

Fruit Trees for the Public Parks of Bath.—A member of the Bath City Council has offered to present a large number of fruit trees to be planted in the public parks of Bath. There were, he stated, in the Royal Victoria Park at Bath some of the most beautiful trees in the West of England, but fruit trees with their blossom in the spring and fruit in the autumn would be beautiful at both seasons. He considered fruit trees would afford a lesson in self-control for the boys of Bath.

Bletchley Show.—The Bletchley Horticultural Society will hold its exhibition in Bletchley Park, lent by Sir Herbert Leon, on August Bank Holiday. All the horticultural classes are open to all England, and as the Bletchley Park Gardens, with the glasshouses, will be open to the public without additional payment on this occasion, the show should prove a great attraction to Midlanders. Horse leaping, sheep-dog trials, athletic sports, and a poultry show will provide additional attractions, and the band of the Grenadier Guards will provide music.

Trials of Commercial Varieties of Fruits at Wisley.—We are asked to remind raisers and growers of commercial fruits that the Royal Horticultural Society's Fruit and Vegetable Committee meets on alternate Tuesdays at Vincent Square, Westminster, to examine and report upon varieties of fruits brought before it with the object, among other things, of selecting the most promising for inclusion in the trials of commercial varieties now being carried out at Wisley. The next meetings are on July 10 and July 24, and fruits for the Committee's inspection should reach the R.H.S., Vincent Square, Westminster, S.W. 1, before 11 a.m. on either day.

Cause of the Unseasonable Spring.—Mr. C. E. P. Brooks, M.Sc., in an article entitled "Sea Temperature, Pressure Distribution and Weather of May, 1923," published in the *Meteorological Magazine* for June, advances a theory as to the unusual weather experienced this spring, and arrives at the conclusion that it is due to the abnormal summer of 1921. The great heat of that year set free large quantities of polar ice, which, drifting with the east Greenland current, reached the neighbourhood of Iceland in the spring of 1922. In the succeeding months it lowered the temperature of the ocean near Iceland; in consequence pressure rose there and the tracks of depressions were driven southward, causing the unfavourable summer in Great Britain in 1922. Meanwhile the bulk of the ice rounded Cape Farewell, made the circuit of Davis Strait, and towards the close of 1922 passed into the Labrador Current. This resulted in large quantities of ice being carried into the North Atlantic, off Newfoundland, and in this way the temperature of the Gulf Stream was considerably lowered. The cold water off Newfoundland meanwhile gradually spread its influence over the North Atlantic and the mean sea temperature for May was some 2.5° below the normal. He concludes that the relatively low temperature was at least partially the cause of the high pressure over the central Atlantic during May, and that the Atlantic anti-cyclone and the minimum near Scandinavia appear to be connected with irregularities in the circulation of the Arctic and North Atlantic waters, which first became apparent more than a year ago.

Mr. P. Murrell.—As the youngest son of so successful a Rose specialist as the late Mr. Edwin Murrell, of Shrewsbury, Mr. P. Murrell, managing partner of the Orpington Nurseries, Orpington, Kent, could hardly avoid being interested in Roses. After a practical training in his father's nurseries, Mr. P. Murrell studied the theory and practised the art of gardening at University College, Reading, where he worked under Sir Frederick Keeble, and the late Mr. Charles Foster, a master of his craft. He took the diploma in horticulture and Associateship of the College in the second year and, later, was appointed demonstrator and assistant lecturer

MR. P. MURRELL.

in horticulture. During the period of the war Mr. P. Murrell served in the Royal Naval Air Service and in the Royal Air Force and was mentioned in dispatches and received the O.B.E. (military). Being an expert photographer, Mr. Murrell was able to specialise in aerial photography, and was so successful in this connection that in 1918 he became Commanding Officer of the London Photographic Centre of the Royal Air Force. Returning to business after the war, he proceeded to develop the Orpington Nurseries, where, in a very short period, his firm has become famous for Irises, Roses and fruit trees. Mr. Murrell has been the means of introducing to commerce several of the finest seedling Irises raised by Mr. A. J. Bliss and Mr. W. R. Dykes, including such fine sorts as Moa, Titan, Aphrodite, Glamour, Sapphire, Saffrano, Tenebrae and Yeoman. Mr. Murrell's interests as a Rosarian occupy much of his time and he acts as one of the National Rose Society's judges. He is also a member of the Council of the Horticultural Trades Association, where his business ability is at the service of fellow traders.

Coccnut Industry in Southern Mexico.—Coconuts are a great success in the coastal regions of the southern States of Mexico, for the growth of the tree is natural to the soil and the climate of the region, and the plantations need very little care. In the district of Manzanillo there are some 60,000 Coconut trees in full bearing, and it is estimated that 40,000 more trees will arrive at bearing stage within the next three or four years. As each tree produces from fifty to sixty fruits, the crops approximate some 2,500,000 to 3,000,000 nuts. It is interesting to learn that nearly the whole of the nuts are consumed as fruit, and only a small percentage used for the manufacture of copra. With the present demand for oils and fats there appears to be an excellent opportunity for increasing the Coconut industry in those parts, for the dried copra yields about fifty per cent. of oil, which is used for a variety of purposes, and during recent years has been employed extensively in the manufacture of margarine.

"Yorkshire Evening News" Rose Show.—An interesting exhibition of Roses and Sweet Peas will be held in the Trinity Schoolroom, Leeds, on Saturday, July 14. This exhibition is managed by the employees of the *Yorkshire Evening News*, chiefly those engaged in the composing room, but the schedule provides half a dozen classes for readers of the paper, wherein liberal prizes are offered, including a silver bowl and gold medal as first prize for a dozen Rose blooms, distinct, grown by an amateur grower without professional assistance.

Saffron Walden Horticultural Society.—Horticulturists in the Saffron Walden district are ambitious and enthusiastic, and in connection with their recently revived local society they confidently anticipate a fine exhibition on Thursday, July 26. Saffron Walden is famous, among other things, for Carnations and Hollyhocks, and Mr. C. Engelmann and Mr. Vert have each presented a silver bowl for competition at this show in the town of their adoption.

Floralies Gantoises.—In the form of an 84-page booklet, admirably printed on good paper, the Société Royal d'Agriculture et de Botanique de Gand has issued a complete list of the awards and prize winners at the great Quinquennial Exhibition held in Ghent on April 14-22 last. Brief accounts are included of the various functions held in connection with the show, as well as the names of the members of the jury, and the speeches made at the Banquet des Floralies. This interesting publication will form a pleasing reminder of a great exhibition and of the generous hospitality of Belgian horticulturists.

The Deficiency of Sunshine.—Whilst all are grumbling at the weather, not many are aware that the total amount of deficiency of sunshine in the first six months of this year was 225 hours, or one-and-a-quarter hour per day. These figures were obtained at the Rothamsted Experimental Station by a Campbell Stokes recorder. In a letter on the subject to the *Times*, Mr. W. D. Christmas, of the Records Department, Rothamsted, states that the absence of sunshine has had a marked effect on the temperature of the soil. In a normal year the mean temperature of the soil one foot below the surface for the month of June should be close on 60°, whereas the average for the past month was only 53.6°. Notwithstanding the exceptionally cold, dull weather, many will be surprised to learn that the rainfall for the past six months is one inch below the average. There has been, however, a compensation in the reduced amount of evaporation owing to lack of sunshine, so that the water in the soil is slightly in excess of the average.

Forest Fires in the United States of America.—Underwriters' records show that during the year 1922 there were no fewer than 6,375 forest fires in the United States, which destroyed a total of 373,214 acres of standing timber, equal to 161,459,000 feet board measurement. During the past seven years forest fires have destroyed 862,310,000 feet of timber, valued at 1,293,532 dollars, and during the same period the Government has expended 1,074,804 dollars in efforts to control forest fires, no fewer than forty-four new fire observation towers having been erected during 1922.

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Horticulture at the Amsterdam Exhibition.—Although entries for the Netherland and Netherland-Indian Horticultural Exhibition to be held at Amsterdam from September 14 to September 23 do not close until August 1, it is already possible to state that the exhibition will be extensive and interesting. Not only Dutch, but also English, Belgian, French, and German growers have applied for space. The Dutch Carnation Club, the Dutch Dahlia Association, the Dutch Gladiolus Society and other floricultural bodies have promised collective exhibits, while the Westland, North Holland, Friesland, Gelderland, Utrecht and Oberysel associations of growers will contribute large displays of fruits and vegetables. The Aalsmeer growers will be strongly represented, while the tree growers of Naarden-Bussum have promised to plant a large portion of the ornamental grounds.

Seeds for New Zealand.—A consignment of farm and garden seeds has recently been dispatched by Messrs. Webb and Sons, Ltd., of Stourbridge, to their New Zealand agents, Messrs. Murray, Roberts and Co., of Wellington. Fifty-four large galvanised iron tanks were required for the seeds, and the aggregate gross weight was over fifty tons.

Proposed Belt of Trees and Shrubs around the City of Cologne.—The City authorities of Cologne are embarking on a scheme for creating a belt of trees, shrubs and flowers around the old part of the city, between that portion and the outer ring of suburbs. The belt will be approximately seven kilometres long and 200 metres wide; it is calculated that this scheme will give work to 4,000 unemployed men.

Appointments for the Ensuing Week.—Monday, July 9: United Horticultural Benefit and Provident Society's meeting; Bath Gardeners' Society's meeting. Tuesday, July 10: National Rose Society's Provincial show in conjunction with Saltaire, Shipley and District Rose Society's exhibition (two days); Royal Horticultural Society's Committees meet; Wolverhampton Floral Fête (three days); North of England Pansy and Viola Society's show at Saltaire (two days); Jersey Gardeners' Society's meeting. Wednesday, July 11: Ipswich and East of England Horticultural Society's show; National Sweet Pea Society's show at Bath (two days); Richmond Horticultural Society's show; East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting. Thursday, July 12: Woodford Horticultural Society's show; Bury and West Suffolk Horticultural Society's show. Saturday, July 14: Formby Horticultural Society's show; West Lothian Pansy and Viola Society's show at Bathgate; Congleton Rose and Sweet Pea Society's show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Kohl Rabi.* I have never seen this plant in England in a useable state before the end of summer, but it is produced in the German vegetable markets by the middle of May, furnishing an agreeable variety for the table. One form of serving it is to place the tender leaves, cooked as a Spinach, in the centre of the dish, and to lay round it slices of the swollen stem, also cooked. This last particular is mentioned because it is not usual to eat the plant in a raw state, as it is occasionally in France the fashion for Artichokes, or, further north, for Turnips. In the autumn the leaves are too coarse for a Spinach, and the so-called bulb is larger; but though we have at that time so many better vegetables, even then it makes not an unacceptable change if boiled entire two or three hours, according to size, served whole, like a dish of Artichokes, and eaten in slices with melted butter. But spring is the season when it is by far the most welcome. With the view of having it then, I made last year a late autumnal sowing, but the stems are only now (midsummer) beginning to swell. In all the gardening books that I am acquainted with information is either scanty or deficient. Perhaps someone will inform me whether there is more than one variety of Kohl Rabi. The German spring specimens are smaller than we usually see here. Also, what is the best method of treatment to obtain a crop in May?—*D., Gard. Chron., July* 27, 1848.

NOTICES OF BOOKS.

Jottings from a Gardener's Notebook.

THE reviewer of this book (see p. 315) finds he has made a mistake about the pruning of Loganberries; but it was an easy one to make, owing to the arrangement of the matter. There is no mention of pruning on p. 41 of the book, that being dealt with in a separate sub-chapter, with a large type cross-heading, and pruning is not referred to in the contents. The paragraphs relating to pruning might have been placed under the respective fruits, to the advantage of readers generally. An index to the book would have been a great help in finding what is contained within its covers, in these busy days. For instance, under the heading of pruning Red and White Currants (p. 44) reference is made to "Summer Pruning" with no indication as to where that paragraph can be found in contents. index or on page.

FIG. 1.—ROSE LADY ROUNDWAY; NATIONAL ROSE SOCIETY'S GOLD MEDAL, JUNE 28. SHOWN BY MESSRS. B. R. CANT AND SONS (SEE P. 11).

ORCHID NOTES AND GLEANINGS.

ZYGOPETALUM CRAWSHAYANUM.

A WELL-FLOWERED plant of this beautiful little hybrid between Z. xanthinum and Z. stapelioides, together with its parents, was shown by H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), on June 26. It is very interesting to see that the chief members of the Promenaea section of Zygopetalum have been kept in such good condition, together with many of the other smaller-growing species, at Rosslyn.

Zygopetalum Crawshayanum, which is the showiest of the section, was raised by De Barri Crawshay, Esq., who obtained an Award of Merit for it at the Royal Horticultural Society's meeting on May 24, 1905, the report in *The Gardeners' Chronicle* of May 27, p. 233, of that year, giving the information obtained from Mr. Crawshay:—"Cross made July 20, 1901; resultant seeds sown February 9, 1902; cross plant bloomed May 15."

This hybrid, like its parents and others of the section, is of tufted habit, the small pseudobulbs bearing dark green leaves. The flowers of Z. Crawshayanum are over 2 inches in width, in colour light citron yellow, the sepals sparsely and the petals and lip closely spotted with ruby purple. The lip is considerably larger than that of either of the parents, the dissimilar characters of which have combined to increase the size of this organ; similar expansion has been noted in the case of some other hybrids.

Mr. Pitt recently showed Z. micropterum, a very rare species (Promenaea micropteta, Rchb. f., *Gard. Chron.*, 1881, 11, p. 134), not represented in gardens until Messrs. Low and Co. flowered it out of a clump of P. stapelioides imported from Brazil. It flowered at Glasnevin in June, 1900. The small-growing section is so distinct and dissimilar from other Zygopetalums that Lindley's name, Promenaea, which was long used in gardens, and still is the name most generally used, might well be retained. A plant with a parentage reputedly similar to that of Crawshayanum was flowered by Messrs. Charlesworth and Co., and referred by Mr. R. A. Rolfe to Promenaea lentiginosa Lindl., and certain authorities consider P. Rollissonii to be a natural hybrid of the same parentage, but these plants are unlike Zygopetalum Crawshayanum and inferior to it from a garden point of view. *J. O'B.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Oncidium.—Members of the Macranthum section of Oncidium will soon have passed their flowering season, and any plants that have finished blooming, with those that have not produced flower spikes, will be sufficiently forward in growth to permit of being potted. By reason of the length of time the spikes take to develop it is essential that only those plants that are in robust health should be allowed to flower. Poor spikes of these fine Orchids are not worth retaining, and when a plant is not in first-class condition the strain of flowering makes it a complete wreck, and the flowers are of very inferior quality. Plants that are exhausted either through over-flowering or from any other cause, should be placed in the smallest pots that will accommodate them, removing any leafless, back pseudo-bulbs and bringing the base of the leading growth down to the level of the surfacing material. The plants may be repotted afterwards without much disturbance, and gain strength to carry a strong spike of flowers of good quality.

Compost for Potting.—A good compost for Oncidiums consists of equal parts of peat fibre, A1 fibre and Sphagnum moss, thoroughly cleaned, and used in a rough state. Owing to their rather thick fleshy roots, these Orchids should not be potted too firmly, and the base of the plant should be kept quite close to the pot. The drainage material should be ample, as these Orchids require large supplies of water whilst making their growth. Those that are being potted on without much disturbance of material, and are strong enough to carry a spike, may be potted more firmly than those that are weaker. Newly-potted plants will not require much water for some time, but as the growth and roots develop the amount of water afforded them should be increased. They revel in an abundance of fresh air, and at this season enjoy the cool, damp conditions of the Odontoglossum house.

THE FLOWER GARDEN.

By G. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Jasminum officinale.—This popular climber is worth growing if only for its fragrant, white blossoms, small sprays of which are much appreciated on the table. This Jasmine is not so often planted as the winter-flowering J. nudiflorum, though it is just as hardy and free-growing. Any necessary thinning or training of the shoots should be done after the plants have flowered.

Wistaria.—Young plants of this lovely climber require frequent attention in respect to training the leading growths, or they will quickly twine around any near object from which it is difficult to unravel them without injuring them. Surplus shoots may be removed close to the stem to lay the foundation of a future spur for flowering. In the case of old, trained specimens the pruning for spur formation is best left until later in the season, otherwise the basal buds may break into growth instead of remaining dormant. Where there is additional space to be covered the chief growths should be trained in from time to time as in the case of the younger growths.

Pinks.—The propagation of Pinks may be undertaken now, there being plenty of cuttings, or, as they are termed, pipings, available. They will root freely in a cold frame, filled with sandy soil that should be kept moist, though fair success may be had without the use of a frame. Shade the pipings from bright sunshine until they are rooted, whether in the frame or not. Dianthus Allwoodii may also be rooted in a similar manner at the present time.

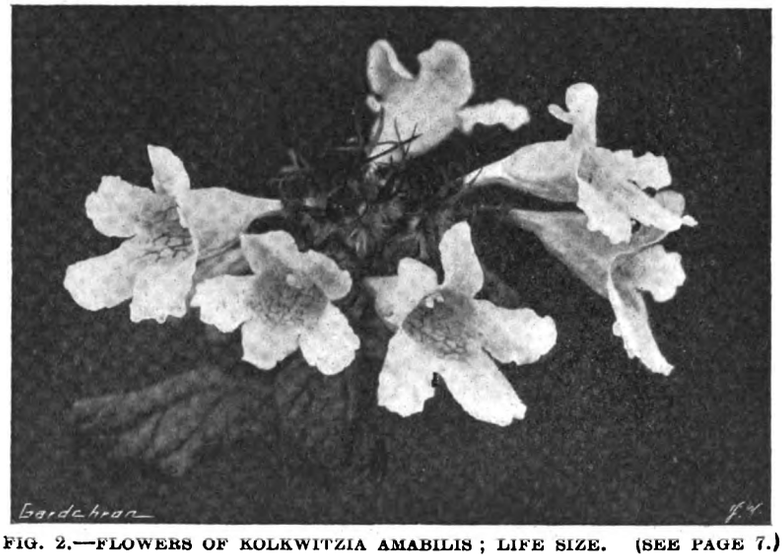

FIG. 2.—FLOWERS OF KOLKWITZIA AMABILIS; LIFE SIZE. (SEE PAGE 7.)

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BEARNES, Esq., Woolverstone Park Gardens, Ipswich.

Cucumbers.—Cucumber plants set out early in frames are fruiting freely. The older plants, in houses or heated pits, which are showing signs of exhaustion may be cleared out, the structure cleansed, and fresh beds made and replanted. By keeping the atmosphere of the house or pit close and moist the plants will make rapid progress and quickly come into bearing. A mixture of turfy loam, wood-ash and old lime rubble forms a suitable compost, which should be placed in hillocks or ridges in which to set the young plants. Similar compost, with a liberal addition of bone-flour, will be suitable for use as a material for top-dressing the roots when required. Plants which are growing vigorously and fruiting freely will be benefited by frequent applications of liquid manure, soot-water or guano-water; all these stimulants should be used in a moderately weak state. The stopping and tying of the young growths should have early and regular attention. Allow room for the young foliage to develop, as crowding the growths and over-cropping quickly results in the plants becoming weak. It may be necessary to afford slight shade to prevent the foliage from flagging during very bright weather. In houses and pits where the plants are trained near the roof glass, a light, permanent shade may be afforded by spraying the outer glass with "Summer Cloud" or lime-wash.

Melons.—Young Melon plants in active growth require constant attention in stopping and tying the young shoots. Lateral growths should be stopped at the second joint, and sub-laterals pinched close back. This applies to plants set two feet apart and trained as cordons. A brisk warmth should be maintained until the flowers commence to open, when a drier atmosphere is necessary to secure the setting of the fruits. The young fruits should be supported in good time to relieve the strain on the plant. At each watering the soil should be soaked thoroughly, and where the root-run is restricted feeding is necessary, liquid manure being the most suitable material to use. After the fruits have set, very little air need be admitted, for Melons delight in plenty of heat and moisture.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Globe Artichokes.—These plants are growing freely and producing good heads, which should be cut and used as young as possible, consistent with size. Mulch the plants with half-rotted manure, and give the roots copious watering if the weather is dry. Any heads not required for immediate use should be cut and the stems placed in water that should be changed every day or so.

Kales.—These greens should be planted out as fast as they become large enough, and the firmer the ground they are grown in the better will they withstand the cold of winter. An excellent site for this crop is where an old Strawberry bed has been cleared, as such ground is firm and usually in good heart. Make holes with an iron bar just deep enough to take the roots, and press the soil well around the plants, leaving a slight depression to facilitate watering. When planting is finished, fork the ground over lightly to present a neat and tidy appearance. Put out a few plants of each variety in the reserve garden to fill gaps that may occur in the rows. Kales may also be planted between rows of early Peas, close to the sides of the rows, and the shade from the Peas will give them a good start. When the Peas are cleared off, the ground should be hoed and raked over. I have practised this method with good results. Kales withstand the winter when the plants are not large and sappy; they will commence growing very early in the spring. They should be planted two feet six inches apart each way.

Beetroot.—Globe Beet growing in frames should be kept well watered and should be ready to use now. The soil about those sown out of doors should be kept clean by constant hoeing, and each plant given plenty of room to develop. Birds are often troublesome to this crop; old fish netting stretched over the rows until the plants are large will keep birds away. A little fine soil drawn up to the plants when they become larger will prevent the tops of the roots from becoming hard and green.

Perpetual Spinach.—This is a very good substitute for ordinary Spinach, especially during winter. Sow a row or two now, and thin the seedlings to one foot apart, and water them freely.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Centropogon lucyanus.—Plants of Centropogon lucyanus propagated early in the New Year should be ready for transference to their flowering pots, which, according to the strength of the plants, should be 5 inches or 6 inches in diameter. This plant should never be over-potted, and requires careful watering at all times; it is also particularly useful for growing in hanging baskets. It is best grown in a temperature of 60° to 65°, but when in flower an intermediate temperature is suitable.

Campanula pyramidalis.—Chimney Campanulas in blue and white are popular flowers and useful for conservatory and house decoration.

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Plants approaching the flowering stage should be given liberal supplies of water and fed with dilute liquid manure and soot water. As the plants are plunged in the open, the number required to provide a succession of flowers should be introduced at intervals to a cool greenhouse. Plants raised from seed sown late last year should be potted on as they require it. A pinch of seed may be sown at this time.

Campanula Medium.—Canterbury Bells are very useful for conservatory decoration when grown in pots. If not already done, seed should be sown in boxes to raise plants for growing in pots, standing the seed boxes in cold frames until they germinate, afterwards planting them out in the nursery garden, from whence they should be lifted during the autumn, and placed in suitably-sized pots; they are best wintered in cold frames, as in low-lying, damp districts they are apt to suffer from damp during the winter.

Campanula persicifolia.—This Campanula and its many varieties are also useful for growing in pots for conservatory decoration. The beautiful variety, Telham Beauty, is specially suitable for this purpose. The plants should be grown in the reserve garden during the summer. During the autumn strong clumps should be placed in suitably-sized pots. The plants may be wintered in cold frames, or plunged in a bed of ashes at the foot of a wall.

Lantana Camara.—This plant, of which there are many varieties, was at one time commonly used for greenhouse decoration, but is now seldom seen in gardens. Named varieties are propagated by means of cuttings inserted during the spring, and by pinching them on frequent occasions they soon make good, bushy specimens. Plants raised from seed sown during the spring are very useful during the late summer and autumn. They should be potted on as they require it, and stopped frequently to promote a bushy habit.

HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

The Apple Crop.—Cool weather undoubtedly suits the Apple, and there is promise of an abundant crop in most districts where insect pests have not been numerous. Thinning the fruits should be resorted to, and it needs to be done thoroughly, allowing only sufficient crop for the tree to develop properly. We hand-fertilised the blossom of our trees of Cox's Orange Pippin in one part of the garden. In an orchard surrounded by free-setting sorts, this variety promises to develop a good crop. Blenheim Pippin is bearing a fair average number of fruits. The roots of Apple trees all need a copious soaking of water. Green fly has become very troublesome on all fruit trees. Quassia extract or a similar insecticide which will make the foliage distasteful, and a direct insect destroyer, such as paraffin, may have to be used to counteract the spread of this pest.

Cherries.—These fruits have dropped considerably. Continue to train the shoots, allowing each growth sufficient room for its full development. Should the Cherry sawfly prove troublesome, paraffin emulsion is probably the best specific to use. Cherry trees are liable to be affected by a disease known as Cherry leaf scorch, caused by the fungus Gnomonia erythrostoma. Should this disease be noticed, remove and burn all distorted leaves, and spray the trees with Bordeaux mixture.

Mussel Scale.—This pest may be dealt with by spraying with paraffin emulsion when the old scales are loose and the young scales migrating, which they usually do between the middle of June and the middle of July.

Strawberries.—Beetles attacking ripening Strawberry fruits may be dealt with by sinking vessels containing sweetened water about the plants. Glazed receptacles are best, and form an effective trap. The beetles feed at night, and those caught should be removed each morning and destroyed.

PUBLIC PARKS AND OPEN SPACES.

OPENING OF WINTERSTOKE GARDENS, RAMSGATE.

IN the presence of nearly 2,000 spectators, Dame Janet Stancomb-Wills, D.B.E., on Friday, June 15, handed over to the town of Ramsgate the Winterstoke Gardens, the beauty spot created at her own expense on the East Cliff. The Mayor of Ramsgate, Sir John Burnet, A.R.A., R.S.A., of London (who designed the gardens), and the members of the Town Council were present.

Sir John Burnet, on being asked to give a description of the work carried out in forming the gardens, said that they formed the first portion of a comprehensive scheme prepared by him for the improvement of the Ramsgate front.

The main feature of the new garden is a semi-circular shaped colonnade placed in a recess some 20 ft. deep, cut out of the chalk cliff. Access to this recess is by a pathway sliced off the face of the cliff leading down from the level in each direction to the centre. The face of the chalk cliff along the side of these approach paths, and in the recess itself, has been "rockified," and the rock clothed with such shrubs and plants as will stand the severe conditions prevailing at Ramsgate.

On the upper terrace, which is approached from the lowest level by two broad flights of steps, are the gardens proper, in the centre of which is a circular ornamental pool, enclosed on the north side by a semi-circular Roman seat, from which there is a magnificent view of the sea. This seat is backed by a hedge of golden Euonymus. At one end of the site is a formal seat and pool, in colour to match Portland stone, and at the other a more informal pool, backed with rock. At the north end is a "rest garden" sheltered from the north winds, the breadth of turf and surrounding planting giving it a most restful appearance. On this higher level are ample lawns paths and seats. A series of geometric flower beds is cut out of the turf, each bed being massed with low-growing subjects.

The colonnade, Roman seat, pools and other formal features are formed of reinforced artificial stone. Messrs. Pulham and Son, of 71, Newman Street, London, W., have carried out the whole of the work, including the laying of the lawns, and planting of trees and shrubs, which have been selected to suit the soil and climate of Ramsgate. The bulk of the shrubs and trees had to be planted while small, and as many of them are slow-growing, it will necessarily be some time before the full effect of this generous gift of Dame Janet is realised.

Dame Janet Stancomb-Wills, in handing the gardens over to the Mayor, on behalf of the town of Ramsgate, said that the laying out of the ground had given her the greatest possible pleasure for two special reasons. The first was the joy of turning what was once a wilderness into a thing of beauty, the second being that in carrying out the work a large amount of unemployed local labour was found employment for nearly two years, the work having been in hand about 21 months.

The Mayor gratefully accepted Dame Janet's generous gift of the gardens on behalf of the town of Ramsgate, and said the greatest praise was due to Sir John Burnet, who planned such an excellent scheme, and to Messrs. Pulham, who so admirably carried out the work.

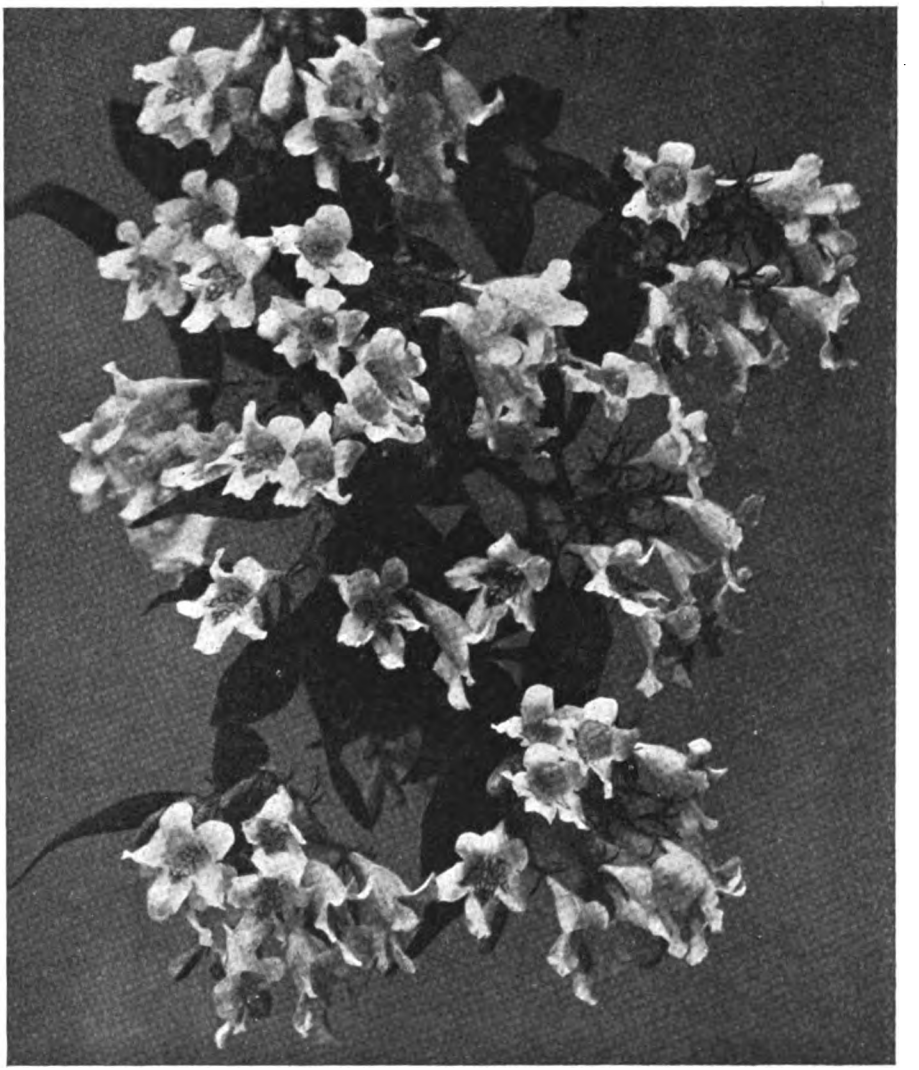

FIG. 3.—KOLKWITZIA AMABILIS; FLOWERING BRANCH. (SEE PAGE 7.)

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EDITORIAL NOTICE.

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. 17.—BACK TO A-TUN-TZU.

WE spent the night of September 20 at the yak meadow, or rather pasture. The drier ground all round was clothed with forest of Fir, where Rhododendron "giant rose"—so far as I could see, identical with the Mu-li species (K.W. 4211)—and "smutty twig" (likewise identical with the Mu-li plant, K.W. 4185), formed the undergrowth.

A word about this latter species. The twigs, particularly the "short shoots," *i.e.*, those which bear the inflorescences, are encrusted with a black, sooty scale, evidently the work of some fungus, or the fungus itself; and the under surface of some of the leaves is mottled with curious crimson patches. The leaves, when young, are covered with a soft, greenish-silver tomentum, which later turns light rust red, becoming at the same time more skinny. It is on the young leaves that the crimson, or purple, patches appear, and spread gradually, till sometimes they cover the entire under surface. That this also is a diseased condition seems certain; whether there is any connection between the smut on the twigs and the patches on the leaf remains to be proved, but it is at least probable. This condition, which is common enough, was observed both at Yung-ning and at Ya-ka-lo: but it does not appear to be very devastating to the species, which grows socially in both regions, and is quite one of the commonest bush Rhododendrons throughout the country.

Primula muscarioides was abundant along the edge of the forest, growing beneath the bushes, in damp, not too heavily shaded places. The only other plants I collected were a small speckled Saxifraga, growing under the Willows, and a Lamium-like plant with cream-coloured flowers, found in the woods.

On September 21 we returned to Ya-ka-lo, dropping down to the Mekong gorge by a horrible stony path which was painfully steep. We kept high above the river, however, amongst bush-clad cliffs and rocks, descending very gradually to the little plateau on which stands Ya-ka-lo. The only plant of possible interest I found was a Lily, and of this I dug up some bulbs. There were bushes of white Jasmine in flower, and a Caprifoliaceous shrub with pale pink, very fragrant flowers.

I wasted no time at Ya-ka-lo; I must start immediately if I wished to go to the Taron, especially as I intended to visit the great Ka-ga-pu glacier on the way, and must spend a few days in A-tun-tzu also.

We started south next day, September 22, and crossed over to the right bank, as the going is better on that side of the river—at least, for Tibetan animals. There were no new flowers on this side, except a dwarf, white-flowered Convolvulus which I had not seen previously. The matted Androsace—a genuine rock plant, the stems not exceeding half an inch in height—was abundant in fruit, and the seeds were ripe. With it was often associated a sticky, candelabra-like Saxifraga, the compact rosette of leaves sending up a tall, branched stem, covered with glandular hairs, and bearing a wealth of rather large, speckled flowers. It is a well-known species, however, occurring on the Yang-tze as well. It flowers the second year, the first season being entirely devoted to forming the large, tight rosette which sticks closely to the ground; so it is probably biennial.

Some of the huge screes of splintered slate were extraordinarily barren; scarcely a living thing was to be seen on them except occasionally a lizard or a pica hare popping up its head. Villages were few and far between, but they seemed prosperous, with crops of Maize and fruit trees.

September 25 was very wet, and when we awoke on the 26th the mountains on the other side were white with snow, which came right down to the forests. Then the weather improved for a day. After crossing the stream which comes down from the Shu La—the pass immediately to the north of the Ka-ga-pu snowy range—we came to the rope bridge where the caravans bound for A-tun-tzu cross to the left bank of the Mekong and go up the Adong gorge. However, I wished to visit an old haunt of mine on Ka-ga-pu, and we therefore continued down the right bank by a very narrow path, crossed another glacier torrent, and camped by a third, unable to reach a village that night.

Next morning we reached the foot of the "temple glacier" and went up the valley, following the crest of the old moraine, which is covered with shrubs and trees. In the middle of the afternoon we reached the lower temple, and an hour later the upper temple, on the brink of the cliff, where the glacier breaks up into a fantastic chaos of bergs and screes, 500 feet below. There were few Rhododendrons down here, and their seeds, of course, were not yet ripe; R. yunnanense, R. decorum, and one of the Neriiflorum group I noticed. A thousand feet or less above the temple, however, they begin, and half a dozen species are quickly added; the altitude of the upper temple is about 12,000 feet.

On September 29 I went for a scramble on the cliffs, and collected seed of R. pagophyllum (K.W. 5414), the Neriiflorum species (K.W.5415), and one or two others, but nothing new. My real object in coming here was to have another look at Primula pulvinata in its original home. I found it, not without great difficulty; but though the clumps upon the cliff looked healthy enough, the plant had experienced a bad season, and scarcely a capsule could I discover. Like my Tsa-ka-lo plant, P. pulvinata grows on slate—it may grow on limestone too, though I have never seen it doing so. But P. pulvinata, though very like K.W. 5403, has not the white meal on the under surface of the leaves. It may be noted that both these Suffruticosas, as well as the Mu-li species (K.W. 4275), have the leaves covered with glandular hairs, and it is these apparently which give to the foliage its delicate fragrance.

It is interesting to note that the Suffruticosa Primulas, although typical of limestone, are by no means confined to it. P. Forrestii and the Mu-li plant I have never seen on anything but limestone. Of P. redolens I have only the vaguest recollection: it comes from the Mekong, but what the rock was on which I found it I do not remember. Primula (K.W. 5014) is another limestone plant; but the Tsa-ka-lo species occurs both on limestone and schisty rock, like altered slate, and P. pulvinata on slate only. One other species (P. Henrici?), of which I collected seed in the winter of 1913, when crossing the Shu La, is also a limestone plant; the history of this plant is apparently lost—it was raised at Edinburgh, identified, I believe, as P. Henrici, and has since disappeared, leaving no trace. At least, so I have been informed. These are the only Suffruticosas with which I am acquainted—for P. philoresia is presumably one of the Dryadifolia group, and no one seems to be quite certain whether these are Suffruticosas or not. Anyhow, the fact that some at least of these charming woody Primulas will grow on non-calcareous rocks is interesting; for not everybody possesses chalk or dolomite. The only other plant of merit at the temple was the violet Capitata Primula of Damyon—identified with P. pseudocapitata, provisionally. It was in full bloom! I also collected some seed of Pyrola uniflora, a delightful little plant.

On September 30 we returned to the Mekong, crossed the river on the following day, and reached A-tun-tzu the same evening. Thereafter it rained for four consecutive days; but on October 6 we started for Tse-ku, with not a day to spare. Marching long hours, we reached a village opposite Tse-ku on the third day, and crossed over.

The Mekong gorges now offered few attractions. There were no flowers—at least, in the arid section. On the second day we passed through a very dry, rocky gorge, devoid of all tree growth, which is situated between the Pai-ma-shan and Ka-ga-pu snow ranges. A little lower down tree growth begins in the Mekong gorge—in fact, trees (Thuya chiefly) grow right down by the water's edge. On the third day we passed through a much more picturesque gorge, the cliffs—at least, those in the shade—being well wooded; the rocks, also, are covered with masses of Orchids. Thenceforward the vegetation is much richer, and, in fact, quite different to that of the arid Mekong. It is at this point (about latitude 27° 40′) that the separation between what may be called the Szechuen flora in the north and the Yunnan flora in the south takes place.

On the morning of October 9 we reached Tse-ku, and were welcomed by Père Ouvra, the hospitable French priest. I spent three days here, making final preparations for my journey, engaging porters, repacking, and arranging for my heavy kit and collections to be sent back to Burma on mules. *F. Kingdon Ward.*

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17, July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, March 10, 24, April 7, 21, May 5, June 2 and 23, 1923.

SEED AND PLANT COLLECTING IN NEW ZEALAND.

As an opportunity to join Dr L. Cockayne, F.R.S., on an expedition which would allow me to collect mountain plants and their seeds was too good to be missed, I cheerfully accepted an invitation to join him in a week's stay at the Canterbury College Mountain Biological Station at Cass, which Professor Chilton had kindly permitted us to make use of.

We left Christchurch on March 8, with the necessary stores for our week's camp, arriving at Cass at noon. The afternoon was spent in a general investigation of the near surroundings and collecting any plants that came in our way, the first being a Bladder Fern, Cystopteris novae-zelandiae, which much resembles its British relative, C. fragilis.

Cass, a flag station on the Midland Railway of the South Island, situated on a tussock plain a few square miles in extent—the old flood plain of the river—70 miles from Christchurch and 1,850 feet above sea-level, lies snugly surrounded by mountains, many of which rise to upwards of 6,000 feet. On the north and north-west are the mountains forming the main range of the Southern Alps. Through the plain runs the Cass River—a tributary of the Waimakariri, which at the time we visited it ran over only a very small section of its wide and rough bed—an interesting place on account of its great show of cushion and mat plants. Epilobiums, some erect, some creeping, are present in great numbers and add colour to the scene. Beyond the confines of the plain is the Waimakariri, a glacial river, with its much wider bed, and its tributaries, including the Cass, which joins it in the neighbourhood. Cass lies on the border of the Eastern South Island Botanical District, and so misses the heavy rainfall of the Western District, which is reflected, a couple of miles away, in the dense, black forest of the Mountain Southern Beech (Nothofagus cliffortioides).

The floras of the two districts, though so close, are different in many respects. For instance, the Mountain Ribbonwood of the east is Gaya ribifolia and that of the west G. Lyallii. On the western mountains, too, is Ranunculus Lyallii in abundance, but on the east it is wanting.

On the Cass plain are several mountain lakes, the largest being Lake Pearson, which

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is about two and a half miles in length, and nearly half a mile wide at its widest part. These lakes appear to be gradually filling up through the encroachment of Sedge and Bullrush. There are also interesting fans of stony debris in all stages of development, some being covered with vegetation, mostly tussock grasses and Discaria, while others are still moving, and others again are being cut into during heavy rains. To me, a town dweller, the experience of a descent on a "shingle slip"—the talus feeding the fan—was exhilarating. One steps on to the slip, and by a mark-time movement gently descends. If vigour is added, a thousand feet may be covered in a few minutes. Near the station are several patches of Southern Beech forest, with Nothofagus cliffortioides about 40 feet high as the sole tall tree. A feature of such Beech forests is the small amount of undergrowth. Two species of Misfleto, Elytranthe flavida and E. tetrapetala, are to be found, the former with yellow and the latter with beautiful scarlet blossoms. *Herbert Baillie, Public Library, Wellington, New Zealand.*

(*To be concluded.*)

PLANTS NEW OR NOTEWORTHY.

KOLKWITZIA AMABILIS.

AMONG the many new woody plants which recent plant introduction work in China has added to gardens, few have greater merits than Kolkwitzia amabilis.* Most closely related to Abelia and Diervilla, it is hardier than either, and in elegance and beauty exceeds both. Obtained from Messrs. J. Veitch and Sons in 1907, it has successfully withstood the vagaries and severities of the New England climate and each season, for a number of years past, has flowered freely in the Arnold Arboretum. Our best plant is about 6 ft. tall and 5 ft. through, and in early June is a mass of arching sprays of blossom (see Fig. 4). The fruit ripens in August, but the seeds are rarely fertile. However, cuttings of half-ripe or ripe wood, inserted in August or early September, root readily, and so there is really no reason why this worthy plant should remain rare in gardens.

In a wild state, Kolkwitzia is a much branched twiggy shrub from 5 to 7 ft. tall, and it shows no signs of greatly exceeding this height under cultivation. The principal stems are erect or ascending, and the lateral ones arching, giving the plant a compact habit. Though slender, the shoots are rigid, for the wood is hard and there is very little pith, and they are clothed with fibrous, dark to purple-brown bark which shreds off. The leaves are softly hairy, opposite, very short-petioled, ovate, short to caudate-acuminate, from 1½ to 2 inches long, and from ½ to 1 inch wide with a few short teeth and veins impressed above, raised and clothed with pilose hairs on the underside. The flowers (see Fig. 2) are in pairs, and from 20 to 50 or more of them are borne in rounded cymose clusters which terminate short, leafy, softly hairy, current season's shoots, each from 3 to 4 inches long. The flower-stalk, ovary and calyx-tubes are densely clad with white, spreading, strigose hairs and the spreading acuminate calyx-lobes are pinkish and persistent. The corolla is pale pink, deeper in the bud, tubular and lipped, slightly less than an inch long, sharply constricted in the lower fourth and about three-quarters of an inch across the mouth; it is translucent and the throat on the lower side is bearded and pleasingly mottled with orange. The four stamens have white pollen and are in pairs of unequal length, the longer pair overtopping the pistil. The fruits are remarkable, quite unlike those of any other member of the family; they are connate, in pairs, nut-like, one-seeded, tipped by the calyx and densely clothed with stiff, straight brown hairs.

The mass of white strigose hairs on the ovaries and flower stalks suggests a cobweb, and together with the translucent pink corolla, with its orange-mottled throat, form a charming combination of extreme loveliness. It is, indeed, a most graceful, pleasing and floriferous hardy shrub, and the only fault to be found with it is the uncouth generic name for which neither the plant nor its introducer, myself, can be held accountable. It is sun-loving, needs loam and good drainage and will probably thrive better in the colder, more exposed parts of Britain than in a softer climate such as Cornwall enjoys.

FIG. 4.—KOLKWITZIA AMABILIS IN THE ARNOLD ARBORETUM.

This monotypic plant was discovered sometime between 1890 and 1895, in Shensi province, by Père G. Giraldi, on whose herbarium specimens the genus was founded by Graebner. In the summer of 1901 I found it on the high mountains of northern Hupeh, and in the autumn secured seeds for Messrs. J. Veitch and Sons, who succeeded in raising a stock of plants. The seed number was 1,007, and my notes show that in the autumn of 1902 some fifty plants were growing in the Coombe Wood nursery. Neither Giraldi nor I saw the wild plant in blossom, and it was not until June, 1910, when it flowered for the first time at Coombe Wood that the flowers were known. I met with the plant but once; about a score of bushes growing among rocks at an elevation of between 9,000 and 10,000 feet, on the high range which forms the watershed between the Yangtsze and Han rivers in the Fang magistracy. With it on the wind-swept ridge grew Rhododendron Fargesii and Clematis montana var. rubens, making a choice and valuable trio. *E. H. Wilson, Arnold Arboretum, Harvard University.*

* Graebner in *Bot. Jahrb.*, XXIX., 593 (1901).

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NOTES FROM A WELSH GARDEN.

ONE of the most attractive of our mid-June shrubs and among the latest of its race is Rhododendron azaleoides. This is a semi-deciduous hybrid (viscosum × maximum), of about 3 feet or more in height, perfectly hardy and of compact habit. It bears masses of Azalea-like flowers, each over one inch across and of good substance. They look particularly fresh in their white and rosy lilac colouring against the dark green foliage. The delicious Honeysuckle scent has well earned this shrub the specific titles of fragrans and odoratum, by one or other of which it is sometimes known. Though more often seen, R. arbutifolium is also a little shrub that is not to be despised at this season, its comparatively large trusses of clear pink flowers being produced in extraordinary abundance. This is with us a much more satisfying shrub than the somewhat similar R. Wilsonii.

Though the spring has been so cold and boisterous Ceanothus dentata, one of the bluest and best of the evergreen Californian species, has been full of flower for well over two months, the shrubs being grouped in open spaces on a woodland bank. Here, also, where the Heaths are commencing their summer season with Erica cinerea rosea and other varieties of that excellent species, are some of the smaller-habited wild Roses. Among these R. altaica, a much improved garden form of the Burnet Rose (R. spinosissima) has been covered with its large, creamy-white blooms for some time, and in striking contrast to it are the lively crimson flowers of the emerald-leaved R. alpina. R lutea, both the yellow and the copper form, have arrived at their best just as the Sweet Briar and other natives are unfolding their delicate blossoms, and that pretty crimson variety known as William III., one of the Scotch Roses, is among the very few doubles that are permitted in the wilder parts of the garden.

Cytisus virgata is always one of the most satisfying of its race in June. Though perhaps not so striking as some of the later forms of C. scoparius and C. Andreanus section there is something peculiarly attractive about the silvery silkiness of its dense yet elegant masses of foliage which grow more golden day by day as the abundant clusters of little flowers increase. That fine old species, Spartium junceum, also opens the first of its large and fragrant flowers about the same time with a promise of a liberal succession until late autumn. These and most of the taller members of the family we generally replace by young plants as soon as they begin to get "leggy," a practice which involves but little trouble, more especially when dealing with those kinds which come true from seed. Though Brooms have a reputation for being difficult to move, save from pots, this has never been our experience. If they are planted young, *i.e.*, in their second year, one need not anticipate more losses than are experienced in planting anything else.

The Leptospermums seem destined to become very popular in our westerly counties, and this year they have been extraordinarily floriferous. There is not only something very attractive about the small-leaved foliage, often bronzy tinted, of these shrubs and the graceful, whippy habit, but the colours of the flowers range from white through rose to the intensest ruby crimson. Propagation is easy by means of cuttings or seeds, growth is rapid and the plants will withstand considerable frost without injury.

One of the daintiest little plants in the rock garden just now is Veronica Bidwillii, var. Miss Wilmott. This is in all but the flowers almost exactly like the typical species (or is it a minor form of V. catarractae?), but instead of being white veined with pink, they are a delicate, cool lavender with an eye and rays of vivid crimson. This variety is, moreover, somewhat earlier in coming into bloom than the true V. Bidwillii. Some of the Asters are also conspicuous just now in various shades ranging from pale lavender-blue to deep violet. One of the prettiest of these is A. Pattersonii with branching, hairy flower stems bearing their striking, blue-purple blossoms; a taller member of the same group is A. Farreri with very large, orange-centred blossoms surrounded with a drooping, shaggy fringe of violet. A. yunnanense is also after this pattern, but often with rather a preponderance of green in its yellow eye. Very different to this is the glowing yellow and rich purple of a good form of A. alpinus, whose merits the slugs know so well. Another dainty thing of this connection is A. Lipskyi, with a very prim and neat fringe of blue-lilac radiating stiffly from a clear yellow base.

Oenothera pumila, that very delightful, midget Evening Primrose, is always the first of its clan to flower here, and another plant that thrives in our sharply drained soil is Androsace foliosa. This has been especially happy this year, and the blush-pink, yellow-eyed flowers, each some ½ inch across, in large, almost spherical, heads last long and seem to endure inclement weather with impunity. Though preceded in date of flowering by Campanula garganica hirsuta in several forms, C. barbata and one or two more, C. Raddeana may claim to be one of the most beautiful of the earlier ones. Its heart-shaped, scalloped leaves, so glossy and green, and the branching grace of its airy 10 inch stems, with their enormous bells of deepest violet, make a combination of rarest beauty, to which one may add an unusually long flowering season and an excellent constitution.

At the foot of a dry wall an Antirrhinum seedling appeared last autumn which is doubtless a natural hybrid between A. glutinosum and some common or garden Snapdragon. Whilst the leaves are rather longer and narrower than those of the former they retain the hairy stickiness of that species, and the flowers, ivory buff in the bud, are a pale lemon-blush with a yellow lip. Though not a striking plant this waif is a most abundant bloomer. It came into flower in early March and is now (mid-June) still carrying a heavy crop of blossom, the slender sprays of the latter being about 6 inches long and gracefully upturned from the semi-prostrate branches.

Colour display is what one expects in the rock garden in June, but not even the gorgeous Helianthemums have anything quite so vivid to show as some masses of Linum narbonense which have become associated with clumps of Lychnis viscaria fl. pl. var. splendens. The latter has enough blue in its fierce magenta-crimson to blend with the flax, which is sufficiently endowed with a hint of red in its blue not to resent the intrusion of the other. To those who delight in special brilliance of colour here is a combination that can be recommended, with or without a few of the more brilliantly tinted Armerias thrown in. But most, I think, would rather turn to the little rosy, waxen stars of the gentle Asperula hirta, to the pearly blush of Potentilla nitida or to Mimulus radicans, with its wonderful little blossoms in white and gold and violet, which are now dappling the bronzy carpet which spreads about the feet of that most gay and elegant miniature of its race, Spiraea digitata nana. *A. T. Johnson, Talycafn, N. Wales.*

KEW NOTES.

WHATEVER the weather there are some plants which it favours. The dull, and at times cold, weather in April and early May damaged many of the Rhododendrons and Azalea blooms, but it also served to prolong the flowering season, and during June I cannot remember to have seen them better. Some of the Azaleas in particular are still (June 28) making a good display and are pleasingly fragrant. The best include the Swamp Honeysuckle, R. viscosum, R. occidentale, and var. rosea, and the orange coloured R. calendulaceum. The foliage of the Indian Horse-Chestnut (Aesculus indica) may not be quite up to the average, but the trees are a wealth of flowers. Many of the panicles are 15 inches or more in length. It is surprising that a tree which flowers at midsummer, and is so readily raised from seeds, is not more generally planted.

Several mild winters have favoured the growth of the Cistuses, which with the Helianthemums, despite the lack of sunshine, are flowering freely. C. purpureus, purplish-red with a dark blotch, is very prominent, as also are Silver Pink, a name which very well describes a hybrid distributed by Messrs. Hillier, of Winchester; Sunset, rich reddish-purple; C. canescens, purplish red; and C. albidus, rosy lilac. The best with white flowers and dark blotches include C. cyprius, C. ladaniferus, and C. Loretii, while those prominent with pure white flowers are C. populifolius, C. laurifolius, C. obtusifolius and C. corbariensis.

Conspicuous among the varieties of Helianthemum vulgare are The Bride, white; cupreum, copper colour; roseum, pale rose; venustum fl. pl., double crimson; and Fireball, rich red. H. umbellatum is very distinct with its upright habit and white blossoms in whorls. H. formosum has rich yellow blotched flowers, the blotch being absent in the variety concolor (syn unicolor).

A large group of the Californian Lilac (Ceanothus thyrsiflorus) has been conspicuous for a month past mid-way along the Broad Walk. It is the hardiest of the Ceanothuses, forming here large bushes 12 feet to 15 feet high and as much in diameter. Bees are very partial to the pale blue flowers. This Californian Lilac is readily raised from seeds, or increased freely from cuttings. The plants are vigorous in growth, those which form the subject of this note being only ten or eleven years old.

Among the taller-growing Genistas first place must be given to G. cinerea, which is a native of south-west Europe. Flowering in June and July, there are several large beds which, being masses of rich yellow blossoms just now, are attractive for long distances. The bushes are 10 to 12 feet in height.

Rhododendron azaleoides (syns. R. fragrans and R. odoratum) is the best known hybrid between the evergreen (Rhododendron) and deciduous (Azalea) sections of the genus. The bushes here are 2½ to 5 feet high, and crowded with blossoms, white, more or less stained with purplish lilac. A pleasing feature is the delicious fragrance. It is one of the easiest Rhododendrons to root from cuttings made from the half-ripe young shoots about the end of July. Plunge the cutting pots in the fibre of a propagating case with slight bottom-heat. The Escallonias comprise another family of shrubs which have made a good show in our gardens during recent years, because of the mild winters. Huge masses of E. langleyensis are aglow with rosy carmine blossoms. E. Philippiana is always one of the hardiest and forms a sturdy bush covered with small white fragrant blossoms. E. edinensis, E. Balfouri and E. Donard Seedling are all showy hybrids making good evergreen bushes for the shrubbery border. *A. O.*

INDOOR PLANTS.

HIPPEASTRUMS.

As soon as seed of Hippeastrum is ripe and has been dried for a few days, it should be sown in pans of light, rich soil; if the seed pans are stood in a warm propagating case the seeds will soon germinate. When large enough for handling the seedlings should be placed singly in small pots. Young Hippeastrums should be grown steadily on without drying them off until they attain a flowering size. They may be grown in pots, shifting them on as they require it; or they may be planted out in a bed of rich soil in a warm house. If the latter method is adopted, they require much less attention and usually make strong flowering bulbs quicker than when grown in pots.

A close watch should be kept for mealy bug, which will quickly ruin the plants if allowed to spread; thrips are also sometimes troublesome during hot weather, but this pest may be prevented by a judicious use of the syringe.

Bulbs that have flowered and are growing freely and have well filled their pots with roots require ample supplies of water and diluted liquid manure or soot water, alternated with a concentrated fertiliser such as guano, which is one of the safest and best general fertilisers for all kinds of plants. *C.*

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IRISES.

BEARDED OR FLAG IRISES.

TALL bearded or Flag Irises are singularly accommodating plants in gardens; the flowers are generally large and handsome, while the majority of them have a soft, pleasing fragrance; they present a marvellous array of colour when seen in masses; its gradation, however, amply repays closest inspection, the wondrous delicacy of line and tint being only disclosed when the flowers are examined in detail. These Irises flower during May and June, consequently they are among the earliest of border perennials to brighten the garden. Unfortunately, the Flag Iris is not favoured in some gardens; the name suggests an array of violet-blue, that while good in restricted use can readily be overdone. Certain growers regard the Flag Irises as subjects useful only for waste places and obscure corners, and in both instances prejudice effectively excludes this beautiful genus from occupying the position its merits entitle it to.

One of the most forcible arguments for its greater representation in gardens lies in the fact that tall bearded Irises succeed under indifferent conditions, yet the results, though passable, are incomparable to those where the plants are treated in a generous way. Ordinary garden soil suits them, but so far as is possible they should be planted in an open, sunny place; one cannot conceive a more beautiful feature than an Iris garden, as may be seen in the Royal Botanic Gardens, Kew, while parallel borders also afford an effective means of displaying them; more often a less ambitious scheme has to be adopted, while bold groups arranged in the perennial borders or in front of shrubs will afford an effective display in small gardens.

The ground for Irises should be dug deeply or trenched in advance of planting, and enriched with well rotted farm-manure and a liberal dressing of finely ground bone-meal. These materials will keep the soil in condition for years; it is not advisable to disturb these bearded Irises except at long intervals.

Planting may be done from August until April, the former month being the best, as it enables the growth to become matured for the next season's display; moreover, late planting is always at the expense of the following season's display. Shallow planting should be practised and the rhizomes laid in the ground horizontally as the natural habit of the plant is creeping. The soil should be made tolerable firm. Little further attention is called for beyond removing the flower stalks when the blooms have faded. The foliage is practically deciduous, but does not ripen properly before spring, when it may generally be pulled off, leaving the young shoots intact; where the littery appearance becomes an eyesore and the plants are trimmed earlier in the year, the foliage should be cut off, but not closer than within six inches of the crown.

The following selection embraces a few of the best varieties in the May and June flowering sections. Only the main colours are given, the reticulation and blending yielding many intermediate shades. May flowering section :—Amas, light blue, violet and orange; Charmant, silvery-blue, orange beard; florentina, white; Gorgeous, violet-blue and purple; Kharput, violet and purple; and Miphetos, white, silver and orange. June flowering, Amoena section :—Calypso, white and blue; Duc de Nemours, violet and white; Mrs. H. Darwin, white, violet and gold; Rhein Mixe, mauve, netted white; Thorbeck, violet-purple and white; and Victorine, white, blue and violet. Neglecta section :—Black Prince, lilac-purple and velvet black; Cordelia, rosy-lilac and rich crimson; Lavater, lavender, purple, white and violet; Radiance, silver-mauve, white and purple; Sympathy, silvery-lavender and violet; and Virginie, blue, violet and orange. Pallida section :—Astarte, rosy-lilac and claret-red; dalmatica, pale and deep lavender; John Bull, soft lilac and mauve; pallida, soft lavender-blue; Queen of May, soft rose-lilac; and Walner, pale and deep lavender. Aphylla section :—Bridesmaid, white and silvery-lilac; Elizabeth, white, lilac and violet; Mdme. Chereau, white, frilled azure-blue; and Sappho, white, frilled lilac. Squalens section :—Dr. Bernice, copper-bronze and velvet crimson; Harlequin, copper, purple, velvet maroon and orange; Lady Jane, copper-rose, madder-red and white; Lord Grey, clouded rosy-fawn; Nibelungen, fawn, yellow and violet-purple; and Van Geertii, lavender, purple, black, white. Variegata section :—Darius, primrose, lilac and yellow; Gajus, canary, crimson and primrose; Gracchus, crimson, reticulated white; Honorable, gold and mahogany-brown; Maori King, golden, velvet maroon, and silver; and Ossian, canary-yellow and claret red. *Thos. Smith, Coombe Court Gardens, Kingston Hill.*

EARLY-FLOWERING CHRYSANTHEMUMS.

ALTHOUGH there has of late years been marked progress amongst autumn flowers there is nothing more gorgeous in the mass than early-flowering Chrysanthemums, while for dotting in mixed borders and for furnishing cut blooms they are extremely useful. Where it is the practice to grow Hydrangeas and similar early-flowering subjects in tubs, for garden ornament, certain varieties of these Chrysanthemums will be found suitable for a late autumn display. Chrysanthemums have the advantage that they may be transplanted almost up to the flowering period, provided a good ball of soil is lifted with the roots, and the latter watered if need be. Because of this they are eminently suited for furnishing bare spaces when other plants have died down, or may have failed, and they thus serve to keep the borders gay over a long period.

The past three or four years have proved that raisers have not entirely forgotten their successes in the nineties, for a few meritorious varieties have been introduced which seem to promise well. The greatest improvement is noticeable amongst the large-flowered type, the blooms being of good size and substance, and the colours pleasing. But I do not subscribe to the view that all these sorts for disbudding have a flower garden future comparable to the older, and smaller, but freer blooming varieties, for in some that I have grown there is an absence of that branching habit so essential in border plants which have to last. On the contrary, they prove invaluable for cutting where medium-sized, single-stemmed blooms are required early. I have noticed the fine display they make in florists' shops from late August onwards, and at the prices quoted their culture in good districts should be worth while. Amateurs who take an interest in exhibiting also favour them, a fact which should stimulate raisers in their efforts to obtain new varieties with large blooms. But that quality is not, I think, required in flowers for garden decoration. Were the thirty-year-old Madame Marie Masse and its several sports a little stronger in the stem and a foot less high they would, I imagine, represent the ideal type. Even with their limitations they are still amongst the foremost for planting where distant massed effects are desired.

The least improvement is evident amongst varieties suitable for rather small beds. There is a demand for varieties of the style of Candide, a plant with a fair habit which does not exceed 15 inches in height. Carrie is another slightly taller variety, but there is room for great improvement in both.

For general purposes the following sorts are typical of many which, if allowed to grow naturally, will produce an abundance of bloom from the end of August until frost occurs :—white—Framfield Early White, Miss G. K. Thorpe, Sanctity and Roi des Blanc; shades of bronze and terra-cotta—Harvester, Basra, J. Bannister, Goldfinch and Golden Goacher; pink—Silver Lining, Ena Thorpe, and Geo. Bowness, the last-named being, perhaps, the best of all the Masse family. Noteworthy in yellow and gold sorts are Tonkin, Mrs. B. Melville, Leslie, Horace Martin, Golden Diana and Elstob Yellow; rich crimson varieties include Dick Barnes, Mrs. Wm. Sydenham and Crimson Diana. Other sorts to be recommended are Diana, crimson and gold; E. Gilleland, salmon, tipped gold; Harrie, bronzy orange; Well's White Masse; Rubis, claret; Normandie, pale pink; and Helena, chestnut red.

The following sorts give the best results when disbudded: Cranfordia and its sports; Lichfield Pink, September White, Almirante, Crimson Polly, Hubert, salmon pink; Lichfield Purple; Stella, blush pink; Golden Glow, Alex Coyle, amber; Dorothy Ashley, pink; and Red Cross.

For growing in ornamental receptacles none surpasses those of the Masse family, but amongst the large-flowered sorts Cranfordia and its sports make the best plants.

The members of the Masse family are as hardy as the usual type of perennial border plants, and the propagation of stock is not troublesome. Those that are shy in producing shoots suitable for use as cuttings should be introduced into a little warmth in February, and their propagation followed in the usual way. It pays to pot the young plants; especially any that are purchased in spring, and grow them on in a pit, subsequently hardening them off for planting. *T. G.*

RAMBLING ROSES IN POTS.

POT Rambling Roses are splendid subjects for the decoration of the conservatory in spring, for they have just that habit of growth that lends itself to the art of the decorator, while the colours are very pleasing. Pot plants of this type may be grown naturally, or budded on tall Briars to form weeping standards. As with dwarf Roses, climbers in whatever form should be well established in their pots before attempting to force them.

Early autumn is the best time to make a start, and the average grower will find it cheaper and easier to purchase his stock in the usual way.

Roses require soil of a substantial nature, and a lasting manure, such as bone meal, should be mixed liberally with the compost, which should be of a fairly porous texture. Ample drainage material should be used, for hard potting is essential.

The plants in their pots should then be plunged in ashes under a south wall until February, when, after pruning them in the usual way with newly planted ramblers, they should be taken into a cold house until signs of growth are apparent, when a little fire-heat is an advantage. When it is seen which shoots are the strongest reduce the number to two on natural growing plants, but on standards endeavour to secure a limited number, say six good shoots, rather than twice that number. In young plants the best shoots have an inclination to grow upright instead of arching, but if taken in time that may be prevented by tying them down. The subsequent treatment of the plants is the same as that for dwarf Roses, but whereas the latter will be ready for standing out-of-doors in June, climbers require another month or so to complete their growth.

Train the long shoots up the roof rafters if possible, but if this is not possible place two or three long Bamboo canes in each pot and twine the shoots around them. As soon as the weather permits, dispense with fire-heat and endeavour to promote strong growth under as natural conditions as possible.

In the event of an attack of mildew dust flowers of sulphur on the affected parts. Red spider is a great pest of Roses under glass, but this may be kept in check by syringing, and maintaining a reasonable amount of moisture in the atmosphere.

When the plants are in full growth water them copiously and feed them liberally.

Towards the end of July, or it may be a little later, growth should be completed, and all that remains is to bring it to maturity by exposing the plants fully to the autumn air. Plunge the pots, and secure the growths to a temporary trellis work. Guard against over-watering when the plants have become acclimatised to their new conditions.

Towards the end of the year water is best kept from the soil as much as possible in preparation for reducing it to nearly a dry state after the plants are housed in February. At

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that stage what little pruning is necessary should be done; generally it only means shortening the longest shoots to sound wood; and in the case of standards there may be small shoots that need cutting back to two or three eyes.

A top dressing of rich soil may be applied after removing some of the old soil from the surface, and this should be settled in position by a thorough watering. The treatment henceforward is much the same as for ordinary pot Roses. Water the plants very sparingly until growth becomes active, but use the syringe freely. Growth, however, should not be hard forced. Encourage it to develop in the first instance by simply closing the house at night, and then gradually utilise fire-heat to maintain a temperature of between 50° and 55°, but not higher before bloom-buds are in evidence, as an excess of warmth would result in the shoots becoming "blind." When the buds are seen to be swelling, a little more warmth may be afforded the plants, and at the same time the use of a reliable stimulant will improve both the colour and the quality of the flowers.

The best varieties for the purpose include Dorothy Perkins, Paul Transon, Lady Gay, White Dorothy Perkins, Minnehaha and Tausendschon; whilst of later introductions Emily Gray and Coralie promise well. *T.*

HARDY FRUIT GARDEN.

LATE PLUMS.

DURING a visit to an old Manor garden last October, I was interested in a crop of Plums on a wall with a south-east aspect, and found their names on labels attached to the trees, which, of course, added to their interest.

The fruits were quite firm, and in appearance promised to remain sound for a considerable time.

The trees were somewhat neglected, and aged, therefore the fruits were not of the largest size, nevertheless, each tree carried a useful crop. The sorts included Coe's Late Red, a medium-sized, round fruit, with a deep suture on the one side. The skin is bright purple, covered with a thin blue bloom, and the stalk is about one inch long. The flesh is yellowish, firm and juicy, having a freestone tendency. With a little care, I predict the variety would hang until Christmas. The fruits of Late Greengage were somewhat shrivelled, but still of a rich sugary flavour, rather small in size, but inviting. The skin is greenish-yellow, covered with a thin bloom; the flesh is green, juicy, of rich flavour, and of a freestone character. I once saw a fine tree of this variety on the wall of an old mill house in Suffolk.

Another of the varieties was Grand Duke, a clingstone Plum, of large size, and late in ripening; it is valuable for cooking purposes. The skin is blackish-purple, but comes a lighter colour in the shade, and is covered with a deep blue bloom. The flesh is greenish-yellow, and has a brisk flavour when fully ripe. This late Plum makes a good standard.

THE BEST LATE PEACHES FOR GROWING OUT-OF-DOORS.

WHEN in charge of two large gardens I found the following sorts of Peaches produce large crops of fine fruits that were useful for making fruit compote, as well as for dessert, during the early game-shooting season.

The late Duke of Cambridge informed me during his stay at one of the establishments referred to, that the Peaches sent to table were the best-flavoured he had tasted during the year, the varieties being Bellegarde and Princess of Wales. I always found that Peaches on walls required plenty of phosphates, and the trees were further assisted by flooding the border with weak liquid manure, and this treatment also reduced bud-dropping to a minimum. A small quantity of flowers of sulphur was sprinkled over the border, and lightly forked into the soil.

The variety Princess of Wales has large light coloured fruits, with a slight blush tinge on the side next to the sun. The flesh is white, with a yellow tinge; melting, juicy and richly flavoured. The flesh, moreover, is firm, so that the fruits are suitable for packing for transit. I have gathered fine fruits of this Peach the first week in November. Bellegarde is an excellent Peach, and should be grown in every garden, the tree being an excellent bearer, whilst the beautiful colour of its fruits is inviting; it would be difficult to over-estimate all its good qualities. The skin is deep red all over—a very intense colour. The flesh is pale yellow, slightly tinged red at the stone, rich, sugary, juicy and of vinous flavour. The tree requires plenty of water whilst developing its crop. One of its qualities is that the wood does not grow quite so strongly as some of the earlier sorts.

Albatross is a pale-coloured fruit, of large size, ripening about the end of September to mid-October; it will hang for a longer time if double fish netting is put over the trees as soon as the fruits commence to colour.

The flesh is white, mottled red at the stone, very juicy, melting, and has a rich flavour.

Salwey is the latest of all Peaches, and although the flavour is not quite up to the highest standard, it is a desirable variety, owing to its luscious-looking flesh, for fruit compotes. The fruit is medium-sized, and has flesh as yellow as that of an Apricot, and in some cases and seasons is quite as good as an Apricot. It is ripe at the end of October and beginning of November.

The tree requires good cultivation, and the roots should be given plenty of liquid stimulant diluted to a suitable strength. *Pomona.*

CULTURAL MEMORANDA.

MULCHING.

AT its best mulching does not tend to tidiness and surface mulches should not be used unnecessarily where the material is likely to constitute an eye-sore. Apart from that consideration, mulching is a practice often governed by custom, the reason for it, the character of the season, and the nature of the soil—all important matters, receiving secondary consideration.

Mulching is beneficial in many respects, provided it is put into practice at the proper time, but many are too anxious to see the work completed. In seasons like the present one it amounts to foolishness to cover the ground with heavy dressings of dung before the land has had time to become warmed by the summer's sunshine; the cause of half the gardener's worries up to now has been due to lack of sunshine, and where, as is often the case, mulching has been practised early, the remedy has been worse than the evil, for the soil cannot be otherwise than excessively cold for the time of the year. A few warm days in April or May cannot be taken as evidence of a hot summer. On heavy soils especially I should prefer to use the hoe a little oftener than usual rather than exclude the heat of the sun by spreading a mulch on the surface before being fully convinced that it was in the interest of the crop to do so. Warmth in the soil is a vital necessity, not to be excluded until just before spring sunshine is followed by summer drought.

The material used for mulching should be light in texture, for air is essential to healthy root action, and the air cannot readily penetrate through heavy manure, nor below the surface of a soil which has become caked through lack of stirring it either with the fork or hoe. For that reason the use of either of these tools should precede the application of whatever moisture-preserving material is to be employed as a mulch. Where there is a plentiful supply of old Mushroom bed material there is no necessity to seek further for an ideal mulch for practically all annual crops. It is the tidiest manure, it tempers the heat of the sun, just sufficient to conserve the soil moisture, and does not unduly lower the soil temperature. Where other manure has to be used it should be applied sparingly, for in no case should hoeing be neglected. *Y. G.*

HOME CORRESPONDENCE.

Double Buttercups.—In connection with your answer to a correspondent in your issue of June 9 (p. 327), I thought you might like to see a specimen of Ranunculus bulbosus fl. pl. The original plant was found by a relative in 1880 in a field near Great Bookham, Leatherhead, Surrey, and I have preserved it ever since. I exhibited it before the Scientific Committee of the R.H.S., a few years after it was found, and have shown it at our Isle of Wight Natural History Society's meeting and at wild flower shows. It is a pretty flower and much admired. During all these years I have never heard of another double form having been found. I am also sending a few flowers of a five-spotted Campion, found growing wild by me in 1910 on the reclaimed land at Brading Harbour. I enclose also a specimen of Claytonia perfoliata, one plant of which I found in the garden here last year. *C. Orchard, Bembridge, I.W.*

[The Campion flowers were withered, but the double Buttercups were quite fresh and attractive.—EDS.]

What Is a Rock Garden?—Mr. Clarence Elliott's letter (p. 356) corroborates a surprising statement made to me a day or two previous—that judges at the R.H.S. shows are not paid. Is it because the eminent men who do the judging give their services free that their decisions are so lightly put aside? Even village show committees recognise the abilities of their judges by offering fees, in spite of their struggles to keep going, owing to the payment of the entertainment tax, which it is said the Royal Horticultural Society do not have to pay. *H.*

Gardeners' Wages.—During the past few weeks there have been numerous letters in the *Gard. Chron.* touching on the subject of gardeners' wages. My contention is that the employer is not to be blamed for the present low standard of wages, but the employees. I have had about twenty-three years' experience, and as a young man served under some of the most able and practical gardeners, and am quite capable of holding a good position as head, but which I was not able to find, therefore I altered my course, seeing there are so many inexperienced gardeners willing to work almost for nothing. I have done as Mr. H. Arnold, of Bedgebury Park, Goudhurst, Kent, advised on p. 340 of your issue of June 16. *Excelsior.*

——In reply to *T. W.* (page 340, June 16), I fail to see why my former remarks should give offence. This is a discussion on gardeners' wages. Does *T. W.* consider £2 per week a fair wage for a head gardener with a small family, and, if so, what can he save out of it? The cost of living has not yet fallen to any extent. Has not the ex-service man with a pension an advantage over the non-service man in that he can ask for less salary? I know several instances where ex-service men with a pension of 10s. per week have undercut the non-service men by that amount. I do not blame the ex-service man; he must live; but so must the other, and the ex-service man with no pension is in worse case. I think most of us would wish to be as we were before the war, for even those who were not in the Army have suffered; I have. Can *T. W.* suggest a means for our improvement? No union will keep us; moreover, it was proved that few head gardeners in good positions belonged to the B.G.A. I think your other correspondents have proved that, as a whole, gardeners are not too well paid. As to gardeners and long service, I am quite aware that there are many places where the gardener and his staff have grown old together on the estate and are still retained. The wage question affects the under as well as the head gardener, and, if the men are contented, there is better service. *S. H. G.*

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SOCIETIES.

NATIONAL ROSE.

JUNE 28.—Somewhat cloudy but otherwise warm and fine weather favoured the National Rose Society on the occasion of its great exhibition at the Royal Botanic Society's Gardens, Regent's Park, on the above date. The Society's Royal patron, H.M. Queen Alexandra, attended about 12.30 p.m., and was accompanied by H.M. the Dowager Empress of Russia and Princess Victoria. The Royal party were escorted around the show by the President of the Society, S. Jackson, Esq; Miss Ellen Willmott, V.M.H.; the Deputy President, C. E. Williamson, Esq.; and Mr. Courtney Page, Hon. Secretary. There was a large attendance when Queen Alexandra arrived, and there was abundant evidence of the affectionate regard rosarians have for Her Majesty.

The exhibition was not up to the highest standard of excellence, but this was scarcely to be expected in such a season. Nevertheless, the number and quality of the exhibits exceeded general expectations, and were proof of the way in which the care of Rose lovers can overcome bad weather. The decorative classes were excellent and constituted one of the finest features of the show. The amateurs' section was not well represented, and many amateur rosarians mourned the fact that they had not yet a Rose bloom worthy of entering in the National competition.

NEW ROSES.

Fair numbers of new Roses were exhibited in the tent set apart for novelties, but there were fewer than usual owing to the unkind season and the difficulty of presenting several flowers of a variety in first-rate condition. Two Gold Medals and four Certificates of Merit were awarded.

GOLD MEDALS.

Lady Roundway.—(See Fig. 1.)—A glorious Rose bearing handsome flowers of deep golden yellow colouring with almost orange tinting. The petals are very substantial and the stems long and sturdy. It is a Pernetiana variety, but so far as we could make out, it lacked fragrance. Raised and shown by Messrs. B. R. CANT AND SONS.

Bessie Chaplin.—A big H.T. Rose of pink colouring and good shape, but the flowers shown were in several instances overdressed. It is of the La France type of colouring. Growth free and foliage large and dark. This variety gained a Certificate of Merit in June, 1922. Shown by Messrs. CHAPLIN BROTHERS.

CERTIFICATES OF MERIT.

Little Joe.—A brilliant and attractive H.T. variety, with large petalled, single flowers of great substance. If free in growth and flowering, this should be a useful bedding Rose, as the colour is rich velvety scarlet. Raised by Mr. F. J. LOOYMAN, and shown by Messrs. D. PRIOR AND SON.

Gwynne Carr.—A deliciously fragrant, light pink H.T. variety. The blooms are flattish but of beautiful shape in the bud. There is a golden glow at the base of each petal. Apparently a strong grower and said to be perpetual flowering, and useful for garden decoration. Raised and shown by Messrs. ALEX. DICKSON AND SONS.

Maud Cuming.—A fine big flower with very broad petals and slight Tea fragrance. The outer petals are a medium shade of pink and the full centre is paler, while the base of each petal has a little yellow shading. The growth is excellent and the foliage deep green and glossy. A grand Rose for exhibition purposes, and said to be useful also for garden decoration and bedding. Raised and shown by Messrs. ALEX. DICKSON AND SONS, Newtownards.

Shot Silk.—(See Fig. 5.)—An exquisitely beautiful H.T. Rose and possessing a distinct, deep and rich perfume; indeed, in this respect alone it is a variety sure to win hosts of admirers. The rounded flowers are of lovely salmon pink colouring, with deep golden shading at the base of each petal, this latter colour giving a golden glow to the whole of the flower. The foliage is dark and glossy, and the growth good; therefore Shot Silk should become a popular bedding variety. Raised and shown by Messrs. ALEX. DICKSON AND SONS.

OTHER VARIETIES.

Two varieties which failed to meet the approval of the judges attracted a good deal of attention from visitors. Betty Hulton, a clear, light golden yellow H.T. variety, shown by Messrs. ALEX. DICKSON AND SONS; unfortunately there was only one bloom in good form, but this is certainly a variety which will be seen again in fine form. The other variety, Lady Dixon Hartland, is a large, pointed H.T. variety of cream-pink colouring; the blooms promise to be good for exhibition purposes, as well as for garden decoration.

DECORATIVE CLASSES.

The schedule included numerous artistic classes, and one of the large tents was devoted entirely to decorated dinner-tables, vases of Roses, and baskets of Roses. It was interesting to find some of the best Roses in the show in these classes, the reason being that the blooms were grown under glass, for whilst Roses in the open are much below par this season, those from indoors are exceedingly fine in colour, due to the absence of bright sun. Where the exhibitors were required to utilise Roses grown in their own gardens the results were feeble. We think that in the open artistic classes the Roses should be of the exhibitor's growing, especially where traders or traders' wives compete.

Lack of originality is apparent each year in these classes, and those who exhibit seem to follow the lead set in the previous season or two. A few years ago Irish Elegance and single Roses of that type won most of the prizes, and we remember when Mme. Abel Chatenay carried all before it. Now it is the day of Ophelia and its deeper-toned companion, Mme. Butterfly. It might be well next year to have a special class for these two varieties, and not permit their inclusion in the remaining classes, with a view to finding other suitable material amongst Roses for decorations, and in this way greater originality might be obtained.

FIG 5.—ROSE SHOT SILK; NATIONAL ROSE SOCIETY'S CERTIFICATE OF MERIT, JUNE 28. SHOWN BY MESSRS. ALEX. DICKSON AND SONS.

The best decorated table of single Roses was shown by Mrs. COURTNEY PAGE, Ridgway, Enfield, who had a charming arrangement of Irish Elegance relieved with sprays of Rosa Willmottiae. Two small glass cauldron bowls were employed as centre pieces, the corner pieces being small glass boats, very daintily decorated: The 2nd prize was awarded to Mrs. Colston Hale, Warminster, with the same variety in larger bowls; 3rd, Mrs H. BURTON, Chappel, Essex, with a very elegant decoration of Isabelle Roses and sprays of Rosa sericea pteracantha, with glorious translucent red spines.

Competition in the class for a decoration of cut Roses for a dinner-table arranged with Rose foliage only was keen amongst ten exhibitors. The first prize was again won by Mrs. COURTNEY PAGE with the variety Mme. Butterfly, a much improved Ophelia, the tones being richer. The blooms in this exhibit were of magnificent quality, probably the best in the show, and the arrangement was excellent; 2nd, Mrs.

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CHARLTON, Yiewsley, with the same variety, but the centre bowl more stiffly arranged; 3rd, Mrs. A. D. RUFF, Shambrook, Bedfordshire, with a lovely decoration of Melody, a perfect composition in delicate yellow. The competition for a table decorated with Roses grown by the exhibitor proved a greater task, and in this Mrs. Courtney Page was beaten for first place by Mrs. H. BARTON, Chappel, who showed Emma Wright and Old Gold, that associated pleasingly, whilst Mrs. PAGE showed Irish Elegance and other singles. There were five exhibits in this class.

The competition in the open decorated table classes was not so keen as in the amateurs' section. Mrs. BIDE, Farnham, was worthily awarded the 1st prize for blooms of the charming Mme. Butterfly, daintily arranged in fancy baskets of dark mahogany colour; 2nd, Mrs. TISDALE, Woodford, with the same variety. There were only five exhibits in this class.

The best bowl of Roses in the open artistic classes was shown by Mrs. BIDE, who had Mme. Butterfly solely, fine, long stalked blooms in the bud stage; 2nd, Mrs. TISDALE with the paler Ophelia, in first-class condition.

In the amateurs' classes there was little that calls for comment, the blooms being very poor. Mrs. CHARLTON, Yiewsley, showed Mme. Edouard Herriot in the basket class for one variety, and Mr. T. C. WISEMAN, Faversham, had blooms of average merit in the class for a basket of one or more varieties, showing the pink Isobel. This exhibitor also showed good blooms of Covent Garden in the similar class for a basket of Roses in Division E of the schedule. A basket of Paul's Lemon Pillar was well shown by Mr. S. W. BURGESS, although they only appeared to be good because most others were so inferior.

CUT BLOOMS: OPEN CLASSES.

The exhibits of 72 blooms, distinct varieties, were of decidedly better quality than might have been expected. The Championship Trophy was won by Messrs. D. PRIOR AND SON with a very even collection. The blooms were not so large as in some former years, but they were shapely and of good colour. This collection included two or three seedlings which had flowered for the first time, but they were scarcely sufficiently mature to enable one to express a decided opinion as to their merits, though the crimson-lake colouring and gold reverse of Paul Rubens seemed to be very distinct. Of the other varieties Princess Victoria, Augustus Hartmann, Courtney Page, George Dickson and Archie Gray of the reds and crimsons; F. W. Dunlop, Mrs. Henry Morse, Mrs. J. H. Welch, Mrs. Chas. Hunter and Lohengrin of the pink shades were the very best. Messrs. B. R. CANT AND SONS were a very good second in this important class, and their best blooms were of H. V. Machin, E. Godfrey Browne, George Dickson, Capt. F. Bald, Hoosier Beauty, Princess Victoria, Mrs. Bryce Allen and Mrs. Henry Morse. Messrs. F. CANT AND CO. were third, and they had good blooms of Archie Gray, Blush Queen, Mildred Grant, Mrs Henry Morse and Columbine.

There were no exhibits of 32 varieties, three blooms of each, but the competition was very good in the class for 48 distinct exhibition varieties. Here the chief honour fell to Mr. GEORGE PRINCE for a chaste and beautiful collection of Martha Drew, Mrs. Lamplough, Modesty, Candeur Lyonnaise, Mrs. Darlington, Rev. F. Page Roberts and others. In the second prize collection of Messrs. JARMAN AND CO. there was more colour, but the general run of the blooms was not of quite such good quality. Their best were H. V. Machin, Ophelia, Augustus Hartmann, G. N. Forester and Mrs. G. Norwood. Messrs. GEORGE LONGLEY AND SONS were third.

The only collection of 24 distinct varieties was exhibited by Messrs. CHAPLIN BROS., who were awarded the China Trophy. Some of the blooms were a trifle weather-stained, but otherwise they were quite equal to the first prize collections in the other classes. They included Mrs. Henry Morse, Mrs. J. R. Allen, St. Helena, Lemon Pillar and Marjorie Bulkeley.

Competition was very strong in the class for triplets of eight distinct varieties, and although the blooms were a trifle small the prize-winning sets were shapely and of good colour. Messrs. JARMAN AND CO., showing such sorts as Mrs. E. Hicks, Mrs. Henry Morse, Rev. F. Page Roberts and C. V. Haworth, won the first prize. Mr. GEORGE PRINCE, who was a very good second, had fine sets of Medea, Hoosier Beauty and White Maman Cochet. Mr. HY. DREW was third.

Tea and Noisette Roses were surprisingly good, and Mr. GEORGE PRINCE won the D'Ombrian Cup with the best 18 varieties we have seen for some time. They included Lady Plymouth, Mrs. C. Hall, Auguste Comte, Mrs. Foley Hobbs and Souvenir de Pierre Notting. Mr. HY. DREW was second, and his best blooms were Madame Constance Soupert, Madame Leon Constantine and White Maman Cochet.

The classes for New Roses distributed since January 1, 1919, were, as usual, disappointing. It is unfortunate that no grower seems to be able to set up a reasonably attractive set of a dozen blooms of varieties of the previous few years. The best was a moderate lot staged by Mr. E. J. HICKS, who was awarded the Kilbee Stuart Cup. Marjorie Bulkeley, Souv. de G. Demoya, Mrs. E. Hicks and Victor Teschendorff were his best varieties. Mr. GEORGE PRINCE was second, and he included a well-coloured bloom of Rev. F. Page Roberts, Souv. de G. Pernet and Admiration. The best 12 blooms of any New Rose were of the variety Maud Cuming from Messrs. A. DICKSON AND SONS. Messrs. B. R. CANT AND SONS were second with good blooms of Princess Victoria. Hoosier Beauty, shown by Mr. GEO. PRINCE, was the best basket of H.T. Roses. Very good blooms of W. R. Smith won the first prize in the T. class for Mr. HY. DREW. The first prize seven baskets of decorative Roses arranged by Messrs. ALEX. DICKSON AND SONS, was quite a good effort, those of Sunstar, K. of K., Betty Uprichard and Lady Pirrie were very charming. Messrs. CHAPLIN BROS. were second with good baskets of such sorts as Mrs. Henry Morse, Ophelia and General McArthur. Messrs. D. PRIOR AND SON, who showed Mme. Edouard Herriot, Hawlmark Crimson and General McArthur, had the best three baskets, and Mr. HY. DREW was second.

GROUPS OF ROSES.

The "Representative Groups of Roses" which fairly well filled the centre of the large tent were a delightful feature of the show. Immediately on entering, the visitor was confronted by the highly creditable arrangement of Mr. ELISHA J. HICKS, which was deservedly awarded the Championship Trophy, a Gold Medal, the Edward Mawley Memorial Medal and first prize in money. The arch of climbing Lady Hillingdon and tall stands of various free-flowering varieties were exceedingly effective, and the group was bordered in a very attractive manner with sprays of Roses. The body of the group was made of large bowls of such sorts as Padré, Betty Uprichard, Chas. E. Shea, Hortulanus Budde, Golden Ophelia, Golden Mail and Mrs. Henry Morse. Messrs. B. R. CANT AND SONS were second, and, although they did not stage so many blooms, theirs was an excellent exhibit. Their chief varieties were Henrietta, Lady Pirrie, C. V. Haworth and Mrs. Henry Morse. In the third prize exhibit of Rev. J. H. PEMBERTON there was a splendid central display of the yellow Star of Persia.

In the class for a medium-sized group Messrs. CHAPLIN BROS. were awarded the first prize for a generous collection of very beautiful Roses. The principal sorts were Emma Wright, K. of K., Isobel, Paul's Scarlet Climber, Premier, Golden Spray and Ophelia. Mr. WALTER EASLEA won the first prize in the class for a group on a space of 10ft. by 3 ft., and he had very good stands of Hoosier Beauty, Christine, Ophelia, Irish Fireflame, and Henrietta. Mr. T. P. EDWARDS was second.

The A. C. Turner Challenge Cup was won by Messrs. F. CANT AND CO. with thirty-six excellent vases of Decorative Roses, which included Donald McDonald, Mrs. H. Stevens, General McArthur, Emma Wright, Ophelia and W. C. Gaunt. Mr. J. R. MATTOCK, showing such sorts as Joanna Bridge, Emma Wright, Padré and Una, was second. Messrs. CHAPLIN BROS. won the first prize for eighteen vases with a splendid collection of Isobel, Sovereign, Colonel Oswald Fitzgerald, Golden Spray, K. of K., Emma Wright and similar varieties. Mr. G. PRINCE, who was a good second, had a charming first prize collection of twelve varieties of dwarf Polyantha Roses.

AMATEURS' CLASSES.

As was only to have been expected in such an abnormally unfavourable season the exhibiting amateur rosarians were not able to enter in their usual classes. It became an almost impossible task to find three dozen exhibition Roses even in the largest amateur's garden, and from the other exhibits it was fully evident that the members had brought just what they could cut rather than risk their section of the show being unrepresented. It must have been gratifying to those who did exhibit to find that by the middle of the afternoon their Roses had developed, in the warmth of the tent, even beyond their most sanguine expectations, and that the hard Roses, almost buds, of the morning had become pretty blooms of fine colour.

The twelve exhibition varieties, which won first prize for Mr. W. G. BAMBRIDGE, Kettering, included very good examples of George Dickson, Sunburst, Hugh Dickson, and Madame Mélanie Soupert. In the division for growers of fewer than 1,000 plants, the first prize twelve blooms included good examples of Mrs. Amy Hammond, George Dickson, Mrs. A. E. Coxhead and Freda. The Rev. F. R. BURNSIDE, Great Stanbridge, was a very good second. Mr. S. W. BURGESS, Tonbridge, had a beautiful basket of Lemon Pillar Roses.

In the class for growers of fewer than 500 plants Mr. J. J. WILLIAMSON, Walmer, was first with such sorts as Mrs. Foley Hobbs, Mrs. J. H. Welch and Mrs A. E. Coxhead. The best six blooms were set up by Dr. F. S. HAYES, and in this section the best basket was exhibited by Mr. WISEMAN.

The Ben Cant Memorial Prize was won by Mr. A. AMOS, Colchester, and Mr. J. N. ROGERS, Putney, who had the best six blooms grown within a radius of eight miles of Charing Cross, showed a fine bloom of Mrs. George Horwood. This exhibitor also won the Gardeners' Company Challenge Cup for six blooms grown within five miles of the same centre, and he also won the Nicholson Challenge Cup.

The Elisha J. Hicks Challenge Cup, offered for competition amongst growers who have no assistance, was won by Mr. W. E. MOORE, High Wycombe, with very creditable blooms.

As in the Open Section, Tea and Noisette Roses were very good. Dr. F. G. HAYES, Taunton, won the Trophy with beautiful blooms of such sorts as W. R. Smith, White Maman Cochet, Medea and Lady Plymouth. Mr. F. SLAUGHTER, Steyning, won the Holroyd Challenge Cup with excellent vases of Padré, Una, Tea Rambler and Ophelia, and was also first with similar varieties in the class for amateurs who employ no paid assistance.

The groups of Roses shown by amateurs reflected the unfavourable season in the paucity of good blooms; indeed, no variety was of sufficient merit to mention. There were two groups in the class for a collection arranged on a space of 5 feet by 2 feet, and the most pleasingly arranged one, shown by Mr. G. MARRIOTT CARLTON, was awarded the first prize; the other exhibitor, Mrs. H. BARTON CHAPPEL, was awarded the second prize.

Mr. H. R. DARLINGTON, Potter's Bar, and Mr. M. H. WARD, Epsom, were placed first and second respectively in the smaller class for a group measuring 3 feet by 3 feet.

MEDAL BLOOMS.

Open Classes.—H.P., Candeur Lyonnaise, shown by Mr. GEO. PRINCE; H.T., C. V. Haworth, by Messrs. F. CANT AND CO.; T. or N., Lady Plymouth, by Mr. GEO. PRINCE.

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Amateurs' Classes.—H.P., Frau Karl Druschki, by Dr. F. G. HAYES; H.T., Mrs. E. J. Hudson, by Mr. W. E. MOORE; T. or N., White Maman Cochet, by Mr. W. E. MOORE.

NON-COMPETITIVE EXHIBITS.

In the Rose tent Messrs. WM. CUTBUSH AND SONS arranged a very beautiful group of pot plants of standard and dwarf free flowering Roses, and Mr. J. C. ALLGROVE brought well-flowered sprays of Rosa Moyesii and R. Fargesii.

In the corridor Messrs. A. IRELAND AND HITCHCOCK showed Sweet Peas, Messrs. ALLWOOD BROS. staged Carnations, Messrs. BLACKHOUSE AND LANGDON had Delphiniums, Messrs. J. CHEAL AND SONS exhibited Dahlias, Messrs. CARTER, PAGE AND CO. border flowers, and Messrs. J. PIPER AND SON arranged hardy shrubs, these adding materially to the attractions of the show.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE annual festival dinner in aid of the Gardeners' Royal Benevolent Institution was held on Thursday, June 28, in the Hotel Victoria, Northumberland Avenue, W.C. The Right Hon. The Earl of Plymouth, Lord Lieutenant of Glamorganshire, presided over a company of about one hundred and sixty. The Chairman was supported by the Right Hon. Lord Lambourne, P.C., the Right Hon. Lord Treowen, C.B., and others present included Sir Edward Stern, Mr. Leonard Sutton, Mr. and Mrs. W. J. Lobjoit, Mr. Whitpaine Nutting, Mr. and Mrs. J. M. Bridgeford, Mr. A. MacKellar, Mr. and Mrs. Morgan Veitch, Mr. and Mrs. S. M. Segar, Mr. J. Hudson, Mr. and Mrs. Geo. Monro, Mr. and Mrs. Alex. Monro, Mr. and Mrs. J. Rochford, Mr. E. A. Bunyard, Mr. and Mrs. G. N. Bunyard, Mr. and Mrs. J. Collingridge, Mr. and Mrs. J. Cull, Mr. and Mrs. W. H. Cutbush, Mr. and Mrs. G. H. Barr, Mr. and Mrs. C. H. Curtis, Mr. and Mrs. D. Ingamells, Mr. J. Heal, and Mr. and Mrs. A. Dimmock.

The room presented a most beautiful sight, for, as is appropriate at a horticultural function, the tables were most attractively decorated with flowers and fruit contributed by the various friends of the Institution. It will be remembered that the late Earl of Plymouth was to have presided at the dinner, and the present Earl of Plymouth, his son, kindly consented to take his father's place, and the young Earl is to be congratulated on the efficient manner in which he carried out the duties of chairman and also on his spirited appeal for the indigent gardeners and widows of gardeners.

In proposing the loyal toasts Lord Plymouth announced amid loud cheers that H.R.H. The Prince of Wales (President of the Institution) had graciously consented to occupy the chair at the festival dinner next year. He then proposed the toast of the evening—that of the Gardeners' Royal Benevolent Institution. He stated that he had not the extensive knowledge of horticulture possessed by his father, which he put to practical use, but he was nevertheless a lover of nature, and such love brings with it many of the joys of life. He felt it an honour to be asked to take his father's place. He confessed that his knowledge of horticulture was of the barest, and many a time he had wandered round the gardens either at Hewell Grange or St. Fagans, endeavouring to learn the names of plants, but he was sorry to admit that the next year he had forgotten them again. Although his knowledge of horticulture was so small he had a great love for beautiful gardens and flowers, and just as we derive joy and pleasure from our gardens, so ought we to allow others to enjoy them, too, and if those who possess beautiful gardens would allow them to be open for inspection, it would mean much in the lives of the less fortunate of our fellow countrymen. He stated that he had always from his earliest youth a great weakness for gardeners, and he had always derived much information from them; indeed, he looked on them as oracles, and especially in prophesying the weather. Moreover, he knew that gardeners were jovial fellows and made firm, fast, and generous friends. The object of his appeal to-night, he said, was to enable relief to be granted to aged and distressed gardeners, as well as help their necessitous widows. Lord Plymouth referred to the various funds, such as the Victorian Era Fund and the Good Samaritan Fund, and he stated that at the present time two hundred and sixty old and infirm men and women were receiving annuities from the Institution, the oldest of whom was ninety-two years of age. There were thirty applicants on the waiting list, and he made a strong appeal for support, stating that it was necessary to raise over £5,000 each year to maintain the work. He was assured that the Institution was worthy of every possible support. He referred to the absence of Sir Harry Veitch, who had been treasurer for thirty-five years, and regretted that he was not permitted by his doctor to be present, but he had received a telegram from Sir Harry, which he read to the company. He coupled with the toast the name of Mr. Leonard Sutton (Chairman of Committee), a splendid supporter of the Institution.

In replying, Mr. L. Sutton thanked the Earl of Plymouth for his kind words, and stated that all concerned with the Institution much appreciated the readiness with which he stepped into the breach caused by the death of his beloved father, a man who loved gardens. As Chairman of the Committee, he proceeded to give a short history of the Institution, which, he stated, had eighty-five years of good work behind it. The foundations of the Institution had been well laid, and the work of those who had laboured before was a worthy inspiration to those who were carrying on. Mr. Sutton stated that the love of gardening was increasing, and there were evidences of the spread of gardening all over the country, and he appealed to those who loved their gardens to help those who had made such gardens and were now unable to earn their livelihood. He was grateful for all that had been done in connection with the Institution, and stated that all sections of the gardening world were aided, including traders, seedsmen, market men and florists. Mr. Sutton had hopes that at the next festival dinner the President, His Royal Highness The Prince of Wales, would occupy the chair. Col. Sir John Smith-Young proposed "The Visitors," to which Mr. Victor Brown, Master of the Worshipful Company of Gardeners, responded.

At this stage the Secretary, Mr. G. Ingram, announced the amount collected, with the names of the principal donors. He stated that the sum collected was £3,000. The principal sums were: The Earl of Plymouth, twenty-five guineas; Sir Harry J. Veitch, one hundred guineas; Messrs. Rothschild and Sons, one hundred guineas; Edward Sherwood, Esq., J.P. £100; Mrs. J. W. Campbell, £10; Messrs. Sutton and Sons, £100; Leonard Sutton, Esq., C.B.E., ten guineas; Capt. Noel Sutton, five guineas; Miss May Sutton, five guineas; Sir Edward Stern, Bart., £21; A. J. Wood, Esq., £60; Edward White, Esq., V.M.H., £50; R. W. Wallace, Esq., J.P., V.M.H., £36; W. E. Wallace, Esq., £37 5s.; J. W. H. Barr, Esq., £33; W. L. Cory, Esq., £31 10s.; Messrs. Waterer, Sons and Crisp, £25; Bernard Crisp, Esq., twelve guineas; H. G. Alexander, Esq., £26 5s.; John Heal, Esq., V.M.H., £26 5s.; Whitpaine Nutting, Esq., £25; J. B. Slade, Esq., £25; Messrs. G. Bunyard and Co., £21; W. J. Auton, Esq., £21; A. MacKellar, Esq., V.M.H., nineteen guineas; Major Churcher, fifteen guineas; F. J. Chittenden, Esq., V.M.H., fifteen guineas; Arthur Dye, Esq., £14; C. R. Fielder, Esq., V.M.H., fourteen guineas; Edwin Beckett, Esq., V.M.H., £14; T. J. Walton, Esq., eleven guineas; P. C. M. Veitch, Esq., J.P., V.M.H., eleven guineas; Chas. H. Curtis, Esq., £13; P. F. Bunyard, Esq., £12; Messrs. Barr and Sons, twelve guineas; Donald McDonald, Esq., twelve guineas. The following contributed ten guineas each: Gardeners' Company, P. Etheridge, Esq., Geo. H. Fisher, Esq., Edward Harriss, Esq., T. Finch, Esq., E. Manwaring, Esq., S. M. Segar, Esq., Geo. H. Cuthbert, Esq., W. Wiles, Esq., C. Grahame-White, Esq., W. L. Bradbury, Esq., Messrs. Pugh and Co. (per A. J. Wood, Esq.), and J. Condie, Esq., H. W. W. Nutting, Esq., seven guineas; J. H. Batty, Esq., six guineas. The following contributed five guineas each: Lord Lambourne, Lord Treowen, Proprietors of *The Gardeners' Chronicle*, A. Harris, Esq., J. M. Bridgeford, Esq., Joseph Rochford, Esq., Martin Mash, Esq., G. Carpenter, Esq., F. C. Eiloart, Esq., N. F. Barnes, Esq., A. W. Metcalfe, Esq., Messrs. Willis Bros., Multiflora Co., Ltd., William Robinson, Esq., Geo. Prickett, Esq., A. Dimmock, Esq., W. F. Kirton, Esq., W. Duncan Tucker, Esq., W. Howard, Esq., A. Dawkins, Esq., Sydney Cole, Esq., J. Brown, Esq., J. C. Allgrove, Esq., Arthur Bedford, Esq., and J. F. McLeod, Esq.

Covent Garden List (per Major E. J. Monro) included Major E. G. Monro's, Messrs. Geo. Monro's and Bert J. Monro's contribution towards "Geo. Monro Trust," £500, and £100 for the same object from Mrs. Monro. Also the following donors of ten guineas each; Messrs. Geo. Monro, Ltd., Messrs. John Rochford and Sons, J. P. Rochford, Esq., Raymond Rochford, Esq., A. Watkins, Esq., A. Stephens, Esq., H. Larsen, Esq., Messrs. E. Stevens, Ltd., "Geo. Monro" Concert Committee. Sums of five guineas from Messrs. Lowe and Shawyer, Messrs. Cobley, Kay and Co., P. G. Small, Esq., Messrs. Thos. Rochford and Sons. Ltd., Messrs. Nash and Austin, I. Firmin, Esq., Mrs. A. C. Swift; these, together with smaller amounts, totalling £812.

A second Covent Garden List (per Mr. John Collingridge) included Rt. Hon. the Lord Mayor and Mr. Sheriff J. E. K. Studd, ten guineas; John Collingridge, Esq., ten guineas; J. Collingridge, Ltd., five guineas; Messrs. Elder Fyffes, Ltd., ten guineas; Messrs. Parsons and Co., ten guineas; H. Miles, Esq., ten guineas; W. Robins, Esq., ten guineas; Jas. L. Kinnell, Esq., ten guineas; Messrs. C. P. Kinnell and Co., Ltd., ten guineas; Messrs. Cutbush and Son, Ltd., ten guineas; W. Maxwell, Esq., ten guineas; with the following sums of five guineas each: T. Windle, Esq., John Cull, Esq., Messrs. Slaymaker and Co., David Ingamells, Esq., Mrs. A. Butchart, Frank Ladds, Esq., J. Linford, Esq., O. Hiehle, Esq., A. Howard, Esq., and W. O. Hiehle, Esq.; other smaller sums brought the total to £241. The total amount realized at the dinner was, as stated above, £3,000.

A vote of thanks to the Chairman proposed by Lord Lambourne concluded the proceedings, which included an admirable musical programme given under the direction of Mr. Ralph Norris.

Obituary.

Thomas Challis.—It was with very great regret I learned of the death of my old friend Mr. Thomas Challis, and I shall be glad if you will publish the following particulars of his career, supplementary to those given in your issue of June 23. Thomas Challis was born on June 19, 1835, at Barton Seagrave, near Kettering, Northamptonshire, where his father was gardener to Viscount Hood. He left home at an early age and was apprenticed to Mr. James Garrod, at Belvoir Castle Gardens, where he remained seven years. From Belvoir he went as foreman under Mr. William Beach at St. Giles gardens, near Cranbourne, Dorset. From there he passed on to Trentham Hall gardens to take charge of the hard-wooded and winter-flowering plants departments, under that energetic and most distinguished gardener Mr. George Fleming, at the time when Trentham gardens were considered to be at their zenith and afforded the finest examples of gardening in the United Kingdom. After a few years at Trentham he obtained the appointment of head gardener to the Right Hon. Earl Ferrers, at Staunton Harold, near Melbourne, Derbyshire, where he remained until the Earl's death, when he undertook the management of a seed business in Derby belonging to Mr. Sam Robinson, of Melbourne. Town life and the confinement of

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the shop did not, however, agree with his health, and he decided to return to gardening. His old chief Mr. Fleming recommended him to the Hon. Sidney Herbert, as gardener at Wilton House, and he entered upon his duties there at the end of the year 1860, a year remembered for its extreme severity, the thermometer registering 10° below zero on the 30th of December. The previous summer and autumn having been exceedingly wet, not only tender but hardy shrubs and trees suffered severely from the great and sudden change of temperature. Hundreds of waggon loads of dead Conifers and shrubs, even Laurels, Yew trees and Ilex, had to be cleared from the lawns and shrubberies. The Hon. Sidney Herbert, then Lord Herbert of Lea, died in 1861, and a minority of several years followed. At the coming of age of George, Earl of Pembroke, Mr. Challis retained his post as gardener, and on the death of the Earl he served Sidney, Earl of Pembroke, and also remained (till his retirement in 1915) with the present Earl. For many years he held the post of Churchwarden at Fugglestone and was a governor of Countess of Pembroke's Park School till its dissolution. He was the patentee of a lawn-sweeping machine and inventor of a system for the protection of fruit trees on garden walls known as the Challis Arcade. He was awarded the Veitch Memorial Medal and also the Victoria Medal of Honour in Horticulture. He also received a valuable tie-pin from the German Emperor in recognition of services rendered at the time of the Emperor's visit to Wilton Park. He served the Co-operative Society of Wilton from its inception, as president, retiring in 1915, at which time he received a present from the members of the Society in recognition of his services. He also received from the present Earl and Countess and the late Earl and Dowager Countess many tokens of their respect and gratitude. *E. F. Hazelton.*

Alexander Hay.—Amid every manifestation of respect and esteem, there were laid to rest in Allenvale Cemetery, Aberdeen, on Tuesday, June 26, the remains of Mr. Alexander Hay, for long the senior partner of the firm of Messrs. Ben. Reid and Company, seedsmen, Aberdeen. It is only a month ago since Mrs. Hay died, and, despite his removal to a nursing home, where all was done that could be done for him, Mr. Hay never recovered from the shock. Born in the county of Banff, 84 years ago, Mr. Hay settled in Aberdeen when quite a young man. He entered the service of Messrs. Ben. Reid and Company, and after years of thorough training and passing through all the stages of the business, he assumed partnership with the late Mr. William Gibson on the death of Mr. George Reid, a descendant of the founder of the firm. For years thereafter he maintained the good name of this fine old firm. Few men were better known throughout the North of Scotland and in the London seed markets than Mr. Hay, where his marked ability and expert knowledge were greatly appreciated. He was also a familiar figure on the Continent, his business interests there gaining him many friends. None will regret more his demise than those young men, many now holding influential positions in the world, who served under him during their business training. To the last, it may be said, many of his "old boys" kept up correspondence with Mr. Hay, his extensive knowledge of all matters connected with horticulture and agriculture generally making his advice greatly valued and appreciated.

INQUIRY.

CAN any reader of *The Gardeners' Chronicle* inform me if he has grown any of the Dutch Irises for cutting purposes. In the autumn of 1921 we planted a batch of English, Spanish, and Dutch varieties for cut flowers. The English Irises are still looking well and strong, the Spanish fairly good, but the Dutch have deteriorated very much. *C. Harvey, Shoreham House Gardens.*

ANSWERS TO CORRESPONDENTS.

CELERY DISEASED: *C. S. and Co.* In the absence of the roots it is not possible to say what the disease is caused by.

NAMES OF PLANTS: *W. C.* 1, Calycanthus floridus; 2, Spiraea canescens; 3, Olearia macrodonta; 4, Sempervivum Haworthii; 5, Euphorbia Cyparissias; 6, Ranunculus aconitifolius flore pleno; 7, Coleonema album; 8, Agathosma imbricata.—*H. A.* 1, Helianthemum vulgare cupreum; 2, H. v. var.; 3, Polemonium coeruleum album; 4, Anchusa sempervirens; 5, Viburnum Opulus; 6, Cotoneaster microphylla; 7, Geranium ibericum; 8, Pulmonaria saccharata; 9, Euphorbia, Cyparissias.—*G. J.* Claytonia sibirica.—*Correspondent.* Erinus alpinus.—*G. D.* 1, Euphorbia Cyparissias; 2, Asphodeline lutea; 3, Saxifraga Lindsayana; 4, Ajuga reptans variegata; 5, Helianthemum vulgare var.; 6, Phlox lilacina; 7, Sedum spathulifolium. — *A. Williams.* 1. Phlomis fruticosa; 2, Ruellia Portellae; 3, Cyrtomium falcatum.—*H. J. B.* Apparently a form of Begonia Lloydii.—*F. D. F.* Eccremocarpus scaber.—*J. E.* 1, Abelia rupestris; 2, Trifolium incarnatum.—*P. R. I.* Habenaria conopsea.—*H. D.* Staphylea colchica.

PEACHES DISEASED: *D. H. Bute.* The fruits are affected with Peach mildew. Dust the leaves with flowers of sulphur whilst they are damp. The water pipes should also be painted with flowers of sulphur. This should be done just before dusk, and the house kept closed for an hour or two whilst the fumes of the sulphur are being given off from the hot piping. Drought at the roots is a predisposing cause of mildew in Peaches.

PEACH LEAVES DISEASED: *W.A.C.* The complaint affecting your Peach trees is known as Shot Hole disease, caused by the fungus Cercospora circumscissa. Gather and burn all the diseased leaves and spray the tree with self-boiled lime and sulphur compound.

RHODODENDRON SHOOTS UNHEALTHY: *A. J. H* The young growths of your Rhododendron bushes are badly attacked by mildew. The cold and changeable weather this spring is responsible for the trouble, and numerous other pests which are prevalent this season. Spray the bushes with Ewing's Mildew Composition, one oz. to one gallon of tepid rain water, or prepare a mixture of the old-fashioned remedy, one lb. each of sulphur and quicklime boiled in six pints of rain water. Stir the mixture for ten minutes when boiling, then allow it to settle, and pour off the clear liquid for use in the proportion of one to one hundred of water.

SIX CHRYSANTHEMUMS FOR SUCCESSIONAL CUTTING: *R. C.* The following is a good selection of suitable varieties for your purpose: Japanese varieties, Blanche du Poitou, and Cranfordia for October; Market Red and H. W. Thorp for November; Heston White and Heston Pink for December. Single varieties: Ladysmith, Ivor Grant, Caterham Bronze, Ceddie Mason, Molly Godfrey and Mensa.

TOMATO WITH TERMINAL FLOWERS: *W. M.* Your Tomato plant will probably fruit from side growths, but we do not think it will be necessary for you to pinch out the tops of the plants for the present. Your experience with the seedlings this year will be a guide as to whether the variety is worth growing another season.

TOMATO PLANTS DISEASED: *Regular Reader.* The seedling Tomatos were very much shrivelled and dried when they reached us, but from their appearance they seem to be affected with damping-off disease. Seedlings are liable to this complaint when they are kept too close and damp.

Communications Received.—A. H. L.—M. W. R.—W. P.—S. C. B.—J. E.—F. K.—C. E. B.—G. S.

MARKETS.

COVENT GARDEN, Tuesday, July 3, 1923.

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus, bundle		
—Special Devon	25 0	30 0
—Spec. Evesham	10 0	30 0
Beans—		
—Guernsey, lb.	1 0	2 0
—Madeira basket	2 0	2 6
—Worthing ..	1 6	2 6
Broad Beans, bus.	— —	3 0
Beets, cwt. ..	2 6	4 0
Cabbage, dozen	1 6	2 6
Carrots, new—		
doz. bunches..	2 6	8 0
Cauliflowers, doz.	3 0	6 0
Cucumber, Flat	14 0	16 0
Green Artichokes, dozen	3 0	6 0
Greens, bag ...	2 0	2 6
Lettuce, dozen—		
—Round ,,	1 6	2 6
—Cos ,,	1 6	3 0
Marrows, doz...	12 0	18 0
Mint, doz. ..	3 0	4 0
Mushrooms, lb.	1 6	2 6
Onions—		
—Egyptian ..	10 0	12 0
—Valencian case	10 0	10 6
Peas—		
.. Blue, bushel ...	7 0	8 6
—white	5 0	6 0
Potatos,		
—Guernsey, new, lb.	9 6	10 6
—Jersey ..	9 0	10 0
—English ...	8 6	11 0
—St. Malo ...	8 6	9 6
Radishes, doz...	1 0	1 6
Spinach, bushel	3 0	3 6
New Turnips, doz. bunches..	8 0	12 0
Tomatos—		
—English ..	—	—
—Pink and Pink and White ..	8 0	9 0
—White	6 0	7 6
—Blue	6 0	7 6
—Guernsey ..	8 0	9 0
—Canary Islands	15 0	22 6

REMARKS.—Fairly brisk conditions have ruled during the past week, and although Strawberries have been an important feature, other fruits have also sold well. A good demand is being experienced for first-grade Apples, the last consignments of which are due. Choice fruits, such as Grapes, Peaches, Melons and Figs, have sold fairly well, notwithstanding the Strawberry season. English Tomatos rose sharply in value last week-end, but at the time of writing the tendency is for prices to be easier. Cucumbers are a steady trade. A small quantity of Asparagus is still arriving, growers being tempted to cut by the comparatively high prices it is realising. French Beans are selling extremely well, due to the lateness of the season as well as dry weather, which is retarding outdoor Beans. Mushrooms are more abundant and cheaper; Peas are coming forward in better supply, and prices are lower. Apricots, Plums and Greengages from Spain are selling fairly well, as are Plums and Cherries from France. English Gooseberries are not moving too freely, the competition of Dutch berries affecting values. English Cherries are not plentiful, and at the moment are realising fairly good prices. Black Currants are arriving and selling well. Green vegetables are in moderate demand. Prices for new Potatos are easier.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz. ..	10 0	18 0
—elegans ..	10 0	12 0
Aralia Sieboldii..	10 0	12 0
Araucarias ..	30 0	48 0
Asparagus plumosus ..	12 0	15 0
—Sprengeri ..	12 0	18 0
Aspidistra, green	48 0	72 0
Aspienium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Boronias ..	21 0	27 0
Cacti, per tray, 12's, 15's ..	5 0	7 0
Crassulas, 48's pink, per doz.	24 0	30 0
red, ,,	24 0	30 0
Crotons, per doz.	30 0	42 0
Cyrtomium ..	10 0	15 0
Erica		
—candidissima	21 0	24 0
—Cavendishii ..	30 0	36 0
—magnifica ..	36 0	42 0
Heliotropes ..	12 0	15 0
Hydrangeas white & pink, —48's, doz. ..	15 0	24 0
Marguerites, per doz.	12 0	18 0
Mignonette ..	10 0	15 0
Nephrolepis, in variety ..	12 0	18 0
—32's	24 0	36 0
Palms, Kentia ..	24 0	30 0
—60's	15 0	18 0
—Cocos ..	24 0	36 0
Pelargonium ..	18 0	24 0
Pteris, in variety	12 0	21 0
—large 60's ..	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's .	3 6	4 0
Roses Polyantha 48's, per doz...	24 0	30 0
—Ramblers, various sizes..	7 6	20 0
Spiraeas ..	18 0	24 0
Stocks, white & coloured ..	12 0	15 0
Verbenas, Miss Willmott 48's	15 0	18 0

REMARKS.—Supplies of all flowers are equal to the present requirements, and prices generally are lower than last week. All stands are well filled, and there is no particular shortage. Carnations are in fine condition, but there is a more limited provincial trade for them. Roses have been affected by the warmer weather, especially the coloured varieties; there are plenty of red blooms, but they are of very medium quality. Madam Butterfly, Mme. Abel Chatenay, Melody, Premier, Liberty and Molly Crawford are the more reliable sorts for decorative purposes. There is an ample supply of Sweet Peas, but they are mainly poor in quality. Double white Pyrethrum is almost over for the season, but large supplies of white Stock and some specially fine white Her Majesty Pinks are on sale. Button Pyrethrum, Achillea, Gaillardias and Alstroemeria are now being marketed. Spanish Irises are getting over, but there are some good spikes of English varieties. There has been a glut of Gypsophila elegans, and an excessive quantity of Cornflowers, Delphiniums, Gladioli, Nigella and white and pink Paeonies.

SCHEDULE RECEIVED.

The Yorkshire Evening News Rose Society.—second annual exhibition, to be held in Trinity Schoolroom, Trinity Street, Leeds, on Saturday, July 14, 1923. —Secretary, Mr. F. Womersley, *Yorkshire Evening News*, Trinity Street, Leeds.

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THE
Gardeners' Chronicle
No. 1907.—SATURDAY, JULY 14, 1923.

CONTENTS.

Agricultural economics 15
Alpine Garden, the—
Primula × Marven... 23
Ranunculus Lyallii... 23
Books, notices of—
Flowering Plants of South Africa ... 16
Plant Names ... 21
British Carnation Society's exhibition ... 17
Bulb garden—
Lilium giganteum ... 19
Bunyard medals for fruit 15
Buttercups, double ... 27
Cabbage root fly ... 25
Camaro, Wimbledon 21
Confessions of a novice 20
Educational garden at Reading 15
Fertilisers and Feeding Stuffs Act Committee 16
Flower border, hardy—
Teucrium fruticans 23
Fruit crops, the ... 15
Fruit garden, the hardy 25
Fruit garden, the market 24
Games in the London Parks on Sundays ... 17
"Gardeners' Chronicle" twenty-five years ago 17
Gardens Competitions 15
Horticultural Club outing 15
Horticultural College, Swanley 16
Horticultural Trades Association 15
Indian correspondence—
Climbing plants ... 27
Indoor plants—
Salvia interrupta ... 17
Tacsonias 17
Jeffrey, Mr. J. T. ... 16
Nursery Notes—
Hardy fiflowers at Enfield 26
Oxford Botanic Garden, history of the ... 22
Rhododendron insigne 24
R.H.S. Gardens Club outing 15
Seed and plant collecting in New Zealand 20
Societies—
General Bulbgrowers' of Haarlem ... 29
Kent County Agric. 29
Manchester and N. of England Orchid 29
Oxford Commemoration 29
Royal Agricultural... 27
Royal Horticultural 30
Scottish Arboricultural 28
St. Cuthbert's Cole ... 27
Tree planting, Roadside 16
Trees and shrubs—
Rhododendron Pink Pearl 19
Wistaria multijuga... 19
Vegetable garden—
Vegetable trials at Wisley 25
Wart disease in America 16
Week's work, the ... 18
Woodlice 15

ILLUSTRATIONS.

Ferns exhibited by Mr. Amos Perry at the Chelsea Show... 27
Ferns in Mr. Amos Perry's nursery 26
Jeffrey, Mr. J. T., portrait of 16
Primula Marven 21
Ranunculus Lyallii in New Zealand 23
Rhododendron Pink Pearl 19
Salvia interrupta 17

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 63.2°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, July 11, 10 a.m.: Bar., 30.4; temp., 80°. Weather—Brilliant sunshine.

Woodlice. Upon occasion Woodlice may be serious pests of plants growing in heated houses, and therefore the observations* and experiments carried out by the entomologist of the Experimental and Research Station, Cheshunt, are of general interest. Of the thirty or more species of Woodlice occurring in these islands, only five are apt to be numerous, and of these, one, Armadillidium Speyeri (named after Mr. Speyer, who discovered it in the glass-houses at Cheshunt) is the most harmful. It attacks seedling Tomato plants, gnawing their stems and biting off their cotyledons; and although it leaves very young seedling Cucumbers alone, it eats away the first rough leaves.

Where hot-water is used for soil sterilisation, the Woodlice may be kept in check. A temperature of about 146 deg. F. suffices to kill them. Failing this treatment, spraying with a mixture of potash, soft soap, 8 lbs., cresylic acid (pale straw 97 per cent. to 99 per cent.) 1 gallon, and pure naphthaline ½ lb., may be adopted. Before the spray is applied borders which harbour Woodlice should be cleared, and the soil removed some distance from the house. After flooding the surface of the soil and breaking any clods of earth, the above spray mixture is used at the rate of 2 pints to 12 gallons of water. Most useful, however, to gardeners is the improvement on the old pot-trap method devised by the entomologist at the Experiment Station. Finding that Woodlice thrive in fermented straw, he experimented with various materials, with the result that he found that common straw, boiled with a 10 per cent. solution of glucose, makes a most efficaceous trap. In one experiment lasting three days, whereas only seven Woodlice were trapped when ordinary straw was used in the flower pot, 2,712 were accounted for in the trap containing ordinary straw plus 10 per cent. of glucose. Of living traps Mangolds appear to be most useful; sliced in half, and placed, cut face downward, on the ground, they attract the pests in large numbers.

* Experimental and Research Station, Turner's Hill, Cheshunt, Herts. *Eighth Annual Report*, 1922.

R.H.S. Gardens Club Annual Meeting and Outing.—The annual meeting of members of the R.H.S. Gardens Club will take place on Saturday, July 21, 1923, when Messrs. Sutton's extensive trial grounds at Langley and at Reading will be visited at the kind invitation of Leonard Sutton, Esq. Programme:—10.30 a.m., arrive at Langley; 12 noon, lunch at Langley; 1 p.m., leave Langley; 2.30 p.m., arrive at Reading; 5 p.m., tea and general meeting. In order that suitable arrangements may be made for lunch and tea, members are requested to notify the Secretary, Mr. W. D. Cartwright, R.H.S. Gardens, Wisley, Ripley, Surrey, of their intention to be present before Saturday, July 14. A list of convenient trains from Paddington to Slough (for Langley) may be obtained on application to Mr. Cartwright. It is hoped that as many members as possible will accept this cordial invitation of Messrs. Sutton and Sons.

Bunyard Medals for Fruit.—As already announced in these pages, Messrs. G. Bunyard and Co., of Maidstone, have generously presented silver and silver-gilt medals to the Royal Horticultural Society to be offered for award to amateurs who make the best exhibit of specified fruits on certain dates. On July 10 the award was for Cherries; it will be for Gooseberries, Peaches and Nectarines on July 24, and for Plums and Apricots on August 8. All amateurs are eligible to enter, whether Fellows of the Society or not, provided that application for space is made to the Secretary of the Society by the first post on the Wednesday in the week preceding the show. The fruit exhibited must, of course, have been grown entirely by the exhibitor in his or her own garden.

An Educational Garden at Reading.—The Educational Garden and Museum of Economic Botany at Westfield, Reading, will be open to visitors free of charge on Wednesday, Saturday and Sunday, July 18, 21, and 22, between the hours of 3 and 6 p.m. The special feature of this garden is the cultivation of plants used in the preparation of medicines, foods, fibres and dyes, and the exhibition, in the adjacent museum, of industrial products derived from such plants. Refreshments will be provided for visitors arriving from a distance. Printed catalogues are also supplied.

Horticultural Trades Association.—The twenty-fifth annual general meeting of members of the Horticultural Trades Association will be held on Wednesday, Thursday and Friday, July 18, 19 and 20, at the Grand Hotel, Bristol. The programme is as follows:—Tuesday evening, July 17: 7.30 p.m. Re-union: Concert by Bristol Branch. Wednesday, July 18.—Business meeting, 10 a.m. to 5 p.m.; Dinner and social evening (Grand Hotel), 7 p.m. Thursday, July 19.—Business meeting, 10 a.m. to 12.30 a.m.; Visit to Bath; 1 p.m., lunch; 2 p.m., char-a-banc visit to Bath (Roman Baths, pump room, etc.), provided by the hospitality of the Bristol and District Branch; 4.30 p.m., tea at Grand Pump Room, Bath, by kind hospitality of His Worship, the Mayor of Bath; 5.30 p.m., visit to Messrs. Blackmore and Langdon's Nurseries, Twerton Hill. Friday, July 20.—Char-a-banc tour to Long Ashton Research Station, Weston-super-Mare and Cheddar.

The Fruit Crops.—According to the "Monthly Agricultural Report," issued by the Ministry of Agriculture, frosts and cold winds have caused a very heavy fall of Apples, and only half an average crop is anticipated. Pears are practically a failure everywhere, and Plums will give very poor yields, barely a quarter of an average crop being expected. In the principal districts the Cherry crop will be about 25 per cent. under average. Strawberries are rather under average, and in the late districts the crop is backward. Gooseberries are about average, and the crop has been cleared in early districts. Raspberries and Currants are suffering from want of rain, and Black Currants will probably be only half an average crop; Red Currants are more promising.

Agricultural Economics.—Mr. J. A. Venn, Gilbey Lecturer in the History and Economics of Agriculture at Cambridge, has written a book entitled "Foundations of Agricultural Economics," which will shortly be published by the Cambridge University Press. Mr. Venn is Economic Advisory Officer for the Ministry of Agriculture and was formerly Statistician to the Food Production Department. The object of the book is to give, within reasonable compass, some account of the origin and incidence of the numerous economic problems which affect the agricultural community. Mr. Venn is anxious that his book shall interest not only the agriculturist, but the town-dweller. "It would, indeed, be well," he thinks, if an agricultural bias could be applied "to the knowledge of history and economics possessed by this urban nation." The author has broken fresh ground in several directions, such as the question of vicarial tithes, the comparison of the yields of cereal crops in different decades, and the statistics of yields on large and small holdings in Roumania. The volume will contain six maps and twelve plates.

Horticultural Club.—The annual outing has been fixed for Wednesday, July 25, when a visit will be made to Windsor Castle, permission having been granted the Club to inspect the gardens and State apartments. The journey will be made by road and river. The party will assemble on the Embankment, outside Charing Cross District Railway Station, at 10 a.m., reach Staines Railway Bridge at 11.20 a.m., depart by launch at 11.30 a.m., arrive at Windsor at 1.20 p.m., lunch at the White Hart Hotel at 1.30 p.m., inspect the Castle and gardens, return to the White Hart Hotel for tea at 5.30 p.m., and depart by charabancs at 6.30, reaching Charing Cross at 8.15 p.m.

"Daily Telegraph" Gardens Competition.—About a year ago a scheme for awarding prizes to the best London gardens was formulated by the proprietors of the *Daily Telegraph*, and this week the prizes have been awarded. The judges were Mr. W. H. Divers, Mr. J. Heal, Mr. W. Watson, Mr. J. F. McLeod, Mr. A. J. Hartless, Mr. W. H. Aggett, Mr. W. Howe and Mr. A. Bedford. In certain cases they found it impossible to give a definite decision at once. There were gardens of almost equal merit to be decided between before the prizes could be awarded, and here the proprietors of the *Daily Telegraph* were fortunate enough to enlist the services of keen gentlemen gardeners. They were: Sir Benjamin Faudel-Phillips, Bt., the Hon. H. D. McLaren, C.B.E., Major Lionel de Rothschild, O.B.E., M.P., Major F. C. Stern, Capt. G. C. H. Crawshay, Mr. Basil Holmes (Metropolitan Public Gardens Association), and Mr. W. Watson (late Curator, Royal Gardens, Kew). The prizes have gone over a wide area, and in Class 1, where it was very generally expected that the prizes would have been awarded for gardens in the West-end, only the third was won in this district, Knights-

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bridge, while the first, second and fourth were awarded respectively to gardens at Streatham Common, Hornsey and New Cross. The principal awards were as follow. Class 1:—First prize, £100, Mr. Percy Hollingworth, 5, Copley Park, Streatham Common, S.W.16; second prize, £40, Mr. Francis French, 55, Whitehall Park, Hornsey Lane, N.19; third prize, £15, Mrs. Muriel H. Morrison, 86, Knightsbridge, S.W.1; fourth prize, £10, Mrs. M. Bloxham, 58, Pepys Road, New Cross, S.E.14. Class 2 (Backs, fronts or sides of house):—First prize, £100, Mr. William Morris Jacobs, 5, Engate Street, Lewisham, S.E.13; second prize, £40, Mr. Albert Fox Eginton, 17, Seymour Road, West Hill Road, S.W.18; third prize, £15, Mr. Joseph White Smith, 118, Elsenham Street, Southfields, S.W.18; fourth prize, £10, Miss Mabel Portlock, 70, Osbaldeston Road, Stoke Newington, N.16. Class 3 (Gardens on the ground level in the congested areas of East and South-East London):—First prize, £25, Mr. A. E. B. Butcher, 86, Fort Road, Bermondsey; second prize, £10, Mr. L. Thompson, 30, Billson Street, Cubitt Town; third prize, £5, Mrs. F. L. Budd, 4, Charteris Terrace, Cubitt Town; fourth prize, £2, Mr. C. May, 50, Chapel House Street, Poplar. Class 4 (The best arranged roof garden or leaden flat):—First prize, £60, Mr. G. B. Stoker, 37, High Road, Lee; second prize, £20, Mr. E. B. West, 1, Torrington Place, Gordon Square; third prize, £10, Mr. Harold Trill, Mayor of St. Pancras, 123, High Street, Camden Town; fourth prize, £5, Mr. G. C. L. Norman, 166, Westcombe Hill, Blackheath. Over 4,000 people competed in the various classes

Flowering Plants of South Africa.—No. 11 of Volume III., being the issue for July, 1923, of the *Flowering Plants of South Africa* contains illustrations and descriptions of ten plants. Greyia Radlkoferi (tab. 101), is an ornamental shrub of the Eastern Transvaal, where it flowers from July to October, the young leaves appearing at the same time as the flowers. The inflorescence forms a terminal head of inverted scarlet flowers. Mesembryanthemum digitatum (tab. 102) bears whitish flowers in the apices of the stems, and the plate includes an illustration of a longitudinal section of the stem, showing a flower embedded at the apex. Brachycorythis pubescens (tab. 103) is an attractive little Orchid, common in South Africa, its habitat extending into tropical Africa. The inflorescence grows about 17 centimetres long, forming a many-flowered racemose spike of hooded flowers, the most conspicuous feature of which is the big violet-coloured lip. Mackaya bella (tab. 104) is a plant well known to cultivators in this country; the plate is an exceptionally fine reproduction of a flowering spray, and it also includes botanical details; the plant first flowered at Kew in May, 1869. Adenium oleifolium (tab. 105) is a very interesting Apocynaceous plant, with long, narrow leaves of a glaucous colour and with tubular flowers of a dull red, brownish in the interior of the tube; the peculiar tailed anthers and scales in the corolla throat, which sometimes form small pouches, are characteristic of the genus. Craterostigma plantagineum (tab. 106) is recommended as a suitable subject for greenhouse cultivation in this country, and, as depicted in the plate, it is certainly a very charming little plant, with irregular flowers that are freely marked with light blue on a dull white ground, and with conspicuous orange-coloured callosities which are formed by the swollen filaments of the stamens. Aloe comosa (tab. 107), when fully grown, attains to a height of 12 to 15 feet, and the plate shows a five-flowered specimen, the inflorescence forming a spike with the upper flowers hidden beneath long, reddish bracts. The flowers in the middle portion are pink and spreading, while those at the base are pendulous and greenish white. Protea pityphylla var. latifolia (tab. 108) differs from the type in its flat, linear leaves. The plant grows wild in association with typical pityphylla. Triaspis Nelsoni (tab. 109) is a member of the Malpighiaceae and forms a sub-herbaceous bush, not more than 2 feet high, the main branches always tending to droop. It is said to be one of the most attractive plants in the veldt, and is well worthy of cultivation in gardens, for, in addition to the beautiful pinky flowers, the orbicular-winged, copper-coloured fruits are very attractive; the last plant illustrated, Mesembryanthemum Pillansii (tab. 110), is said to be of special biographical interest, as the stamens do not stand erect, but are incurved towards the centre to such an extent that the filaments from the opposite stamens meet, and the anthers are consequently enclosed in the lentil-shaped cavity. The violet-coloured petals give the plant a very uncommon appearance.

Mr. John T. Jeffrey.—Mr. Jeffrey, the newly appointed city gardener of Edinburgh, is eminently suitable for the important position which he has been called upon to occupy. Born at Langholm, Dumfriesshire, he is a "son of the garden," and had the great advantage of beginning his training under his father, the late Mr. James Jeffrey, then at Harewood Hall, the seat of the Earl of Harewood, and afterwards at

MR. J. T. JEFFREY.

St. Mary's Isle, which, under the charge of Mr. Jeffrey, sen., became one of the leading places of its kind in Scotland. Mr. Jeffrey's father was a man of great taste as well as a skilful gardener, and was gardener at Cyfartha Castle and Caversham Park before going to Harewood. At St. Mary's Isle he had every encouragement to develop all departments of the garden. Mrs. Jeffrey, an able woman in every way, was deeply interested in the garden also, and it is little wonder that two of their sons, Mr. James Jeffrey, now head gardener to Lord Lonsdale at Lowther Castle, and his brother, Mr. John T. Jeffrey, have taken high places in their profession while young men. Mr. John T. Jeffrey left St. Mary's Isle to become journeyman at Drumlanrig Castle under the late Mr. Inglis, and afterwards went to Eaton Hall, where he had charge of one of the most important departments under Mr. N. F. Barnes, so that he had excellent training before going to Castlemilk as head gardener about 13 years ago. Under his care all the departments of this extensive establishment have been developed, and it now stands second to none of the larger gardens of Scotland. Extensive improvements in the indoor and outdoor departments have been carried out, and these have proved highly successful. Both gardens and policies have been vastly improved, and the experience gained at Castlemilk will be found of great advantage to Mr. Jeffrey in his new and important charge. Only those who knew Castlemilk when Mr. Jeffrey was appointed can fully realise the great improvements effected under his guidance, with the ungrudging support of his employer, Sir R. W. Buchanan-Jardine. The improvements have always been carried out with due regard to economy as well as efficiency, and few men enter upon the duties of so important an appointment as that of city gardener of Edinburgh so well equipped with such an all-round experience.

Legacies to Gardeners.—Mr. Edmund Knollys Charrington, who died on April 19, aged sixty, left his former gardeners, Messrs. Cannon and Burr, life annuities of £52 each.

Road-side Tree Planting.—In reply to a question asked in the House of Commons on Tuesday last as to whether steps could be taken in conjunction with the Department of Woods and Forests to plant the most suitable and attractive trees alongside all new roads and by-pass roads, and in cases where roads were widened to secure the replanting of trees destroyed in the process so far as is possible, Col. Ashley, Parliamentary Secretary of the Ministry of Transport, stated that it was desired that road tree planting should be extended in suitable places, and so far as funds would permit. He also stated that he had been in consultation for some time past with experts on the subject as to the best species to plant. In the case of the new Great West Road, he had already agreed with the Middlesex County Council for a tree-planting scheme. With regard to the question of planting fruit trees, as in France and Germany, Col. Ashley stated that he would have to be assured first that the fruit would not be stolen.

Horticultural College, Swanley.—Speech day of the Horticultural College, Swanley, has been fixed for Wednesday, the 25th inst. The Rt. Hon. Lord Lambourne will preside over the proceedings, which will commence at 3.30 p.m.

Fertilisers and Feeding Stuffs Act Committee.—The Minister of Agriculture and Fisheries has appointed a small Departmental Committee to inquire into the operations of the Fertilisers and Feeding Stuffs Act, 1906, to advise whether any, and if so what, amendments are necessary in order to render the execution of the Act more economical and effective, and to report accordingly. The Committee consists of the following:—Lord Clinton (Chairman), Mr. E. Richards Bolton, F.I.C., F.C.S., Mr. E. G. Haygarth Brown, Dr. Charles Crowther, M.A., Ph.D., Mr. Thomas Kyle, Mr. Brian S. Miller, Mr. George Stubbs, C.B.E., F.I.C., Dr. J. F. Tocher, D.Sc., F.I.C., and Dr. J. A. Voelcker, M.A., Ph.D., F.I.C. Mr. H. J. Johns, of the Ministry of Agriculture and Fisheries, 10, Whitehall Place, S.W., has been appointed secretary to the Committee.

Wart Disease in America.—Many of the American varieties of Potatos are subject to Wart disease, but a certain number have proved to be immune, including Early Eureka, Early Petoskey, First Early, Cordon's Early Snowflake, Flourball and Irish Cobbler, belonging to the Cobbler group; Early Harvest, Ehnola, Extra Early Sunlight, and White Albino, of the Early Michigan group; Spaulding Rose, of the Rose group; Burbank, of the Burbank group; Bountiful, Delaware, Gold Coin, Green Mountain, Green Mountain Junior, Idaho Rural, McGregor, McKinley and Norcross, of the Green Mountain group; McCormick, Round Pinkeye and White McCormick, of the Peachblow group and Dakota Red and Keeper, unclassified as to group. Most of the varieties of Tomatos tested in America have proved to be susceptible to Wart disease, but some of the tests have been inconclusive, and it is not yet certain whether different degrees of susceptibility and resistance exist in the Tomato. In general, the Tomato becomes infected less readily than the Potato requiring particularly favourable environmental conditions and appropriate stages of host development. A number of Solanaceous plants including the native Solanaceous weeds of Pennsylvania, and the Eggplant, Tobacco, Petunia and Pepper, which are in common cultivation have been tested for susceptibility to the Wart pathogen, but infection has thus far failed.

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Sunday Games in the London Parks.—Notwithstanding considerable opposition to sports in the London parks on Sundays, the London County Council has decided to continue the arrangements made in 1923, with minor modifications. At the meeting of the County Council held on July 3, a dozen members presented petitions for or against Sunday games in the parks, including a strong appeal in favour of such games from clubs and shop assistants.

British Carnation Society's Exhibition.—Under the auspices of the North of England Horticultural Society and the British Carnation Society, a joint exhibition will be held in the Winter Gardens, Harrogate, on August 22, 23 and 24. Schedules may be obtained from either of the secretaries, Rev. J. Bernard Hall, Farnham Vicarage, Knaresborough, or Mr. P. F. Bunyard, 57, Kidderminster Road, Croydon.

Appointments for the Ensuing Week.—Tuesday, July 17.—Roundhay and District Horticultural Society's show (two days); Winchester Horticultural Society's meeting. Wednesday, July 18.—Sussex County Agricultural Society's show at Horsham (two days); Liverpool Horticultural Association's show (two days); Hereford and West of England Rose Society's show. Thursday, July 19.—Potters Bar and District Rose Society's show; Birmingham Horticultural Society's show (two days); Whitehall and District Horticultural Society's show (two days); Eastbourne Horticultural Society's meeting. Saturday, July 21.—Highgate Horticultural Society's show; Hale and District Allotment Association's show; North of England Pansy and Viola Society's show at Sheffield.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Remarkable Plant of Cow-Parsnip.*—At the nursery grounds of Messrs. Backhouse, Fishergate, York, is now growing a splendid specimen of the "Heracleum giganteum," the "Gigantic Cow-Parsnip plant." It is botanically allied to the common Carrot and Parsnip, and is therefore an Umbellifer. It is biennial; sown in autumn it perfects its growth in the following summer. A tolerable estimate may be formed of its astonishing rapidity of growth from the following measurement, previous to which, it may be stated, that the present subject was sown in August of 1847, and showed no signs of special vigour until early in May of the present season. Its dimensions are as follows: Height ten feet, the stem being ten inches in circumference at the base. A single flake of the leaf, which is formed of three equal divisions, is three feet six inches in length, and the entire length of one leaf, including its stalk, is six feet six inches. The foliage of this single plant extends thirteen feet in width, thus giving a circumference of thirty-nine feet! It is calculated that it would require a period of ten years or more for a plant of the common Hawthorn of our hedges to attain an equal diameter of growth with that, which in the above instance has, to a great extent, been formed in the almost incredibly short space of two months! Its flowers are of a creamy-white colour, borne on long radiating pedicels, or stems springing from a single focus, or centre, like the spokes or wires of an umbrella, and graduated in length, so as to form remarkably large and slightly-rounded table-like heads or umbels, from twelve to eighteen inches across. The rapidity and luxuriance of its growth may form a parallel with the most wonderful instances of tropical vegetation, and is considered to be the largest known plant of the order to which it is physiologically allied. For its truly magnificent growth, especially as a hardy plant, thriving in the commonest soils, it is well worthy of a place in every garden sufficiently large to display its proportions, or where vegetable structure is admired. Richly-manured ground would no doubt induce much greater vigour than that now described.—*William Wood, Gard. Chron., July* 8, 1848.

Publication Received.—*Dwarf and Slow-growing Conifers.* By Murray Hornibrook. Country Life, Ltd., 20, Tavistock Street, W.C.2. Price 10s. 6d. net.

INDOOR PLANTS.

SALVIA INTERRUPTA.

THIS beautiful plant, known as the Ash-leaved Sage, is well worthy of inclusion among the many species that are used for the ornamentation of the greenhouse, although it is not often met with. Apparently its first introduction into this country was to the old Botanic Garden, Cambridge, from Morocco, in 1798, but the plant seems to have disappeared from cultivation for a time, and was reintroduced from Tangiers about 1869. It became a very popular plant on the Continent.

FIG. 6.—SALVIA INTERRUPTA.

S. interrupta is free-flowering, grows from 3 to 4 feet high, and differs from many other species by blooming during the spring and early summer, which adds to its value. The numerous flowers are nearly sessile, and usually in groups of threes, arranged in whorls, from six to nine flowers in each whorl, which are from two to three inches apart. The corolla is 1¼ inch long and 1 inch in diameter, violet-purple, with a white throat streaked with purple. The obcordate upper lip is short, laterally compressed, and two-lobed at the apex, while the lower lip is three-lobed, the two lateral ones rounded and reflexed, the palate deeply lobed, rounded and recurved. The entire flower is more than three times as long as the viscid calyx, which is deeply grooved, tubular, with triangular acute teeth.

One of the interesting features of this handsome Sage is its foliage, as it is one of the few species with pinnate leaves; these are from 6 inches to 10 inches long, consisting usually of five leaflets which are strongly nerved, coarsely reticulate, and rugose, the under-surface being covered with white tomentum, and deeply pitted. The oblong-ovate terminal lobes, from 3 inches to 4 inches long, rounded or cordate at the base, have their margins irregularly crenate; the lateral segments are oblong and rounded, sessile, or very shortly petioled.

The culture of S. interrupta is simple. Like most other Salvias, it is propagated readily from cuttings, which are freely produced, and should be inserted in June. When rooted they should be potted on as required, and stood outside during the summer. If the growths are pinched once, plants in 8-inch pots will make shapely specimens suitable for decorating the conservatory during the spring and early summer. *F. G. Preston, Botanic Garden, Cambridge.*

TACSONIAS.

THE best of the Tacsonias for large greenhouses and conservatories are T. Van-Volxemii, T. mollissima and T. exoniensis.

As the plants are rampant growers they are best planted out in a narrow bed or border to ensure them having a restricted root-run. During the season of active growth the shoots require constant attention in regulating and thinning them. The plants may easily be propagated at this time from cuttings made from the more slender and twiggy shoots. *C.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Odontoglossum.—O grande. O. Insleayi, and O. Schlieperianum are all easily grown Orchids, but they require a temperature a little above that of the cool-house, and are best accommodated in a cool intermediate house. They are rather irregular in their blooming season, especially the last two, but if the plants are healthy and strong they are usually at their best about this season, and the blossoms, if kept dry, remain in perfection for a considerable time. No harm will accrue by allowing the flowers to remain on the plants for a reasonable time. The young growths are produced early in summer, according to the different species, but new roots are not produced until the growths have attained a considerable size, and have begun to form pseudo-bulbs. The older roots being active, the plants may, if necessary, be repotted when the young growths are a few inches high. When repotting is necessary, it should be done thoroughly, all the old, sour material being carefully removed from the roots, and the plants replaced in a compost as previously advised for Odontoglossums. In repotting any Orchid it is advisable to do so at that season when there is the least danger of giving the plant a check, that is, when new roots are about to develop. Like all other newly-potted plants, water should be supplied carefully for some time after potting. During active growth the plants need a liberal supply of water right up to the time when they have completed their pseudo-bulbs; afterwards they need only sufficient to prevent shrivelling. These Odontoglossums delight in a light position, with a free circulation of air at all times, but should be shaded from strong sunshine. They produce flowers of the largest size freely, and deserve to be grown in quantity, especially where yellow flowers are appreciated. Insects are very fond of them, especially woodlice and small snails, also scale insects, therefore preventive measures must be taken to keep the plants clear of these pests.

Vanda.—V. suavis, V. tricolor, and V. insignis, which at one time were features of many collections, do best in the ordinary shady conditions which most Orchids enjoy. The majority of the species of Vanda need plenty of shade and moisture, especially during the summer, which is their growing season; they succeed better in a warm Cattleya house temperature than elsewhere. The large growing kinds succeed best when stood on a damp medium. The smaller-growing species, such as V. coerulescens and V. Kimballiana, are best grown suspended either in pans or baskets. They should be fixed firmly in their receptacles and grown in a compost of Sphagnum moss, which should have sufficient water during the summer to keep it green and growing freely.

HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Strawberries.—These plants require copious supplies of water. Where runners are wanted only a few should be retained on each plant of the more recently imported stock. The Duke is apparently the best all-round Strawberry, although it will take some time to supplant the old variety, Royal Sovereign. The Duke has the advantage of a good constitution, and is a good grower. King George is also a good forcer, the fruits ripening earlier than those of Royal Sovereign. Sir Douglas Haig is of similar merit, and these three varieties are the best for use under glass. The variety Marshall Foch appears to be a vigorous grower; but Lord Beatty is not so robust, although recommended for all soils. The new mid-season variety, Laxton's Abundance, which I have not tried, appears to be of great promise, being a very heavy cropper, with fruit of large size, but it is not suitable for forcing.

Raspberries.—The roots of Raspberries should be mulched with manure and well watered; liquid manure may be substituted for clear water occasionally. If not already in position, netting should be placed over the canes at a convenient height to permit the gathering of the fruits. Superfluous growths should be removed. The new canes that are retained should be encouraged to develop by allowing them plenty of air and light. Fruit growers, like other growers, are getting anxious as a result of the deficient rainfall. We registered only ¼ inch of rain in June. Low temperature and lack of sunshine have a serious effect on vegetation, and aphis of all kinds is abundant.

Figs.—Shoots of Fig trees not required for extension should be stopped at the second leaf. The growths should not be crowded, but have ample room for development. If feeding is required, careful judgment must be exercised or coarse growth will develop, but Figs are often grown in a restricted border against a south wall and may need a little feeding.

Cultivation of the Soil.—Hoeing between the crops of bush and other fruits must be constantly practised. Fallow ground under orchard trees should be disturbed lightly on the surface to allow the air to enter freely.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Lantana salvifolia.—This plant has long, slender shoots and is a very different looking species from L. Camara. By frequent pinching of the shoots the plant will form a bushy specimen, or it may be grown in a freer manner in large pots. This Lantana is seen at its best when planted out and trained up a pillar; it then makes growth twelve to fifteen feet in length, and produces its dainty, lilac-coloured flowers in wonderful profusion.

Senecio grandifolius.—When well grown, this Senecio is an excellent subject for a large conservatory. Plants rooted some while ago will make fine, large specimens if they are potted on as they require it, while the raising of smaller plants from cuttings may still be done. Well-grown plants produce enormous heads of yellow flowers, and, even apart from the flowers, the plant is worth growing for its handsome foliage.

Senecio Petasites.—This is another good plant, with very large, handsome foliage, which is very useful for the conservatory, not only for its foliage effect, but also for the large inflorescences of yellow flowers. Plants intended for growing as large specimens should be potted on as they require it. If cuttings are inserted at this time, they make useful plants for the decoration of greenhouse stages; for this purpose they should be grown in 6 or 7 inch pots.

Phaenocoma prolifera.—This beautiful South African plant is by no means common in cultivation at the present day, but is deserving of more attention from lovers of choice greenhouse plants. It is generally regarded as being a difficult plant to propagate and grow successfully; but, given similar conditions and treatment to those afforded the South African Heaths, its management presents but little difficulty to the skilled cultivator. Cuttings made from small side-shoots may be successfully rooted during this and next month. They need to be very carefully trimmed with a sharp knife, as the shoots are covered with a thick, woolly tomentum. The cuttings should be inserted in pots of sandy peat rammed very firm, afterwards standing them under bell-glasses in a cool house. This plant succeeds best in a compost consisting of good fibrous peat and sand, with the addition of a very little light loam. The pots should be well drained, and very careful watering is necessary during all stages of the plant's development.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Vegetable Marrows.—These should now be growing freely if the plants were planted out in frames to give them a start. As soon as they require more room, the frames may be removed and the Marrows allowed to extend as much as possible. Keep the shoots pinched at every fourth or fifth joint, and let the plants attain a fair size before allowing them to bear. The resultant crop will be all the better for this early sacrifice. The plants should never become too dry at the roots as this retards growth and encourages mildew; therefore, afford them good soakings of water and occasional supplies of weak liquid farmyard manure.

Celery.—Keep the trenches and frames well watered in which this crop is growing, and give an occasional dusting of old soot. This is not only a fine stimulant, but also largely prevents the Celery Maggot from establishing itself in the foliage. If, however, this pest does appear, keep infested leaves picked off by hand. Batches of plants intended for late use may now be planted, and if given plenty of water they will soon make good headway. Celery is a gross feeder, and applications of diluted liquid manure about once every week or ten days will help to build up fine heads. Plants that are being blanched with brown paper bands should be examined every now and then to ascertain if they are clean and growing straight, and also to loosen the bands slightly.

Broccoli.—Continue to plant Broccoli on good ground, and give the plants plenty of room to develop. Water them in well, and place a little sifted cinder ash around each plant to keep slugs away. As the plants become larger, earth them up to keep them upright, and keep the Dutch hoe going between the rows to destroy weeds and promote the aeration of the soil. If very hot weather prevails, the plants will be benefited by applying a mulch of stable litter.

Spring Cabbage.—It is not advisable to sow Spring Cabbages too early; but in some districts a sowing may be made about the middle of July. Sow the seed thinly, broadcast, and net the seed-bed against birds. As soon as the Cabbage bed now in use is finished, the stumps may be cleared away, the ground given a good dressing of old hotbed manure, and dug over. This will provide an excellent site for a crop of late Turnips.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Peaches and Nectarines.—As soon as these trees are cleared of their fruits, cut out the old fruiting shoots with the exception of those required for extension. This should constitute the main pruning, as it can readily be seen what amount of growth is necessary to remain to form a well-balanced tree for next season. Varieties differ in their habit of growth; some are more robust than others, and this must be taken into consideration when training in the young shoots. Ample space should be allowed for the full development of the foliage, as crowded growths mean weakly shoots and immature buds. Extra vigorous or rank wood is useless for fruit-bearing, and should be removed; in fact, it is better not to allow such shoots to develop; they should either be rubbed off or kept closely pinched back. It is advisable to examine the ties on young, vigorous trees, to see that the young growths have room to swell. After pruning and training the young shoots, give attention to the cleansing of the trees, for every precaution is needed to maintain healthy foliage until the end of the season.

Watering and Feeding.—The roots must not suffer from lack of moisture, and if the borders require moisture water them copiously. Food in some form should also be given the roots, more particularly in the case of trees which have borne heavy crops of fruit. Young, vigorous trees which are inclined to make

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gross wood should not, however, be given stimulants. The ventilators should be left wide open day and night, fully exposing the trees to the light and air.

Later Houses.—Houses containing trees on which the fruits are ripening should be freely ventilated whenever the weather conditions will permit. The fruits should be fully exposed to the sunlight, in order to ensure high colour and rich flavour. After a spell of dull weather Nectarines in the later houses should be lightly shaded, as they are apt to scorch when exposed to strong sunshine. If Peaches and Nectarines are ripening too quickly for use on any particular date, their development may be retarded for several days by affording a moderately heavy shade during bright weather. The fruits in the late house having passed the stoning period, it may be necessary to thin them for the final time, and as late ripening varieties of the Peach are mostly large-fruited, the thinning may be more severe than in the case of early and mid-season varieties. Afford water to the borders when required, and use stimulants liberally where the trees are carrying full crops of fruits. Keep the house open except-ing during rough weather.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Polygonum sachalinense.—Being about to thin a group of this vigorous-growing perennial—the foliage of which is its great value rather than its small flowers—I am reminded of the rapid nature of its growth, for, where the ground was bare a few months ago, at the beginning of June the plant had made very large stems bearing handsome leaves, 6 feet and 8 feet high, covering the site. Obviously such a vigorously-growing plant cannot be planted anywhere, but where space permits a clump of this Knotweed is very effective. It is further particularly useful where a summer screening of any object or opening is wished—no plant that I can call to mind being so fast-growing for this purpose. A moist position suits it best, and in some circumstances it is necessary to check the spreading habit of its roots.

Rose-Tree Suckers.—These appear from time to time on standards and bushes, and must be suppressed. Uncover them and pull them out with a sharp twist, or sever them otherwise quite low down in the ground. It is not advisable to sever these suckers with a knife, for buds would form and develop into other suckers.

Tamarix.—This graceful shrub should adorn many more gardens than it does, for few plants present a prettier sight about the month of June. The small, pinkish flowers are produced in long, feathery plumes, and look delightful among the Conifer-like foliage. Tamarix gallica is quite hardy, is splendid for coastal gardens, and will succeed in most soils provided the ground is not excessively dry. Scarcely any pruning is necessary, but straggling shoots needing shortening should have attention as soon as flowering is finished in order that the young shoots may complete their growth in suitable conditions.

Border Carnations.—From about the middle of July to the middle of August—according to the season and the district—is the best time for layering border Carnations. Only the best sorts should be increased by layers, unsatisfactory varieties not being worth such time spent upon them. Light, sandy soil favours the development of plenty of roots, and the easy removal of the layers. Another good method of increasing this plant is to pull off growths of small to moderate size and insert them as cuttings in a cold frame or in pots placed in a cold frame. I have rooted many layers in the open ground, but the percentage of failures is always higher than in a close frame. The raising of the plants from seed may be recommended as absolutely satisfactory, both as regards the quality of the flowers and the average amount of double blooms obtainable from a reliable strain.

THE BULB GARDEN.

LILIUM GIGANTEUM.

THIS majestic Lily with its wide, succulent, Arum-like leaves, is of great beauty and surprising dimensions when well grown. It is seen at its best when planted in a semi-shaded glade of the woodland where, sheltered from the wind and sun, its stately flower spikes develop freely and become objects of surpassing loveliness. In woods it finds an ideal rooting medium in the light, rich, vegetable soil, which suits it so well.

The plant is not stem-rooting, the large, fleshy roots being produced from the base of the bulbs from which they radiate in all directions a little way under the surface, hence deep planting should not be practised.

There is no advantage in planting very large bulbs; in fact, better results are often obtained when medium-sized bulbs are planted, which will not usually flower until the second year. Although large bulbs may flower the first year, it is seldom that they produce flower stems of large dimensions, as the plant, being dependent on one rooting system, cannot sustain them. Longer planted bulbs build up a more extensive rooting system, which results in full development of the flower stems.

The rapidity of growth of this Lily is remarkable; well established and vigorous plants frequently send up spikes 10 feet to 12 feet and sometimes even 14 feet in height in late June or early July. These carry as many as 15 or 20 trumpet-shaped flowers, each 9 or 10 inches long and 5 or 6 inches across at the mouth. The opening bud is greenish-yellow, and the fully expanded flower pure white, showing a reddish-purple band inside. The fragrance is powerful and delicious and reaches far in the still summer evenings when this beautiful Lily looks at its best. The flowers last only a short time, but with their passing the beauty of the plant is not gone. The leaves remain in perfect condition until autumn, while the seed-pods, resting at the top of the huge stems in an erect position, are themselves objects of striking beauty.

Propagation is readily effected by means of offsets, which may be found in abundance clustered around the base of the flowering stems. These should be lifted and replanted in November in ground that has been thoroughly prepared.

It is also easily increased from seed, and under favourable conditions self-sown seedlings frequently develop and reach maturity. The raising of plants from seed is, however, a slow process, as it is 6 or 7 years before the seedling plant reaches the flowering stage. *W. Auton.*

TREES AND SHRUBS.

RHODODENDRON PINK PEARL.

FOR producing a good, permanent effect in a garden no evergreen shrub can surpass the Rhododendron, no matter whether it be used as a single specimen or groupel in beds or elsewhere; and this is especially true of the better hybrids, one of which, Pink Pearl, is illustrated in Fig. 7. Several years have elapsed since the subject of this note first captivated the gardening world, but it still

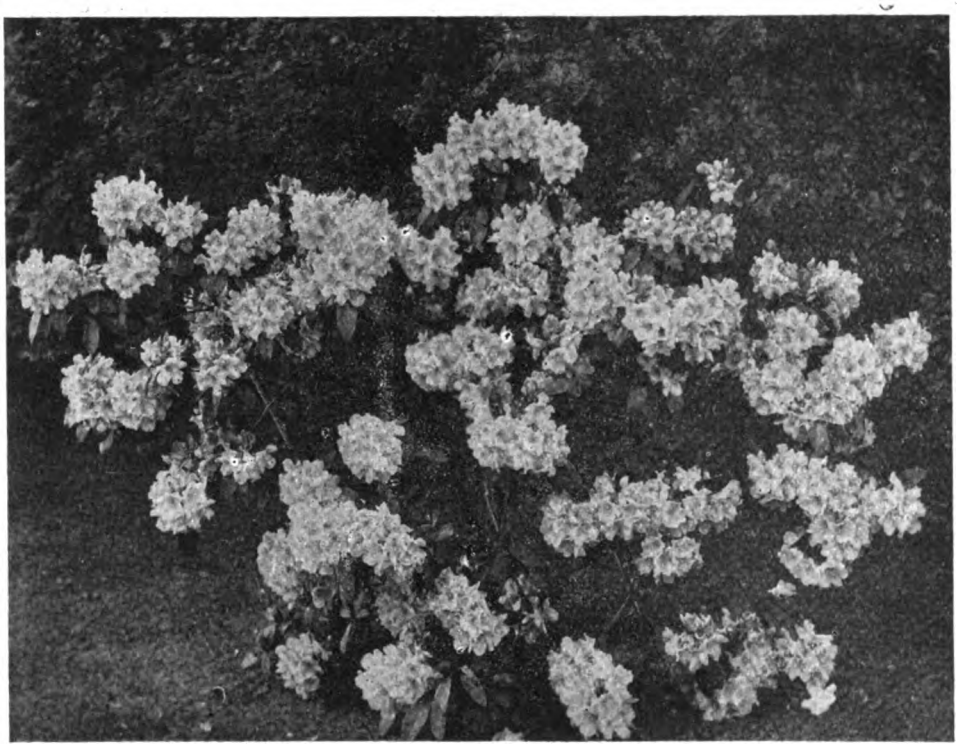

FIG. 7.—RHODODENDRON PINK PEARL.

stands in the front rank as one of the best Rhododendrons as regards floral magnificence. Its flowers are of a flesh-pink shade, and very beautiful. The plant figured is growing in the loam of a Middlesex garden, where I formerly had charge, thereby once again disproving the old notion that peat is necessary to the successful cultivation of Rhododendrons. Leaf mould only was added at planting time. *C. Turner, Ampthill Park.*

WISTARIA MULTIJUGA.

WISTARIA multijuga and its varieties are usually supposed to be less floriferous in the young stage than W. chinensis, but this is not necessarily the case. Our plant of W. m. rosea was planted against a wall in 1908, and has flowered freely every year since 1913. This year it is bearing at least two thousand racemes, most of them 2 feet in length and upwards, thus making an object of striking beauty. Wistaria multijuga is generally considered to be a variety of W. chinensis, but Bean, in *Trees and Shrubs Hardy in the British Isles*, makes them distinct. Not only are the racemes longer in W. multijuga, but the leaves have more leaflets and the time of flowering is later. This plant is the Wistaria usually depicted in Japanese landscape scenery, and not W. chinensis, as is commonly supposed. *W. Auton, Pyrford Court Gardens.*

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FURTHER CONFESSIONS OF A NOVICE.

THE imaginative Mr. Wells has suggested—if I remember aright—in one of his essays, that the State should provide text-books in all branches of knowledge. In order to be authoritative, and, indeed, perfect in wit and wisdom, he recommends that there should be a sort of endowment of pedagogic motherhood; in other words, the State should select each writer and pay him for his pains of production. If and when the recommendation is adopted, I hope that one of the first books to be provided will be a new and revised edition of Lindley's *Theory and Practice of Horticulture*. Every gardener knows this remarkable book. It occupies, no doubt, a conspicuous place in every bothy library, and its well thumbed pages testify to its frequent service. Yet, since the time it was written, horticultural and botanical knowledge have progressed, and the new facts deserve to be incorporated in a new edition. It is to be feared, however, that the State might have some difficulty in finding an author. Bayley Balfour, great as a gardener and a botanist, could have done the work surpassingly well; but he, alas, is no more, and a great fund of his knowledge perished with him. Perhaps under the Palms of Kew or in the quiet groves of Wisley there may be found, as yet mute and inglorious, some young gardener who, "exhausting thought and living knowledge with each studious year," may eventually confer this boon on a world of expectant gardeners. Then the new edition will appear as terse, authoritative, sure and illuminating as the old.

These aspirations are prompted by my own failure to take full advantage of the sweet uses which Shakespeare claimed for adversity. I have watched the plants of my garden during the last two months of drought and shrouded skies, and noting their curious behaviour, I have turned to books on horticulture for enlightenment, and have found none. They are doubtless excellent books; but they appear to be written by winners for winners and not for losers like me. In the garden which the authors tend nothing ever dies except annuals. With proper precautions Conifers transplant as readily as Anglo-Saxons; a suitable insecticide applied with a suitable syringe will get rid of green fly and caterpillar, and a light dressing of nitrate of soda will provoke the most coy among seedlings to exuberant and fruitful growth. It is evident that these happy books are not written for years such as the present. They are for Paradise or the Cornish coast, and not for inland places, in the present year of grace.

The new edition of Lindley would, contrariwise, tell me what none of the books on botany or gardening seem able to do; why such a season as the present should have produced such strange effects. Why, for example, Lavender—to name only one of many plants in like case—should be no more advanced than it was a month and more ago, blossom bud and flower-stalk all ready, but no sign of bloom! Why Plums, which set well, gave up trying at fruit production or even leaf production, at the first early, unkind touch of aphis! Why Broad Beans are tall and full of large pods, the contents of which are so puny as to make the pods not worth gathering! Why there are no Pears except here and there on walls; whereas of Apples, despite aphis and caterpillar, the promise still abides of a fair crop! Why, on the contrary, many plants, tree Lupins, and herbaceous kinds, Pentstemons, Shirley and Oriental Poppies, Violas and Pansies should be flowering as though all was for the best in the best of all possible worlds! Why Irises should have bloomed so sparingly in certain gardens, and Darwin Tulips so abundantly! Why Polygonum baldschuanicum should be in full blossom a month before its time, and why, saddest of all, the florists' Roses should be so shy of flowering and yet some species, the Banksian Rose, Rosa Moyesii, R. Hugonis, and the wild Rose, despite black spot, aphis and rust as thick as brickdust on their stems, should have flowered or be flowering as surely as the arrival of the half-yearly demand for income tax! Penzance Briars hold a mid position. Most of these delectable hybrids are a mass of bloom, but here and there one has missed and bears a moribund look, though in neighbouring gardens I learn that whole hedges of them are, or appear to be, dying.

These are some of the mysteries the elucidation of which would comfort my soul and shorten the period of my gardening novitiate. Sunshine, as we all know, has been sadly deficient and the rainfall below average. Soil temperature is a sluggard unduly late to rise, and there, it may be, is the secret villain of the piece! If only we could watch the growth of the roots of plants what a knowledge might we not gain of the behaviour of the stems and leaves and flowers! I am fain to think that whereas in ordinary seasons the roots of plants are well behaved, obedient servants to the aerial parts, in aberrant seasons there are subterranean, silent, and often fatal insurrections. The roots throw off their subservient allegiance and live for themselves alone. These are, however, but the temerarious and dubious speculations of the untrained mind. I must wait for the new Lindley to illuminate those dark places of natural history. *A. N.*

SEED AND PLANT COLLECTING IN NEW ZEALAND.

(*Concluded from page* 7.)

FERNS are not plentiful, there being at most a dozen species, and these include no true Tree Ferns, which one expects to find in all parts of New Zealand. Polystichum vestitum, related to the British P. aculeatum, is very common; at times it has a small trunk. Hypolepis millefolium is abundant. It dies to the ground in winter, and is easily cultivated in any shady garden. On rocks in the shade Asplenium Trichomanes—identical with the British plant—is occasionally to be found, but on the drier rocks is the cupressoid shrub, Helichrysum Selago, interesting for the garden and resembling a whipcord Veronica.

The next few days were spent according to schedule. On the Wednesday we explored the main shingle fan at the base of The Sugarloaf, and skirted the shores of Lake Sarah, a pretty sheet of water of glacial origin. On the way we crossed a good deal of tussock grassland, where we found the ever-present Blechnum penna marina; Scleranthus biflorus with its yellow cushions; Viola Cunninghamii with its pretty white flowers; Plantago spathula; Gaultheria depressa with large, white berries; Leucopogon Fraseri with yellow drupes; the charming New Zealand Bluebell, Wahlenbergia albomarginata; Celmisia longifolia, a rosette plant; Brachycome Sinclairi, a pretty little Daisy; and Gnaphalium Traversii, an elegant alpine with white leaves. The close-growing Gnaphalium Mackayi of the higher levels is even better for rockeries. Celmisia spectabilis is occasionally found on these lower levels, but to see it at its best one must go up 1,000 or 2,000 feet from the plain, and, although the expert almost despises C. spectabilis when he compares it with other noble Celmisias, *e.g.*, C. Traversii, C. coriacea, C. Armstrongii, C. Hookerii, C. lanceolata, C. petiolata, C. holosericea, and C. Petriei, yet to me it was a glorious sight to see thousands of this plant, with their dark green, shining and circular cushions or mats of foliage in flower, or with Thistle-like heads of seed. We found that one of our native bugs of most objectionable odour was using the seed-heads as a breeding-place and rendering the seed useless. In the same locality as the Celmisia grew a dainty, cut-leaved, yellow Buttercup, Ranunculus Enysii.

On the banks of streams, in shady places, we found the charming Veronica Lyallii, forming broad mats.

The next day we crossed the rivers Cass and Waimakariri by bridges, and spent a pleasant time in following up the bed of the Hawdon, a tributary with forest-clad slopes on both sides. Here we found several species of Raoulia; also Coriaria lurida with Fern-like leaves and black fruit; the yellow-flowered Clematis australis; C. marata, various species of Acaena; Carmichaelia uniflora, a dainty dwarf shrub making large patches; Veronica Bidwillii, Cyathodes Colensoi; and also the Ferns Asplenium Trichomanes, A. Richardi with its finely-cut, Carrot-like leaves, and A. flabellifolium—here erect, not drooping as in forests.

Perhaps the best find we had was the extremely rare Myosotis uniflora, which is a cushion plant of soft leaves with cream-coloured flowers. On the sandbanks we found some nice clumps of Viola Cunninghamii, of which Farrer writes rather disparagingly. My own opinion is that it is a charming plant. Dr. Cockayne informs me that Viola filicaulis, a forest species, forming wide patches in wettish places, is still prettier, and hardly to be distinguished from its ally V. Lyallii.

On the Friday we visited a swamp to collect Sphagnum moss for packing. We also gathered seed of Nertera Balfouriana, which was covered with its orange-coloured, Pear-shaped drupes. It is a great acquisition for the rock garden. Also growing on the margin of the swamp were Viola Cunninghamii, Mazus radicans, its flowers purple and yellow; the curious rosettes of Plantago triandra; and Wahlenbergia albomarginata, with, of course, a plentiful supply of Blechnum penna marina.

During the afternoon of this day we ascended the Sugarloaf, a mountain guarding the station, to a height of about 4,000 feet above sea level. Here I saw the Celmisia already mentioned, and gathered seed, also that of Aciphylla Colensoi. On the most stony ground was an abundance of the mountain Totara, Podocarpus nivalis. Splendid views of the surrounding valleys and high mountains are to be obtained from here.

One of the noticeable plants of the grassland is Coprosma Petriei, which, if the plants grew upright, would have been respectable shrubs. As it is, they lie low on the ground, no higher than a well regulated turf, while among their dense foliage are tucked away large transparent berries nearly a quarter of an inch in diameter, which on different plants are either pale-blue or port-wine coloured. The port-wine variety should be very effective on the rockery; once established it should grow readily. Other cushion or mat plants found in the district are the numerous species of Raoulias, which are silvery in colour, but the rather rare bright-green cushions of R. Haastii are abundant also. These New Zealand cushion-plants are of such great diversity that a bed composed of the different coloured species should be something to talk about.

Gathering some of the seeds gave us trouble, almost the worst plant being Discaria Toumatou, known in New Zealand as the "Wild Irishman." It is a dark-coloured shrub that grows in this district to a height of six feet. It is armed in all directions with stout, sharp spines about 1½ to 2 inches long, under which the seeds are sheltered. If the seeds are not dead ripe, each capsule has to be picked by hand. The plant may be interesting, but to gather the seeds is irritating, nor is it pleasant to walk through its dense thickets. The seeds of the dioecious Aciphylla Colensoi are even more troublesome to gather, as one cannot attempt to hand-pick them. I held my Panama hat under the stem while the Doctor scraped the seed off with a botanical trowel. Our harvest of this particular plant was abundant, although we found only two plants with ripe seeds. This handsome, Yucca-like plant is known in New Zealand as "The Spaniard." Dr. Cockayne was much interested in finding at 3,000 feet altitude a patch of apparently hybrid Veronicas on the unbotanised Mount Misery, living specimens of which he is reserving for future study. The species suspected are V. monticola, V. carnosula, and V. pinguifolia.

It would be of interest to the British admirers of Veronica Traversii to see it growing "on its native heath," i.e., hillside, river-terrace, and talus, at from 1,000 to 3,000 feet

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altitude. In many cases the flowers were over, but the seeds were hardly ripe—though Veronica seeds may be gathered safely before they are quite ripe. In other localities the plants were in full bloom and visible from afar, as was also V. monticola. I was delighted to find large patches of V. Bidwillii, with its pink flowers, in full bloom on stony mountain sides and river-beds. It has smaller leaves than V. Lyallii, and grows under drier conditions.

On the tussock land we found many plants of Veronica pimelioides var. minor, a very pretty dwarf mat-forming variety with a blue flower—the much taller type of the species is restricted to dry rocks in the driest parts of New Zealand. Growing on the same flat in clumps of about 6 inches or 8 inches through, was the white Gentiana serotina in full flower. Gentians here have the reputation of being bad "movers," so we refrained from disturbing the different graceful and charming specimens to be found, but I am trying to make arrangements to secure some seeds later on.

Packing the plants was interesting. All soil is removed, and the roots wrapped with damp Spaghnum moss and tied with strands of Phormium tenax, a plentiful supply of both materials being found within easy distance of the station. Phormium, or Flax, as it is called, split into strands as thick as ordinary twine, is a very good tying material if used while green and supple.

The season was too early for the seeds of many species, but we gathered seeds of over fifty, and I brought away nearly the same number of plants, including Myosotis uniflora and Ranunculus Enysii. I returned to Wellington with the plants, some of which have been sent to the Wellington Botanical Gardens, and the remainder, which I have planted in my garden in the open or in boxes, appear to be doing very well. *Herbert Baillie, Public Library, Wellington, New Zealand.*

NOTICES OF BOOKS.

Plant Names.

THE author of *Plant Names** makes no attempt at a dictionary of plant names, but to make a readable book with a view to educate his readers, and so interest them by explaining the meanings of words derived from Latin, Greek, Arabic, Persian and English words derived from Anglo-Saxon and some other sources. The work is arranged in thirteen chapters, with an index, running to 93 pages. For instance, there are chapters on names whose meanings are not known, medicinal names, fancy names, classical names, names from place of origin, etc. The names that have no meanings for us are those adopted from Theophrastus or other old authors, who did not explain them, but used them for plants which have not all been identified with certainty. Under fancy names the author quotes the Judas Tree, and says it was supposed to be the tree on which Judas hanged himself. Other writers state that it was simply the Tree of Judea. Under names from use, two explanations are given for Capsicum, one being from Greek *kapto*, to swallow greedily. A better explanation would be *kapto*, to bite, from its pungency. One cannot always agree with some other explanations, such as Filbert being derived from St. Philibert, and that Polygala comes from its abundance of milky juice, because it has no milky juice. He fails to find a meaning for Cranberry, but that is explainable by the stalk of the flower and fruit being arched like the neck of a crane. Peony is not a good spelling for a word derived from Paian or Pæon. As a rule, however, his explanations are quite orthodox, and the reader who commits the meanings and explanations to memory will have got more than value for the price charged for the book.

* *Plant Names.* By T. S. Lindsay, B.D., Archdeacon of Dublin. London: The Sheldon Press, Northumberland Avenue, W.C. New York and Toronto: Price 2s 6d. net.

CANNIZARO, WIMBLEDON.

ON the north side of Wimbledon, abutting on the common, one would scarcely expect to find an estate of thirty-six acres with a large old garden attached, yet such is the case at Cannizaro, purchased during recent years by E. K. Wilson, Esq. There is a good deal of old wood in the policies, some of it neglected and overgrown, but this is being thinned out with the object of introducing choice Rhododendrons, of which the owner is particularly fond; but many other valuable ornamental trees and shrubs are being planted.

During the third week of June I had the pleasure of seeing many of the Rhododendrons in bloom, but some were over and the new growths in their prime of beauty, as in the case of R. decorum × R. Thompsonii. The large bell-shaped, blush and fragrant flowers of R. Loderi (R. Fortunei × R. Griffithianum) were very handsome on bushes 5 to 8 ft. high. Plants of this size are much prized, as few can possess them. Near the house the Azaleas were passing out of bloom, but the orange-scarlet flowers of A. Gloria Mundi were very striking. Pernettya mucronata Bell's Seedling is a variety with red berries. Near a Juglans nigra 70 ft. high were Rhododendron Shilsonii (R. Thompsonii × R. barbatum) 3 ft. high, and R. Combe Royal, a hybrid of R. Griffithianum, 8 ft. high, growing freely, and a little further away was a variety of R. arboreum like a little tree, this having been planted many years ago. Very distinct was the glaucous foliage of Pseudotsuga Douglasii glauca.

A winding path through the wood (looking like an old watercourse) was being cleared of undergrowth, and already was largely planted with choice hybrid Rhododendrons. The soil here, geologically, is old valley gravel laid down anciently by the River Thames, but being unfossiliferous its age cannot be determined. The fallen leaves of years past had covered the soil with a peaty deposit, and this, when trenched, makes an excellent medium for Rhododendrons. Some of them noted were R. Hodgsoni, with striking silvery leaves of large size; R. Broughtoni aureum, still in full bloom; R. Falconeri, with its massive leaves, rusty underneath; R. Lady Clementine Walsh, rose to blush, with blotches of yellow-brown spots; R. Luscombe's Scarlet, 10 ft. high; and the beautiful old R. fastuosum flore pleno, with semi-double, rich mauve flowers. When completed this will make an attractive Rhododendron dell, for the above are only a few of the kinds already planted.

On a piece of ground sheltered from the north, a large oval bed has been trenched, liberally mixed with peat and planted chiefly with American shrubs. Though this has been done since last autumn the plants are mostly all established and some of them flowering, including Kalmia latifolia, Zenobia speciosa, Ledum palustre, Vaccinium pennsylvaticum, and various species and varieties of hardy Heaths. In the more open spaces choice and uncommon or rare trees are being planted. For instance, the new hybrid Poplar, Populus generosa (P. angulata × P. trichocarpa) was making vigorous growth as is often the case with trees of this origin. It was raised by Prof. A. Henry. Crataegus Carrieri is a handsome Thorn of unknown origin, and showing both the flowering and the fruiting stage. Pyrus latifolia is also showing its fruits; and Nothofagus obliqua is one of those rare small-leaved Beeches from Chili. The giant of the wood is a common Beech, about 100 ft. high, with a girth of 14 ft.; the straight trunk is very imposing.

FIG. 8.—PRIMULA MARVEN (SEE PAGE 23).

Passing through the houses in company with the gardener, Mr. Allison, who is very enthusiastic in his work, whether in the open or under grass, some well-grown perpetual-flowering Carnations were noted, including a houseful of Triumph, Carola, etc.; Clarkia Firefly and Sutton's Scarlet were bright; and Fuchsia Scarcity was notable for the size of its flowers. The trees in the Peach house were young, yet carried what seemed like excessive crops, especially in the case of Nectarines Cardinal and Lord Napier, and Peaches Rivers' Early York and Kestrel. Most of the large fruits of Nectarine Early Rivers had been gathered.

The kitchen garden was well furnished with vegetables, and Cabbage Flower of Spring had been supplying the kitchen for some time. A good breadth of Potato May Queen had been dug some time previously. At the bottom of the garden two old and neighbouring trees of Cox's Orange Pippin Apple and Cox's Pomona were laden with fruit.

The borders round the vegetable garden, alongside the paths, were filled with herbaceous plants, and, where wide, the front and other salient parts were planted with Violas and annuals in panels of a variety. Nemesia strumosa Suttoni, Phlox Drummondii, Antirrhinums, and many others were just beginning to show their rich colour. Some flowers of Viola Moseley Perfection measured three inches across either way, and this variety had been in bloom since February. Near the house were beds and borders on the grass all filled with flowers, but the shades of evening made inspection difficult. On a wall, however, I noticed a specimen of Eucryphia pinnatifolia, 14 ft. high, which must have been there for many years. *J. F.*

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HISTORY OF THE OXFORD BOTANIC GARDEN.

ON the occasion of the celebration of the tercentenary of the Oxford Botanic Garden, Sir David Prain, F.R.S., reviewed the history and work of this celebrated establishment, and we now have the pleasure of publishing his address:

It is no light responsibility to take the place occupied by Mr. Edward Dowson on St. James's Day in 1621. I ask for your forbearance while attempting to perform the task assigned to me. I feel encouraged in making this request because the invitation to undertake the duty is a token of the feeling entertained by this old and famous garden towards the two sister institutions it was my privilege to serve for five and thirty years. The gardens at Kew and at Calcutta are grateful to the Curators of the Oxford Botanic Garden for their kindness. Both of them, I know, reciprocate their feeling most warmly.

When Mr. Dowson and Dr. Clayton spoke here in 1621 they intimated to their hearers the hopes they entertained. If their task was that of prophecy, ours is that of assessing the achievements of three hundred years. This garden, we are told, "was primarily founded for a nursery of simples and that a professor of botanicey should read there." This was written about 1668, long after Mr. Dowson and Dr. Clayton had spoken, yet before the professor they wished for had been appointed. But by 1659 we know that your "excellent gardener," the elder Mr. Bobart, had made this place such a "nursery of simples" that it was already comparable with the best "of the public physick gardens beyond sea." But we know besides that by 1648 Bobart had surpassed the hopes of those assembled here on July 25, 1621; if the Oxford Garden was but a "physick garden" in name, it was already a "botanic garden" in fact.

The story of this garden can only be appreciated by those who realise what a botanic garden is and does. What a botanic garden is we here can understand; we have only to look around us. What a botanic garden does is not always understood; if a definition be demanded, a botanic garden is "an institution in which gardencraft assists botany to increase and to improve natural knowledge."

Where the amenities have been attended to as assiduously as we see here, some find it difficult to distinguish a botanic garden from a public park. Where such cultural skill is displayed as we find in this place, others conceive that a botanic garden must be guided by horticultural purpose. However natural these ideas may be, both are mistaken; a botanic garden serves botanical ends.

Throughout her history, botany has derived her material and her inspiration equally from the garth and the waste. A millenium ago, even in a region so rude as Europe, she found in monastic closes beside the *hortus olitorius*, an *hortus herbarius* stocked with herbs of faith and grace which enabled her to study the characters and qualities of plants. Beyond monastic precincts, however, she found the study of wild herbs as important, and was led to form an *hortus siccus*, which enabled her to master the characters of its components. Her knowledge of their qualities, however, remained imperfect, and to remedy this defect she formed an *hortus vivus*.

If the nurture of domesticated plants require wary tilth, that of the wildings of moor and fen and forest taxes still more the wit of gardencraft. This wit has always been ungrudgingly at the disposal of botany, and nowhere more freely than at Oxford. It was here that gardencraft devised for botany an early heating apparatus; it was here that the first wooden greenhouses seen in England were built. Here, as elsewhere, botany has owed to the help of gardencraft some of the progress made in the study of plants as living organisms.

Botany is a modest science, like Chaucer's scholar, glad to learn and glad to teach. She does not teach the gardener his craft; she observes his labours and learns. In return for the help she receives, she puts at the disposal of gardencraft what she knows regarding the plant as a vital mechanism in the hope that she may enable the gardener to grasp the principles that underlie his practice.

The object of gardencraft is the thrift of the plants she handles. This constancy of purpose is independent of incentive and method. We do not question the apothegm of Bacon on gardens, but we remember that his remarks apply to gardens whose creation was reserved for ages grown to civility and elegancy; gardens whose care involves the mutual adjustment of two sometimes conflicting ideals—the constraint of nature and the concealment of art. We remember, too, that there was another incentive to the creation of gardens, powerful before ages of civility and elegancy had set in. That incentive is included in the edict that man must eat his bread in the sweat of his face. The resulting activity found two outlets; in efforts to maintain health and in attempts to alleviate sickness. In both instances physical comfort rather than intellectual pleasure was the ruling impulse.

This explains why the origins of botanical gardens have not always been uniform. Here in Oxford in 1621, as often elsewhere in Europe, a "nursery of simples" was established with the technical object of assisting the physician to minister to the sick. But by 1648 the elder Bobart had made it a garden of civility; by 1670 it had become a place of botanical instruction; by 1690 the younger Bobart had made it a centre of distribution of useful plants. At Kew the original purpose was such as Bacon indicates; the distribution of useful plants dates from 1772; the establishment of scientific activity there dates from 1841. At Calcutta a technical garden, originally established in 1786 to further the interests of traffic and industry, underwent a similar development; in 1793 it became a scientific institution. But in all these cases the assumption of new duties proved compatible with the retention of old; while, whatever the original purpose of a garden such as this one at Oxford may have been, it was only when it became a scientific institution that it proved adequate to a purpose higher than bodily well-being or mental refreshment. Even when it was in a position to serve the purpose of intellectual development it remained as dependent as ever on the aid of gardencraft.

Botany has been less constant of purpose than gardencraft. When this garden was founded botany was a technical art devised to further mnemonic ends. When Dillenius was professor here a century later, his friend Boerhaave still defined botany as the pursuit which enabled its followers to identify and to remember their plants with most ease. At late as 1659 botany had not come into use in Oxford. The favourite pursuit was phytology, which Dr. Lovell has defined as "the art of knowing and finding out the temperature, virtues and use of plants, as serving to the curation or sustentation of the body." Not until 1750 was botany treated as a self-contained science concerned with the systematic and philosophical study of the vegetable kingdom. But there was still a singular limitation. The phytology studied at Oxford in 1659 was an older pursuit than the botany Dr. Morison was appointed to teach in 1669. In 1750 the botanist was a phytologist; the phytologist need not be a botanist. Those only were botanists who could designate plants as well as determine them. Philosophical students of the "mystery of sex" were botanists. But philosophical students of the structure and growth of plants; the custodians of gardens who cultivated plants; and those who used plant products, though they were phytologists, need not be botanists. A century later saw an attempt to reverse this connotation by limiting the designation "botanist" to the vegetable-physiologist.

The Oxford Botanic Garden is a place of many pious memories, a review of which may serve to illustrate what a botanic garden does.

First in time as in other regards comes that of the Earl of Danby, to whose enlightened interest in natural knowledge, especially such of it as may be improved for use by medicine, this institution owes its being. To the Earl the garden was indebted for the selection of its first custodian, that "excellent gardener and botanist," the elder Bobart. The first Danby Professor of Botany was a gift of the Sovereign who granted its charters to Oxford's "Invisible College." Dr. Morison's memory lives in his published works and in the *hortus siccus*, prepared under his supervision by the younger Bobart, which is among this garden's most precious possessions.

Both of the Bobarts were in their day the subject of some criticism. The elder, your custodian of the garden, was regarded as being too much of a botanist; the younger, who succeeded Morison as your professor, was esteemed too much of a gardener. We, with our better perspective, recognise in these reflections the highest compliment that could be paid to either. But we find that both were paid, just as unconsciously, another compliment nearly as great. John Evelyn, in 1664, found "no extraordinary curiosities" when he visited the gardens; Von Uffenbach, when here in 1710, remarked that there were "few rarities." Those who have been in charge of botanic gardens see in these remarks conclusive evidence that neither had yielded to the temptation, to which keepers of botanic gardens so often succumb, of wasting time, resources and space in trying to keep alive plants that cannot be made to thrive.

In 1728 this institution found another generous benefactor in Consul William Sherard, who made the garden the gift of an *hortus siccus*, which placed Oxford on a footing of equality with the best-equipped European University of the time. He added priceless books to the garden library, and valuable plants to the *hortus vivus*. He endowed the Sherardian Chair and, greatest gift of all, persuaded the University to invite Dillenius to occupy it.

Sir James Edward Smith expressed an unfavourable opinion upon the influence of Dr. Humphrey Sibthorp, of Magdalen, who succeeded the eminent Dillenius. Yet Oxford owes to him the inestimable gift of a distinguished son, Dr. John Sibthorp, of Lincoln. To the younger Sibthorp, scholar and explorer, Sherardian professor and generous benefactor to the University, we owe an early demonstration of the essential difference between botanical survey and botanical excursion; to him also we owe the "discovery" of Mr. Ferdinand Bauer.

Perhaps Dr. Williams, who followed the younger Sibthorp, hardly did justice to himself. Others have not always done justice to him. A distinguished scholar, he must have been also a good botanist. Though he published nothing, he enjoyed the friendship of the first president of the Linnean Society. He "discovered" the elder Baxter, whose work as custodian of the garden was as excellent as it was untiring.

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Under circumstances so distressing as to be almost unbearable, he strove to keep the garden above water in more senses than one. No higher estimate of his merits can be conceived than that recorded by the foreign critic who, in 1824, found the Oxford Garden "inadequate to the purposes of botanical instruction in the present state of science." The Oxford Garden was starved; the professor was alive to the fact, but he was not well endowed with our national gift of mendicancy.

Dr. Daubeny, the brilliant successor of Dr. Williams, added that gift to his other accomplishments. He was thus able to extend the garden, to protect it against flooding, to reorganise the living collections, and to render them adequate to the purposes of botanical instruction. But Dr. Daubeny, while substituting for squalid poverty a state of elegancy which provided Oxford with a setting appropriate for assemblages such as this, did not attract Oxford undergraduates to the study of the *scientia amabilis*.

Just fifty years ago, in the days of Dr. Daubeny's successor, the Oxford Garden sought the advice of her younger sister at Kew as to a proposal to abandon the associations of a quarter of a millennium. The younger garden, with practical experience as her guide, was able to satisfy her senior that the proposal, if carried out, must cost more than the provision *in situ* of the improvements urgently called for.

A decade later Oxford repeated the experiment of 1669. Though equally successful, it could not be prolonged; Dr. Bayley Balfour felt it his duty to respond to the claim on his services made by his own *Alma Mater*. To the deep grief of the science he loved, these services, whether at Glasgow, at Oxford, or at Edinburgh, are now among our pious memories. Short as Balfour's stay at Oxford was, he was able to assist by precept the eminent men charged, after his departure, with the interests of this garden. By his example at Edinburgh he may still assist the Oxford Garden. Before laying down duties which eventually undermined his health, Balfour provided Edinburgh with the equipment "adequate to the purposes of botanical instruction in the present state of science." That equipment he placed in the only position appropriate to its reception in a University of the highest rank.

It would not be proper to make detailed reference to the part played in its history by those, happily still with us, who have served or who still serve this old and famous garden. This distinguished School of Botany owes them unstinted thanks for good and faithful service. They merit at our hands all the encouragement to be derived from our most fervent wishes for the continued welfare and renown of the Oxford Botanic Garden.

HARDY FLOWER BORDER.

TEUCRIUM FRUTICANS.

IT is some time since I came across the shrubby Germander, Teucrium fruticans, and even in some south of England gardens I have seen lately, where I expected to find it, there was no specimen of this pretty plant. Its absence from northern gardens is less surprising, seeing that it is admittedly tender. I grew it myself for a number of years against a south wall and on a raised bank, and it stood our winters pretty well near the Solway; but on one or two occasions it was badly cut by spring frosts, which are particularly troublesome there. Ultimately it was lost in my removal to another house and garden, and has never been replaced, seeing that I am now less favourably placed for the cultivation of the more tender subjects. It is a plant which may be of value to growers in the south and by the sea, who may desire a graceful Germander, whose book stature is from two to three feet, the latter being about the height it reached with me. It is a distinct subject, with branching stems carrying oval-pointed leaves, which are quite silvery above and white beneath. The flowers are practically stemless, and are of a charming shade of lavender. It is a plant with no pretensions to showiness, but has a most undeniable claim to true elegance and charm. It should have a warm position and a dry, well-drained soil. Propagation is effected by cuttings under glass. It is sometimes known as T. latifolium. *S. Arnott.*

THE ALPINE GARDEN.

RANUNCULUS LYALLII.

RANUNCULUS LYALLII is one of the most striking plants of New Zealand's sub-alpine flora, and considered to be the most magnificent member of the whole genus. This beautiful plant, with thick, saucer-shaped leaves 12 inches in diameter, and snowy-white flowers 2 inches to 3 inches across, carried in heads on erect stems, presents a striking picture to travellers in some parts of the South Island, where, during the months of February and March, it is seen blooming in all its glory, often in masses an acre or more in extent.

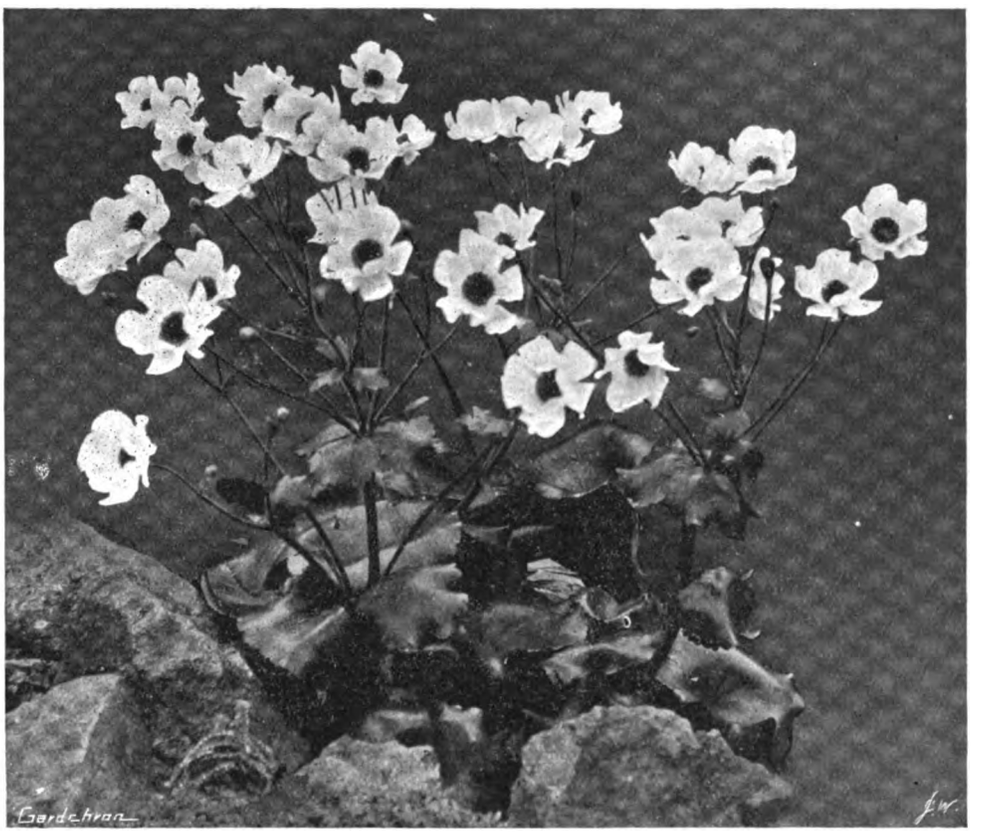

FIG. 9.—RANUNCULUS LYALLII IN NEW ZEALAND.

It is rather unfortunate that this noble plant does not take kindly to cultivation, for it is well worthy of a place in all gardens. It may be increased by division of its stout root-stock, or by seeds; but sometimes the seeds are slow in germinating and often fail.

Considering that it grows at an elevation of from 2,000 ft. to 5,000 ft., and for some weeks is covered with snow, it enjoys extremes of both heat and cold, and I find that the best position for its successful cultivation is a sunny pocket on the rockery, where the soil is always moist and at the same time well drained, with a liberal supply of sand and gravel about the roots. Leaf mould may be added; but on no account should manure or artificial fertiliser be used.

The illustration (Fig. 9) represents a plant growing in my own garden at Dunedin, New Zealand, nearly at sea-level. I understand that the cultivation of R. Lyallii in this country is a difficult and uncertain matter. This is probably due to the difficulty of obtaining strong, healthy plants, more than to any adverse climatic conditions. The same difficulty also attends its cultivation in the gardens of New Zealand. *James A. McPherson, Kew, Surrey.*

PRIMULA × MARVEN.

IT is interesting to read in the *Gard. Chron.* of May 26, p. 291, that Primula Marven (Fig. 8) was flowering in the Glasgow Botanic Garden. This all too brief reference brings to mind one of the most exquisite of all hybrid Primulas. A few weeks ago it was flowering here to the admiration of all who saw it. The plants were in cold frames, and it is easy to picture what a real gem this Primula must be in a rock garden where rare and choice plants are cherished.

It may not be generally known that P. Marven is a garden hybrid raised by crossing P. venusta with P. marginata. It is in every way worthy of its beautiful parents. Its name denotes its origin. The seed parent, P. venusta, is itself a natural hybrid between P. Auricula and P. carniolica, found in the very remote and lonely wooded hilltops in the Idrian ranges. However, P. venusta is particularly well known in gardens, and, like some other Primula hybrids, it seeds freely. In his paper on "Primula Hybrids in Nature," at the Primula Conference of 1913, the late Mr. Reginald Farrer, writing of P. × venusta, states:—"The plant is fertile of secondary crosses, and, pollinated by P. marginata, has yielded the beautiful P. × Marven, so close in habit and style to the purple pubescens called decora. Those hybrids, of course, have the splendid constitution of P. Auricula."

Although P. × Marven has been in cultivation for several years, it is still a scarce plant in gardens, and it is likely to remain so, as it is slow to increase. The flowers are reddish-purple with white, powdery eye. It carries upwards of fifteen flowers in a head and is less than six inches in height. All the plants I have seen are "pin-eyed," and it would be interesting to hear if a thrum-eyed form is in existence. The leaves are dentate and show the white margin characteristic of the pollen parent, and last, but not least, it possesses the precious charm of strong delicious fragrance. *Herbert Cowley, Tunbridge Wells.*

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RHODODENDRON INSIGNE.

As one who was fortunate enough to see R. insigne flower this year for the first time after anxiously watching for it for several years, I can vouch for all the good things written about it by Mr. Grove on p. 351 of your issue of June 23, Vol. lxxiii. Evidently under Wilson's Number 1339 seed was sent to Kew in 1911, and half-a-dozen plants are now growing well there. The size of plants varies from about 12 to 18 inches in height, and more in diameter; most of the branches are near the surface of the soil. The largest plant has upwards of 40 growths. The habit and general appearance of the plants are alluring, even in the absence of flowers. The younger branches and the under-surface of the leaves are covered by the most clean and silvery indumentum I have seen; the underside of the midrib and main veins are smooth, and the upper surface of the leaves is a particularly bright green.

As the leaves develop they become thick and firm, broadly channelled and the venation is pronounced; they remain on the branch for four years or more. The beautiful silvery under-surface of the leaf turns a burnished brown after the first year. The largest leaves are upwards of 3½ inches by 1¾ inch borne on a stout petiole; some of the leaves have a bulge on one side which gives the leaf apex a curve, but the majority are oblong-lanceolate.

The inflorescence was wrapped tightly in a hard and distinctly round winter bud which nestled conspicuously among the terminal leaves. The first flower opened on May 25; the buds were deep rose and opened a paler colour. Some flowers have six lobes, but the majority have five; the insides of three segments are lined and spotted with deep purple. The seed vessel is undeveloped at present, but it is clearly seen to be 8 or 10 valved, covered by a brown tomentum.

R. insigne suggests an alpine R. arboreum, or an affinity with R. argyrophyllum, but it is different from both. I have also compared R. insigne with R. Delavayi, R. argyrophyllum var. hypoglaucum; R. Ririei, R. floribundum, R. Hunnewellianum and R. Thayerianum, and to this last named there is a moderate approach in the foliage. R. Thayerianum is far more erect and its leaves much longer, with somewhat the same silvering, and they remain on the branches for a considerable time—five years or more.

Like many other Chinese Rhododendrons, R. insigne has shown slight variations; for instance, one plant is much slower in growth than the rest, and the indumentum is loose and inclined to cover the veins and upper surface of the foliage, and give a cobwebby appearance.

It may interest readers to know that R. insigne when grafted on to R. ponticum stocks unites easily and succeeds uncommonly well, the ensuing growth equalling that of the parent plants. I hope the owner of the specimen so well illustrated in the *Gard. Chron.* took the precaution to assist self-pollination, for I have known new Rhododendrons fail to set seed even after such a precaution. Many of the new and uncommon Rhododendrons produce plenty of good seed, and there are many gardeners who would be delighted with an amount which would cover the point of a budding knife.

I wish there was a more ready means of distributing much of the surplus Rhododendron seed, so that there would be no need to wait so many years before the species are known and available to garden owners and gardeners. Take for an example R. impeditum, let alone R. racemosum, both of which can be grown as readily as Ericas, yet these Rhododendrons are rarely seen in the majority of gardens.

The prices of the new Rhododendrons are too high for most folk, and the small plant insufficient return for the average purchaser with a small purse. *C. F. C.*

MARKET FRUIT GARDEN.

June was a cold, dry month with very little sunshine. The warm, growing conditions that were so badly needed did not come until quite the end of the month. At the beginning fruit trees were plainly showing the effect of unseasonable weather. The leaves of some of the more tender varieties of Apples, notably Cox's Orange Pippin and Allington Pippin, were scorched and brown, and quite a number of them dropped. Spray injury was suspected, but the appearance of the same trouble on control trees left no doubt as to the true cause. Plums were looking very miserable as a result of insect attacks and brown rot. By the close of the month considerable improvement was noticeable. Insect pests had in most cases run their course, and the trees were furnishing themselves with fresh foliage. If warmer conditions continue they should now manage to hold what fruit they have. There is no doubt, however, that the yield of orchard fruit throughout the country, speaking generally, will be light. It is much to be hoped that the remainder of the summer may be warm and seasonable, so as to stimulate the demand and ensure satisfactory prices, which alone can compensate growers for the meagre crop.

Apple Prospects.

Although the crop of Apples in my plantations is not heavy, several varieties have set enough fruit to require thinning. Allington Pippin, Lord Grosvenor, Lanes' Prince Albert, Bramley's Seedling, Worcester Pearmain, Domino, and Beauty of Bath will receive this treatment, at any rate in some blocks of trees, for they are patchy. But what concerns me more than the yield is the probable quality of the fruit. At present it is very backward, but it appears only too likely that quality will be lacking in a good many cases. Much fruit is stunted as a result of aphis infestation of the surrounding leaves, and is not likely to grow to normal size. In other cases Apples are marked by caterpillars or cracked and russeted by the weather. Where there is any choice such defective specimens are removed in thinning. It remains to be seen what proportion of the rest will come to perfection.

Most serious of all, however, is the prevalence of scab. Possibly districts which had a dry May have escaped this disease, but with me it is bad. The varieties that are usually subject to scab have been sprayed twice with Bordeaux mixture, and it is evident that the control has been considerable, in spite of unfavourable weather for the work. A third spraying will be given in a week or so. But other varieties, which with me are generally free from scab, are seriously affected this year. Beauty of Bath and Bramley's Seedling are notable examples. In a cold, wet season it would probably be wise to spray all varieties, though this is unnecessary in normal conditions. Beauty of Bath was included in the second spraying, because the disease had made its appearance on the leaves; but that was too late to prevent a good deal of the fruit from becoming affected.

It is a curious fact that scab is more easily controlled on some varieties than on others. I find that Bordeaux mixture works wonders with James Grieve, Lord Grosvenor, and Cox's Orange Pippin, which are all very subject to scab, but that Worcester Pearmain and Allington Pippin are less amenable to its influence.

Mowing in Orchards.

The work of mowing grass under the fruit trees occupied a lot of time in June. Between the rows of half-standard trees a one-horse mower cuts two swathes, but the rest has to be done by hand with scythes and bagging hooks. The crop was exceptionally heavy this year, owing partly to wet weather and partly, no doubt, to the nitrate of soda applied to all plantations under grass. This was applied in January, the idea being that at such an early date the grass would not be able to make much use of it, and it would, therefore, pass down to the tree roots. One might have thought that, in such a wet spring, such a soluble fertiliser would be washed out of the soil altogether. Evidently there is no risk of this, for the grass has clearly made use of it. The trees also look as if they had received their share, as they are now making plenty of growth.

The heavy crop of grass is now spread over the surface of the ground under the trees, where it forms a mulch, which must do a good deal towards protecting the trees from drought. I am not at all sure that this "sod mulch system, as it is called in America, is not better than the plan of keeping the grass eaten down by sheep or pigs, though it is less tidy, and possibly involves more work. The grass is growing again rapidly, and will have to be mown a second time. In a dry year mowing once is sometimes enough.

Cutting Back Young Trees.

The question whether newly-planted trees should be cut back at once or left alone for a year is still the subject of much controversy. Many years ago both systems were tried on my place, and the conclusion reached was that there was nothing to be gained by delaying the operation, but rather the contrary. After a few years there was never anything to choose between the trees, but pruning in the first year was easier, and usually gave the tree the best start. But the practice of delayed cutting back has been advocated strongly in recent years, and has been adopted by an increasing number of growers; so I thought I would try the experiment again.

Three rows of half-standard Pears were planted in the autumn of 1921. The two outside rows were cut back during the winter. The middle row was left alone. During their first summer the cut-back trees did not make much growth, owing to the dry spring; and I rather thought that the unpruned row would score. In the winter of 1922-23 the pruned trees were again cut back hard, and the others received their first pruning. The latter had, as usual with unpruned trees, made a lot of spurs and fruit buds, so that it was necessary to look low down to find suitable buds at which to cut. Both lots are now making plenty of growth, but the trees that were cut back the first winter are ahead of the others.

There is, of course, nothing conclusive in such an experiment; but it supplies one more piece of evidence that heading back in the first winter is right for my conditions. I have never obtained any evidence to the contrary. I should be inclined to delay cutting back only in the case of trees planted very late, say, in March.

Reversion in Black Currants.

Black Currants are cropping fairly well. The berries are big, but the bunches rather short, owing to the usual "running off" of the end berries. The plantation of older bushes which was thoroughly "rogued" last year to get rid of reverted specimens does not show a serious increase of this trouble. But there is a large plantation of young bushes bearing their first crop. Here reversion is rampant. The sound bushes are carrying fine fruit, but the others have only a few small berries hanging singly or in very short bunches, and are quite worthless. I shall go through them all before the crop is picked, and mark all reverted bushes to be grubbed and destroyed. They will have to be replaced by young bushes bought in, if a sound strain can be purchased, or by cuttings taken from the healthy bushes.

There was a time when Black Currants lent themselves well to rough-and-ready culture as an under-crop in young orchards. That time is passed. Growers must either leave Black Currants severely alone or be prepared to face the reversion problem in earnest. Many are deciding on the former course, which makes it all the more likely that those who carry on and fight reversion will reap their reward. Some growers in Norfolk appear to have taken the lead in this matter. They consider that strain is of even more importance than variety, and they have worked up their own strains. One method adopted is to select bushes which carry the best

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crops, and take soft cuttings from them in May. These are dipped in an insecticide to kill any bud mites that may be on them, and are then struck in cold frames. In this way a small stock free from "big bud" and reversion is obtained, and from it a large stock of bushes is raised by means of cuttings taken in the usual manner. It is claimed that such bushes do not revert until "big bud" makes its appearance. In any stock it must apparently be expected that reversion will arise sooner or later, so that annual rogueing is essential.

Whether reversion really follows "big bud" is still a moot point. I had rather come to the conclusion that it was the other way about. I have seen hundreds of bushes revert before there was any visible sign of "big bud," but once a bush has reverted it soon falls a prey to bud mite. Whatever may be the connection, if any, between these two troubles, there is no doubt as to the necessity of starting with a stock free from both, and at all times avoiding propagation from reverted bushes. The method of taking soft cuttings from selected bushes seems to be the only way of ensuring this.

THE SILVER-LEAF ORDER.

The alteration of the Silver-leaf Order, making it compulsory to destroy all affected wood by July 15, instead of by the following April 1, is wise. Silvered foliage shows up most distinctly early in the year, and becomes less pronounced as the season advances. If the work is left till the winter there is no possibility of detecting affected wood, unless it is actually dead. The Order apparently requires the destruction of all dead wood, whether caused by silver-leaf or not. There is not the least chance of this being done by the date mentioned in a year like this, when many trees are half killed by brown rot and aphides. Apples are included for the first time in the new Order, silver-leaf having become serious amongst Apples in some orchards. I have had top-grafted Apples affected, but so far not the ordinary trees. *Market Grower.*

HARDY FRUIT GARDEN.

PEACHES AND NECTARINES.

MOST of these trees are carrying very good crops, and to obtain large, highly flavoured fruits the thinning of the crop should not be deferred till after the stoning process. In the majority of cases this important detail has already received attention, but if not there should be no further delay in removing surplus fruits. Peaches may be allowed a distance averaging 10 inches to 12 inches apart—more or less according to the age and strength of the trees, and also the size of the variety. If overcropping is permitted and the growths of the branches are somewhat weak, the tree will be greatly checked for next season's crop. Nectarines may be left more thickly on the trees than Peaches, but if carefully thinned to a fair distance apart, the individual fruits will be far superior in every respect.

All young shoots required for next year's cropping should be trained carefully and made secure to the walls; any that are not wanted should be removed. This work should be done at intervals throughout the growing season. The foliage should be kept free from insect pests by repeated syringings in warm, favourable weather. I usually syringe late in the afternoons, and this work needs to be done thoroughly; the spray should not be applied too vigorously or it will damage the more tender leaves. In this garden rain has not been sufficient to soak the earth down about the roots of the trees, and watering has been necessary. Liquid manure, if applied in sufficient quantity to penetrate the soil to a good depth, will greatly help the fruits to attain a large size; a concentrated fertiliser may also be sprinkled on the soil and washed in with a copious watering, or a good mulch of rich manure may be applied followed by a thorough watering. *H. Markham, Wrotham Park Gardens, Barnet.*

CABBAGE ROOT FLY.

THE larva of the Cabbage Root Fly, Phorbia brassicae, is responsible for much damage in hot or dry seasons. It attacks many members of the Cruciferae, amongst which are to be found many important garden plants, such as Cauliflower, Broccoli, Cabbage, Brussels Sprouts, Turnip, Swede, and Radish. The adult fly bears a general resemblance to the common house fly. It commonly appears about the end of April and in May, and there are usually three generations in the year. The females lay their eggs close to the plant. If available, they use any crack near the plant in order to get the eggs as close as possible to the stem. In about a week the eggs hatch and the young maggots begin to gnaw the outside of the root. As they get stronger, they enter the cortex and finally tunnel up the centre of the stem. When full fed, the larvae pupate, usually in the soil outside, but sometimes in the plant itself.

The first generation of fly maggots causes damage in particular to early Cauliflowers, and to a rather less extent to the early varieties of Broccoli. Brussels Sprouts are attacked only to a comparatively small extent. The second and third generations are not so serious to the gardener, though damage may be done to Savoys and Spring Cabbage.

The damage done to Brassicas seems almost directly proportional to their tenderness and speed of growth. This is seen in the greater attack on Cauliflowers than on Broccoli. The same fact may be observed when comparing early, mid-season, and late varieties of Broccoli. The early-maturing varieties are quick-growing, and are more liable to damage than the mid-season and late varieties.

Lastly, this same difference may be observed in the same variety of Broccoli when grown under poor or good manurial conditions. If grown under poor conditions, its susceptibility to attack is comparatively small; if the reverse, the susceptibility is great. These differences are quite understandable when it is remembered that the young larva begins by gnawing the outside of the plant. If this is sappy, it suits the young larva and damage is done; if it is hard, the young larva finds difficulty in obtaining food.

The effect on young Cauliflowers varies. If the attack is severe and early, the plant flags and dies outright. If the attack is less severe and later, the plant is forced into premature flower, and heads as big as pennypieces are obtained. It is, indeed, probable that most of the premature flowering (bolting) of Sprouts and Savoys is due to slight attacks of this pest, and it is just possible that some of the bolting of Spring Cabbage may be traced to the same cause.

There are three preventive and remedial measures known to secure control.

Probably the most effective is the use of tarred felt discs. These can be obtained from the manufacturers at a comparatively cheap rate, and give very good, though not perfect, protection. When using them, it is necessary to take certain precautions. Firstly, they must be fixed in position around the plants as soon as the latter are put out. This is important, as otherwise the fly may lay eggs before the plant is protected. Secondly, care must be taken that, when hoeing, no soil is put on the disc. If this precaution is not taken, eggs will be laid below the soil on the disc. Thirdly, no leaf stalks must be allowed to pass through the hole in the disc, since it is essential that this should fit snugly round the stem of the plant. Such stalks should be removed before placing the disc in position.

The second control method is the use of carbolic acid emulsion.

The formula is: Hard soap 1 lb., or soft-soap 1 quart; water 1 gallon; crude carbolic 1 pint. For use, this is diluted with 30 parts of water, and half a teacupful is poured round the plant a day or two after planting out. The application must be repeated once a week for a month.

This method has been used commercially by American growers, but has not proved so effective as the tarred felt discs.

A third method is the use of mercuric chloride (corrosive sublimate). One ounce of corrosive sublimate is dissolved in 10 gallons of water, and 2 ounces of the resulting fluid is poured round each plant. This operation is performed four days after planting out, and is repeated at ten and twenty days after planting out. This method has given greater success in America than the use of tarred discs, but it must be remembered that corrosive sublimate is a deadly poison and must be handled with extreme care. Needless to say, no damage occurs to the plants; they are even slightly stimulated by the application. *A. H. Lees.*

MELON CANKER.

ALTHOUGH the Melon is one of the easiest of all indoor fruits to cultivate with success up to a certain point, the plants experience a critical time at the stage when the fruits begin to ripen, and, unless the cultivation has been perfect in every respect, they are liable to collapse as a result of canker at the collar. Unfortunately there is no certain cure for this complaint, but there are certain measures which may be adopted as preventives and partial remedy.

One of the common causes of plants being attacked by canker is growing them in a compost containing an excess of rank manure. The grower should endeavour to build up strong, healthy plants, free from gross or sappy shoots; when the fruits have set and are swelling, the necessary stimulants may be applied in the form of liquid manure. Those who are troubled with canker should admit rather more air than is usual in the house, maintain a steady bottom heat, and not cut the laterals too close to the stem at the base, as it is at that part that the canker always appears.

Cankered Melons may have a casing of Portland cement placed about the cankered part to prevent collapse and allow the sap to circulate; this simple provision sometimes saves the crop, or at least a part of it. Those who experience a difficulty with canker in Melons should cultivate the plants in large pots, for Melons fruit well in 12-inch or 14-inch pots, and canker seldom attacks plants grown in pots. The latter should be plunged in gentle bottom heat and the roots fed somewhat liberally with liquid stimulants *F.*

VEGETABLE GARDEN.

VEGETABLE TRIALS AT WISLEY.

THE vegetable trials undertaken at Wisley during the past few years have added much to our knowledge of varieties and their behaviour in the garden, and it is a pity that the majority of gardeners have no opportunity of inspecting them, for they would profit by the mass of information the trials afford.

Nearly one hundred different stocks of Cabbage Lettuces were sown last September, and the plants did exceedingly well. The variety Reliance lasted to the end, but was not ready so soon as many of the other sorts.

Cos varieties that are usually grown for early spring use were not ready until several weeks later, with the exception of Goldring's Bath Cos, which is the earliest of this class; it is said to be an old variety, but has hitherto escaped notice.

The trial of Carrots for frame culture has also brought into evidence the value of Amsterdam Forcing. Other trials are in progress and the staff is to be congratulated on the excellent culture and great care exercised in conducting all the trials, and on the great improvements at Wisley since the war ceased. *W. H. Divers, V.M.H.*

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NURSERY NOTES.

HARDY FLOWERS AT ENFIELD.

Having visited Mr. Amos Perry's nursery at Enfield last season, and observed several very fine seedling Irises which he had raised, we took the opportunity afforded us of seeing them again this summer to note their behaviour, and also to inspect the extensive collection of rare and choice hardy plants which this suburban nursery contains.

The majority of the Irises are collected together in a large area of ground (see Fig. 10), but several choice and outstanding sorts are planted by themselves, including crosses of the smaller-flowering species, such as I. chrysographes, which Mr. Perry has crossed with several Chinese and Californian Irises. A hybrid of I. chrysographes, crossed with I. Hartwegii, is quite distinct from either parent, being a tall-growing plant, bearing purplish flowers of the Hartwegii character, and with the characteristic markings of chrysographes. This plant has falls growing at almost right angles, and the prostrate foliage of Hartwegii. The original clump has developed twenty flower spikes. Another interesting hybrid is I. chrysographes crossed I. Bulleyana, named Chrysogana. This flower has beautiful falls like the chrysographes parent, broad, and of a rich old china-blue colour, heavily mottled with white. The flower spikes attain to a height of over 2 feet. Another hybrid, I. chrysographes crossed with I. Forestii, named Chrysofor, has yellow standards and blue falls; seedlings of the second generation from this cross have produced flowers of almost all colours, including yellow, rich purple, sky blue, and white and blue.

Of the taller Bearded Irises, Mr. Perry's seedling named Lady Sackville attracted our notice, with its soft, silvery blue standards, rich purple falls, and a conspicuous yellow crest. Near by were growing such fine Irises as Lord Lambourne, Geo. Yeld, a very free blooming variety, Duke of York, Ambassadeur, with thirteen or fifteen flowers on a plant, a very dark-coloured Iris, with maroon falls overlaid with black; and I. Flammenschwert, one of the best of the German-raised Irises, with rich golden standards and madder crimson-coloured falls.

The newer varieties raised by Mr. Perry are remarkable for their tall stature, many of them growing 4 feet high, with stout, erect flower scapes, and having a conspicuous branching habit. Perhaps the pick of the collection were the following:—Mrs. C. Pearson, a large flower with prettily incurved standards that are delicately tinted with a very pale mauve and with falls of the same colour; Mrs. H. F. Bowles, a very tall variety and remarkable colour combination, the standards being of a soft brown overlaid with old gold, whilst the falls are of a brilliant brick-red, with a distinct glistening sheen and a white-lined base; Lady Charles Allom, which reaches a height of 3½ feet, the stout stems bearing handsome, sweetly-scented flowers of a rich lavender-blue, with falls a little darker; Geo. Yeld, one of the most remarkable of Mr. Perry's seedlings, named in honour of the President of the English Iris Society, having bright apricot-coloured standards tinted with salmon-rose and falls of a brilliantly rosy-crimson, which are edged with buff; this also is a variety of tall stature, reaching 3½ feet high; Ducalion has apricot-coloured standards suffused with rose and falls of a pretty crimson-purple irregularly edged with grey; the height is 4 feet; Marjorie Tinley, which was illustrated in *Gard. Chron.* of June 30; Eden Phillpotts, a variety to be recommended on account of its freedom of flowering, and its tall, stout branching flower stems, which bear dark lavender-blue blossoms set off by a prominent white and yellow crest; Feronia, a strong-growing variety producing a well-formed flower, with standards of an uncommon shade of soft rosy-bronze, and falls of old rose colour heavily lined with madder crimson; Belladonna, one of the most strikingly effective of the self-blue Irises in the whole of Mr. Perry's collection. The plant flowers with great freedom, for which purpose it is valuable for cut blooms, whilst the stems are 3½ feet tall. Cassandra is a seedling Iris of large size, and the flowers are of good shape; the large, broad standards are incurved and coloured rosy-violet, whilst the falls are crimson overlaid with black, and have a bronze-coloured base reticulated with white; Dejah is a tall, early-flowering pallida Iris, with silvery-blue standards and bright mauve-coloured falls; Kulan Tith has the same characteristic stature as the others, and the tall stems bear flowers with lavender-blue standards and deep lavender falls overlaid with rose.

FIG. 10.—SEEDLING IRISES AT MR. AMOS PERRY'S NURSERY.

Whilst passing to the Irises we were compelled to stop frequently to inspect some of the more notable of the numerous fine hardy plants. Of these Hieraceum villosum, a plant that is downy all over, was a sheet of rich golden yellow, which showed to advantage against the pretty, greyish, villose foliage. This is a splendid plant for a dry bank, and continues in flower from early June to September. It grows about 15 inches high. Several fine Geums deserve special mention, including the variety Lady Hillingdon, the flowers of which suggested a St. John Wort; this variety blooms all through the summer, and grows about 9 inches tall; Lady Stratheden is a large, double, orange-yellow flower, a fine companion to the scarlet Mrs. Bradshaw. Amongst several Violas raised by Mr. Perry, one named Princess Mary is of outstanding merit. It is a form of V. gracilis, with rich violet-blue flowers as big as those of a tufted Pansy, and it will continue in bloom until its flowers are spoiled by frost. A trio of good hardy flowers was seen in Erigeron Elsie, Aster peregrinus, and Erigeron Edina. The first is a very beautiful flower, and from the profusion in which the blossoms are produced it should prove valuable for market purposes. The colour is a pleasing delicate pink, and the central disc is like a piece of velvet dotted all over with gold. Aster peregrinus is one of the best of the dwarf flowering alpine Asters, whilst Erigeron Edina has fine white flowers. Two new plants of merit seen were Geranium sanguineum roseum, a delightful shade of soft rose colour, and the rare Silene californica, a brilliant scarlet colour, to which we recently referred.

These nurseries are famous for hardy Ferns, and Mr. Perry's stock numbers some 100,000 plants, the majority of which are grown in beds protected with a lattice-work house, the purpose of which is to give shade rather than shelter, for it is found that shade causes more development in the fronds and accentuates their distinctive characters. The chief genera cultivated are Scolopendriums and Polystichums. Of the Scolopendriums or Hart's Tongue Ferns there are three hundred distinct varieties, in all manner of forms. Some have divided and ramose fronds, others stag-horn fronds and stag-horn crested fronds, but nothing amongst the Scolopendriums is more beautiful than forms of the crispum type, with beautiful goffered edges. The diversity in this single species of Fern is remarkable; some of the leaves are not more than a quarter of an inch wide, whilst others are even narrower and grow length-wise rather than broad, attaining to a height of 3 feet. The marginal differences are very remarkable; some are goffered, others scalloped, and still others have toothed margins, like saw teeth.

Polystichums are almost as varied as Scolopendriums, and Mr. Perry's collection includes some two hundred distinct sorts. In this family the more handsome are the plumose and divisilobed forms. Some have fronds like a bank of moss, others are erect-growing and spreading and Todea-like in habit. Among the best of the angulare type are lineare, Moly, and angulare capitatum, Moly. Other important genera of Ferns cultivated are Athyrium, the Lady Fern, and Lastrea, the Male Fern.

The soil in which the Ferns are grown is liberally mixed with peat and leaf-mould; no manurial stimulant is afforded. The chief pests are slugs and woodlice, and these may be kept at bay by placing lime around the base of the plants. Those who plant these hardy Ferns should take care not to expose them in cold, draughty places, otherwise they are able to withstand all kinds of weather. Athyrium and Scolopendriums revel in a shady position, but nearly all the Polystichums may be grown in full sunshine, and many of the varieties in the driest positions. Early planting is essential, for preference autumn in the case of loose or sandy soil, but where the texture is heavy spring planting is best. Mr. Perry's specimen plants are accommodated in a cool house, and a selection of these, see Fig. 11, was exhibited by him at the recent Chelsea show.

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HOME CORRESPONDENCE.

St. Cuthbert's Cole.—Mr. Britten will find this name in the list of old plant names at the end of Gerard's *Herbal*, as also Seadock, which in *Sinonomia Bartolomei* (*Anecdota Oxoniensis*) is called Seahock. The names of Sedum album will be found in *Alphita*, in the same series as the last named. There is an almost uncanny similarity between the quotation on the Hollyhock, given by Mr. Britten, from Archdeacon Lindsay's book, and remarks published in *Chambers's Journal*, October, 1921, in an unsigned article by me. I wrote: "It may have acquired 'holy' from its association with Lindisfarne—the Holy Island—or from the saint of that name (St. Cuthbert), after whom it was called St. Cuthbert's Kale." It is very many years since I came to the conclusion that the present-day Hollyhock derived its name from the Marsh Mallow by substitution. *R. P. Brotherston.*

Double Buttercups.—It was interesting to read on page 10, in your issue of July 7, about the Double Buttercups—*e.g.*, Ranunculus bulbosus fl. pl. At The Drum, Midlothian, I observed early in May of this year, and growing in the woodland not far from the garden, a small colony of Ranunculus Ficaria with double yellow flowers; perhaps this species is better known by its common names of Pilewort and Lesser Celandine. I once found a double white or yellowish-white flowered plant of this species, and I have read of a double-flowered form of Ranunculus acris. *David Armstrong.*

INDIAN CORRESPONDENCE.

CLIMBING PLANTS.

I was very interested in J. S. D.'s article on Solanum Wendlandii on page 272, of your issue of May 19 last, more especially as this plant is one of the few lovely, blue-flowered climbers, and, as yet, little known. The only successfully grown plants which I saw in Europe were in the greenhouse at Kew some years ago, attached to the rafters and some 15 inches or more from the roof glass. An even more beautiful greenhouse climber is Petraea volubilis, a scandent or twining plant, native of South America; it bears bright, pure azure blue, large, star-like flowers, in large, elegant, wreath-like clusters; seen in full bloom in India in March it is one of the loveliest objects the eye could rest upon. But, alas, the sun's rays soon destroy the richness of its colour. In an English greenhouse it would grow admirably, especially if given a good sandy compost and an abundance of water when growing, reducing the amount of water to a minimum during the short days of winter. By way of propagation my nurseryman prefers to get young plants from layers. Of course, here, in India, we grow the Petraea on arches in the open.

Another climbing shrub, little known in England, but very beautiful and equally suitable for greenhouse cultivation, is Poivrea coccinea, or Combretum coccineum. With us, it is a large, climbing plant with slender stems, and almost constantly in blossom with a profusion of small, bright crimson flowers, borne in large, compact, brush-like bunches, beautifully displayed against the bright, cheerful, glossy green of the foliage. It is one of the handsomest and most prized ornaments of Indian gardens.

Probably no plant in the world presents a more truly gorgeous appearance when in flower than Bignonia venusta. This, too, I feel sure, would grow successfully in a warm English greenhouse, attached to wires. From the axil of each leaf is borne a crowded, drooping corymb of tubular, orange-vermilion-coloured flowers, two inches long. We use this plant extensively at Patiala for covering arches and bare, unsightly walls, where it requires very little attention beyond a good soaking of water at the roots and overhead occasionally. *George Burrows, Superintendent of State Gardens, Patiala, India.*

SOCIETIES.

ROYAL AGRICULTURAL.

The 82nd annual show of the Royal Agricultural Society was opened at Newcastle-on-Tyne on July 3. The weather was fine, and there was a large attendance on the opening day. In addition to the record entry of stock and machinery, it is gratifying to record that the horticultural section has never previously provided a display to compare with the one made on this occasion. Not only were the competitive classes, with the exception of Orchids, keenly contested, the non-competitive displays were more numerous than usual.

In adjoining tents the forestry and the educational sections, under the charge of the Royal Arboricultural Society, and the Armstrong College made most interesting displays.

GROUPS

In the classes for a group of miscellaneous plants Messrs. J. CYPHER AND SONS won first prize with a beautifully-arranged group. The foliage plants comprised Codiaeums in variety; finely coloured Dracaenas, Aralias, Asparagus and Ferns, while prominent among the flowering plants were good specimens of Cattleya Warscewiczii, Laelio-Cattleya Canhamiana, Masdevallia Harryana, Cypripediums in variety and good plants of Clerodendron Balfouri and C. fallax. Mr. W. A. HOLMES, Chesterfield, 2nd, with a finely arranged collection of Codiaeums, Dracaenas, and Liliums. In the class for a collection of Orchids, Messrs. STUART LOW AND CO. were the only exhibitors; they staged a small group of Cattleyas, Odontoglossums and Odontiodas. For collection of Sweet Peas, Messrs. ROBERT BOLTON AND SONS won first place with baskets of Picture, Hawlmark Salmon, Daffodil, R. F. Fulton, Wizard, Sunset and Fire Queen; 2nd, Messrs. E. W. KING AND CO.; 3rd, Mr. J. STEVENSON.

In the class for a collection of hardy perennial plants and cut blooms, 40 feet by 10 feet, the object was to afford a representation of a hardy flower border. In this class the exhibitors seemed to ignore the wording of the schedule, as regards overcrowding, for with the exception of Mr. T. A. LAWRENSON, Gosforth, who won first prize, none followed the instructions. Mr. LAWRENSON'S group was a fine arrangement of plants, all of which were grown in pots, and thus offered better facilities for producing the natural border effect, which evidently appealed to the judges; 2nd, Messrs. HARKNESS AND SONS, with a glorious display of bunches of flowers in massed formation; Messrs. GIBSONS AND SONS were placed 3rd; and Messrs. W. ARTINDALE AND SONS, Sheffield, 4th. For a collection of Roses Mr. E. J. HICKS led with a beautifully arranged stand, in which the colours were beautifully blended, and the flowers effectively arranged, Lady Hillingdon in the centre, Ophelia and Mrs. Herbert Stevens at the ends, being most attractive. Messrs. A. J. ALLEN, Norwich, 2nd, with fine, fresh flowers of Mrs. Henry Morse, Hoosier Beauty, Christine, and Mrs. Herbert Stevens.

For a collection of cut Carnations, Mr. C. ENGELMANN led with a grand display of choice blooms of White Wonder, Peerless, Enchantress Supreme, Tarzan, Saffron, Delice, Cupid, Topsy, Laddie, and other fine varieties; 2nd, Messrs. STUART LOW AND CO. In the class for a collection of border Carnations, Mr. H. LAKEMAN was the winner, with a grand collection, the most prominent varieties being Lieut. Shackleton, Orange Pink, Border Yellow, Grenadier, Elaine, Purple Clove, and Bookham Rose.

FIG. 11.—HARDY FERNS EXHIBITED BY MR. AMOS PERRY AT THE CHELSEA SHOW. (SEE P. 26.)

Messrs. BLACKMORE AND LANGDON were the only exhibitors of a collection of Begonias, and showed one of the finest groups they have ever set up. The same firm also won first prize in the class for Delphiniums.

NON-COMPETITIVE.

Messrs. ALLWOOD BROS. had a magnificent group of splendid Carnations and Pinks, set up in their usual artistic style (Large Gold Medal). Messrs. SUTTON AND SONS made a fine display of Clerodendron fallax, with bunches of Sweet Peas, Delphiniums and Lilium speciosum, They also had Melons and early vegetables (Large Gold Medal). Messrs. ALEXANDER DICKSON AND SONS had a very fine display of Sweet Peas, and among their attractive novelties were Purple Perfection, Lucifer, Celeste, and Prince of Orange (Large Gold Medal).

Messrs. B. CANT AND SONS exhibited a comprehensive collection of cut Roses, which included the new Lady Roundway, which received a Gold Medal at Regent's Park, and Lady Dixon Hartland (Silver Medal). Mrs. S. S. THOMPSON showed a very fine collection of Cacti

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and allied plants (Silver Medal). Messrs. LANG AND MATHER exhibited a very fine collection of hardy annuals and other border plants (Silver Medal). Messrs. H. ELLISON AND SONS exhibited Ferns extensively (Silver Medal). Messrs. JOHN FORBES, LTD., showed a remarkable collection of Pentstemons, Phloxes, Pyrethrums and Violas (Gold Medal). Messrs. R. H. BATH, LTD., Wisbech, displayed a fine collection of Delphiniums, Paeonies, Antirrhinums, Liliums, and other border plants (Silver-gilt Medal). Messrs. W. J. GODFREY AND SON showed a very fine collection of Campanulas, Paeonies, Scabious Pride of Exmouth, a good selection of Lupins, etc. (Silver Medal).

Messrs. BAKERS showed an extensive group of hardy perennial and bulbous plants tastefully arranged, and they also included a model garden (Large Gold Medal). Miss WORTH, Holbeach, sent an extensive exhibit of succulent plants. Messrs. ORD BROS. had a group of Ferns and Palms (Silver Medal).

Messrs. ROBERT BOLTON AND SON showed a very good collection of Sweet Peas, the fine colours of Sunset, Bonfire, Picture, Daffodil, Wizard and Comrade being most attractive (Large Gold Medal). Messrs. DOBBIE AND CO., LTD., Edinburgh, had a grand display of Sweet Peas, the varieties Royal Sovereign and Mary Rose being finely shown. The brilliant Field Marshal and a fine vase of a white seedling were also prominent (Large Gold Medal). Messrs. E. WEBB AND SONS showed Sweet Peas in variety and a small collection of Gloxinias (Gold Medal).

Mr. T. A. LAWRENSON showed clipped trees and shrubs, and alpine plants in variety (Large Gold Medal). Messrs. KENT AND BRYDON, Darlington, had a tastefully arranged rock and Italian garden. In the sunk garden they had a fine display of Irises, Primulas and dwarf shrubs. They also exhibited garden designs, bouquets and wreaths (Large Gold Medal).

Messrs. BROADHEAD AND SONS, LTD., exhibited an extensive rock and water garden, finely arranged with a background of Conifers (Large Gold Medal). Mr. R. V. ROGER had an interesting miniature rock garden, also a large collection of clipped shrubs in the open (Gold Medal). Messrs. MAXWELL AND BEAL, Broadstone, Dorset, showed a miniature rock and water garden, in which were included a number of the smaller Campanulas.

Outside the tent Messrs. MACK AND MILN had a fine arrangement of various Roses, border flowers, and ornamental trees and shrubs. Messrs. DICKSON AND ROBINSON showed Carnations, Dwarf Roses, Spiraeas, border flowers, and annuals in variety. Messrs. W. FELL AND CO. had a fine display of greenhouse and hardy plants and flowers; Messrs. LITTLE and BALLANTYNE showed Hydrangeas and trees and shrubs; Messrs. DICKSON, BROWN and TATE showed Carnations in variety, with Astilbes and Delphiniums; Messrs. SUTTON AND SONS had a varied collection of early vegetables and roots; Messrs. J. CARTER AND CO. exhibited early vegetables, bulbous plants and annuals; Messrs. WEBB AND SONS showed Sweet Peas and Begonias; Messrs. DICKSONS, Chester, showed Astilbes in variety, Paeonies and hardy flowers; Messrs. CLIBRANS showed annuals, Roses and hardy flowers in variety; Messrs. FINNEY exhibited Sweet Peas in variety and Liliums, and an exclusive collection of early vegetables and Melons. THE FOUR OAKS COMPANY had an extensive collection of syringes and spraying apparatus; and Messrs. KENT AND BRYDON arranged a sunken garden, with a border of herbaceous plants and a centre bed of Hydrangeas.

SCOTTISH ARBORICULTURAL.

THE members of the Aberdeen and Northern branches of the Royal Scottish Arboricultural Society recently visited the Cawdor and Kilravock estates in Nairnshire. Nairnshire is the finest wooded county in Scotland, thirteen per cent. of its area being afforested. The company included the Earl of Leven and Melville, Colonel Hugh Rose, C.M.G., of Kilravock, Colonel Sutherland, of the Forestry Commission, Major Scott, Captain Newton, Sir John R. Gladstone, Mr. Sydney J. Gammell, Major Law, Mr. John Michie, M.V.O. (late factor to the King at Balmoral Castle), Mr. Donald Munro, Mr. Peter Leslie, Forestry Department of Aberdeen University, and many head foresters from the large estates in the northern half of Scotland. There were also present a number of Forestry Commission officers.

The beautiful town of Nairn was the venue chosen for the meeting place, and from thence the company proceeded to inspect the historic woods of Cawdor. This is one of the most beautiful estates in the British Isles, and provided an enormous quantity of timber during the war. Guided by Mr. Charles Clark, head forester, the party had a two hours' walk through the policies leading to Cawdor Castle. Fine specimens of trees abounded on all sides, many of them reckoned to be 100 to 130 years old, and containing on an average from 50 to 60 feet cube each, while some of the giants were estimated to contain something like 200 feet cube. Scots Pine, Larch and Spruce were seen growing profusely, and of magnificent dimensions. The historic castle was also visited, and here Mr. George Bain, a Nairn antiquarian, gave the party an entrancing story of the establishment of the castle in 1454, of its owners in olden days, and of subsequent events. The exquisite panellings of some of the rooms, Oak and Fir, made from wood grown on the estate, were greatly admired.

Kilravock estate, with its ancient castle, the property of Colonel Rose, was next visited. Interesting demonstrations were given here of blasting a hard "pan" of earth to facilitate the preparation of the ground for tree planting. Numbers of holes were drilled to depths varying from three to four feet, charges of gelignite were laid and fused, and the party saw miniature craters bursting, loosening and shaking the earth for a considerable distance around each charge-hole. Colonel Rose explained that each charge cost about a shilling, which, he thought, would prove far too expensive to be applied practically. He suggested the Government might step in in such a matter, and agree to let landowners have a part of the surplus explosives at a cheap rate. If a system of blasting on an extensive scale were adopted, it might give employment to many ex-Service men.

The fine woods of Kilravock contain trees of great age and dimensions. Oaks there were which seemed to have passed their zenith of strength and glory, and were evidently breaking down from sheer old age. Unfortunately there have been no records kept of these trees, hence their age could only be surmised. Here also was seen what the experts declared is one of the finest Sitka Spruces in this country. It measures 18 feet in girth and 120 feet in height.

During the proceedings, a halt was made to hear an address from Col. Sutherland, of the Forestry Commission. Col. Rose presided and introduced Col. Sutherland, who said he was glad of the opportunity to explain before so distinguished a gathering of experts the nature of the operations and aspirations of the Forestry Commission in Scotland. Since the end of 1919 the Commission, he said, had bought four estates, and had fenced twenty-three areas, large and small. Altogether, the Commission now held for the State about 90,000 acres. They found it comparatively easy to purchase land, but rather difficult to feu it. He appealed for help in acquiring more land by feu. They wanted blocks of 500 acres or more, and could now take 25,000 acres of afforestable land. He predicted that if encouragement were given the Commission in their search for feuing land, those who helped would not regret it. High prices need not be expected for feuing areas. Dealing with the work of the Commission in the two divisions—north and north-east—in which those present were chiefly interested, Colonel Sutherland said they had Mr. Scott in the Northern Division with eight operations in being and two or three in prospect. Those schemes were scattered over six counties. Up to the end of last season Mr. Scott had planted 4,150 acres, and produced in ten nurseries 6,500,000 transplants and seedlings. Mr. Annand in the Aberdeen Division, had seven operations, and more in prospect. He had planted 2,650 acres, and the large nurseries at Aberdeen, developed under his care, had now a stock of 12,500,000 transplants and seedlings. Col. Sutherland then dwelt on the many duties devolving upon divisional officers, including unemployment schemes. These latter schemes had been successful throughout Scotland where private enterprise had, as usual, responded. In the Northern Division 70 schemes had been accepted in two years, and in the North-Eastern (Aberdeen) Division 105 schemes. Through both nearly 7,000 acres had been planted, and 8,000 acres prepared for planting. He trusted this was a side of the work that would continue, and that grants or subsidies should be given to everyone—corporations or private owners—who set to work to put more trees into the ground. He stated that the Commission was gradually finishing the census of British woodlands—a valuable work if maintained up to date systematically in the future. It would bring out the quantity of timber marked for present use and likely to be marked for the next twenty years or more.

Colonel Sutherland referred to the establishment of the new Chair of Forestry in Aberdeen University, and paid warm tributes to Mr. Peter Leslie, the lecturer in forestry at Aberdeen, and the Principal of the University (Sir George Adam Smith) for the deep interest they had taken in forestry.

In answer to a question by Mr. John Michie, Colonel Sutherland said the Government, for an expenditure of £30,000, had made the country richer by 15,000 acres of plantations. Mr. Peter Leslie urged the provision of scholarships for forestry trainees—such as farm servants and others unable to attend classes in the agricultural colleges. Col. Sutherland, replying, said he felt sure Lord Lovat would favourably receive the suggestion. He knew the difficulties many students experienced in gaining their degrees, and how these difficulties greatly restricted the supply of students. Unfortunately, the Commission had not the money to give the help required.

At this stage of the proceedings a very happy ceremony was enacted when Mr. Charles S. France, Aberdeen, who on Tuesday, June 12 celebrated his 80th birthday, and was present at the meeting, was presented with a beautifully inscribed snuff mull and a wallet of Treasury notes. Mr. Gammel, of Countesswells, spoke in terms of warm appreciation of the fine work Mr. France had done for forestry during his long life, and Mr. John Michie, who made the presentation, declared Mr. France had been the life of the Aberdeen Branch of the Society, and he had sent out many young men who had done as good work for forestry as any in the country. Mr. France made a long and reminiscent reply, and expressed confidence that forestry in Scotland would go on and prosper.

Kilravock Castle was then visited, and the members were hospitably entertained by the genial proprietor—Col. Rose. Tea was served in a room of the castle, which still preserves the chief features of its construction in 1416.

Sir John R. Gladstone paid a warm tribute to all who had assisted in making the excursion a success, and his comment that "this has been a day you will remember for many a year" was warmly endorsed by the company, who concluded the outing by a stroll through the quaint old-world gardens at Kilravock.

ROYAL CALEDONIAN HORTICULTURAL

THE ordinary monthly meeting of this society was held at 5, St. Andrew Square, Edinburgh, recently, Mr. W. G. Pirie, senior vice-president, in the chair.

A lecture was delivered by Professor J. A. S. Watson, B.Sc., F.R.S.E., professor of Agriculture in the University of Edinburgh, on "Modern Research in Plant Breeding."

The exhibits were—Tulips, from Messrs. Dobbie and Co. (awarded a silver medal); East Lothian Stocks, from Mr. W. Lamont, Edinburgh (awarded a Cultural Certificate); and Primula pulverulenta, from Mr. J. Coventry Colinton.

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MANCHESTER AND NORTH OF ENGLAND ORCHID.

THURSDAY, JUNE 21.—*Committee present:* A. Hanmer, Esq. (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Burns, D. A. Cowan, A. Coningsby, A. T. Cussons, A. G. Ellwood, W. Giles, Dr. Hartley, J. Howes, J. Jackson, A. Keeling, J. Lupton, D. McLeod, F. K. Sander, E. W. Thompson, J. Whitham, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Odontoglossum Doreen var. Dreadnought (*Empress of India* × *eximium*), a large variety of good shape and heavily blotched; *Odontioda Vesurius* (*Odta. Cooksoniae* × *Odm. L'Aiglon*), a variety with very brilliantly coloured flowers. From S. GRATRIX, Esq.

Cattleya Juno var. The King (*Hardyana* × *Warneri*), a large and richly coloured flower with a very dark lip. From A. HANMER, Esq.

Odontioda Flamingo var. ignea. A brilliant scarlet coloured variety; *Odontoglossum eximium xanthotes var. Thelma*, one of the finest forms, with large, deep yellow blotches on the segments. From Messrs. J. AND A. MCBEAN.

AWARDS OF MERIT.

Odontioda Windsor (*Odta. Sanderae* × *Odm. illustrissimum*); *Odta. Coronation var. Rainbow and Odontoglossum Helvetia.* From Mrs. GRATRIX.

Cattleya Isabel Sander var. brugense; *Laelio-Cattleya Papyrus* (*Dominiana* × *Lustre.* From S. GRATRIX, Esq.

Odontoglossum Eros maculatum (*Othello* × *President Poincaré*) and *Odm. crispum Nora.* From A. HANMER, Esq.

Oncidium Gardneri, Hartley's var. From Dr. R. N. HARTLEY.

Odontoglossum Meguelito Invincible (*Dora* × *Doris*) and *Dendrobium melanodicus var. Kathleen* (*Ainsworthii* × *Findleyanum*). From Messrs. J. AND A. MCBEAN.

GROUPS.

Messrs. J. AND A. MCBEAN, Cooksbridge, Sussex, staged one of the finest groups in the annals of the Society, a Gold Medal and special Cultural Commendation being awarded.

S. GRATRIX, Esq., Manchester (gr. Mr. J. Howes), was awarded a large Silver Medal for a group in variety.

A large Silver Medal was awarded to Capt. W. HORRIDGE, Bury (gr. Mr. A. Coningsby), for a group of Miltonias in great variety, including Hyeana, which was awarded a Silver Medal, the plant having previously received a First-Class Certificate.

ANNUAL MEETING.

The annual general meeting of the Society was held at 2.30 p.m., A. Hanmer, Esq., presiding over a fairly good attendance. The minutes of the previous annual general meeting were read and adopted. The report and balance sheet were submitted and approved. A. Hanmer, Esq., was re-elected President, and Dr. Craven Moore, the Rev. J. Crombleholme, Dr. R. N. Hartley, Mr. B. J. Beckton, and Mr. A. Cussons appointed members of the Committee. Mr. H. Arthur was re-elected Secretary. Prizes were presented to the successful competitors as follow: Mr. J. J. BOLTON'S prizes for Cypripediums; Gold Medal to S. GRATRIX, Esq. (prize to gardener, Mr. J. Howes); Silver-Gilt Medal to A. HANMER, Esq. (prize to gardener, Mr. W. Giles); Botanic Society of Manchester's Silver-Gilt Medal to Mrs. BRUCE and Miss WRIGLEY: Silver Medal to S. GRATRIX, Esq. The prize-winners of Dr. R. N. Hartley's competition for culture in conjunction with the above medals were:—1st, Mr. A. BURNS; 2nd, Mr. J. HOWES, and 3rd, Mr. W. A. STEWART.

Messrs. Charlesworth's Objet d'Art for new awards was awarded to S. GRATRIX, Esq. (gardeners' prize, Mr. J. Howes); Mr. GRATRIX was also awarded Messrs. J. Cypher and Co.'s prize for arrangement of groups; Messrs. Evans' Silver Trophy for Odontoglossums, to A. HANMER, Esq., Silver Trophy for the most points, and Messrs. Hassall and Co.'s prize for Cattleyas and hybrids; Mr. Gratrix's Silver Cup for Odontiodas was awarded to A. HANMER, Esq. (gardener's prize, Mr. G. Giles); Messrs. Keeling's Gold Medal for botanical species to B. J. BECKTON, Esq. (gr. prize, Mr. W. A. Stewart); Messrs. Stuart Low's Trophy for small amateurs to J. WHITHAM, Esq. (gr. prize, Mr. E. Grears); Messrs. J. and A. McBean's Trophy for Cymbidiums to the Rev. J. CROMBLEHOLME (gr. prize, Mr. E. Marshall), and Messrs. Sander's Gold Medal for cut Orchid flowers to Capt. W. HORRIDGE (gr. prize, Mr. A. Coningsby). Mr. P. Smith's prizes for groups were awarded to Mr. J. HOWES, 1st; Mr. W. GILES, 2nd; and Mr. A. BURNS, 3rd.

OXFORD COMMEMORATION SHOW.

THE Royal Oxfordshire Horticultural Society held its Commemoration Show in the Wadham College gardens. In the centre of one large tent was a most beautiful group of plants (not for competition) sent by the President, Mrs. G. H. MORRELL (gr. Mr. A. Gibson), arranged with much skill. The chief subjects used were Malmaison Carnations, Clarkias, Gloxinias, Streptocarpus, Miltonias, Thunias, Lilium Harrissii, and Odontoglossums.

In the competitive class for a group of plants, Messrs. J. CYPHER AND SONS, Cheltenham, won first prize with an exceedingly choice selection of plants. Mr. C. ENGELMANN'S first prize exhibit of Carnations contained grand flowers of Benora, Laddie, White Wonder, Peerless, Tarzan, and Topsy. For a group of greenhouse plants Mrs. LESSING secured first honours with a bold and imposing arrangement of Palms, Crotons, and seedling Hippeastrums. Mr. F. C. LEVETT'S trade display was deservedly awarded the silver challenge cup presented by Councillor L. H. Alden. An aeroplane worked in flowers and suspended from the top of the tent over his exhibit was a great attraction.

Messrs. WEST AND SONS had on view a very interesting collection of Japanese trees, and Messrs. TUCKER AND SONS' stand came in for a good deal of attention. The collections of Roses from Mr. G. PRINCE and Mr. J. MATTOCK were excellent.

For 24 cut Roses Mr. G. PRINCE won first prize and Mr. H. DREW second. In the class for 18 Roses Mr. G. PRINCE beat Mr. H. DREW, but for Tea Roses the positions were reversed. The Sweet Peas shown by Mrs. LESSING were of a high standard of excellence. The first prize for an arrangement of hardy perennials was won by Mr. JOHN JOHNSON; it contained a number of good things, and was a great feature to the show.

The table decorations were very good and the competition keen. Messrs. WEST AND SONS had a choice arrangement of Carnations, for which they gained the first prize; Mr. HENRY DREW was second. Some excellent fruit was staged; Mrs. LESSING'S first prize Peaches were very good; she was also first for Melons. Mr A. E. BRADSHAW had the best collection of vegetables.

KENT COUNTY SHOW.

JUNE 19, 20, 21.—The Horticultural Committee is to be congratulated on the success of the first exhibition held in conjunction with the show of the Kent County Agricultural Society on these dates. Competition was keen in the sections for herbaceous flowers, Sweet Peas, and Carnations. The trade was well represented, the traders' exhibits occupying two large tents, and, despite one of the most unfavourable seasons on record, many excellent groups were staged. Only one exhibit was forthcoming in the class for a group of miscellaneous plants in and out of bloom, for which a first prize of £45 was offered. It was shown by Messrs. J. CYPHER AND SONS, Cheltenham, and was worthily awarded the first prize.

The class for a collection of hardy perennial plants and cut blooms, arranged on a space 30 feet by 10 feet, was intended to be a representation of a hardy perennial border. Three excellent exhibits were staged. Messrs. GEO. BUNYARD AND CO., Maidstone, won the first prize of £25 with an exhibit of outstanding merit. Messrs. HARKNESS AND SONS, Bedale, were placed second with flowers of wonderful quality, but the group was much too crowded to represent a natural hardy flower border; third, Messrs. GEO. CLARK AND CO., Dover, also with a good exhibit.

The PRESTON HALL COMPANY, Aylesford, was placed first for a collection of cut tree Carnations arranged on a space of 15 feet by 5 feet, and they were also placed first for a collection of Sweet Peas, occupying 20 feet by 5 feet.

The sum of £12 was offered as a first prize in a class for a collection of Roses. Mr. C. ENGELMANN, Saffron Walden, was awarded a special prize for a fine exhibit of Carnations.

The following were the principal medal awards:—*Large Gold Medals* to Messrs. ALI WOOD BROS., Haywards Heath, for Carnations; Messrs. TOOGOOD AND SONS, Southampton, for vegetables and flowers; and Messrs. DICKSONS, Belfast, for Sweet Peas. *Gold Medals* to Messrs. GODFREY AND SONS, Exmouth; Messrs. MARCHAM AND CO.; and Messrs. HARKNESS AND SONS. *Silver Gilt Medals* to Messrs. BASTIN AND SONS; Messrs. MAXWELL AND BEALE; Messrs. G. WHITELEGGE AND CO.; and Messrs. BAKERS, Wolverhampton.

GENERAL BULBGROWERS' OF HAARLEM (HOLLAND).

THE following awards were made to novelties by the various committees of the above society during May, 1923:—

FIRST-CLASS CERTIFICATES.

Tulip Red Monarch (*Breeder*) (*Panorama* × *Feu Ardent*). A deep scarlet variety, with an orange glow and a yellow centre.

Tulip Mongolia (*Cottage*). A dark, creamy-yellow variety.

Dutch Iris ten Cate. A dark yellow, unicoloured variety.

Iris filifolia (*xiphium praecox*) *The First.* A variety with light blue standards, and falls very soft blue. It is very early in flowering.

AWARDS OF MERIT.

Tulip l'Aurore. An early, double-flowered variety, of soft carmine colour.

T. Turner (*Darwin*). A pink variety with a white margin.

T. Jeanne Désor (*Cottage*). A golden-yellow variety, with orange-red stripes.

Aster alpinus Dunkle Schöne. A large-flowered, double, bright violet coloured variety.

Aster sub-coeruleus Venus. A light violet variety, with an orange-coloured centre; the flowers are developed on long stems.

Armeria cephalotes Miss Max. The colour of this Thrift is soft violet-rose.

Iris filifolia (*xiphium praecox*) *D. Haring.* The standards are soft grey-blue, the falls creamy-white, with a yellow blotch.

I. filifolia (*xiphium praecox*) *P. de Moulin.* The standards are dark indigo-blue and very long; the falls blue, with a clear yellow blotch.

I. Hoogstraten. A light blue variety, with a yellow blotch.

I. van Scorel. The standards of this variety are grey-blue; the falls white, with a big yellow blotch.

I. pallida Riese van Connern. A bright sky-blue variety, with big flowers developed on long stems.

I. squalens Ambassadeur The standards are bronze shaded violet; the falls purple-violet.

Ixiolirion Ledebouri. A dark blue, early variety.

Lilium umbellatum splendidum. The colour of this Lily is vermilion and orange.

Paeonia Whitmanniana rosea. A soft pink-coloured variety.

Pyrethrum Eileen May Robinson. A soft pink, large-flowered, single variety.

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ROYAL HORTICULTURAL.

JULY 10, 11.—The usual fortnightly meeting was held at Vincent Square, Westminster, on these dates. The weather was oppressively hot and the temperature of the hall excessively high; only late in the day was an attempt made to admit air by the large side doors. There seemed to be fewer visitors than usual, for many were probably attending the big show at Wolverhampton, but the hall was well filled with exhibits, although many of the flowers showed the influence of the tropical weather. The principal subjects exhibited were Delphiniums, Carnations, Roses, Orchids, Streptocarpuses, Canterbury Bells and hardy herbaceous flowers and alpines. The Bunyard medals competition for Cherries was responsible for two fine exhibits of these fruits from trade growers in the Sittingbourne district. The competition itself was restricted to a single entry. At the next meeting there will be a competitions for Gooseberries, Peaches and Nectarines, and it is to be hoped that many amateur growers will compete for the beautiful medals offered by Messrs. Bunyard and Co., who are to be congratulated in their endeavour to stimulate interest in fruit exhibits at these meetings.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), the Hon. H. D. McLaren, Messrs. James O'Brien (Hon. Secretary), Gurney Wilson (Assistant Secretary), Frederick J. Hanbury, Arthur Dye, Fred. K. Sander, H. T. Pitt, S. W. Flory, Pantia Ralli and H. G. Alexander.

AWARD OF MERIT.

Vuylstekeara insignis picta (*Miltonia Bleuana* × *Odontioda Charlesworthii*), from Messrs. CHARLESWORTH AND Co. A charming hybrid with showy coloured flowers, very different from those of the pale original cross which gained a similar award on June 30, 1914. The plant now shown had a fine spike of six large flowers in which the Miltonia parent predominated. The petals and upper sepals are claret-purple with broad, white margins and tips; the lateral sepals are lighter in tint, and the broadly ovate lip is white with a rose-purple base and yellow crest.

OTHER EXHIBITS.

Messrs. STUART LOW AND Co., Jarvisbrook, were awarded a Silver Banksian Medal for an effective group, Cattleya Warscewiczii varieties being arranged at the back with showy hybrid Cattleyas, and Laelio-Cattleyas with Odontoglossums and Odontiodas. Interesting and rare species in the group were the rare Epidendrum Brasavolae, with fine spikes of rose-tipped flowers; the very rare Odm. hastilabium; and species of Bulbophyllum and Dendrobium. The group was skilfully arranged, the graceful Brassia verrucosa and other slender species in the centre being well displayed.

Messrs. CHARLESWORTH AND Co. showed a selection of rare hybrids, including a fine form of their large and showy Laelio-Cattleya Momus; Odontonia Thais (M. Bleuana × Odm. Aglaon), a large and richly coloured hybrid; Laelio-Cattleya Appam, a rich yellow flower with a maroon lip; Odontioda Gwendolen, like a finely coloured Odontoglossum, but with Odontioda features; and Vuylstekeara Edna (Miltonioda Harwoodii × Oda. Charlesworthii), a good carmine-red flower.

Messrs. SANDERS, St. Albans, staged a good selection, in the centre of which was a fine plant of Stanhopea tigrina of the original type with a pendulous raceme of large, fleshy, purple-blotched flowers. The group contained a large yellow form of Odontoglossum Schlieperianum; the superb white Miltonia Lambeauiana; forms of Cattleya Thurgoodiana and probably the handsomest form of Cypripedium Godefroyae (var. splendidissimum) yet shown, the large flower being richly lined and veined with maroon purple.

Messrs. COWAN AND Co., Southgate, showed the new and handsome Laelio-Cattleya Murillo (L.-C. rubens × C. Empress Frederick), a finely formed flower with rosy-mauve sepals and petals with white midribs at the base; and broad crimson-purple lip with gold lines from the base.

Floral Committee.

Present: Messrs. H. B. May (in the chair), C. Williams, D. B. Crane, H. V. Warrender, G. Reuthe, J. Heal, W. B. Gingell, Wm. Howe, J. B. Riding, W. P. Thomson, C. E. Pearson, S. Morris, R. C. Notcutt, A. Turner, W. G. Baker, E. A. Bowles and G. Loder.

AWARDS OF MERIT.

Delphinium Sylph.—A good white variety, certainly the best of the whites. The flowers are double and well arranged on the stems. Shown by Mr. F. GIFFARD, Hornchurch.

Delphinium My Lady.—A pale lavender-mauve coloured variety with a white centre. The spikes are about eighteen inches long and well proportioned; it is one of the best novelties in these flowers seen during recent times. Shown by Mr. F. GIFFARD, Hornchurch.

Carnation Mrs. Groom.—A border variety of salmon-rose colour, with smooth petals. The stem is long and stout, and the calyx is non-splitting. The flower has a pleasing perfume. From Messrs. J. B. GROOM AND SON, Gosport.

Campanula persicifolia Ryburgh Bells.—A very fine variety of the Telham Beauty type, pale blue in colour, the flowers large and well disposed on the stems. From Messrs. G. STARK AND SON, Ryburgh, Norfolk.

GROUPS.

Carnations were, as usual, a prominent feature, and appeared to withstand the heat well. Messrs. ALLWOOD BROS., Haywards Heath, contributed a large display in vases and pyramids, in which were noted excellent examples of Lieut. Shackleton, Forester, Grenadier, Effie Dean and Centurian; these all are of the border section, while in the perpetual-flowering class the most prominent sorts were Mary Allwood, Benora, Edward Allwood, Claret and Topsie.

The same exhibitors also showed fine vases of their perpetual-flowering Malmaisons and Dianthus Allwoodii in variety.

Messrs. STUART LOW AND Co., Bush Hill Park, also contributed Carnations, arranged in bowls, vases and other receptacles. The varieties Eileen Low, Mrs. Hamilton Fellowes, Sir Mackay Edgar, Red Ensign, White Pearl, and Mrs. T. Ives, were especially good and tastefully arranged with Asparagus and their own foliage (Silver Flora Medal). Mr. C. ENGELMANN, Saffron Walden, was represented by a table of blooms arranged on a groundwork of Asparagus Sprengeri. The flowers all exhibited the highest cultivation, the best being Tarzan, Cupid, Laddie, extra fine, Topsy and Jessie Allwood (Silver Banksian Medal).

Messrs. J. B. GROOM AND SON., Gosport, arranged a table of their new border Carnation Mrs. Groom, which received an Award of Merit.

Four vases of perpetual-flowering Carnations were shown by Mrs. E. P. F. SUTTON, Sydmouth Grange, Reading. The varieties were the Baroness de Brienen, in good form, Mary Allwood, equally well grown, while the other vases were filled with various sorts (Bronze Flora Medal).

Delphiniums are generally a strong feature at this season, and on this occasion they were well up to the average for July, and, indeed, superior than could be expected, for the weather has been too dry for these stately flowers Mr. H. J. JONES, Lewisham, added again to his long list of successes with a magnificent display of these flowers. The background of the group was occupied with tall pyramids of spikes, while the ground was covered with two distinct rows of baskets. The flowers were beautifully clean and fresh. A few of the outstanding sorts were F. W. Smith, Andrew Carnegie, Marvel, Roselaire, The Alake, Mrs. Day, Thos. Stevenson and R. C. Pulling. The front was formed with dwarf Campanulas edged with Adiantums (Gold Medal).

Messrs. BLACKMORE AND LANGDON, Bath, also staged an extensive collection of Delphiniums, arranged on the floor of the hall. The combination of colours was most pleasing, the leading varieties were Blue Queen, Mrs. Townley Parker, Blue Boy, very fine, Millicent Blackmore, Sir Douglas Haig, very fine, Lord Derby and Prince Henry (Silver-Gilt Banksian Medal).

Hardy flowers from Messrs. BARR AND SONS, King Street, Covent Garden, were most interesting and seasonable, inasmuch as they included well-grown spikes of Lilium candidum, Irises, in variety, Campanula Telham Beauty, Gaillardia Mrs. Bateman Brown, and Centaurea macrocephala (Silver Banksian Medal).

Messrs. JAS. CARTER AND Co., Raynes Park, presented a charming exhibit of their new strain of Iceland Poppies, Crepe de Chine. The strain is undoubtedly an advance in the development of P. nudicaule. The pale salmon and lemon shades were especially fine, whilst the orange shades are much deeper than in the type (Silver Banksian Medal).

Messrs. BUNYARD AND Co., Maidstone, displayed hardy flowers, such as Delphiniums, nicely arranged as to colour, some very fine Scabiosa caucasica, in varying shades of colour, which makes one wonder if named varieties of this plant are required. Other features were Pinks, early-flowering Gladioli, the pretty little Campanulas C. pulsilla, and C. p. tyrolensis, with its deeper-coloured flowers.

Messrs. SUTTON AND SONS, Reading, occupied the centre of the hall with a circular group of Canterbury Bells, which were, owing to the tropical weather, getting somewhat over. The calycanthema forms were particularly good, and all the plants were well developed (Silver Banksian Medal).

Hardy flowers were well displayed by Messrs. RICH AND Co., Bath, whose chief exhibits were varieties of Chrysanthemum maximum, the variety Rentpayer being especially useful at this season, while Beauty of Bath is broader in the petal and a little later. A new strain of Sweet Williams was also prominent, and, as the plants have a dwarf habit, they will be useful in a variety of situations in the garden.

Messrs. R. TUCKER AND SONS, Oxford, displayed a small, but interesting group of herbaceous and alpine plants. The Delphiniums were in good condition especially Blue Bird and The Alake, while Campanulas noted were C. G. F. Wilson, Miss Willmott, kewensis, C. Bellardi Miranda, and C. pulloides, with various pots of Thymus staged in variety (Silver Banksian Medal).

Mr. THOS. CARLILE, Loddon Nurseries, Twyford, occupied a corner of the hall with an exhibit of well-developed Delphinium spikes arranged in vases. The colours were well blended, and the groups pleasingly arranged. Some of the best varieties were Nora Fergusson, Robert Cox, F. W. Smith, Fernand Foreaus, and Lavanda.

Messrs. B. LADHAMS, LTD., Shirley Nurseries, Southampton, contributed a bright table of hardy flowers. Pinks were a feature, especially the varieties Coronation, Elsie, Salmon Rose, Mary and Inchmery; they also showed Lavatera Olbia rosea, Campanula Hostii major, C. rhomboidalis and C. rotundiflora, Jenkin's variety. A very charming collection and well arranged (Silver Flora Medal).

Messrs. LOWE AND GIBSON, Crawley Down, staged a small collection of Gladioli seedlings, those of the primulinus section exhibiting a wide range of colours, while the varieties displayed were noteworthy for the fact that the seed was sown in 1922 (Silver Banksian Medal). Mr. E. SCAPLEHORN, Beckenham, Kent, contributed a collection of hardy flowers which occupied both sides of a table. We noticed Gladiolus Halley, some good English Irises, Delphiniums, Scabiosa caucasica, in extra good form, Delphiniums, Irises, Gaillardias and a collection of Ixias with their quaint colours.

A fine basket of Delphiniums from Messrs. R. H. BATH, Wisbech, was a distinctive feature. The spikes were large and boldly arranged,

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without overcrowding. The Alake, René Gilbert, Pannonia, Lavanda, Ivy Jean, and Rev. E. Lascelles were most prominent. Other subjects included Gladioli Halley and Prince of Wales, and vases of Centaurea macrocephala which were much admired by visitors (Silver Flora Medal).

A stately exhibit came from Messrs. J. KELWAY AND SONS, Langport, Long rows of Delphiniums were brightly displayed, without crowding, which certainly added to their beauty, while in the foreground were vases of Gaillardias, such as Austen Chamberlain, King George, Goddess and Lord Birkenhead; conspicuous Delphiniums were Canopus, Jas. W. Kelway, Childhood, Lieut. Sowry, D.S.O., and Smoke of War (Silver Floral Medal).

Hardy flowers were also exhibited by Messrs. SKELTON AND KIRBY, Pirbright, Surrey, in which they featured Dianthus Pirbright Glory, a single pink form, Delphiniums in variety, Salvia virgata nemorosa in fine form, with Heucheras in variety (Silver Banksian Medal).

Mr. ERNEST DIXON, Putney, arranged a small rock garden, on which the chief features were Campanula Spetchley, a pretty small white variety raised by the late Mrs. Berkeley, which appeared to be ideal for such positions. Associated with it was the beautiful Campanula Miss Willmott.

A very fine table of hardy flowers was displayed by Mr. G REUTHE, Fox Hill Nurserv, Keston, who had some fine crosses between Onena foliosa and O. latifolia, of various shades of colour. Lilium Grayi and L. Parryi are two interesting Californian species (Silver Floral Medal).

Messrs. DOWNER, Drayton Manor Nurserv, Chichester, again presented his new Lupines, which included some good seedlings in white, red and pink shades. Scabiosa caucasica seedlings were also worthy of note; they represented a fine strain, embracing most of the colours recently seen in named varieties (Silver Banksian Medal).

Messrs. CARTER PAGE AND Co., London Wall, E.C.2, occupied a large table with a display of well-grown hardy flowers, which presented a fresh, bright appearance A few of the chief features were Aster mesa grande, Campanulas in variety, Heleniums, Centaureas and Delphiniums; also a tastefully arranged little rock garden on which were to be seen a variety of dwarf Campanulas, Thymus, Sedums and Sempervivums (Silver Banksian Medal).

Hardy flowers were extensively exhibited by Messrs. J. CHEAL AND SONS, Crawley, who had also some boxes of alpines, together with a nice exhibit of Star and Mignon Dahlias. The Star Dahlias are very bright and admirably adapted for use as cut blooms (Silver Banksian Medal)

Hardy flowers were also well displayed by Messrs. M. PRICHARD AND SONS, Christchurch, who specialised in Astilbes, Phloxes, Veronicas and their well-known Prichardi Pinks (Silver Floral Medal).

THE CENTRAL GARDEN SUPPLIES, Kenton, Harrow, were represented by a display of dwarf shrubs and alpine plants arranged with stone and other material.

Messrs. WATERER, SONS AND CRISP, LTD., Twyford, had a good display of hardy flowers, which withstood the heat well and looked as fresh at the end of the day as they did in the morning. Gaillardias and Delphiniums were the chief features.

Mr. G. W. MILLER, Clarkson Nurseries, Wisbech, also contributed to the wealth of hardy border flowers, having some well-grown vases of Campanula Dainty, Gaillardias, Paeony Marie Lemoine and Sidlacea Rosy Gem amongst a large variety of other subjects (Silver Banksian Medal).

A fine collection of stove and greenhouse plants was displayed by Messrs. L. R. RUSSELL, LTD., Richmond. The plants were remarkably well grown, and as specimens were superb. The foliage plants included some good examples of Crotons, Dracaenas, Anthuriums and Caladiums. The last included the varieties Pintado, candidum, and La Perle du Brésil, while the flowering plants embraced Gloriosa Plantii, Medinilla magnifica, Anthuriums, and Acalypha Sanderiana (Silver Floral Medal).

Messrs. HOPWOOD AND SON, Cheltenham Spa, presented single Petunias in beds of moss. The strain is undoubtedly a good one, as was demonstrated by a few plants in pots, which were carrying blooms of extra large size.

Roses gave no evidence of having been out in the previous night's storm, for they were fresh and bright, even if lacking in substance, and they made a striking display. Messrs. G. BUNYARD AND Co., Maidstone, had an exhibit of Roses in vases, arranged on a dull, putty-coloured matting, which detracted from the effect. The most prominent varieties were Los Angeles, Willowmore, Golden Emblem, The Queen Alexandra and K. of K. (Silver Floral Medal).

Messrs. F. CANT AND Co., Colchester, had a small exhibit of Roses at the end of the hall, arranged in pyramids and fan-shaped vases. The flowers were wonderfully fresh and bright, and withstood the heat well. The best varieties were Mme. Edouard Herriot, a glorious colour, General McArthur, Golden Emblem, Mrs. George Norwood and Madame Ravary.

Messrs. R. and G. CUTHBERT, Southgate, staged a table of Streptocarpus in a fine variety of colours. The flowers were staged in bowls embedded in Fern and Asparagus, giving the impression they were growing in pots: it is certainly a very fine strain of this useful greenhouse plant.

A group of well-grown Caladiums was shown by Mr. R. ARNOLD, Torch House, Streatham (gr. Mr. T. Tomlinson), the plants being good examples of cultural skill, and nicely arranged with small Cocos Palms, Pteris Ferns and the small Caladium argyrites. A few of the best Caladiums were Thos. Tomlinson, Siegfried, Stromboli, Leopold and Lord Reading (Silver Floral Medal).

Fruit and Vegetable Committee.

Present: Messrs. P. C. M. Veitch (in the chair), Geo. F. Tinley, S. B. Dicks, W. F. Giles, H. Prince, A. W. Metcalfe, T. Pateman, J. Harrison, E. A. Bunyard and A. N. Rawes.

Some exceptionally fine Peaches of Hale's Early variety were shown by Sir C. NALL-CAIN, Brocket Hall, near Hatfield (gr. Mr. T. Pateman). Mr. Pateman was awarded a Cultural Commendation.

A Bronze Knightian Medal was awarded to the GUILD OF BLIND GARDENERS for a small collection of vegetables, which included very good Lettuces, Peas, Potatos, excellent Turnips and Radishes.

Messrs. R. GILL AND SON, Falmouth, showed a seedling Strawberry, named Gill's A1, raised from Royal Sovereign × Mme. Kooi, a large, round berry most nearly resembling the last parent in appearance, and said to be of much better flavour.

COMPETITION FOR CHERRIES.—Only one exhibit was forthcoming for Messrs. Bunyard and Co.'s medals offered for exhibits of Cherries. The exhibitor was Sir C. NALL-CAIN (gr. Mr. T. Pateman), who showed six dishes, including the varieties May Duke, Kentish Bigarreau and Duchesse de Palluau.

This competiton resulted in two exceptionally fine exhibits of Cherries staged by trade growers in the Sittingbourne district. The one included twenty-four and the other twenty-seven varieties. The smaller collection, shown by Messrs. DEANE AND Co., LTD., Sittingbourne, was awarded a Silver-Gilt Hogg Medal. The more striking varieties were Napoleon, Early Rivers, Governor Wood, Kentish Bigarreau, Black Eagle, Circassian, Elton Bigarreau, Frogmore Bigarreau, Nutberry Blacks, Waterloo, Knight's Early Black, and Arundel (syn. Roundells). The other collection, shown by Messrs. G. WEBB AND SON, Sittingbourne, included such sorts as Early Clusters, Black Heart, Napoleon Bigarreau, Early Lyon, Governor Wood, Cockle Heart, Early Amber, English Red, Elton Heart, Amber and Knight's Black, and was awarded a Silver Hogg Medal.

TRADE NOTE.

A MEETING of the Technical Committee of the Chamber of Horticulture was held on June 27, Mr. F. C. Mosley (Reading University) presiding. Others present included:—Professor H. Maxwell Lefroy (Imperial College of Science), Mr. A. S. Galt (Leeds University), Mr. T. Parker (Messrs. Murphy and Son), Mr. C. H. Curtis (*Gardeners' Chronicle*), Mr. C. Engelmann, Dr. R. Seymour Cobley, and Mr. C. H. Matthews.

A great volume of correspondence from honorary correspondents, together with specimens of diseased plants, also pests, were examined by the committee. Replies have been sent to all concerned, and include the undermentioned points of general interest:—

Grease Bands.—Bands as narrow as 1½ inch are useless; to be of value they should be much wider. A minimum width of six inches is advised, with particular care taken to see that the bands are on early in October and kept sticky until the following April. Silver Leaf.—This would appear to be on the increase in most districts. It is of vital importance that the necessity for cutting and burning dead wood should be impressed on everybody concerned. Celery Rust.—The instance given of the large number of affected Celery seedlings is exactly what might have been expected. The fungus, Septoria petroselini, is for the most part transmitted by seed, and no Celery seed ought ever to be sown without sterilisation. This should be done by immersing the seed for three hours in a solution of one part of commercial 40 per cent. formaldehyde in 500 parts of water. Spread out to dry, and sow the seed as soon as possible, as the germination may be to some extent affected if left for any length of time. If an attack on growing plants, 4—4—50 Bordeaux mixture should be used. Where a serious attack has occurred, change the ground on which the Celery is grown. Red Spider on Cucumbers.—A trial is recommended of a spray of ½ oz. nicotine 95 per cent., 1½ oz. liver of sulphur (fresh), three gallons of water. Carbolineum.—The facts concerning the killing power of carbolineum on insect eggs are noted from various sources. Strawberry Tortrix.—The Committee were asked as to the efficiency in the field of the method of destroying pupae by mowing and burning the foliage, but were unable to give any successful experiences in this respect. They point out the very great value of constantly stirring the soil between the rows, so that birds may gain access. If many larvae are present after the first fruit is picked, a spray of lead arsenate, 4 lb. per 100 gallons, with 2 per cent. calcium cassinate, could be used with advantage. Apple Mildew.—The trial of the following sprays is suggested. Affected tips should be removed, but the trial of sprays of lime sulphur, ammonium copper carbonate, and ammonium polysulphide is suggested. The last should be used only on a small scale until the effect of its use is seen. A casein spreader might be used with the lime sulphur. Aphides.—Nicotine and soap sprays are most effective, care being taken to have a sufficiency of soap according to the hardness of water available. Early spraying is essential, especially in the case of leaf-curling aphides. A late spray—in October—is useful, using either nicotine and soap or paraffin emulsion. This to kill the egg-laying generation. For both aphides and Apple suckers the great value of late limewashing is pointed out. Freshly slaked lime in water, used as thick as the nozzles will spray, and applied late, just as the buds are opening. One and a half to two pounds of lime per gallon of water is the usual quantity. The spraying of all affected trees is essential, otherwise the old ones serve as breeding grounds.

Eelworm.—There is no known soil insecticide efficient against eelworm; .03 per cent. Cresol emulsified might be tried experimentally. Starvation treatment would probably be found as effective as anything that can be done, keeping all eelworm host plants off the intested land for a minimum of three years. For Heterodera under glass very heavy dressings of lime have been found particularly effective in keeping down the pest. Up to 45 tons per acre have been used.

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THE WEATHER.

WEATHER IN JUNE.

JUNE was a month of unprecedentedly strong and persistent north-westerly and westerly winds, and low daytime temperatures. It was also one of the driest Junes on record, and yet one of the most sunless. Owing to the absence of the easterly winds at night, usually frequent in the month, the minimum temperatures were not specifically low, and the chilly, stormy, dull days therefore produced a mean daily range of temperature (or difference between day and night) which was by far the smallest June value in the fifty-two years' history of the Observatory. The mean temperature was 53.7°, or 2.9° below the average. Only 157 hours of sunshine were recorded, or 54 fewer than the normal number. Rain fell on 10 days, or 3 fewer than usual, and the total quantity was so little as 0.58 inch, or 1.70 inch less than the average. Much of the rain took the form of drizzle, and the sea winds rendered the mean humidity of the air higher than usual. The lack of sunshine and the factors just mentioned reduced the amount of evaporation considerably, notwithstanding the effect of the strong winds. Ozone was exceptionally abundant, and visibility very good. The wind attained gale-force on the 11th and 13th. No ground-frost occurred. Thunder, hail and fog also were absent. *Joseph Baxendell, Borough Meteorologist, The Fernley Observatory, Southport.*

THE WEATHER IN SCOTLAND.

JUNE was remarkably cold and dry, with a mean temperature almost 4° below the normal, and a deficit from the normal rainfall of 2 inches. Sunshine also was below the average, the aggregate number of hours being 145.9; this gives a mean of 4.86 hours per day and a percentage of 29, against a normal percentage of 32. While rain fell on 11 days, there was no day of continuous rain, and only on 7 days did the amount reach or exceed 0.04 inch. In all 0.74 inch was collected, of which 0.17 inch fell on the 9th—the wettest day. The barometer, with a mean of 30.05 inches, varied from a highest of 30.37 inches on the 2nd to a lowest of 29.55 inches on the 9th. The mean temperature was 54.5°, with a mean maximum of 63° and a mean minimum of 46°. The highest maximum of 76° was recorded for the 18th, and the lowest minimum of 37° for the 15th. On the grass, with a mean of 42°, the minimum temperature fell to its lowest of 33° on the night 15th-16th; then there was no ground frost. At 1 ft. deep the soil temperature rose almost steadily from 49° to 57°. The wind, which was frequently strong, came chiefly from the west and south; there were gales on the 8th and 10th. *John Davidson, Director of Studies, Meteorological Station, St. Andrew's Provincial Committee Training College Gardens, Mayfield, Dundee.*

NEW HORTICULTURAL INVENTIONS.

This list is specially compiled for *The Gardeners' Chronicle* by Messrs. Rayner and Co., Regd. Patent Agents, of 5, Chancery Lane, London, from whom all information relating to Patents, Trade Marks and Designs can be obtained gratuitously.

LATEST PATENT APPLICATIONS.

15200.—Tuxford, G. L.—Garden hoes. June 11.
14717.—Cranswick, C. T.—Devices for scaring birds, etc. June 5.
14596.—Morrison, J. A. S.—Fertilisers. June 4.
14350.—McGee, F. D.—Combination grass shears and hedge trimmer. May 31.
14389.—Perkins, F. A.—Heat-treatment of plants. May 31st.
13877.—Booton, H.—Implement for planting bulbs, etc. May 25.
13811.—Hands, A. V.—Garden shears. May 25.
13493.—Pate, T. M.—Implements for planting cabbages, etc. May 22.

SPECIFICATIONS PUBLISHED THIS MONTH.

197,989.—Howard, A. C.—Rotary hoe cultivator.
198,081.—West, C. E.—Plant labels and the like.
198,111.—Stirling, E. M.—Motor-driven lawn mowers.
198,241.—Sarel, W. G. M.—Appliance for producing artificial ventilation of the turf and soil for golf and other greens and lawns.
198,242.—Brewer, G. W. S.—Fertilisers and processes for the production thereof.
198,289.—Smith, R. J.—Apparatus for sowing seeds in drills.
197,476.—Pearson, F. R.—Protective covers for hampers containing fruit or other garden produce and the like.

ABSTRACT PUBLISHED THIS MONTH.

Lawn Mowers. Patent No. 196768.—The latest design of lawn mower is made with reciprocating knives like a reaping machine, the adoption of which gives, according to the inventor, Mr. P. A. Campbell, 789, Granville Street, Vancouver, several advantages over rotary knives for grass cutting. The laterally reciprocating knife-bars are operated by crank-pins engaging the sides of vertical slots in brackets secured to the knife-bars, the crank-pins being mounted on pinions driven from the main carrying wheels of the machine. The carrying wheels are provided with internal teeth which mesh with pinions on a transverse shaft driving a longitudinal shaft through bevel-gear. The longitudinal shaft carries a pinion engaging gears carrying the crank-pins. Covering plates are provided to protect the gearing. The height of cut is adjusted by varying the vertical position of two side rollers, carried on a frame, which is pivoted on the main axle of the machine.

Messsrs. Rayner and Co. will obtain printed copies of the published specifications and abstract only, and forward on post free for the price of 1s. 6d. each.

ANSWERS TO CORRESPONDENTS.

APHIS ON ROSES: *A. B.* Your Roses are very badly infested with the common Rose aphis, Siphonophora rosae. Attacks are invariably more insistent in dry weather than during a wet period. There are various proprietary insecticides on the market for use against attacks of this aphis, but if you wish for a home made insecticide, boil ten ounces of quassia chips in a gallon of water for several hours, allow the mixture to stand all night, strain off, boil again, and while very hot, stir in one ounce of soft soap. When cool dilute the solution with nine gallons of water.

FUNGUS ON AN AZALEA: *J. D.* The foliage you sent is affected with the fungus Exobasidium rhododendri. Gather and burn all foliage showing the gall-like growths. It has been found that if the galls are removed and burnt before they have developed any colour, the plants are free from attack in the following year.

GRUBS ATTACKING YOUNG CAULIFLOWER PLANTS: *E. N.* When Cauliflower plants are being transplanted it is a good plan to dip the roots in a thin mortar-like mixture of clay, soot and flowers of sulphur. A good handful of flowers of sulphur and an equal quantity of soot should be mixed with a small bucketful of the clay and water. If the roots are dipped in this before they are planted, it will tend to prevent the attacks of maggots, fungous and insect pests.

PEACHES DEFICIENT IN FLAVOUR: *W. R. B.* The lack of flavour in your Duke of York and Hale's Early Peaches is due more or less to the absence of sun, but both these varieties are grown more for their earliness than their high quality. The leaves of the former are clean, but thin in texture, and you would do well to feed the trees liberally and syringe them now that the fruits have been gathered; use a little more potash when the fruits are swelling and ripening next season. The leaves of Hale's Early are suffering from an attack of red spider. This should be removed and the tree fed as advised above. It may be that the thin texture and light colour of these leaves are due to malnutrition, but a sharp look-out should be kept on this tree for silver leaf, and any affected shoots removed and burnt before the leaves not allowed to suffer from want of water fall. The border is rather shallow, but if and carefully fed the trees should not suffer from this cause.

PLUMS DISEASED: *C. W. L.* The Plums are covered by the "brown rot" fungus (Monilia cinerea). The original deformation of the fruits was presumably caused by the Plum pocket fungus, Exoascus pruni.

Communications Received.—W. H. D. (thanks for 2s. for R.G.O.F. box)—O. H.—G. F. H.—W. N.—A. V.—Constant Reader—H. P.—J. P.—G. H.—F. P.—J. E. B.—Anxious—W. H. J.—J. H.

MARKETS.

COVENT GARDEN, TUESDAY, JULY 10, 1923.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples—		
Tasmanian, and N. Zealand		
Scarlet		
Pearmain	16 0	17 0
French, Crab	16 0	
—Sturmer	16 0	17 0
Apricots, crate	10 0	12 0
½ sieve	10 0	15 0
Bananas, singles	12 6	22 6
—doubles	17 0	22 6
Cherries—		
Governor Wood Half-sieve	12 6	15 0
Elton	14 0	18 0
Rivers' Early	18 0	21 6
Currants—		
—English Black, per lb.	0 9	1 0
—French, ½ sieve	6 0	14 0
—Red ,,	18 0	20 0
Figs special	12 0	21 0
best	6 0	9 0
Gooseberries—		
—Green ½ sieves	5 0	7 0
—Sulphur large per lb	1 3	1 6
—White large lb.	0 8	0 10
Grapes		
—Belgian	1 3	1 6
Grapes—		
—Cannon Hall	5 0	12 6
—Hamburgh	1 6	3 6
—English Muscat	2 6	8 0
Grape Fruit—		
—Jamaica	—	30 0
Lemons—		
—Messina boxes	16 0	18 0
—Murcia	18 0	22 0
—Naples	20 0	35 0
Melons, English and Guernsey, each	2 6	10 0
—Cantaloupes ea.	10 0	20 0
Nectarine	6 0	30 0
Oranges—		
—South African Navels	16 0	18 0
—Seedlings	15 0	18 0
Peaches—		
—English, doz.	6 0	24 0
Pineapples, case	14 0	40 0
Plums—		
—Spanish, crate	10 0	12 6
Strawberries		
,, 2lb chips	1 4	2 0
,, 3lb ,,	1 6	2 6
peck	6 0	10 0
—Kent 4lb. chips	3 0	4 0

REMARKS.—There has been a considerable volume of business during the past week, the fine weather favouring the consumption of fruits and Tomatos. So far the labour trouble at the docks has had no appreciable effect on Covent Garden Market trade, but should it continue the values of home-grown fruit should improve. Strawberries have been in good demand, and all consignments have sold well. Choice fruits, such as Grapes, Peaches, Nectarines, Figs and Melons, continue in demand, in spite of competition with Strawberries. Cherries have been in firm request, all varieties having sold freely, as have those from France and Holland, when in good condition. Black Currants from the Continent have arrived out of condition, which has benefited home growers, and Black Currants have sold particularly well. Red Currants have also met a ready market. Dessert Gooseberries are realising good prices, and green berries have also shared in the general improvement of trade. Raspberries generally are small, but good samples are making satisfactory prices. Tomatos are in heavy supply, but prices keep firm and steady. Cucumbers are a good trade, as are all other salads. Mushrooms are showing the effects of the heat, but their prices are fairly good and show little fluctuation. Cauliflowers are easier in price. The new Potato trade has been a little variable in view of the uncertainty of arrival from St. Malo and the Channel Islands.

CUT FLOWERS.

REMARKS.—The summer weather has resulted in large supplies of cut blooms being marketed, and many consignments have been difficult to clear at the lowest prices; so far the consignments are the heaviest this season. The quantities of Roses and Carnations have greatly exceeded the demand. Roses continue to be of moderate quality and the blooms greatly affected by the hot weather. Carnations also have suffered injury through the excessive warmth, and only those grown and packed under the best conditions will stand for any considerable time. Many of these blooms were disposed of to street vendors at almost give-away prices at the close of the market. Lilium longiflorum shows a tendency to harden in value owing to short supply; L. lancifolium rubrum is increasing in quantity, and is being marketed in good condition. Alstromerias, Coreopsis, Cornflowers, Gaillardias, white Pinks, Sweet Peas, Gypsophila, Sweet Sultans and Godetia are in abundant supply. The country trade has been reduced, and the general conditions in this department are not very encouraging for growers—a not unusual circumstance in July.

GARDENING APPOINTMENT.

Mr. J. Monzer, for the past one year and ten months Gardener and Bailiff to C. S. CLARKE, Esq., Tracy Park, Wick, nr. Bristol, and previously with Sir CHARLES FITZWILLIAM, Oakham, as Gardener to Lt.-Col. W. E. Moss, Hilfield Park, Aldenham, Watford, Hertfordshire.

CATALOGUE RECEIVED.

THE WELSH BULB FIELDS, St. Asaph, Flintshire.—Bulbs; Polyanthus, Primroses.

SCHEDULE RECEIVED.

The Hereford and West of England Rose Society.—Fifty-second annual exhibition, to be held in the Shirehall, Hereford, on Wednesday, July 18.—Secretary, The Rev. C. H. Stoker, Brinsop Vicarage, Hereford.

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THE
Gardeners' Chronicle

No. 1908.—*SATURDAY, JULY* 21, 1923.

CONTENTS.

Alpine garden, the—
Aster Farreri 38
Meconopsis cambrica... 38
Books, notices of—
Journal of the Kew Guild 33
Poisonous plants of all countries 42
Buttercups, double ... 45
Cabbage root fly... ... 45
Carnation culture in Natal 37
Canadian Florists and Gardeners 34
Fielder, Mr. C. R. ... 34
Foxgloves 38
Fruit garden, the hardy—
Tradition and fashion in Apple cultivation 44
"Gardeners' Chronicle" seventy-five years ago 35
Hall, Dr., collector of Japanese plants ... 33
Hardy flower border—
Dwarf Kniphofias ... 38
Imperial Fruit Show ... 33
Indoor plants—
Ixoras 42
Irises 38
Nursery notes—
A Sweet Pea Nursery on the south-east coast 43
Obituary—
Mungo Chapman ... 49
Orchid notes and gleanings—
Miltonia vexillaria, albinos of 35
Orchid notes and gleanings, continued—
Odontoglossum Purple Gem 35
Oncidium Marshallianum 35
Ormskirk Potato trials ... 34
Pinks, old and new ... 37
Plant notes—
Statice Suworowi ... 38
Plants new or noteworthy—
Rhododendron dauricum var. mucronulatum 41
Potatos, seed 34
Pylewell Park 39
Societies—
Bury St. Edmunds ... 47
National Rose ... 46
National Sweet Pea ... 45
Saltaire and District Rose... 47
United Horticultural Benefit and Provident 47
Wolverhampton ... 48
Sparrows and Cerastium tomentosum 43
Strawberries, red plant disease in 44
Tercentenary of Gaspard Bauhin's "Pinax" ... 40
Trees and shrubs ... 41
Vegetable garden—
Broad Beans 44
Ward's, Mr. Kingdon, seventh expedition in Asia 40
Week's work, the ... 36

ILLUSTRATIONS.

Basket of cut Roses—Mrs. Campbell Hall 43
Carnations in Natal, the cultivation of perpetual-flowering 37
Fielder, Mr. C. R., portrait of 34
Iris Kaempferi Pyrford Gem 35
Rhododendron dauricum mucronulatum 41
Rose F. J. Harrison 39
Unwin Shield presented to the National Sweet Pea Society 45

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.5°

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, July 18, 10 a.m.; Bar., 30.1; temp., 68°. Weather—Overcast.

Dr. Hall: Collector of Japanese Plants.

The fifties of the nineteenth century mark an epoch in horticulture. It was then that Japan began to yield to other lands the treasures of her countryside and gardens. So early as 1856 the firm of Siebold and Co., of Leyden, published a sale catalogue of newly-introduced Japanese plants. Following closely on the Russian hybridist Maximowicz, who travelled in Japan from 1859-64, were John Gould Veitch, who visited that country in 1860, and Robert Fortune, who made two visits in 1860 and in 1861. Horticultural history knows less, however, of the enterprise and enthusiasm of another amateur of Japanese plants, Dr. George Rogers Hall, who, during many years spent in Japan, sent to America large and varied collections of Japanese trees and shrubs, some of which undoubtedly first reached the United States as a result of his enterprise. Dr. Hall's genuine love of horticulture, his perspicacity of choice of Japanese plants of garden value, and the garden in which he grew many of his introductions, are now described* by his grandson, James M. Howe, Jnr., and add a chapter to the history of horticulture which is full of interest not only for horticulturists of the United States, but also for those of all countries. George Rogers Hall was born in Bristol, Rhode Island, in March, 1820. After a youth spent on his father's farm he qualified as a medical practitioner, and after graduation in 1846 he proceeded to China to practise medicine. After some years, Dr. Hall abandoned his profession and engaged in trade. He was thus led, in 1855, to visit Japan before that country had been formally opened to trade. From that date he began to send home collections of Japanese plants. Some were planted in his garden at Bristol where certain of them still survive. His last visit to Japan was in 1875, three years after he had succeeded his father in the possession of the farm at Bristol. In that garden there still stands the original Japanese Yew, Taxus cuspidata var. nana, which species Hall was the first to introduce into America, twenty-six feet tall, with a spread of one hundred and thirty feet. This Yew, which the Editor of the *Journal of the Arnold Arboretum* characterises as the most valuable plant brought to the United States from Japan, has dark evergreen foliage, a spreading habit, and bears bright red berries in autumn. It has now become—no doubt largely because of its tolerance for shade—a popular plant in American gardens. Other of Dr. Hall's plants which still stand in the garden at Bristol are Abies firma, A. cilicica, A. cephalonica, Picea pungens, P. polita, a large Picea jezoensis, a specimen of the Umbrella Pine, Sciadopitys verticillata, and numerous Retinosporas. Zelkova serrata, the Japanese Elm, thrives still, and forms a magnificent specimen. Its delicate, arching branches, fine smooth bark and strong habit of growth make it in Mr. Howe's opinion suitable for more general planting—as also does its habit of bearing fertile seed. In addition to many other trees and shrubs of interest is a fine specimen of Hall's Magnolia, M. stellata rosea, with pinkish-white, fragrant blooms. This species, and also Magnolia Kobus were almost certainly first introduced into America by Dr. Hall. So also was Hall's flowering Apple, Malus Halliana, and Hall's Honeysuckle, Lonicera japonica var. Halliana—most useful of climbing plants. He introduced also the Amaryllis (Lycoris squamigera), which has naturalised itself in various places, and in his garden still grows the Japanese Walnut, Juglans Sieboldiana, as also does Corylopsis pauciflora. Among the first consignment of Japanese plants sent by Hall to Mr. Parkman was a Lily which was flowered and exhibited by the latter as a "New Lily" before the Massachusetts Horticultural Society in July, 1862, just ten days after Messrs. Veitch had exhibited this Lily, named by Dr. Lindley, the first Editor of *The Gard. Chron*, Lilium auratum. Among other plants prized by gardeners which were introduced by Dr. Hall to the United States were Hydrangea paniculata grandiflora, the beautiful Cornus Kousa, the double-flowered Wistaria floribunda violaceo-plena and Hypericum patulum. Already in 1861 Dr. Hall had sent for the first time to the United States Ginkgo biloba, Thujopsis dolabrata and its variegated variety—he was specially interested in variegation—Sciadopitys verticillata, Cryptomeria japonica, Chamaecyparis pisifera, Juniperus chinensis, Liliums auratum and speciosum, Rhododendron brachycarpum, Hibiscus syriacus as well as others previously mentioned. Acers, A. palmatus in variety, Diervilla japonica, the beautiful Cryptomeria japonica var. elegans, many double-flowered Cherries and Phellodendron Lavallei, still growing in his garden with a trunk three and a half feet in girth; all these and doubtless many more plants were sent to America by this indefatigable and judicious amateur. He sent them and he grew them—a true lover of plants—and all who partake of his nature will rejoice that the filial piety of Mr. Howe should at least have done a measure of justice to the memory of a great pioneer collector. Dr. Hall seemed to care nothing for fame. He dispersed his plants or else grew them for his own enjoyment. Hence, perhaps, it is that when looking at the Crab which he introduced (Malus Halliana) or at the Honeysuckle, Lonicera japonica var. Halliana, few are reminded by the specific names of a man who first collected them and sent them on their successful voyages across the seas to the gardens of two continents.

* "George Rogers Hall, Lover of Plants," *Journal of the Arnold Arboretum*, IV., 1923.

Imperial Fruit Show.—Further particulars of the Imperial Fruit Show, to be held in Manchester, from October 26 to November 3, have reached us, including a plan of the exhibition hall at Belle Vue Gardens, Manchester, the schedules for the commercial and small competitions for fruit growers, and the general exhibition prospectus. We understand that the Guarantee Fund for the show has now reached £4,500, and it is hoped that the £5,000 will be raised during the next week or two. The prizes offered in cash, cups and trophies amount to over £1,500. Applications for space for trade displays have been received from every branch of the fruit trade, consequently there is every prospect of a more thoroughly representative presentation of the fruit-growing industry than at previous exhibitions. Full particulars of the competitions and space available, may be obtained from the Secretary, Mr. J. Tamblyn, 18, Bedford Square, W.C.

Doubling in Primula Bulleyana.—At the recent meeting of the French National Horticultural Society, M.M. Vilmorin-Andrieux and Co., of Paris, brought before the Scientific Committee a double-flowered form of Primula Bulleyana. Such a case, we believe, has never been recorded previously. We understand that this form is really double, having all the parts of the flower petaloid, thus giving the individual blooms a very "full" appearance. It was the long-continued flowering of the plant that attracted attention to it in a batch of seedlings, and owing to the longer life of the double flowers the plant continued in bloom nearly double the usual time, and the plant was very attractive during this period.

"Journal" of the Kew Guild.—Though somewhat late in appearance, the Kew Guild *Journal* for 1923 is none the less welcome, as it is fully as interesting as any of the preceding twenty-nine issues. The frontispiece is a portrait of Mr. E. H. Wilson, M.A., V.M.H., Assistant Director of the Arnold Arboretum, the President of the Guild, and an accompanying appreciation gives an account of Mr. Wilson's horticultural history and brief references to his many plant-collecting journeys on behalf of Messrs. James Veitch and Sons, and, later, on behalf of the Arnold Arboretum. Old Kewites will find particular interest in the report of the deputation of the Kew Guild to the Director on September 8, 1922, when the subject of reorganisation of the system of training student gardeners was brought forward in the hope that well-trained men when leaving Kew would be able to compete on more favourable terms than at present with graduates of universities and horticultural colleges. The deputation consisted of Mr. A. C. Barlett, Major T. F. Chipp, Mr. A. D. Cotton, Mr. J. Coutts, Mr. C. H. Curtis, Mr. W. Dallimore, Mr. W. Hales, and Mr. W. W. Pettigrew. Dr. Hill was entirely sympathetic towards the idea of aiding worthy young men to enable them to pursue their studies in horticulture, botany and mycology, and promised to place the views of the deputation before the Ministry of Agriculture as soon as opportunity occurred. At a

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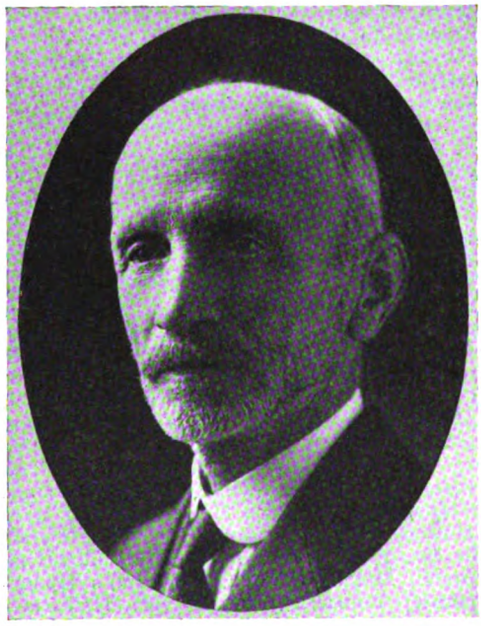
later date the Director informed the Guild that in future—(1) a higher standard of education will be demanded of candidates applying for positions as student gardeners; (2) the number of student gardeners will be gradually reduced by seven; (3) the age limits for entrance will be advanced to from 21 to 25; and (4) a form of "leaving certificate" will be drawn up for each student gardener on leaving, on the lines suggested by the deputation. Kindly reference is made in the pages of the *Journal* to the retirement of Mr. W. Watson, who organised the Kew Guild and was its Hon. Secretary and Editor of the *Journal* for a period of about ten years. Notes from Kewites abroad are always of interest, and this year the chief items under this heading are "Notes from Amani Research Institute—Tanganyika Territory"; "Uganda in Retrospect"; "Kewites and Australia"; and "Kew Men in America." References to old Kewites are also made under the heading of "Where They are and What They are Doing," while under "Kew Notes" are numerous items of news concerning the number of visitors at Kew in 1922 (1,143,758); gifts to Kew; meteorological notes; and Kewites whose portraits have appeared in the *Gardeners' Chronicle*. Mr. A. Beer, of the Botanic Gardens, Innsbruck, has contributed an interesting and illustrated article, entitled "A Two-days' Excursion in the Tirol." Various reports are included, notably those of the annual general meeting of the Guild in 1922, the Guild dinner, Mutual Improvement Society, cricket, football and botany clubs, and the lectures, while towards the end of the *Journal*, just before the list of members, there are sympathetic references to Mr. R. L. Castle, Mr. R. A. Dümmer, Mr. W. A. Kennedy, Mr. James MacPherson, and Mr. O. E. Wüg, all old Kewites who have passed away since the previous issue of the *Journal*.

Canadian Florists and Gardeners.—The incorporation of the Canadian Florists' and Gardeners' Association has been effected, and the Charter is to be presented to the President, Mr. C. J. Hay, on the occasion of the banquet, to be held during the convention, which is to take place in the Canadian town of Windsor, on August 7, 8 and 9. At this convention the work of the Canadian Horticultural Council will be reported upon, and discussed, and other subjects to be dealt with are "Carnation Cultivation," "Fertilisers," "Insects Affecting Trees and Shrubs," and "Fuel and Firing." There will be a demonstration of floral art, and discussions on grading, packing, sales, business ethics, co-operation and other matters directly affecting the retail florists' trade. Of especial interest will be the address by Mr. Alex. Simpson, of Toronto University, on "The Relationship of the Garden to the C.F.G.A.," and as the gardeners' sub-section of the Association is of recent formation, this subject cannot fail to rouse great interest. As is usual at such conventions, trips are arranged to surrounding beauty spots, and there are various other social functions.

Seed Potatos.—We have received a further communication from the Ministry of Agriculture pointing out that all growers of Potatos who may desire to sell any of the crop for planting should bear in mind that the Wart Disease of Potatos Order of 1923 requires all Potatos sold for planting to be officially certified. The certificates are of three kinds. (1) That the Potatos have been grown on land believed by the Ministry of Agriculture to be free from Wart Disease. (2) That the crop has been inspected and that on such inspection Wart Disease was not found to exist, or (3) that the Potatos were inspected whilst growing and were found to be of an approved immune variety, true to type and reasonably free from rogues. Certificate (1) can be issued direct from the Ministry in respect of the land in the greater part of England outside the main infected area. In the case of land which is near a known case of Wart Disease, inspection of the crop may be necessary, and certificate (2) will be issued if this inspection is satisfactory. Growers of immune varieties should arrange to have their crops inspected, so that a certificate (3) may be issued. Only Potatos with this latter certificate are allowed to be planted in land infected with Wart Disease, and moreover, it is in the interest of growers generally that the stocks of the immune varieties should be pure and free from rogues. The inspection for purity must be made while the crop is still growing, and applications for inspection should be sent to the Ministry of Agriculture as soon as possible, as after the crop has died down the necessary inspection cannot be made.

Mr. C. R. Fielder.—Small of stature, but large-hearted, gentle and wise, Mr. C. R. Fielder, Inspector of Gardens for the Royal Horticultural Society, is held in high regard by a host of horticulturists. His wide experience, tactfulness, and altogether pleasant manner of dealing with difficult matters, has endeared him to many a gardener who has been placed in an awkward position as a consequence of untoward local circumstances which his employer did not fully appreciate. Mr. Fielder's horticultural career commenced at Hampton Court, and his experience in these famous gardens was followed



MR. C. R. FIELDER, V.M.H.

by a period with Mr. William Bull, Chelsea, then a prominent nurseryman and dealer in new plants. At Chelsea he was employed in the propagating houses, and there gained exceptional knowledge which fitted him for the place of foreman at Londesborough Lodge, Norbiton, where plants were finely and extensively grown. Later, Mr. Fielder became foreman at the Mote Park, Maidstone, and returned there as head gardener to Lady Howard de Walden, after spending some time as gardener to Sir Edward N. N. Newdigate, Arbury Hall, Nuneaton. Two years after returning to Maidstone, Lady Howard de Walden gave up Mote Park, and engaged Mr. Fielder to assist her in developing her garden at St. James, West Malvern. Following the death of Lady Howard de Walden, Mr. Fielder went to North Mymms Park, where he did splendid work in developing the garden in which his employer, Mrs. Burns, took so great an interest. It will be remembered that while at North Mymms Park Mr. Fielder raised a very fine strain of white Hippeastrums, probably the first pure white forms ever seen. Mr. Fielder spent twelve years at North Mymms and then became head gardener to Miss Wilmott, V.M.H. at Warley Place, Great Warley, Essex, a position he held until appointed to his present post with the Royal Horticultural Society. For over a score of years Mr. Fielder has been a member of the R.H.S. Floral Committee, and he has been a member of the Committee of the Gardeners' Royal Benevolent Institution for seventeen years. In 1911, his many services to horticulture were recognised by the well-deserved award of the Victoria Medal of Honour.

Nicotine Powder as a Destroyer of Aphides.—According to experiments conducted by Mr. G. F. MacLeod and Mr. S. W. Harman, of the New York Agricultural Experiment Station, Geneva, the finer grades of tobacco dust containing one per cent. nicotine are highly toxic to the common aphis, and there is little doubt that the material would afford efficient control. The tobacco powder, however, was not so uniformly effective as mixtures containing nicotine sulphate and free nicotine, although the results were good enough for practical purposes. The experiments also proved that tobacco dust could probably be used for the control of other injurious sucking insects. It was found that the insecticidal efficiency of tobacco dust against aphis varied greatly with its physical properties. Dusts of 50-mesh grade or coarser exhibited practically no adhesiveness and possessed little insecticidal value, while the finer grades displayed greater efficiency both as to adhesiveness and killing power.

Empire Cotton and Research.—The Empire Cotton Growing Corporation has recently been considering the necessity for organised research at the Universities and Colleges of Great Britain, and has decided to offer retaining grants to certain Universities where highly specialised research is already going on. The Cotton Corporation has offered to the Imperial College of Science and Technology, South Kensington, the sum of £1,000 a year for a period of five years from October 1, 1923, the money to be devoted to Plant Physiology and Plant Pathology in the Department of Botany. This generous offer has, we understand, been accepted by the governing body, and the research work will be undertaken in the new Botany Building which was recently opened by the Duke of Devonshire, and to which the Rubber Growers' Association of the City of London subscribed approximately £30,000 about two years ago. This donation is tangible evidence of the value which tropical agriculturists attach to the important research work which is being undertaken at the Imperial College, especially in connection with plant physiology and pathology under the direction of Professor J. B. Farmer, F.R.S., and Professor V. H. Blackman, F.R.S. No doubt other groups interested in research work will find it to their interest to support undertakings of this character.

Ormskirk Potato Trials.—The inspection of the growing crops of Potatos planted in the Ormskirk trials to test the immunity of the varieties to Wart Disease will take place at the Potato Testing Station, Lathom, Ormskirk, Lancashire, on **Thursday, August 16.** Attendance on that day is by invitation from the National Institute of Agricultural Botany, but the trial grounds will be open to all interested in Potato growing on the two following days. The Ministry of Agriculture is the responsible authority for the decision and certification as to which varieties are immune to Wart Disease. The Potatos planted in the trials this year include varieties from Australia, from France and other foreign countries, in addition to many seedlings sent in by raisers, growers and from plant-breeding institutions. Other interesting trials of commercial varieties of Potatos are being conducted by the National Institute of Agricultural Botany.

Local Horticultural Societies. — Brighton, Hove, and Sussex Horticultural Society has increased its membership by eighty during the present year, bringing the total membership to some seven hundred. The members had a half-day outing to Cuckfield Park and gardens recently, and over one hundred and fifty were present. The Society has arranged a whole day excursion in the near future to Cowdray Park. Midhurst.—The Challenge Cup presented to the Muswell Hill Horticultural Society by the *Muswell Hill Record*, for the most points obtained at the recent summer show, was won

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by Mr. S. J. Webber with fifteen points, the runner up being Mr. W. R. Cummins, who obtained twelve points. This is Mr. Webber's second time of winning the cup. Last year he tied with Mr. E. E. Owen.—The members of the Llandudno Allotment Holders' Association paid a visit recently to Penrhyn Castle Gardens, Bangor, where the pleasure grounds and gardens extend to over eleven acres. Mr. Kneller, the gardener, conducted the members through the kitchen, fruit and flower gardens, and before leaving the party visited the Castle to enjoy the beautiful views in the direction of Ogwen, Snowdon, Puffin Island and Llandudno.—Newport (Mon.) and District Gardeners' Society held a flower show in the grounds of Bron-y-gaer, in aid of the local Gwent Hospital on the 28th ult. The event was a great success, for despite the unfavourable season the quality of the flowers was good, and the competition keen. Messrs. W. Treseder, Ltd., added to the attractions of the exhibition by staging floral displays of beautiful exhibits. The chief prize in the show, a gold medal presented by the *South Wales Argus*, was won by Sir Henry Webb, Bt. (gr. Mr. Cole), Castleton, in a class for twelve blooms of Roses distinct.

Appointments for the Ensuing Week.—Tuesday, July 24: Royal Horticultural Society's Committees meet. Wednesday, July 25: Guildford and District Gardeners' Association's show; Mitcham, Tooting, and District Horticultural Society's meeting; Scottish National Sweet Pea, Rose, and Carnation Society's show (two days); Haywards Heath and Mid-Sussex Horticultural Society's show; Tibshelf Floral and Horticultural Society's show. Thursday, July 26: Yorkshire Agricultural Society's show (three days); Rockingham Flower Show; Royal Botanic Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Lady Agnes Byng Geranium.* Of all the summer and autumn beauties that adorn our gardens, perhaps none are more showy and more in favour with the fair sex than the scarlet Geraniums, which, thanks to the gardeners of the present time, are so much improved in form and colour as to supersede the old scarlet altogether. Among the scarlets there is one that may be placed in the first class, if it be not even the best yet produced. It was raised by Mr. Grant, the late gardener at Great Livermere, Suffolk, and named, by request of the late Lady Katharine Jermyn, after Lady Agnes Byng, the then lady of the hall. Anyone who has seen the gorgeous beds that Mr. Grant had on the lawn must have been struck with the number and beauty of its blossoms, the bright green of its foliage, and its symmetrical growth, which at once place it in the van of the scarlets. I have had these facts forcibly recalled to memory, and wish to preserve them, not only from the lamented decease of all the above parties, but also that, as a local plant, a gem which sprang up at our own doors ought, at least in this neighbourhood, to bear its proper name; but I am sorry to say that the liberality of the gardener was abused, and that persons in the trade, to whom he gave cuttings, sent it out under two or three different names, and it is better known around this town as "Frogmore," or "Frogmore Improved," and even the plant that obtained a prize at our show last year was exhibited as "Frogmore," to which it is far superior. Allow me now, sir, to express a hope that, after this, its true history, my brother gardeners in the neighbourhood at least, will discard all other names, and remember our late old friend Mr. Grant, in his pet seedling, the Lady Agnes Byng Geranium. *H. T., Gard. Chron., July* 15, 1848.

Publications Received.—*One Garden: The Intimate Chronicle of its Making.* By D. H. Mountray Read. Williams and Norgate, 14, Henrietta Street, Covent Garden, W.C.2. Price 12s. 6d. net.—*An Elementary Text-book of Australian Forest Botany.* By C. T. White. Vol. I. Published under the direction of the Forestry Commissioners of New South Wales, 25, O'Connell Street, Sydney.

ORCHID NOTES AND GLEANINGS.

ONCIDIUM MARSHALLIANUM.

AN importation of this fine cool-house Brazilian Oncidium, together with the best form of the scarlet Sophronitis grandiflora and some other showy species, by Messrs. Sanders, St. Albans, gives a pleasing indication that the introduction of Orchid species has been resumed, and that soon we may have again the once familiar auctioneers' catalogues of desirable species which rarely fail to include interesting novelties.

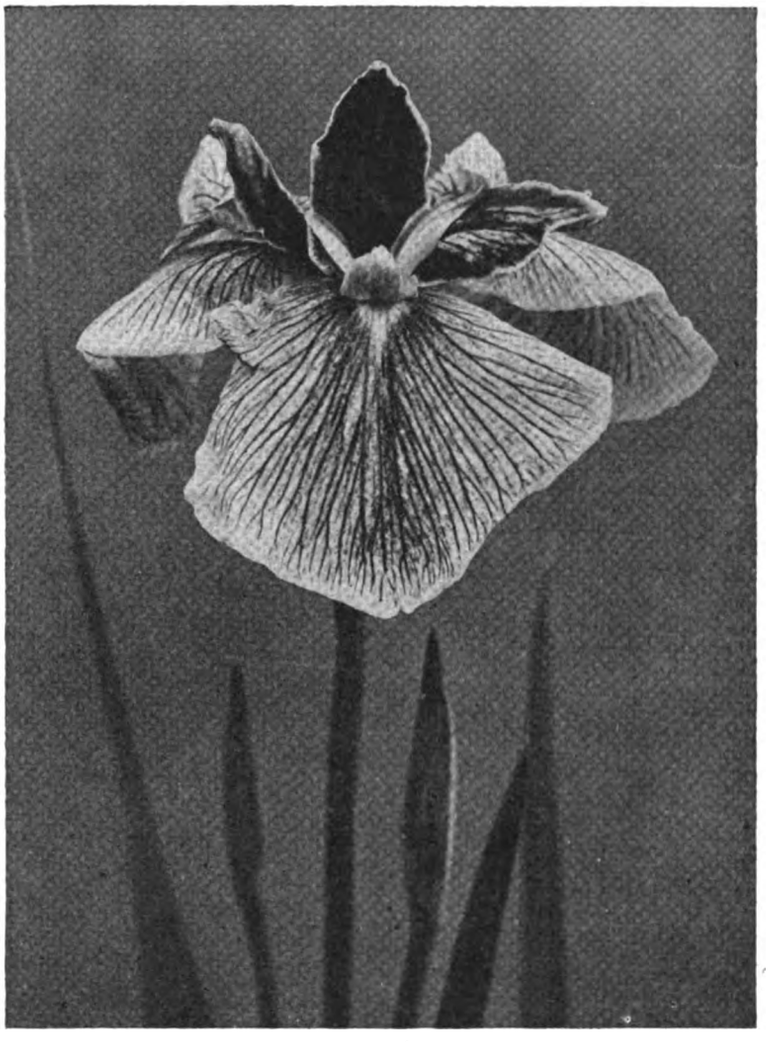

FIG. 12.—IRIS KAEMPFERI PYRFORD GEM; A BEAUTIFUL VARIETY RAISED BY LORD ELVEDON AT PYRFORD COURT, WOKING, AND EXHIBITED BEFORE THE ROYAL HORTICULTURAL SOCIETY ON JULY 10 (SEE P. 38).

Oncidium Marshallianum, with its branched inflorescence of showy flowers with large bright yellow labellum, although known to gardens since 1865, has never been imported in quantity and at present is a rare plant. It is the finest of the section which includes O. crispum, O. praetextum, O. Forbesii and O. Gardneri.

ODONTOGLOSSUM PURPLE GEM.

MESSRS. J. AND A. MCBEAN, Cooksbridge, send a flower of their new Odontoglossum Purple Gem, raised between O. percultum and O. President Poincaré. The flower is of good size and shape, the salient features being the bright violet-purple of the sepals, petals and base of the lip, and the clear white front which make an effective contrast. The sepals have a few pale lilac markings and the tips of both sepals and petals are tinged with lilac. As in most of these purple Odontoglossums, the parentage gives strong O. Pescatorei and O. Harryanum elements in its composition. There is nothing like the clear violet colour of this small section in any of the original species, and it is highly satisfactory that the patient hybridists, by crossing, have been successful in producing such bright tints and at the same time have improved the size and shape of the flowers.

ALBINOS OF MILTONIA VEXILLARIA.

THE fine plant of the beautiful, large-flowered, pure white, Miltonia vexillaria Lambeauiana shown by Messrs. Sanders, St. Albans, at the Royal Horticultural Society on July 10, was one of the best examples of this grand albino vexillaria. It is of the same class as M. v. Queen Alexandra, for which Messrs. Sanders obtained a First-Class Certificate, June 24, 1902, and of which Mr. H. G. Alexander, Orchid grower to Lt.-Col. Sir Geo. L. Holford, obtained a Cultural Commendation for two superb specimens, the one with seven spikes and thirty-six flowers, and the other with six spikes and twenty-nine flowers, the labellums being four inches across. The M. v. Snowflake, for which Sir Geo. Holford obtained a First-Class Certificate in June, 1912, is still one of the finest whites, and M. vexillaria Daisy Haywood is a very fine form.

Albinos of M. vexillaria true have always been rare, and now that recruits to the class by importation are not probable the holders of good forms should raise them true from seed. For M. v. Lambeauiana, M. Firmin Lambeau obtained an Award of Merit when it was first shown in 1907, and Messrs. Sanders a First-Class Certificate in 1910.

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

The Cool House.—Should tropical weather continue, everything possible should be done to keep the temperature of this division a few degrees lower than that of the external air. Air should be admitted freely through the bottom ventilators, and the blinds lowered early in the morning before the sun causes the temperature to rise above 60°. Frequently damping the walls, walks, stages, and between the pots, will create a cool and growing atmosphere, in which the inmates of this house revel. During the hottest part of the day the plants should be sprayed lightly overhead several times with clear rain water, which will also be the means of keeping them free from insect pests. Established plants should be allowed to become fairly dry at the roots between each application of water, as no plant can thrive in a compost that is constantly saturated with moisture. When a plant is dry at the roots, it should be soaked thoroughly and then left until it becomes dry again. The great secret in growing plants in pots is knowing when to give and when to withhold water. Newly-potted plants in this department should be watered with great care, and moisture should never be supplied unless the compost is dry. The top ventilators should not be opened too widely, as this would allow internal moisture to escape, and cause a dry atmosphere, which is harmful to Odontoglossums, and the other inmates of this house.

Insect Pests.—In most cases insect attacks are attributable to unhealthy conditions, but generally after spells of hot weather thrips and other pests put in an appearance, and a diligent search should be made for them, and, when detected, the house should be fumigated on two or three nights in succession. Continual sprayings on all favourable occasions will drive out the thrips from the young growths, and if the water is applied to the undersides of the leaves, will prevent attacks of red spider, which delight in hot dry conditions. Should this latter pest appear, a weak solution of some safe liquid insecticide may be used for spraying, until it is eradicated. The old belief that anything other than clean, soft water is harmful for spraying Orchids is erroneous, and if properly applied there is no fear of these plants suffering from the use of insecticides, any more than any other tender plant. In situations that are very dry; and where the structures are lofty and airy, spraying late in the day will be extremely helpful at this season, especially in hot, bright, weather.

HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Strawberries and Raspberries.—Copious rains have fallen since my last notes were written, and there is hope that fruit dropping through drought may cease. Strawberries and Raspberries will derive great benefit from moisture. Remove all decaying fruit from the Strawberry plants, or they will soon contaminate the sound berries; also cut off runners not required for layering, which should now be attended to. Plants required for forcing should be layered first. Large 60-sized pots will be suitable for layering the bulk of the plants. I have, on a previous occasion, layered Strawberries direct into 32-sized pots, using a good compost and plenty of drainage material. This method proved very useful, and, provided watering is done carefully during the period when roots are forming and protection afforded the plants during heavy rains, it will save time and labour in repotting. A liberal amount of turfy loam should be used, and the compost made firm. If pots are not available, the runners may be kept firmly on the soil by putting stones on them, and very good plants are obtained in this way. The stones should be pressed over the rooting joint. Give every possible assistance to Raspberries, by removing the fruit as it is ready for use. All young canes that are not required should be removed to strengthen those retained for fruiting next year.

Bush Fruits.—Should aphis or mildew be troublesome on bush fruits spraying should be discontinued if the fruits are nearing the stage for picking. Sulphide of potassium or sulphur and paraffin emulsion may be used with safety at any time, but a good washing with the hose-pipe or powerful syringe should be given afterwards.

Blackberries and Loganberries.—American Blackberries are flowering profusely. The shoots of these brambles and Loganberries should be tied up loosely to the trellis or pole, for if allowed to grow at will, they are apt to be trodden underfoot. The weaker shoots should be removed.

Figs.—With warmer days outdoor Figs will need attention in stopping and training the shoots. Make certain that Figs and all wall trees do not suffer from lack of moisture at the roots.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Arctotis aureola.—This plant, with its large, orange-coloured flowers, always attracts considerable attention. It is by no means a common subject in gardens, probably because it is regarded as a difficult plant to propagate; its increase by means of cuttings is certainly difficult, but it is not generally known that it may be readily increased by means of layering. For this purpose the plants are best turned out of their pots and planted out in a bed of soil in a cold frame; or the operation may be carried out in the open. After the layers are rooted they should be potted, and stood in a cold frame, which should be kept somewhat close for a week or two until the plants are established: careful watering is essential at that stage. Other useful, although not so showy, species of Arctotis for the greenhouse are A. aspera and A. revoluta; both these species are easily increased by means of cuttings, which root readily in a cool greenhouse.

Gloxinia.—As the earlier batches of Gloxinias pass out of flower, the plants should not be neglected if it is desired to retain the tubers for next year. They may be stood in cold frames and kept supplied with water until the foliage shows signs of dying down, then water should be withheld, finally drying the plants off for the winter. For this purpose they may be turned out of their pots and the tubers stored in sand, keeping them in a warm, dry house during the winter. Young plants raised from seed this year should be potted on as they require it. If needed for the greenhouse they should be grown under fairly cool conditions; indeed, for this purpose they may be grown in cold frames, keeping them warm and close, closing the frame early in the afternoon, to trap plenty of sun heat. When Gloxinias have well filled their flowering pots with roots, they should be given diluted liquid manure and soot water on frequent occasions.

Streptocarpus.—Seedlings of Streptocarpus raised from seed sown this year should be potted on as they require it, using a light, rich compost. Such plants, if well grown, should give a good display of flowers towards the end of the summer, but they will be at their best for an early display next year. For this latter purpose they are best wintered in an intermediate house, in a light position, close to the roof glass. They should be kept moderately dry during the winter. They are very subject to attacks of mealy bug, for which a sharp watch should be kept, as once the pest spreads, it will soon ruin the plants, and be very difficult to eradicate.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Canterbury Bells.—Where no provision is made to have another kind of plant to replace this early flowering Campanula, every effort should be made to keep the plants in good condition, in order that they may continue flowering for as long as possible. To aid this end pick off all dead flowers as they appear, and give the roots occasional applications of manure water after having first moistened the soil with clear water. Suitable plants to have in reserve to follow Canterbury Bells are Asters, Antirrhinums, and Dwarf Nasturtiums. Another method I have successfully practised in keeping the place occupied by this flower gay, is to plant one of the Gem Pentstemons between the Canterbury Bells early in the season, so that when the latter are over the former fills the space, and they soon recover from having been somewhat cramped for a time.

Dwarf Roses.—So soon as the first crop of flowers has fallen all shoots that have flowered should be cut back to a promising bud, which, in many cases, will be already starting into growth; small, useless shoots should be removed. These operations will aid the quicker development and improve the quality of the second crop of flowers, which will continue well into the autumn. As a further means to this end, sprinkle the beds with a concentrated Rose fertiliser, then lightly prick over the ground with a fork or use the Dutch-hoe if the soil is light enough to be so moved. Should the opportunity offer apply the chemical stimulant in showery weather, otherwise it should be watered into the soil thoroughly to be of the greatest use to the plants. Roses in general are from two to three weeks late this season.

Plants in Tubs.—Where these have been in existence for a number of years, and the tubs are more or less filled with roots, it will be found an excellent plan to apply a top dressing of cow manure or sheep droppings mixed with soil, in the proportion of half soil and half manure. If the tubs are very full of roots make the mulch deeper at the outside, so that a basin-like cavity is obtained for the holding of water. The mulch, if kept moist by regular waterings, will become permeated with surface roots, and thus be a valuable aid to the plants. This practice is especially beneficial in the case of strong-growing plants, such as Agapanthus and Hydrangea.

Layering Clematis.—With a view to strengthening existing plants of this lovely climber, or to obtain more plants, a few healthy growths should be layered during the next three or four weeks. Place several inches of a stem under the ground to a depth of about 2 inches, and make secure with pegs. Cover the layered part with fine soil, and keep the soil moist until roots develop.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Vines.—By this time the Grapes in the earliest house have in most gardens been cut, but where bunches are still hanging a little shade will be required over black Grapes to preserve the colour. The berries of Black Hamburgh quickly lose their colour if exposed to much sunlight after the fruit is ripe. The house should be freely ventilated whether the crop is cleared or not. At this time vines which are in good health usually grow freely, and the young growths require close pinching to throw as much nourishment as possible into the basal buds, for unless these buds are plump and well developed the fruiting next season will be disappointing. If the vines are infested with insect pests the present is the best time to cleanse them. If mealy bug is allowed to spread on vines it is most difficult to eradicate. Paraffin emulsion, used according to the maker's directions, is an effectual insecticide, but before using this specific it is a good plan to clear away the loose bark on the spurs, as it is in such places the pest harbours. The spurs and rods should be closely examined at frequent intervals

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when the sun is shining, as it is at such times the mealy bug is on the move, and the insects may be destroyed by touching them with methylated spirits. The roots should not lack for food and moisture until the vines have completed their growth for the season.

Successional Vineries.—Mid-season vines on which the Grapes are approaching ripeness should be afforded a drier atmosphere, and a free circulation of air both day and night in order that the bloom and colour may attain their fullest density. Unless there is a sudden change to less summer-like conditions it will not be necessary to use fire-heat to keep up the temperature. Let the air in the house circulate freely and guard against an excess of moisture. Vineries in which thin-skinned grapes, such as Madresfield Court, are growing require very close attention to prevent splitting of the berries; a moisture-laden atmosphere subject to a sudden rise of temperature will bring about this trouble. Outside borders under the present conditions of the weather are better left unmulched, for to put a barrier between the sunshine and the vine roots would do more harm than good. Inside borders should be kept moist, and the condition of the soil tested, as with constant damping the surface may be moist while the under part may be dry. A small amount of ventilation at night, and an increased volume by day, until the fruit is fully ripe, should be provided. The warmth at night should range from 60° to 65° for all varieties ripening at this season, excepting Muscats, which should be afforded an additional 5°. Spiders amongst the bunches spoil the appearance of the berries if they are not promptly ejected. For this purpose a bee smoker, using brown paper, answers well, as the fumes will cause the spider to drop out of the bunch, and it may then be easily caught and destroyed. The bunches on late vines should be examined for stoneless berries, at the same time removing berries where they are crowded. The laterals should be stopped closely where crowding of the foliage is likely to occur.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Small Salads.—Radishes may be sown about once a fortnight to keep up a supply, and a cool shady spot is preferable during the summer months. Net the seeds against attacks of birds, and damp the bed overhead every afternoon with a rose can. Mustard and Cress may also be sown in a similar position. Sow evenly, just pressing the seeds into the soil and covering them with a wet sack until germination takes place. Thinnings from the Onion bed are also useful for salads if pulled when quite small. Watercress may also be grown for this purpose, if small trenches are taken out in a shady part of the garden, and well flooded with water previous to sowing the seed. Cover the seeds slightly with fine soil, and when the young plants appear, thin them out to a foot apart; they need plenty of water.

Parsley.—Seed of Parsley should be sown to raise plants for furnishing leaves during the winter. Sow the seed on a shady border in drills made 1 foot apart, and water the soil if the weather continues dry. When the young plants are large enough to handle they may be pricked out on any vacant ground, placing them 1 foot apart; later they may be transferred to frames or planted under a south wall. Parsley is always in request, and every effort should be made to maintain a regular supply.

French Beans.—Frames that are vacant may be utilised for growing French Beans to provide young Beans during early autumn. Should early frost destroy Scarlet Runners in the open the dwarf Beans will prove most useful. Fork the soil in the frames, and add a little fresh material. Sow the seeds about 1 foot or 15 inches apart, according to the variety. Water the seedlings copiously whilst they are growing freely, and mulch them with half-rotted manure. Draw a little soil up to each plant to keep it firm. The lights will not be needed, except at night, later in the season.

CARNATION CULTURE IN NATAL.

ENCLOSED you will find recent photographs, showing the commencement of my efforts to grow Carnations, which you are quite at liberty to use, should you think it desirable. It shows the outcome of my work since the month of November last, the plants naturally being under a year old. There are approximately 300 good plants, excluding the clump shown in the foreground in the large photo (Fig. 13), this being the consignment of about 140 recently received from Messrs. Allwood Brothers, and which are being acclimatised. I have two frames, covered with hessian, and resting upon legs 15 inches long. These are used to shelter the young plants from the frost. They also afford a covering when the sun is inclined to be hot during the middle of the day. The hessian, being thin and not too tightly woven, admits just enough sun to strengthen the young plants.

As will be clearly seen, all the beds are 6 inches to 8 inches above the general level, to allow free drainage. The ground is not quite level; it slopes towards the front, thereby carrying away quickly any surplus water from our deluges in summer.

The plants are not in tins, but each one is encased in four pieces of flat, galvanised iron, 2 inches in height, 10 inches in length and set 1½ inch into the ground, the plant being in the centre; the prepared soil is brought almost flush with the top of the iron. This allows me to apply a fertiliser without it always being washed away by the heavy rains. It is not altogether an ingenious device, but it certainly keeps the fertiliser in its proper place. The contrivance has, so far, worked admirably, and it has the effect of keeping one good-tempered after a downpour. A round kind of "container" would be better, but it would mean a tinsmith's job, and considerably enhance the cost of carrying out this idea. The cutting and the measuring of the iron takes up a little time, but there is the satisfaction of an ample reward in due course. You will readily agree that it would be heart-breaking to find your specially prepared soil being carried off into the street gutter! "Success is not an accident, it comes to those who deserve it." Yea, verily it is so.

The Allwood patent wire supports are in use; they are most effective and save an infinite amount of time.

The small heaps, like ant-hills, in the foreground of the photograph are of prepared soil, showing exactly how each bed is made up before being finally levelled off with soil passed through a fairly coarse sieve. The short sticks in the soil indicate where the young plants will be put into their permanent places.

You will be glad to learn that out of the consignment referred to only three plants died; they were Duchess of Wellington, May Day, and Snowstorm. Effie Dean is growing nicely from the half-inch stem which was left, and I think it is on the way to complete recovery. I consider that I have been extremely fortunate in only losing three plants, and I am sure it is owing to the clever packing that I have had such good fortune.

All the plants are now growing splendidly. I am already deriving untold pleasure from the way in which they are "looking up"; but how much greater will this be when they commence to bloom! *G. Sackville-West, Pietermaritzburg, Natal.*

FIG. 13.—THE CULTIVATION OF PERPETUAL-FLOWERING CARNATIONS IN RAISED BEDS AT PIETERMARITZBURG.

OLD AND NEW PINKS.

THE tide of popular favour is noticeably turning to-day to the cultivation of the garden Pink. In the middle of the last century—that is to say, from 1830 to 1870—there existed among gardeners an enthusiasm for raising and exhibiting the laced varieties at local shows, such as in later years has been shown by societies established for the exhibition of Roses, Dahlias, Carnations, Sweet Peas, and other flowers. Connoisseurs of that period were then to be seen scrutinising through a magnifying glass the lacing of the petals of flowers 2½ to inches in diameter, and searching for defective formation with a minuteness which to-day

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would create smiles. The methods used to produce flowers of that size involved much labour, time, trouble, and cost, so that it is no wonder, with other flowers competing for favour, the Pink received decreasing attention.

To-day it is difficult to procure from the trade any one of these old kinds whose beauty and freedom of flowering, when grown naturally, are at least equal to the best among modern varieties, and it is to be deplored—beautiful as the modern Pinks undoubtedly are—that the old varieties, which were considered the best at the time when competition for beauty and form were so exacting, should have been allowed slowly and gradually to disappear.

Many of these old sorts exist in out-of-the-way places, country-cottage gardens, and allotments. It is from these sources it is hoped that, as a matter of business, the nurserymen of to-day may be induced to recover them. There is ample room in gardens for both old and modern kinds. Beginners in gardening are often first attracted by the Pink and the Carnation. Orders for a dozen kinds in variety, and even two dozen, are still forthcoming, taxing the resources of the modern nurseryman.

As an instance of what may be done, the writer may relate an experience of his own. Having business in Scotland some three years ago, I noticed an unusually pretty Pink among the flowers decorating an hotel table. Inquiry yielded the name of the nurseryman from whom cuttings were procured. Two years later the variety was recognised as Sarah, one of the best old laced kinds to be found in the lists of Pinks recommended and selected by gardening authorities like James Douglas and Richard Dean. Where are Anne Boleyn, Ascot, Derby Day, Lord Lyons, Newmarket, and Rubens—sorts which were so good and floriferous as to be selected for forcing in pots—and the laced kinds, Bertram, Bayard, Harry Hooper, John Ball, Reliance, and many more which might be named? Unhappily we need not go so far back for such losses as these varieties denote, for the comparatively modern and beautiful variety Ernest Ladhams, which received an Award of Merit from the Royal Horticultural Society in 1893, is unobtainable from the trade and even from the firm which raised it. Thus in less than thirty years a beautiful flower has been raised and lost.

It is suggested that nurserymen should endeavour to recover the best of the old kinds by local inquiries for Pinks grown in the district where their trade is carried on. A line in a trade catalogue that varieties would be exchanged might effect a great deal. A good flower sells itself, and there is no question that many of the old Pinks would attract modern buyers. Perhaps a more successful result would be achieved if the Royal Horticultural Society notified its members that plants or cuttings sent to its gardens at Wisley would be welcomed for cultivation and exhibition alongside varieties of Dianthus Allwoodii now freely grown there. Curiosity and interest in old and new sorts would be stimulated and the plants be a source of increasing beauty in private and public gardens. *C. H. Cope.*

PLANT NOTES.

STATICE SUWOROWI.

THIS extremely elegant annual is of great value for massed bedding, conservatory decoration, or supplying cut blooms. Like many annuals it is by no means difficult to grow.

A well-grown batch shown by a firm of northern seedsmen at the Royal Agricultural Society's Show at Newcastle-on-Tyne was stated to have been raised from seed sown during the last week in March, and at the date of the show the plants had then been in bloom for three weeks and looked good for at least another month.

The seed, which is usually received uncleaned of the dead bloom, should be sown fairly thinly and pressed into the seed tray of well firmed sandy compost. A very light covering is advisable, and germination is freest in a temperature of 55° Fahr.

For growing out of doors the seedlings should be pricked off into trays and kept on the dry side until they are established, after which they may be grown in a cold frame in preparation for planting out in May or June. The plant prefers sun, but will do well in a semi-shaded position.

For pot culture, the potting medium used should be good and the drainage efficient. Five plants in a 6½-inch pot should be capable of producing a well-furnished appearance, with spikes of pale rose bloom up to 3 feet in height, well set off by the delicate green of the rather tender foliage.

Seeds may be sown now for an autumn display in the conservatory. *G. R. S.*

FOXGLOVES.

AFTER the flowering of early shrubs, etc., is over, bare places in the shrubbery and hardy herbaceous border may be made gay with Foxgloves. A good strain of seed will give plants of many shades of colour, and amongst the shrubs and in open spots Foxgloves when in bloom have a very pleasing effect. The seed is cheap and may be sown at this time in beds, the seedlings to be lifted and planted later, or the seed may be sown where the plants are required to bloom.

Established plants shed seeds freely, and numerous seedlings will spring up annually with no further trouble. For brightening and relieving the dullness of many open spaces, and where other plants have failed, few if any flowers are equal to a good strain of Foxgloves, both for showiness and ease of culture. There is no fear of the plants being destroyed by rabbits, as is the case with many other plants in woods and shrubberies. *H. Markham, Wrotham Park Gardens, Barnet.*

IRISES.

IRIS KAEMPFERI.

THE genus Iris is remarkable for its richly-marked and beautifully-coloured flowers, and these characteristics are highly exemplified in Iris Kaempferi, one of the finest members of the family.

It is difficult to imagine anything more beautiful than large masses of these beautiful flowers in the lake garden, as at Pyrford Court. The plants are usually in their best condition throughout the month of June, but this season their flowering is somewhat later. Our garden of Japanese Irises is a scene of subdued colours, the magnificent blossoms ranging from pure white through every shade of mauve and lilac to rosy purple and intensely deep blue. Some sorts are pure white, others delicately veined with a tinge of green; some have a margin of lilac or lavender, some are shaded, some mottled, while many and probably the most beautiful are the large, self-coloured flowers of lilac, lavender, or blue. The variety Pyrford Gem, illustrated in Fig. 12, p. 35, has purple veining on a white ground, the purple passing to blue at the base, where there is a yellow blotch. The standards are claret purple.

Iris Kaempferi grows best in a deep, rich, moist soil. Japanese cultivators have a system of irrigating the beds, but this is not necessary in this country; deep cultivation and mulching during the growing season are, however, essential.

The plantations here were made by the lake side, where the roots can easily find water, but the lake dried out completely in 1921 and was not refilled until the spring of this year. This left the Iris beds at least 2 feet above the water-table, yet in spite of the abnormally low rainfall of the past two years they continue to flourish

Propagation is easily effected by seeds, and the raising of seedlings is a fascinating method of increasing the stock. If seed is sown as soon as it is ripe germination takes place quickly, and a large proportion of the plants flower in the second year. The old root stocks may also be divided, and this should be done in late summer or early autumn after the flowering period is over. *W. Anton, Pyrford Court Gardens, Woking.*

HARDY FLOWER BORDER.

DWARF KNIPHOFIAS.

DURING the last few years numbers of new varieties of dwarf Red Hot Pokers have been raised and some of the early-flowering kinds have a definite value, inasmuch as with them the season for these handsome plants commences in early June, instead of a month or six weeks later, from which time a succession may be maintained until autumn.

The value of these pigmy Kniphofias to the rock-gardener cannot be overrated, and they are not less useful in the border. Their handsome, Pampas-grass-like foliage, generally of a rich, glossy green, and the elegant, upstanding flower spikes of some 2 feet in stature which blaze into bright heads of fiery vermilion, scarlet, yellow or coral-red, help not only to give emphasis and character to plantings of lowlier subjects, but to afford a most brilliant display of unusual colouring.

Among the earlier of these dwarf Kniphofias may be mentioned rufa, clear yellow with a red tip; Goldelse Improved, rich yellow self; Prince of Orange, rich orange; brevifolia, bright red and yellow; and the July-flowering K. Nelsonii, a charming, dwarf species with crimson and orange spikes and remarkably fine foliage.

None of these grows much above 2 feet tall, and in some soils they may not attain that height. The plants bloom freely not only in full summer, but maintain a succession of spikes for several months. Any freely-drained soil in full exposure to the sun will suit them and, once established, they appear to be quite hardy in all but cold soils and very bleak localities. Propagation is easily effected by detaching and replanting offsets. *A. T. J.*

THE ALPINE GARDEN.

ASTER FARRERI.

THE Aster family is so large in itself and has given birth to so many varieties and hybrids that the choice among the different sections is almost unlimited. Apart from the late-flowering ones, popularly called Michaelmas Daisies, we have now quite a number of earlier bloomers, especially varieties of A. alpinus. I observe certain folk class Aster Farreri among the forms of A. alpinus, but it is recognised, I believe, as a distinct species, and I am not inclined to disagree with this view. For all garden purposes it is a bolder and more imposing subject than most of the alpinus forms, and is not only a good rock plant, but is fine in the border. A plant which reaches a height of one foot can always be advantageously employed in the latter.

The merit of A. Farreri is so great that it should not be overlooked when considering what additions should be made to the garden. It has long, narrow, rather pointed leaves, stems clad sufficiently with leaflets and bearing very large flowers of a fine, deep violet blue, prettily fringed and with the colouring enhanced by the vermilion-orange of the disc. It is a native of grassy slopes in Northern China, and seems to be hardy with us. Its chief danger will probably be from slugs. *S. Arnott.*

MECONOPSIS CAMBRICA.

DESPITE the undoubted merits of the Welsh Poppy, a plant very beautiful both in flower and foliage, it is not a subject that any person of discretion would introduce into the rock-garden, dry wall or other place where its abounding colonising enterprise would be likely to prove too aggressive for choicer plants. It is, nevertheless, a fine subject for cool woodland slopes and walls, old ruins or the stream-side, where it associates well, and easily holds its own, with Ivy, Ferns, Foxgloves, and other native herbage.

There is a form of this Poppy with large flowers of a tawny orange colour, which does not appear to be nearly so rampant a grower, and there are also double varieties. During the past few years very marked improvements have been made in these latter, the almost

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spherical heads of blossom being large and of good texture, and ranging in colour from pale citron yellow to a deep, warm orange, with or without flecks and marginal shadings of bronze and crimson.

M. cambrica is a true perennial, and though the same may be said of the doubles, these do not seem to be quite so permanent in all soils as the type. *A. T. J.*

GYPSOPHILA CERASTIOIDES.

As one who has long appreciated the beauty of Gypsophila cerastioides, an old favourite alpine, and still one of the best of these fascinating flowers, it was a peculiar pleasure to me to see a grand plant in the rock garden at Kew recently. I do not remember ever having seen one finer, and certainly it was vastly better than the majority found in even the best alpine gardens.

It was a large specimen and covered with exquisite white flowers, with their charming lines which add beauty to the little blooms.

In many ways G. cerastioides is quite distinct from most members of the family to which it belongs. It is not a trailer, like G. prostrata, nor is it a tall grower like the popular G. paniculata or others of its class. On the contrary, it forms a low carpet of small, greyish leaves, thick-set, where it does well, with its bonny flowers, which are larger than the individual blooms of G. paniculata.

The plant appears to favour lime or chalk in the soil, and a sunny position is desirable, although I have grown it fairly successfully in a north-west aspect. It is an old plant in alpine gardens, but is not at present much grown, this being probably due to the introduction of so many new plants. It does not, however, deserve this neglect.

POTENTILLA TONGUEI.

I HAVE no precise record of the origin of this pretty, dwarf, hybrid Potentilla, but it has been in cultivation for many years, and, so far as I can discover, I consider that it must have originated in the forties of the last century. It says a good deal for its value that it has survived for so many years, and that it is still in commerce, though not at all plentiful compared to what one might expect. I have known it for more than forty years, and have always appreciated its low, rather trailing habit and its beautiful flowers of orange and terra-cotta. It is not difficult to cultivate on the level parts of an ordinary rock garden, but appears to resent being placed in a position where it will become parched in dry summers, without being treated to a plentiful soaking of water now and then. It is increased by division. I first saw it in the garden of a veteran alpinist who looked upon it as one of his best flowers, and he had a very choice collection of the best flowers of the day.

ALYSSUM SPINOSUM.

THE valuable, silvery-leaved Alyssum spinosum was seen in several trade exhibits at the recent Chelsea show, and was evidently appreciated by visitors. But the little plants necessarily shown did not give any true idea of the effect of this Alyssum, when it has been established for some time. A specimen some six or nine inches across is hardly representative of a plant which will grow three feet in diameter. It is, when once established, free-growing, and forms a dense, silvery mound, giving in summer a wealth of small, creamy-white flowers. It may be planted on a level spot; hanging down over stones; or when small, placed in the chinks of a wall-garden and allowed to develop into a large specimen.

It has a defect, however, when it becomes very large, of becoming dead in the centre, but this is only after the lapse of a good many years. Young plants may easily be raised from seeds, or from cuttings rooted in sandy soil under glass.

Alyssum spinosum is quite hardy. There is a rose-coloured variety, which was sent out a few years ago. It is not, however, bright in colour, and is no improvement on the type. *S. Arnott.*

PYLEWELL PARK.

PYLEWELL PARK, the seat of W. Ingham Whitaker, Esq., is about two miles east of Lymington, Hampshire, and contains a magnificent collection of rare shrubs, many of which were planted a good many years ago, and also a collection of new Rhododendron species and hybrids.

The first plants I noticed during a recent visit were Lapageria rosea on a north wall, and Myosotidium nobile at the base of a wall—one on each side of the door into the kitchen garden. This was the first time I had seen this plant in flower.

Passing the glasshouses, I noticed a fine lot of Carnations in full bloom, and quite the finest was a pink seedling raised by the able gardener, Mr. Hamilton; it has great substance of flower-stem and foliage, and it stands out from all the other varieties. Outside was a bed of seedling Aquilegias, several of which appeared exceptionally fine. Passing on towards the house, there is a sheltered wall, facing south or thereabouts, covered with uncommon shrubs. I noticed Feijowa Sellowiana in fine form; Adenocarpus, Westringia rosmariniformis, Sphacele Lindleyi, Abelia longituba (?), Cassia corymbosa, Teucrium latifolium, and many others. Close by were many new shrubs planted in small beds, with a fine specimen of Tricuspidaria lanceolata in the background. A fine specimen of Bignonia radicans adorns the front of the house, and Rosa Moyesii was particularly good.

To the west of the house there is a very pretty sunk garden; the colour scheme is pink and lavender. Turning back to the shrub garden, I noticed a magnificent specimen of Acacia dealbata, which must be a wonderful sight when in full bloom. After the hot summer of 1921, there was a great show of flowers in 1922. Several Berberis species, many Olearia and Senecio species are planted here, and Ceratostigma Willmottiana, big bushes of Grevillea rosmarinifolia and G. sulphurea, and Fagus Cunninghamii were interesting. Other fine plants were Escallonia organensis, Cornus florida rubra, a fine specimen of Drimys Winteri, Osteomeles anthyllidifolia, a big Pittosporum Buchanani, Ceanothus thyrsiflorus—very bright and effective—Leptospermum Chapmanni, 7 feet or 8 feet high, just opening, promised to be a glorious sight, and L. Nichollii, nearly as big, was close by. But I thought the finest sight was a wonderful specimen of Tricuspidaria lanceolata, perhaps 20 feet high, a broad and shapely specimen, carrying thousands of its red, Chinese-lantern-like blooms. It was worth a long journey to see this. Near the lake a fine Embothrium coccineum was in full bloom, and on the right-hand side, in a cool, shady, moist position, a wonderful batch of Primula helodoxa looked particularly well. Lower down was a big bed of Primula Lissadell Hybrid and other varieties. All round the water's edge were plantings of Primula japonica, P. pulverulenta, etc.

Leaving the water and climbing the slope, I found under the big oaks, sheltered by belts of Rhododendron ponticum, the collection of Rhododendrons that Mr. Hamilton is getting together. Not being a Rhododendron specialist, I can write little about individual species, but I thought the plants looked very well in the soil, which seems to be leaf soil over a gravel subsoil. I noticed specimens of R. Loderi and R. Loder's white, and species with gigantic foliage. I saw the nursery beds full of young plants that Mr. Hamilton has raised, and on my way back noticed two more nursery plantings, all under numbers. One of the glasshouses contains a fine plant of Lonicera Hildebrandti; I thought this would have grown outside in a sheltered corner of Pylewell, as it grows out in the open near Minehead! There was also Mandevillea suaveolens in full bloom, and Clianthus puniceus in flower on one of the walls outside. *G. H. Dalrymple.*

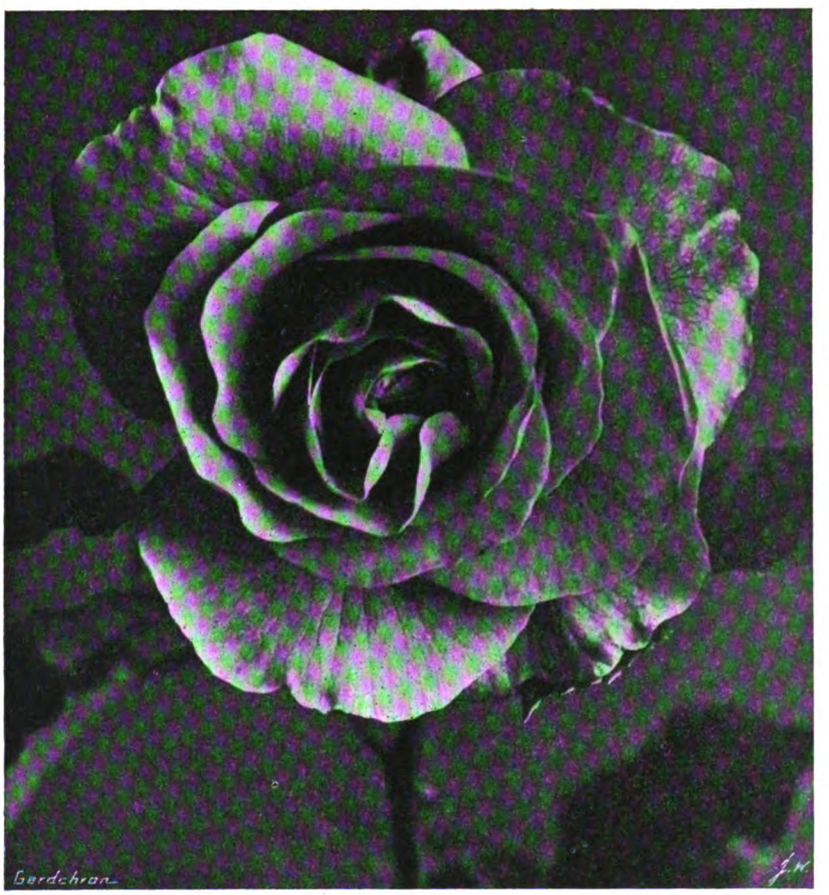

FIG. 14.—ROSE F. J. HARRISON. GOLD MEDAL, NATIONAL ROSE SOCIETY, AT SALTAIRE, JULY 11. SHOWN BY MESSRS ALEX. DICKSON AND SONS. (SEE P. 47).

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. 18.—OVER THE SI LA.

ON October 12 we set out for the Salween—seven Tibetan porters, my Chinese cook Las Li, and myself. The weather was beautifully fine—too brilliant to last, in fact; but the rains were over, and we had nothing to fear for a fortnight or three weeks, at any rate. Twice before I had crossed the Si La, but that was some years ago now, and it always holds fresh surprises.

Ascending through Pine forest, we found scattered bushes of Oak, Rhododendron decorum, and other woody plants. There was an undergrowth of Bracken and grass, where a few flowers yet bloomed, a pale-cheeked Adenophora, and a Gentian with rosy purple flowers being conspicuous. This flank of the range catches the sun, and Pine forest replaces the denser and more varied forest of the sheltered slopes; in both cases tree growth descends to the water's edge.

In the afternoon we reached the Tra-na La, 4,151 feet above the river. Crossing the spur, we descended through mixed forest to the torrent and camped. We were now in a deep, sheltered valley, amidst the most varied vegetation. It was not, however, like the "temperate rain forest" of the north-east frontier of Burma. Amongst the more conspicuous trees were Birch, Maple, Magnolia, Pyrus, Yew, Holly, and Euonymus; while towering over all were magnificent Pseudotsugas. Large bushes and trees of Rhododendron argenteum (?) formed shapeless masses. There were Vines and Clematis and other climbers, and, of course, much larger-leafed undergrowth—Arisaema (trilobed leaf), Rodgersia, Lilium giganteum, Begonia, clusters of purple Impatiens, and thickets of Strobilanthes, besides many Ferns. But the undergrowth was moribund or decomposed; the leaves were whirling down from the trees, orange, scarlet, yellow; the split capsules were freeing their seeds; and the fleshy fruits were displaying themselves in bright colours to the birds. Incidentally, I may remark, I have never seen a bird touch the conspicuous red fruits of an Arisaema, and until one actually sees it in any given case it is purely an assumption to say that birds distribute the seeds.

The following day we marched up the valley through forest which grew richer and ever richer in Rhododendrons and poorer in deciduous-leafed trees. Picea replaced Pseudotsuga. Birch trees held out till the meadows were reached, where thickets of Rhododendron and Willow alternated with patches of forest. Ascending the valley, terrace by terrace, after climbing the steep pitches between, we suddenly emerged into the ice-worn alpine zone at the head of the cwm. In the summer it is a gorgeous bog garden, rock garden, and meadow. Now it was bleak and colourless. A dozen species of Rhododendron appeared like magic—bushes of purple-flowered R. brevistylum, or "rusty leaf," as I call it; R. sanguineum, R. pagophyllum, species of the Neriiflorum and Haematodes groups, and many more. However, there was no chance of finding anything new here, though I gathered seed as I went along.

Ascending the great rock wall of the Si La, other species appeared, notably the prostrate R. repens of the Forrestii group. There were very few flowers anywhere, but more in the open alpine region than in the forest; some yellow Saxifrages, Senecio, Gentians, Geranium, and Aster. As for Primulas, there were P. serratifolia, P. Souliei, P. sikkimensis, and others.

In the afternoon we reached the pass, between 14,000 feet and 15,000 feet, and descended to a deeply eroded valley. The west flank faces south-west, and at this altitude possesses quite a different flora to the sheltered flank by which we had ascended. There was a Meconopsis here, and Primula bella, but not a single Rhododendron until we got much farther down.

In the valley were a number of plants actually in bloom, including Primula serratifolia, with masses of golden Trollius and a gamboge-coloured Potentilla, with strikingly large flowers. Primula muscarioides was barely over, but the group is poorly represented in this area.

After a minimum temperature, under the trees, of 33°, the day dawned perfectly clear. Water splashed and slid over the cliffs all round us. Crossing the stream, we began the ascent of the next ridge, where patches of forest alternated with thickets of Ribes, Rubus and Bamboo. The trees were mostly Birch, festooned with lichen which swayed like lace in the breeze. Herbs attained a height of 7 feet here—species of Strobilanthes, Thalictrum, Astilbe, Rodgersia, Polygonum, Aconitum, and several Umbelliferae, forming the undergrowth of the Birch forest. Higher up, Abies and Rhododendron replaced Birch forest, the latter forming dense shrubberies. There were pools of peaty water in the ice-worn hollows surrounded by meads; the dry haulms of dead flowers twitched in the gusty wind. No trees grew in these boggy places. The Rhododendron bushes were "smutty twig" and "giant rose," both of which are found so far east as Mu-li—or species so near them as to be indistinguishable, except by means of the microscope.

In the Abies forest, towards the summit of the ridge, two species of Primula—P. vernicosa, one of the Sonchifolia group, and a Nivalis Primula—were found. The former is a miserable little thing, with two or three white flowers, which open very early in the snow. I saw no trace of it on this occasion, but this is the *locus classicus* where I discovered it in 1911. The Nivalis form was in seed, and I gathered a little of it, though it has been sent home before.

The pass here—a notch in the razor-back—is called sonorously Nyi-ser-ri-go—that is to say, "the top of the mountain of yellow Bamboo." We had a good view of the snow-peak called Gompa La, on the Salween-Irrawaddy divide, from here. Descending towards the Salween, we came on sloping lawns, dotted with low bushes of an Intricatum Rhododendron. Then, leaving the Abies forest, we came down to grassy alps, and, lower down still, to park-like slopes, flecked with Alder and Pine trees. A ruck of Bracken and coarse herbs—Anemone vitifolia, Scabiosa sp., Nomocharis, etc., surged waist-high under the scattered trees, but this only on sunny slopes. Immediately over the crest of the ridge, and filling every gully, is dense forest, big trees in the drier places, impenetrable Bamboo where the slopes become moister. There are Oaks, Maple, Schima, Ailanthus, Picea, and Pseudotsuga, the Conifers in particular growing to a huge size. But the most striking tree is undoubtedly Rhododendron sino-grande, which in the depths of the forest may grow 50 feet or 60 feet high, but which on the outer rim is a gnarled tree not exceeding 30 feet. The leaves, brightly silvered below, are immense; one I measured from a moderate-sized tree being 21 inches long, excluding the 3-inch petiole, and 8 inches wide; but they run considerably larger than that. The rust-coloured capsules, too, are of large size, averaging nearly 3 inches long and fat in proportion. Unfortunately, they are greatly favoured by a caterpillar which causes havoc amongst the large, winged seeds. Only one of the Grande series is known from east of the Yang-tze (K.W. 4509); they are almost entirely confined to the rain forests of the west. As a matter of fact, I am not sure that K.W. 4509 is a Grande at all—it may be a Hodgsoni.

A common twiner amongst the Bamboo and undergrowth is a species of Crawfurdia, whose thread-like stems are hung all the way up with small, polony-like fruits, filled with black seeds. These, too, harboured grubs. It is a widely distributed species, found also at Mu-li and in the Hpimaw Hills. We were entering a region where life is abundant, and its destruction equally so. In the afternoon we reached the village of Bahang, still a day's march from the Salween; I spent three days here with the French priest, collecting porters for the difficult journey to the Taron. The weather was brilliant, and a fine spell had certainly set in.

(In February I was so fortunate as to return to England on the same boat as Mr. Forrest. Curiously enough, we got talking about plants! I was able to show him some of my Rhododendron specimens. For the names of many in this article and in future articles I am indebted to him). *F. Kingdon Ward.*

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17, July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, March 10, 24, April 7, 21, May 5, June 2, 23, and July 7, 1923.

THE TERCENTENARY OF GASPARD BAUHIN'S "PINAX," 1623.

THIS year the literary world is celebrating the tercentenary of the publication of the first folio of Shakespeare's plays; and although it is not possible to claim many scientific works as worthy of a similar honour, there is one which perhaps deserves our notice. Three hundred years ago a book was published at Basle, Switzerland, which had an immense influence on the nomenclature of plants; and although the march of scientific thought has long ago swept past it (how unlike the immortal plays!), yet even to-day, to the student of botanical history, it is a mine of wealth. Gaspard Bauhin's *Pinax theatri botanici*, etc., represented the careful research of forty years. The word *pinax* means register; and the book is a wonderful compilation of all the synonyms used by previous writers, commencing with Theophrastus and Dioscorides. It is, however, more than that, for in place of the alphabetical arrangement usually adopted by the herbalists, Bauhin grouped his plants by their natural affinities, so far as it was possible to do so by the limited scientific knowledge at his command. Further, throughout the book a distinct preference is shown for using only two words for a plant name; thus foreshadowing the binomial nomenclature that Linnaeus made law at a later date. In reducing the chaos of plant names to a rational order, the *Pinax* conferred a great benefit on succeeding botanists, many of whom have left on record the high esteem with which they regarded it.

Gaspard Bauhin was a member of a family of physicians that flourished in France and Switzerland for over two centuries. He was born in 1560, and died in 1624. His father had left his native town, Amiens, on account of religious persecution, and his two sons, Jean and Gaspard, were born in Switzerland. Gaspard, fifteen years younger than his brother Jean, was destined to become the more famous of the two. However, Jean Bauhin deserves remembrance as the author of the *Historia plantarum universalis*, published posthumously by his son-in-law, J. H. Cherler, in three large folio volumes: also for a smaller work published by him in 1598, entitled *Historia novi et admirabilis fontis balneique Bollensis*, etc., which is far more than a description of the medicinal baths

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of Boll, in Würtemberg, including, in fact, a remarkable account of the local natural history, as well as numerous woodcuts of the various kinds of fruit to be found in the orchards. The published works of Gaspard Bauhin include his *Phytopinax, seu enumeratio plantarum*, 1596, which contains a description of the Potato plant but without an illustration), ante-dating Gerard by one year; his *Prodromos theatri botanici*, 1620, containing many new species; and new editions of Mattioli's *Opera omnia*, and Tabernaemontanus' herbal. He had projected a great *Theatrum plantarum*, but this, with the exception of one part, was never published; and his fame chiefly rests upon the *Pinax* of 1623.

An excellent example of the influence of the *Pinax* upon a celebrated later botanist is afforded by a copy of the second edition (1671) now in the library of the Linnean Society of London. This copy belonged to Linnaeus, and has been profusely annotated by him with the plant names adopted by himself. It reminds us that behind the lawgiver of modern botanical nomenclature stood the monument raised by the labours of Gaspard Bauhin. Linnaeus received the book from a fellow student, Carl Gustaf Warmholtz, in 1730, the year in which he became demonstrator in the botanic garden of Upsala University, as a MS. note upon the fly-page testifies: and Dr. B Daydon Jackson. Gen. Sec. L.S., tells me that it is on record elsewhere that Linnaeus received this book in part-payment for special coaching in botany rendered to his friend Warmholtz; also, that the copious annotations must have been added at a much later date than 1730. Linnaeus also possessed a copy of the 1623 edition, which, judging from a pencil note on the fly-page, he purchased in 1740, but left unannotated. According to Pritzel, a copy annotated by the elder De Candolle is preserved in the library of the De Candolle herbarium at Geneva.

In conclusion, it may be added that Linnaeus founded the genus Bauhinia in honour of the author of the *Pinax* and his brother Jean. *S. Savage.*

PLANTS NEW OR NOTEWORTHY.

RHODODENDRON DAURICUM VAR. MUCRONULATUM.

THIS is one of the most beautiful and dependable of spring-flowering plants grown in the Arnold Arboretum (Fig. 15). It never fails to put forth each year a wealth of lovely blossoms, which vary in colour from rosy-pink to rose-purple. These flowers are remarkably resistant to frost, much more so than those of the typical R. dauricum, or, indeed, of any other early-flowering Rhododendron. This variety may be regarded as the south-eastern form of the species, being common in continental north-eastern Asia from the valley of the Amur southward. It is especially abundant in Korea, from the mountains of the extreme north to the island of Quelpaert in the south. It occurs in Hokkaido, where it is rare, and finds the western limits of its range in the Chinese province of Chihli. It is a common undergrowth in the open Larch-forests on the volcanic soils of north Korea, where it is often ten feet tall. Its leaves are pleasantly fragrant when crushed or dried, like those of R. dauricum, and the autumn tints are similar. In Korea it is one of the first shrubs to open its flowers in the spring, and being everywhere abundant—in open rocky country, mountain slopes, cliffs and woodlands—is a prominent feature of the vegetation.

R. dauricum var. mucronulatum is well distinguished from the type by its larger, less coriaceous leaves, which are sometimes nearly three inches long and 1½ inches wide, and usually pale on the underside with crenate-serrate margin. The flowers are larger, being often 1¾ inches across, of a more pleasing shade, and sometimes the lobes are not so deeply cleft and consequently the flower is less flattened and more bell-shaped.

This useful plant was discovered on Po-hua-shan, a mountain west of Peking, by Dr. P. Y. Kirilow, about 1835, and introduced into cultivation by Dr. Bretschneider, who sent seeds from the type locality to the Arnold Arboretum in 1882. It flowered for the first time in the spring of 1888, and each season since it has never failed to cover itself with flowers in the spring, and with a cheerful mass of tinted leaves in the autumn. For the gardens of eastern North America, it is a first-rate plant. *E. H. Wilson, Arnold Arboretum, Harvard University.*

FIG. 15.—RHODODENDRON DAURICUM MUCRONULATUM.

TREES AND SHRUBS.

THE CYPRESSES OF MONTEREY.

THOUGH the Monterey Cypress (Cupressus macrocarpa) is so well known in all parts of the world possessing a climate that is other than severe, it does not appear to be common knowledge that this noble and useful species is represented in the wild state by only a few storm-beaten trees scattered over less than a square mile of ground on the Monterey Peninsula of California. In no other part of the world does C. macrocarpa grow as an indigenous species, and the little territory which it now exclusively occupies consists of two narrow, rocky headlands which stand boldly out to sea on either side of the estuary of the Carmello River.

It is evident that this little group of trees is but the remnant of a vast forest which has gradually been engulfed by the sea, and when one realises that hardly a season passes without some few of these surviving trees being claimed by the devouring waters one cannot doubt but that the whole of this ancestral grove will have vanished before very long. For it is no ordinary sea that rages against the wall and buttress of this little colony with such eternal persistence, but a sea which is daily whipped to a fury so intense that the rising spray will obscure the noon-day sun and, driving across the wilderness of shifting sands to landward, turn to a

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dull brown the fringe of the Pines (P. insignis), which crown with their rugged gloom the summit of the distant Head of Monterey.

So different are the Cypresses of this handful of storm-broken survivors to the trees of the same kind which enjoy the vigour of youth and the sheltering care of our parks and gardens that one would hardly believe them to belong to the same species; and for that reason one might, perhaps, even excuse the picturesque imagination of the local post-card maker who disseminates the popular fiction that the trees are Cedars of Lebanon! Indeed, these historic Cypresses, seen against the white rocks to which they cling, or standing in the ever-drifting sand which is even whiter than the rocks, do bear a closer resemblance to the classical trees of some old master's canvas than to those of any living forest.

Fantastic in shape, their trunks often curiously flattened and their crowns broken as if crushed by the burden of some invisible weight, they loom darkly silhouetted against their white surroundings. Clipped by the eternal bite of the salt spray, their once slender and elegant boughs have bulged and thickened into cushiony buffers, as if the better to resist the onslaughts of their untiring enemy. Some trees in little isolated groups lie cowering and wrecked in huddled confusion where the wind has cast them down, a heap of strangely contorted limbs which here and there make brave but futile efforts towards restoration by breaking afresh into tufty pads of verdure. Again, one may emerge from the shadowy gloom of a few trees which have benefited by the shelter afforded by their stricken companions, to come upon another colony, every tree of which stands rigid and dead whilst through their naked and tattered rigging, which is bleached as a weathered bone, the grey spray drives with a ghostly sound.

Leagues of this primeval forest have, as I have said, been engulfed by the sea, and the width of the fringe still standing does not measure a quarter of a mile at its widest part. Had it not been for the rocks in which the survivors are now entrenched civilised man would never have seen Cupressus macrocarpa. The species would have passed, as other species have passed, unknown to science and history. And although it is unlikely that the present generation, or the next, will witness the final surrender of these aboriginal Cypresses to the conquering ocean, the hour will come when the last stalwart must yield. Like the days of the shore Indians, who once ate their clams and burned the Willow bark in the dark shades of the primeval Cypress forest, and who are now a fast vanishing race, so the days of the Cypresses of Monterey will come to an end and the only traces of their natural habitat will be found in books and records. *A. T. Johnson.*

LABURNUMS IN THE UNITED STATES.

LABURNUMS, small European trees or large shrubs, sometimes called "Golden Rain," can furnish gardens in June and early July with the handsomest yellow-flowered trees which may be grown in the United States. The best known Laburnum in America, according to the *Bulletin of Popular Information*, issued by the Arnold Arboretum, is Laburnum anagyroides, or as it is more often called Laburnum vulgare. This is a native of central and southern Europe, and a shapely tree from twenty to thirty feet in height. It is one of the most generally planted and popular exotic plants in England, and probably was brought early to the United States, where it has been more generally planted than the other Laburnums. Although not always perfectly hardy in Massachusetts, large plants are occasionally found in the neighbourhood of Boston, and these have been covered with their drooping racemes of golden-coloured flowers.

A number of varieties of Laburnum anagyroides are propagated in European nurseries, but these are curiosities, and certainly not better as garden plants than the type of the species. One of the most distinct of the abnormal forms, var. bullatum, with its curiously twisted and contorted leaflets is now in bloom in the Arboretum. The Scotch Laburnum (L. alpinum), probably so called because it is a most cultivated and favourite garden plant in Scotland, flowers later than L. anagyroides, and is a hardier plant in this part of the country, with longer racemes of flowers. When the plants growing in the Arboretum are covered with their long drooping flower clusters they are objects of great beauty, and it is surprising how little this plant is known to American garden makers. Another Laburnum, L. Watereri, a natural hybrid between L. alpinum and L. anagyroides, which is intermediate between its parents in botanical characters and in the time of flowering, and is a beautiful small tree, better suited to the New Zealand climate than L. anagyroides, and a good plant for the decoration of a June garden. L. Watereri appears to be little known in America. The third species of Laburnum, L. caramanicum, a native of Greece and Asia Minor, has been planted in the Arnold Arboretum but has not proved hardy there.

CORDYLINE AUSTRALIS IN SOUTH WEST SCOTLAND.

IN the inland districts of the south-west of Scotland Cordyline australis cannot be called a success, but matters are different in gardens near the sea, especially where there is some shelter from strong winds. There are some very fine examples of this Cordyline in certain Wigtownshire gardens, for example, such as in that of Sir Herbert Maxwell, at Monreith, and in that of Mr. Kenneth M'Douall, at Logan, those in the latter place being magnificent specimens, and very numerous. In Logan gardens there are some fine rows of great, stately plants many feet high; and their sheltered position gives them a splendid chance of continuing to do well. C. australis flowers and fruits well at both Monreith and Logan, and it is rather unfortunate the plant is not equally successful inland. I do not know of any really good specimen in an inland garden in the south-west of Scotland, but I know some places where it has been tried several times, but has succumbed in winter. *S. Arnott.*

NOTICES OF BOOKS.

Poisonous Plants of all Countries.*

THIS is an octavo book of 112 pages, including a good index. It may be regarded as a technical book on the subject, intended for the use of doctors, medical men generally, and chemists, as a book of reference. A very large number of plants is dealt with, but the information is confined to a brief description of the plant, popular names, a reduced drawing of the same, the name of the plant, the natural order to which it belongs and the toxic principles it contains. There is a classification of the poisons under such headings as "Acting on the Brain," "Acting on the Spinal Cord," "Acting on the Heart," etc. These are subdivided into narcotics, deliriants, inebriants, convulsives, depressants, asthenics, etc., and would be useful in diagnosing cases of poisoning. In other respects the book does not appeal to the lay reader, because it does not contain instances of poisoning or how a plant came to poison the victim. Attractive flowers or berries appeal to young people, who are tempted to eat them, but hundreds of the plants mentioned would not appeal to old or young in ordinary ways that would make them dangerous. A list of plants is given in an appendix as reputedly poisonous, and many of them are not above suspicion, but one would scarcely look for poison in Barberry, Wallflower, Borage, Hawthorn, Beech, Penny Royal, Virginian Poke, Goat's Beard, Broad Bean, etc. Chelidonium grandiflorum is given as a different species from C majus. The spelling of a number of the names would be better for revision, such as Peony, Abrus precatoribus, Crataegus oxyacanthes, and Gypsophilia.

**Poisonous Plants of All Countries.* By A. Bernhard-Smith. Baillière, Tindall and Cox, 8, Henrietta Street, W.C. Price 6s. net.

INDOOR PLANTS.

IXORAS.

IXORAS are handsome stove flowering shrubs, and amongst the finest of all bush-flowering plants. Most of them are of compact, bushy habit, producing large trusses of flowers in varying shades of colour, which render them invaluable for all kinds of decorative purposes. When out of flower their dark green foliage is very attractive. Many of them may be grown as large specimens suitable for exhibition groups, and the cut blooms are of the greatest service for decorative purposes in vases, etc. The plants prove very serviceable when flowered in 48-sized or 32-sized pots for general decoration of the conservatory or dwelling house; they make a very bright display and last for some considerable time in flower.

The culture of the plants in small pots calls for close attention, yet extra labour in growing them to perfection is well repaid. Plants in large pots are not so well adapted for house decoration, and smaller specimens suffer less in dwelling rooms when in proportionately smaller pots with good, healthy roots. After flowering, Ixoras should be pruned back with the object of producing compact, bushy specimens for the following season. They should be grown on afterwards, and when growth is completed gradually hardened off in a dry atmosphere to favour the ripening of the wood during the autumn and winter. The plants should be started into growth in the spring in a genial, moist atmosphere and a temperature of 70° to 75° for summer blooming. Throughout the summer they may be grown in an ordinary plant-stove. During the winter a temperature about 60° is suitable.

All the species and varieties of Ixora will grow luxuriantly in a moist atmosphere, plunged in gentle bottom heat produced from fermenting material, such as dung and leaves mixed. The warm, moist conditions of the hot-bed act as a preventive to attacks of insects, such as red spider, scale, and mealy bug. Syringe the plants overhead two or three times during the day when the weather is suitable for spraying, and expose them fully to the light, but shade them from strong sunshine. An excess of water at the roots must be guarded against until the latter have filled the pots. When the plants are well rooted and commence to show their flower buds, a little liquid manure applied to the roots once or twice a week will be beneficial to them, as a stimulant favours the flower trusses opening freely, but liquid food should not be used before the flower buds are formed, otherwise it may start them into growth instead of flower.

On warm days a little air may be admitted, but draughts and a dry atmosphere must be guarded against.

Cuttings of half ripened wood root freely in sandy soil in a moist bottom heat and an atmospheric temperature of 70° to 75°, under a hand light or frame. If the cuttings are strong the plants will flower the first season in small pots. The soil for potting should consist of two-thirds rich, turfy loam and one-third fibrous peat or leaf-mould, with silver sand added. Well drain the pots with clean crocks or potsherds, and a little broken charcoal if the latter is procurable.

The following list includes some of the best and most generally cultivated Ixoras, and all may be highly recommended:—I. dixiana, a handsome form, of good constitution, flowers dark orange, produced in large corymbs—a fine exhibition plant; I. acuminata, flowers pure white and fragrant, a useful variety; I. Fraseri, a vigorous growing and most effective species, with salmon-coloured flowers tinged with carmine—an ideal exhibition variety; I. coccinea superba, a free-flowering, vigorous and healthy variety, the flowers bright orange scarlet; I. Pilgrimii, flowers bright orange scarlet, shaded with crimson, produced in perfectly round corymbs seven inches in diameter—a fine plant for exhibition purposes; I. Williamsii, a free-growing and profuse-flowering species, with reddish-salmon coloured flowers—unsurpassed for

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exhibitions; I. Colei, pure white flowers, numerously produced; I. sanguinea, a distinct kind with numerous crimson flowers, shaded with deep violet; I. coccinea lutea, a pretty yellow with medium-sized flowers, very distinct; I. Prince of Orange, a free-flowering variety with bright orange-coloured flowers: a plant of strong habit of growth, making a large bushy specimen; I. Westii, a very pretty hybrid with flowers of a pale rose becoming bright rose with age, distinct from any other variety; I. macrothyrsa (syn. I. Duffii): this species has not a very compact habit of growth, but when grown with two to four strong, upright shoots it produces flower trusses of an enormous size of a beautiful scarlet tinged with crimson. Ixora macrothyrsa was first flowered in this country in 1878, when its extra large trusses of flower caused quite a sensation. It has foliage fully eight to ten inches in length. This species was discovered by Teysmann in the Celebes, and appears to be a somewhat widely distributed plant in the Malayan Archipelago. *John Heal, V.M.H.*

This spring the sparrows again attacked the Cerastium. To cover the whole plant mass with a raised netting, proof against these birds, was certain to produce an eyesore in the garden for two or more months. Was the plant really worth this? Two "nipper" mousetraps were baited, set, and laid on the Cerastium. Next morning I quite expected to find one or two sparrows caught; but, to my sorrow, a robin only was in one of the traps. This would not do, so the traps were unset but allowed to remain. They had the desired effect. Never a sparrow ventured on the Cerastium, which eventually gave its fine display of white, honey-scented bloom. This struck me as marvellous intelligence on the part of this bird, though it did not go so far as to distinguish between a set and unset trap.

Possibly the sight of the robin caught may have had something to do with the deterrent effect of the traps. It might, of course, be explained as a mere coincidence through the sparrows having just completed their nests, but the sequel will show that it was not so.

NURSERY NOTES.

A SWEET PEA NURSERY ON THE SOUTH-EAST COAST.

At this time of year when Sweet Peas are prominent in almost every garden and amongst the most attractive of the exhibits at flower shows, a few particulars of a Sweet Pea nursery which we visited last season about this date may be of interest to lovers of this most beautiful of all annual flowers. The nursery referred to is that of Mr. F. C. Woodcock, Walmer, Kent, a village that has great historic associations, the Castle at Walmer being for many years the residence of the famous Duke of Wellington, as well as of William Pitt.

Mr. Woodcock's nursery is situated on rising ground known as Drum Hill, at the top of which is Drum Inn, and the ground rises for several miles southward until it terminates in the highland about Dover Castle. The soil of the nursery is amongst the richest in Kent, being a deep loam overlying brick earth.

FIG. 16.—FIRST PRIZE BASKET OF CUT ROSES—MRS. CAMPBELL HALL—EXHIBITED BY MR. GEORGE PRINCE AT THE N.R.S. PROVINCIAL SHOW AT SALTAIRE. (SEE PAGE 46.)

SPARROWS AND CERASTIUM TOMENTOSUM.

THE perky and resourceful sparrow is ever inventing new ways of annoying the gardener. During the spring of last year I was perturbed by seeing the mass of Cerastium tomentosum taking on a dishevelled appearance, as if it had been much pulled about. Instead of recovering it grew worse, so a watch was kept and sparrows were discovered to be the cause. With their beaks they were observed to nip off the woolly shoots and to carry them away as material for their nests. A piece of netting was laid over, but this did not deter them. They did their best to drag off the netting to get at the Cerastium. As they had ruined the plants so far as flowering for the season was concerned, no further measures were then taken.

The sparrows had their nests high up in a Rose trellis close by, and on examining them it was found that the Cerastium had been used for the framework of the nest, along with dry grass stems, and not for the lining, which was composed of feathers, as usual.

After a time the traps were removed. On June 5 the sparrows were noticed attacking the Cerastium again, evidently preparing their nests for a second brood. The traps, unset and unbaited, were then put in position, and the birds ceased at once to trouble the plants. The traps after some days were removed a second time.

On July 1 this season's nests in the trellis were examined. Hardly any Cerastium had been used in their construction, but instead the old flowering stems of Alyssum saxatile, which was also growing in the vicinity. Of the five nests two had young ones fully fledged.

Three days afterwards the sparrows were observed to be attacking the Cerastium for the third time. The traps were again placed in position, and they immediately ceased their attentions. New nests in the preliminary stage of construction were seen in the trellis work, so evidently the birds were preparing for a third brood, confirmed by the fact that on an examination made on July 8 three nests were found with eggs. *J. P. Carlisle.*

Mr. Woodcock established the nursery in 1892, and soon began to specialise in Sweet Peas, cultivating at that time the best of the grandiflora type. His plants succeeded well, and he established a reputation for these flowers locally; in the early nineties he commenced the raising of novelties, in which he has been most successful. The first variety of note that he raised was Hilda, a very pretty orange-pink variety; but probably the most noteworthy of all Mr. Woodcock's seedlings is the one named Austin Frederick, of the lavender section, and he has since evolved a superior type of this variety named Austin Frederick Improved, a plant of very robust growth, and producing pale lavender flowers.

Others of Mr. Woodcock's novelties among Sweet Peas are Edna May, white; Cecily, pale salmon-pink with standards over two and a half inches in diameter; Mrs. Norman Lambert, a distinct, blood-red crimson variety, one of his latest seedlings; Salmon Queen, a popular exhibition variety; Lady French, rich orange-cerise, with rosy-carmine wings, in which nearly all the spikes carry four fine flowers:

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Climax, a free, strong variety of rosy-carmine colour; Scarlet Queen; Invicta, of the shade known as vieux-rose; King George, a pale rosy-mauve variety, and Mrs. C. P. Tomlin, a sun proof scarlet variety.

Mr. Woodcock is a very clever cultivator of these beautiful flowers; most of the plants are trained to tall Bamboo stakes and disbudded, so that blooms of exhibition quality are produced. His practice is to sow the seed in October in 3-inch pots and plant out the seedlings in March 10 inches apart, allowing a distance of 12 inches for the stronger growers. The rows are set 5 feet apart. The ground is very rich, so that no animal manure is used, but fertility is increased by the use of a little basic slag and bone meal in the autumn, and a little sulphate of potash in the spring.

The collection of Sweet Peas includes most of the best sorts in cultivation, and at the time of our visit we saw such beautiful kinds as Mascotts Ingman, Geo. Shawyer, Giant Attraction, shell-pink; Burpee's Giant, a white which is close to Constance Hinton, and has similarly coloured seeds, but is probably a little superior; Hebe, R. F. Felton, Maroon King, of which the blooms were extra large; Royal Purple, Royal Scot, a fine Sweet Pea of scarlet-flame colour; King Mauve; Elegance, of which Mr. Woodcock has a fine strain; Mrs A. Hitchcock, somewhat after Cecily, but paler; Gloriosa, a fine scarlet variety; Colne Valley, pale lavender-blue; Matchless, cream; Sunset, with rosy-coloured wings and cherry-red standards, a delightful combination of colours; Rosabelle, Le Madhi, which as we saw it is a fine aniline-blue; Doris, cerise; Annie Ireland. Valentine, a robust grower with pretty blush coloured flowers; Mrs. T. Jones; and Sensation, which closely resembles Gloriosa.

Mr. Woodcock is still engaged in raising seedlings .and several we saw were of much promise, including one with very clear orange-coloured flowers, a distinct and promising novelty; and a mauve seedling, darker than King Mauve, and with a touch of blue at the base of the wings. Asked his opinion as to the best of the cream-coloured varieties, Mr. Woodcock placed Matchless first, followed by Majestic and Felton's Cream, and all these varieties were succeeding splendidly in his nursery. Those who are in the neighbourhood of Deal or Dover during the next few weeks should take the opportunity to visit this little known nursery, where Sweet Peas are grown to such perfection.

HARDY FRUIT GARDEN.

TRADITION AND FASHION IN APPLE CULTIVATION.

IN order to illustrate the object of this article, which in all probability will arouse some criticism, it is necessary at the outset to call attention to the types of Apple trees that are to be found in the majority of private gardens in the country. The first type of tree I will refer to is the familiar bush form with the lower branches almost to the ground, usually growing in a row with others of the same shape and character alongside the walk in the kitchen garden.

The growing of Apples in vegetable gardens originated in a past age, and it has become a tradition, a mere custom or fashion copied by one from another. The originators of the method were the school of gardeners who lived at the period I refer to, and they took it as the accepted and proper thing to do when they laid out a kitchen garden to surround practically all the vegetable quarters with fruit trees. It sounds almost like heresy to question the judgment of those old gardeners and say that it would have been infinitely better, both for the vegetables and the fruit, and also for the convenience of working, if the kitchen garden had been devoted from the outset to vegetables, and provision had been made for growing the fruit on a separate piece of land.

The typical Apple tree in these old gardens, irrespective of the variety or its habit, has been treated in the same orthodox way as regards pruning and management since the day it was planted. The tree has a thick stem now that it has advanced in years, and it is furnished with a certain number of main branches, which have been subjected to the process known as spur-pruning from the beginning.

Briefly, the process is this. In accordance with the orthodox and traditional procedure, which was supposed to be a fine art in fruit culture fifty years ago, all the young shoots along the branches were systematically cut back nearly to the base, without being quite as severe on the leading shoot. Very neat, symmetrical, and decidedly artificial does the tree look after its annual pruning, and when the growing time comes round it sends out another crop of shoots which in due course are cut off.

It is true that the process has been modified in some cases by summer pruning, and with more or less satisfactory results, whilst trees of vigorous growing habit which have grown out of hand have been checked by root-pruning.

There stands the spur-pruned tree to-day, with its gnarled and knotted branches and its thickly clustered spurs, confined to its restricted area so far as this has been possible in order to give the vegetables their share of room. The tree has carried many crops of leaves, the shoots cut from it have furnished material for many bundles of flower stakes and the tree has borne a lot of fruit in its lifetime, but nothing like the amount it would have done if it had been allowed to grow as nature intended it to do. Over and over again it has made a mute appeal for some of its young shoots to remain and produce fruit buds and bear, but that would have been against the traditions of spur-pruning and kitchen garden fruit culture, even though it would have saved a lot of labour in root-pruning.

The older commercial fruit grower adopted this method of fruit growing for a time, but he soon realised that it would land him in bankruptcy if he continued. He discovered that if he did less cutting he would increase the fruit-bearing area of the tree, which would make all the extension growth required each year. The result is that tradition and position still remain supreme in the matter of pruning in private gardens, but there is no room for it in the commercial plantation, which has to show a profit, and when the private gardener becomes a market grower he promptly changes his methods.

I very much doubt whether there is anything more unprofitable in private gardens to-day than the old espalier fruit trees, with their tiers of parallel branches, which are to be found in so many establishments, and, of course, always in the kitchen garden. It is true they are living monuments to the training skill of the old school of gardeners, but they had more time for this kind of work than gardeners have to-day, and the amount of fruit such trees produce does not justify the labour that is spent on them. After all, the growing of espalier trees is largely a tradition, a fashion, and a custom, and there is little to justify it when it is realised that the sole object of planting a tree is to produce fruit.

In many gardens, too, these ancient espaliers are such a tradition that the owner has much the same sentimental regard for them as he has for an old Mulberry or other tree with a history attached to it, and it would be unwise for any gardener to recommend their destruction. I have known a few of these old garden espaliers, however, that have been made fruitful and profitable through sheer force of circumstances, and it happens in this way. After years of close cropping the vigorous shoots along the top horizontal branches on either side of the central stem, instead of being cut off and turned into flower stakes, were left to grow, perhaps because there was no one to prune them, and in a short time more fruit was produced on this healthy young wood than over all the rest of the tree. Then the idea of maintaining the orthodox espalier shape was discarded, the useless lower branches at right-angles to the stem were cut off. The trees formed heads from the top branches and have become standards, but, what is all important, they bear heavy crops of fruit

On occasions when time permits I like to turn up an old gardening book, long since out of print and written by some noted practitioner of his day. Some of the rules laid down there are applicable to present-day conditions, but I am inclined to be amused at the rough wood-cuts illustrating methods of training fruit trees, and equally amused at the laboured and not easily understood directions for the training and pruning of the specimens. In the author's efforts to bend nature and incidentally the branches of fruit trees to his will he was thinking more about his geometrical design than the main functions of the tree, *i.e.*, to produce the maximum amount of fruit. *G. H. H.*

RED PLANT DISEASE IN STRAWBERRIES.

I NOTED with more than a little interest that Messrs. E. Ballad and G. S. Peren, of Long Ashton, now definitely regard eelworm as the cause of "Red Plant" (see p. 360, June 30, Vol. LXXIII.), and shall look forward to the publication of the promised article on the subject, and, more especially so, seeing that Mr. Peren has been a consistent opponent of the eelworm theory, first put forward by myself in April, 1920, and also seeing that as recently as September last (on the occasion of the annual meeting of the Horticultural Education Association at Long Ashton), Mr. Peren definitely stated that they were satisfied that eelworm was not the cause of "Red Plant" disease, and that it was more likely to be mosaic trouble. In your issue of May 29, 1920, you published a note from me with reference to this Tamar Valley disease, in which I considered eelworm to be the cause of the trouble.

During the course of a series of lectures to fruit growers in Cornwall, from 1920-1923, I definitely informed the growers that eelworm was the cause of the trouble; I also asked them to bring me suspected plants for miscroscopic examination, which they did, and in which parasitic eelworms were usually found.

Since April, 1920, I have examined some thousands of affected plants from different parts of Cornwall, with the same result, and I have repeatedly suggested to the various pathologists and inspectors of the Ministry of Agriculture and in various county and other reports that I was still of opinion that eelworm was the cause of the trouble.

On the occasion of the Bath and West of England Show at Plymouth, June 1 to 6, 1922, I had a chart prepared of the various eelworm troubles, giving "red plant" as one of these, and also had a series of affected plants to demonstrate to the growers, by means of the compound microscope, that parasitic eelworms were present. I may add that a species of Aphelencus was reported as having been found in specimens sent to Dr. Fryer at the Harpenden laboratory. *W. H. Johns, Superintendent, Gardens and Open Spaces, Bermondsey (late Horticultural Superintendent, Cornwall County Council).*

VEGETABLE GARDEN.

BROAD BEANS.

THESE are flowering well, and promise a good crop; they should therefore be well attended to as regards watering, hoeing, etc., and as soon as the plants reach a height of three feet or so, the points should be pinched out to encourage the pods to swell up well. Bean plants often become infested with black fly, especially in cold and dry weather, and should be dusted with tobacco powder or syringed with a suitable insecticide. If extra large pods are desired, thinning must be resorted to, leaving one pod at each joint, or even less crop than that. A last sowing may now be made on a warm border, placing one seed in each hole, about a foot apart, and giving the rows a good watering if the ground is dry. The Broad, or Windsor type of Bean is most suitable for late sowing. *T.*

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HOME CORRESPONDENCE.

Double Buttercups.—No doubt botanists and many gardeners are interested in reading about double Buttercups; I much prefer single flowers, but as I have a weakness for "freaks," there may be found in this garden the double forms of Ranunculus acris, R. bulbosus, R. repens, R. speciosus, and R. Ficaria, the double R. speciosus being the best of the lot. I wish nurserymen would stock the single form of R. aconitifolius; it seems impossible to secure a good clump of it. Considering the millions of Buttercups one sees in the fields, it is remarkable how few variations in form and colour are found. I have a form of pale R. acris, and used to have a pale variety of R. bulbosus. *W. Butt, Hyde Lodge, Chalford.*

Cabbage Root Fly.—I have read Mr. A. H. Lee's article on the Cabbage Root Fly (p. 25), with some interest. If any reader is in difficulty owing to this pest, I advise him to try an experiment I made three years ago with great success. Mix red lead with water to the thickness of cream, and stir the roots of the young plants well into it before planting. I have planted Cauliflower so treated alongside Cabbage which was not so treated, and the result was an excellent lot of Cauliflowers with not a plant affected, while two-thirds of the Cabbage plants were infested. The red lead clings to the roots throughout the season, and so gives the fly no chance to penetrate to the roots. *W. D. Mackay, Balcombe Place Gardens, Sussex.*

SOCIETIES.

NATIONAL SWEET PEA.

JULY 11 AND 12.—Brilliant tropical weather favoured the holding of the National Sweet Pea Society's exhibition in the charming Sydney Gardens, Bath, on the above dates, in connection with the Bath and District Horticultural Society's show. The Sweet Peas were in wonderfully good form, despite the recent hot weather. Unfortunately, several members had to withdraw their entries as their flowers were spoiled by the terrific thunderstorm which broke over the metropolitan and other districts on Monday night, July 9. Not only were the flowers shown of excellent quality all through, but the colour was wonderful and the general arrangement of the exhibits left little to be desired. In most of the classes competition was keen.

There was a brief opening ceremony, presided over by the Mayor of Bath, Alderman C. Chivers, J.P., when Mdme. Sarah Grand (the Mayoress) opened the exhibition in a graceful speech, in which she referred to the beauty and value of Sweet Peas to-day as compared to the old days when these flowers were relegated to a small space in the kitchen garden. On behalf of the N.S.P.S. and the Bath Society, Mr. C. H. Curtis thanked Mdme. Sarah Grand and the Mayor for their presence.

After judging was completed the Mayor and Mayoress entertained the officers and the Committee of the N.S.P.S. and the local Society, and the judges, at luncheon. His Worship the Mayor proposed "The National Sweet Pea Society," to which Mr. Andrew Ireland responded; the "Bath and District Horticultural Society," proposed by Mr. J. S. Brunton, was responded to by Mr. T. Parrott, an old member of the local Society. Mr. H. C. Smith proposed, and Mr. Frank Cuthbertson—just home from California for a holiday—and Mr. T. Wilkinson responded to the toast of "The Judges." Mr. C. H. Curtis proposed "The City of Bath," to which the Mayor of Bath replied.

There was a great gathering of Sweet Pea specialists at Bath on this occasion, but Mr. Tom Jones, Mr. Stark and Mr. Holloway were notable absentees.

BATH AND EASTBOURNE CUP CLASSES.

These two classes are open only to members of the trade.

The Eastbourne Cup, presented by the County Borough of Eastbourne and offered for the first time in 1922, brought out a keen competition on this occasion. The award was made in favour of Messrs. IRELAND and HITCHCOCK, Marks Tey, who contributed a very fine display consisting of about a dozen large stands in which the varieties Mrs. A. Hitchcock, Royal Scot, Picture, Powerscourt, Shamrock, Mascotts Helio, Jean Ireland, Hawlmark Pink, Tangerine Improved, Matchless, and Elegance were the leading kinds. Low bowls of blooms were used between the larger stands; the flowers in this group were of very high quality.

The Bath Cup, presented by His Worship the Mayor of Bath, and offered for the first time for the best trade exhibit arranged on a space twelve feet by four feet six inches, was for flowers grown out-of-doors without any protection or shading. In this class also the competition was very keen, and the handsome cup was awarded to Mr. JOSEPH STEVENSON, Wimborne, who had flowers of fine quality and colour, and chiefly of varieties of his own raising. The central feature was three columnal stands of the beautiful variety Charming; Cynthia, Fair Lady, and Diana were other outstanding sorts.

All the trade exhibits in the Bath and Eastbourne Cup competitions were also judged for medal awards with the following result:—

Large Gold Medal.—To Messrs. IRELAND AND HITCHCOCK, Marks Tey; Mr. J. STEVENSON, Wimborne, and Messrs. DOBBIE AND CO., Edinburgh.

Gold Medal.—To Messrs. SUTTON AND SONS, Reading (two, one in each class); Messrs. ROBERT BOLTON AND SON, Halstead; and Messrs. E. W. KING AND CO., Coggeshall.

Silver-gilt Medal.—To Messrs. JAS. CARTER AND CO., Raynes Park.

Silver Medal.—To Mrs. P. WARNER ABBOTT, Hailsham; Mr. G. MORLEY, Preston Hall Training Colony, Aylesford; and Messrs. S. BIDE AND SONS, Farnham.

TRADE EXCLUDED CLASSES.

There were five competitors in the class for the *Daily Mail* Challenge Cup, and the chief award was made in favour of Sir RANDOLF BAKER, Bt. (gr. Mr. A. E. Usher), Ranston House, Blandford, Dorset, who had especially fine vases of Constance Hinton, Valentine, Picture, Hawlmark Pink, Royal Scot, and Matchless; second, F. W. FRANKS, Esq. (gr. Mr. W. Humphrey), Loampits, Tonbridge; third, Mrs. E. PALMER (gr. Mr. J. Dibben), Drayton House, Sherfield-on-Lodden, Hampshire.

In the Sutton Cup class, where eighteen vases

FIG. 17.—UNWIN CHALLENGE SHIELD, PRESENTED TO THE NATIONAL SWEET PEA SOCIETY BY MR. W. J. UNWIN, FOR COMPETITION AMONG SOCIETIES AFFILIATED TO THE N.S.P.S. (SEE PAGE 46.)

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of distinct varieties had to be shown, Sir R. BAKER was again successful in competition with four other exhibitors, securing the premier award with fine flowers that included excellent vases of Matchless, Mascotts Ingman, Conquest, Elegance, Geo. Shawyer, and Mrs. T. Jones; second, Major G. LUBBOCK; third, Mrs. E. PALMER. The Cory Cup, offered for six varieties of Sweet Peas, to be selected from the Society's Classification List, was won by Mrs. V. N. WOOLMER, Warfield Priory, near Bracknell, who had particularly good examples of Doris, Picture and Austin Frederick; second, Mrs. E. R. WORKMAN, Gothic Lodge, Hayling Island; third, Dr. G. COLE, Beeston.

Sir RANDOLF BAKER was again successful in the class provided by Messrs. E. Webb and Sons, for nine vases of Sweet Peas distinct, and here his best varieties were Royal Purple, Hebe, and Mrs. H. Richards; second, F. W. FRANKS, Esq.; third, Mrs. E. PALMER. In the Stevenson class for a display of Sweet Peas put into commerce during or since the autumn of 1921, and in which a gold medal was attached to the cash first prize, there were, unfortunately, only two competitors, Sir R. BAKER and Lt.-Col. H. L. SCOTT, Hawthorn Lodge, Bracknell, who secured the first and second prizes respectively. First prize for three vases of Sweet Peas, to be selected from white, mauve, lavender, orange, pink, carmine or cerise varieties, was won by Sir R. BAKER with first-class flowers of Constance Hinton, Geo. Shawyer and King Mauve; second, O. H. ABBOTT, Esq., Lower Bourne, Surrey.

OPEN CLASSES.

The Monro Challenge Cup, for twelve vases of twenty sprays in not fewer than six varieties, raised and introduced by the exhibitor, was won by Mr. J. STEVENSON, who showed Cynthia, Charming, Grandeur, Diana, Liberty, Hebe, La France, and Lavender Bell, in fine condition; second, Messrs. T. CULLEN AND SONS, Witham; third, Mr. H. DAMERUM, Hayling Island.

A silver cup offered by the President of the Society, Mr. Robert Bolton, for the best twelve vases of Sweet Peas, distinct, was won by A. B. COSHAM, Esq., Ringwood Road, Eastbourne, with a capital exhibit in which the varieties Royal Scot, Hawlmark Pink, Constance Hinton, George Shawyer, Mrs. Hitchcock, and Giant Attraction were of outstanding excellence; second, Mr. J. STEVENSON; third, Miss RUSSELL (gr. Mr. C. H. Rundle), Barton Court, Canterbury.

Mr. J. STEVENSON was the most successful competitor in the class for three vases of seedling Sweet Peas not yet in commerce, winning with blooms of Charming, Grandeur and Felicity. In the succeeding class for one vase of a Sweet Pea not yet in commerce he was also the winner of the first prize with the variety Charming; second, Messrs. E. W. KING AND CO. No award was made in the class for the best blue Sweet Pea, and in the raiser's class for six varieties raised by the exhibitor the judges considered the three exhibits were of equal merit, consequently the prizes will be divided equally between Messrs. CULLEN AND SONS, Messrs. E. W. KING AND CO., and Mr. J. STEVENSON.

E. R. TUCK, Esq., Blandford, won the E. W. King cup for twelve distinct varieties offered for sale and catalogued during the autumn of 1922 or the spring of 1923, with an excellent set in which the principal varieties were R. F. Felton, Tangerine, Peace, Mrs. T. Jones, and H. Pitt; second, Miss RUSSELL.

On many previous occasions the Burpee Cup class for a display of waved Sweet Peas arranged on a space eight feet by three feet, and not to exceed four feet in height, has provided one of the most interesting contributions to the National Society's show. Unfortunately, on this occasion there was only one competitor, Messrs. E. W. KING AND CO., who secured the award with a well-arranged table of vases and bowls of Geo. Shawyer, May Cowdy, Hawlmark Pink, Gladys, Sensation, Dignity, Picture, and Royal Scot.

SINGLE BUNCH CLASSES.

Competition was very keen throughout the single bunch classes and first prize awards were made as follow: White, Sir R. BAKER, with Constance Hinton; pink, Miss RUSSELL, with Frilled Beauty; lavender or mauve, Mrs. PALMER, with R. F. Felton; cream, buff or ivory, Sir R. BAKER, with Matchless; orange or orange-scarlet, F. W. FRANKS, Esq., with Tangerine; this exhibitor also winning in the class for a cerise or cerise-scarlet variety with Wonderful; crimson or scarlet, Miss RUSSELL, with Charity; maroon, F. W. FRANKS, Esq., with The Sultan; picotee-edged, Mrs. E. PALMER, with Jean Ireland; blue, F. W. FRANKS, Esq., with Mrs. T. JONES; and "any other colour," Mrs. E. PALMER, with Royal Purple.

DISTRICT CLASSES.

In the Western Counties and South Wales Class the proprietors of the *Western Daily Press* offered a piece of plate as the first prize, and this was won by Sir R. BAKER, with six vases of very fine blooms, in which the varieties Jean Ireland, T. Stevenson, Valentine and Royal Purple were outstanding; second, Mrs. W. J. THORPE, Hucclecote, near Gloucester. In the Southern Counties class Mr. E. H. Christy's piece of plate was won by F. W. FRANKS, Esq., whose leading varieties were Constance Hinton, Gladys, Hebe, Daisy Bud, and Elegance; second, Mr. W. H. WALKER, Lewes. There was no entry in the Scottish class and one only in the Irish class, this being from W. BARRETT, Esq., Kilmory Road, Bray, who had particularly fine flowers of Daisy Bud, Jean Ireland, Doris, Hebe, and Powerscourt. No award was made in the Northern Counties class, but in the Midland Counties class S. HORTON, Esq., Chequers Road, Penn Fields, Wolverhampton, secured the first prize, and Mr. J. RANDALL, Leamington Spa, was second. The silver trophy offered by the Garden Supplies, Ltd., for the best exhibit in the District Classes was awarded to F. W. FRANKS, Esq.

OTHER CLASSES.

In the single-handed gardeners' classes, Mr. F. WHELER, Windy Ridge, Yarmouth, Isle of Wight, was the most successful exhibitor in the Bide class for nine vases of Sweet Peas, and Mr. F. STRATFORD, Hemel Hempstead, won the Breadmore Challenge plate for six vases, while Mr. W. USMAN won the silver medal offered for the best three vases of Sweet Peas distinct.

In other classes for small growers, Mr. F. J. CASHNELLA, Cardiff Place, Bath (one of the local secretaries), won the silver cup presented by R. B. Hamilton, Esq., for the best twelve bunches of Swet Peas distinct, and also the gold medal presented by the Society. He showed very fine blooms of Constance Hinton, Hilda, Doris, Picture, and Austin Frederick. Mr. J. RANDALL won the Hawlmark Cup offered by Messrs. A. Dickson and Sons for six vases of Sweet Peas distinct, and Mr. W. J. ABREY, Hadlow Road, Tonbridge, had the best three vases of Sweet Peas, while Mr. L. M. GUTTRIDGE won the *Amateur Gardening* Cup for nine vases of Sweet Peas. Mr. T. J. ROGERS, St. Hilda, Yarmouth, Isle of Wight, won the Small Growers' Cup presented by Mr. E. H. Christy and offered for the best exhibit of twelve vases of Sweet Peas distinct. Mr. J. RANDALL won the Walter Voss Challenge Cup for six varieties, and Mr. L. E. SIMS, of Eastbourne, and Mr. F. J. ROGERS were successful in other classes.

AFFILIATED SOCIETIES CLASS.

For the purpose of encouraging competition among the numerous Societies affiliated with the National Sweet Pea Society, Mr. W. J. UNWIN, of Histon, Cambridge, very generously presented a large and handsome shield (Fig. 17, p. 45) as a prize in a class for twelve vases of Sweet Peas, the flowers to be grown by members of the competing Society. This was the first occasion on which it was competed for, and the Eastbourne Horticultural Society secured the coveted award with a capital collection, which included excellent blooms of Mrs. T. Jones, Elegance, Renown and Geo. Shawyer; second, the Wincheap Allotment Association; third, the Breasted and Thurnham Horticultural Society.

FLORAL DECORATIONS.

Three classes were provided in this section, open only to lady members of the Society, and in each case the competition was particularly keen. Mrs. A. R. BIDE, of Farnham, won the piece of plate offered by Mr. J. S. Brunton for the best decoration of Sweet Peas for the dinner table, with a very dainty exhibit of pale cream and orange-salmon coloured flowers, arranged in low, brown, wicker baskets; second, Mrs. RUFF, of Sharnbrook, with a very bold design of scarlet and cream coloured flowers arranged in low, gilt baskets; third, Mrs. COLSTON HALE, with pink and rose-coloured flowers. Mrs. RUFF led in the class for a basket or other suitable stand of Sweet Peas and secured the piece of plate offered by Mr. C. H. Curtis, with a pleasing arrangement of white and blush-coloured flowers; second, Mrs. B. Peyman, St. Enodoc, Wellington College, Berkshire. Miss G. BURT was awarded a piece of plate offered by Mrs. A. Hitchcock for the best bowl of Sweet Peas to include only three varieties, and she arranged a very charming exhibit of cream, salmon and pale mauve flowers; second, Mrs. CHAMPION, Grove Park, Weston-super-mare; third, Mrs. A. R. BIDE.

NATIONAL ROSE (PROVINCIAL SHOW).

THE provincial show of the National Rose Society was held in the Roberts' Park, Saltaire, on July 10 and 11. Heavy rains, accompanied by thunder, were experienced in the early morning of the first day of the show, but as most of the blooms had been cut previously they were in fine condition. As the day advanced the weather brightened up, and in the afternoon the heat was intense. In quality and quantity the Roses showed a vast improvement upon those at the show held at Regent's Park, and, on the whole, the display was quite equal to that usually seen in the provinces.

There were numerous seedlings submitted for award, but none was of exceptional merit. The members of the New Seedling Rose Committee of the N.R.S. do not seem to attend well at provincial shows. On this occasion only two were present, and we think this a matter which requires attention from the Council of the Society. Some of the best seedlings are often staged at a provincial show, and it is important that a majority of the Committee should attend to make the awards.

TRADE CLASSES.

In the class for 36 blooms, distinct novelties, first prize and the Jubilee Trophy were awarded to Messrs. D. PRIOR AND SON, LTD., Colchester, for an even lot in which George Dickson, E. G. Brown, Louise Crette and Lady Ashtown were prominent flowers; 2nd, Messrs. FRANK CANT AND CO., for a set but little inferior to the first. Notable varieties in this set were Mrs. Hugh Dickson, Mrs. Foley Hobbs, Mildred Grant and Gorgeous; 3rd, Mr. W. BLINGEN, Newcastle, Co. Down; 4th to Mr. HUGH DICKSON, Belfast. Messrs. D. PRIOR AND SON also excelled in the class for 24 blooms, distinct varieties. They had George Dickson, Modesty, Augustus Hartman and Dean Hole in grand condition; 2nd, Mr. GEORGE PRINCE, for a fine lot in which we observed magnificent blooms of Florence Forrester, Mrs. George Norwood, and Mrs. H. R. Darlington; 3rd, Mr. G. BURCH, Peterborough.

For 12 blooms of new roses, distributed since January 1, 1919, distinct varieties, the premier award was easily won by Mr. GEORGE PRINCE with a splendid set; the twelve blooms were Lady Inchiquin—in glorious colour—Capt. Kilbee Stuart, Mrs. H. R. Darlington, Muriel Wilson, Mabel Morse, Manifesto, Courtney Page, Bessie Chaplin, Mrs. C. Lamplough, J. G. Glassford, Diadem, and Capt. Bold; 2nd, Messrs. D. PRIOR AND SON; 3rd, Mr. E. J. HICKS; 4th, Mr. H. DICKSON.

For a basket of cut Roses, one variety, the leading position was occupied by Mr. GEORGE PRINCE, with a massive lot of Mrs. Campbell Hall (Fig. 16, p. 43); 2nd, Mr. E. J. HICKS, with Mrs. E. J. Hicks; and 3rd to Mr. GEO. BURCH. In the class for three baskets of cut roses,

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three distinct varieties, 36 stems of each variety, Messrs. BEES, LTD., Chester, won first prize with Venus, Adonis and Sybil, three varieties of their own raising; 2nd, Mr. E. J. HICKS; 3rd, Mr. HUGH DICKSON.

For 24 distinct varieties, not less than three nor more than seven stems of each, exhibited on a space not to exceed 14 ft. by 3 ft., Mr. JOHN MATTOCK, Oxford, was first, and Messrs. F. CANT AND CO. second. For 12 varieties, arranged on a space not to exceed 5 ft. by 3 ft., Mr. ELISHA J. HICKS was placed first, Messrs. CHAPLIN BROS., Waltham Cross, 2nd, and Mr. G. BURCH 3rd.

For a basket of cut Roses, one variety, not yet in commerce, 36 blooms, Mr. H. DICKSON, Belfast, led; Messrs. ALEX. DICKSON AND SONS 2nd, with a fine set of their new Shot Silk; Messrs. BEES, LTD., 3rd, with Joan Howarth.

In the classes for growers there was a good display, and the staging was of a high order of merit. For a representative group of cut Roses to occupy a space not exceeding 30 ft. by 4 ft., Messrs. ALEX. DICKSON AND SONS, Newtownards, were easy winners with a fresh lot of flowers superbly set up. They had gloriously coloured flowers of Lady Inchiquin and Betty Uprichard; Messrs. ALLAN AND SON, Norwich, 2nd. For a representative collection staged on a space not more than 15 ft. by 4 ft., Mr. GEO. PRINCE was first prize winner, followed by Messrs. CHAPLIN BROS., LTD., Mr. E. J. HICKS, and Messrs. MCGREDY AND SONS, Portadown, in the order named.

AMATEURS' CLASSES.

In the amateurs' classes there was not much competition. Mrs. BALFOUR was the leading prize winner in the classes for 24 and 12 blooms of distinct varieties, and the second prize in both classes went to Mr. W. SUNDERLAND. Mrs. BALFOUR also excelled in the class for nine blooms and for a basket of cut Roses. Other leading prize winners in the amateurs' section were Mr. G. MARRIOTT, Mr. W. SLINGER, and Mr. F. A. GEORGE. Mrs. COURTNEY PAGE, Enfield, was awarded first prize for a decorated dinner-table, a bowl of cut Roses and a vase of cut Roses.

NEW ROSES.

GOLD MEDALS.

Allen Chandler.—Exhibited by Mr. GEORGE PRINCE, this is a large, semi-double, pillar variety, with rosy-crimson flowers. It is apparently a free bloomer and will make an attractive variety when grown as a large bush or on a pillar. It is delightfully fragrant.

Fred J. Harrison (Fig. 14, p. 39).—A finely formed flower of a bright shade of crimson. It is powerfully scented and is one of the few new crimson Roses to carry fragrance. Shown by Messrs. ALEX. DICKSON AND SONS.

CERTIFICATES OF MERIT.

Betty Hulton.—This variety, and also *Maude Cuming*, were shown at Regent's Park, and have already been described. They are fine Roses, with a character above most of the average seedlings, and they will, no doubt, be shown again in the autumn. Betty Hulton is a fine yellow. Shown by Messrs. ALEX. DICKSON AND SONS.

Joan Howarth.—A flower of the Ophelia type, but a trifle larger and a little deeper in colour. A very attractive variety. Shown by Messrs. BEES, LTD.

Fragrance.—A Rose of rich perfume, and on this account it received a Certificate of Merit. The colour is a vermilion-crimson, but the flowers are not shapely. Shown by Messrs. CHAPLIN BROTHERS.

OTHER SEEDLING ROSES.

Lady Charmion.—A small, but shapely, flower, somewhat after the Geo. C. Wand shade of colour. Hypatia.—A small decorative variety with flowers of an orange tint flushed with crimson. It is of the Old Gold and Lamia type. Marion Horton.—A flower of medium size and of a shade of buff-white deepening in colour at the centre. It is not an attractive colour. Firefly.—A small crimson-scarlet decorative Rose, which is pretty in the bud stage, but appears to be very flat when open.

The above four seedlings were shown by Messrs. BEES, LTD.

The Beacon.—This Wichuraiana Rose of a similar character to Hiawatha, is a single crimson, with a small white eye, and in colour is not by any means brilliant. Innocence.—A single, or rather semi-single Rose, which has been staged before. It does not seem to be any improvement upon Simplicity. F. I. Looymans.—A large Rose, with yellow flowers, shading off to white. As shown it is not nearly so good as Hortulanus Fiet, which it resembles very much. Etna.—A semi-double, crimson-scarlet, which is not required when we have such Roses as K. of K.

These three varieties were shown by Messrs. D. PRIOR AND SONS, LTD., Colchester.

Messrs. ALEX. DICKSON AND SONS showed the following varieties: Gwynne Carr—a flower with a clear shell-pink centre fading off to the edges. A pretty rose, but not sufficiently distinct. George H. Mackereth.—A rosy-crimson coloured flower, which unfortunately fades off, as shown, to a blue tone. Evelyn Murland.—A Rose of Betty Uprichard character, but we do not consider it to be so good. Scrabo.—A little, double, decorative Rose, of a brilliant hue. The colour is a rich crimson-scarlet. Annie Ireland.—A large flower, fit for the exhibition table. The blooms are finely pointed. It may be described as somewhat after the style of Florence Pemberton. Shot Silk was fully described in our report of the Regent's Park Show. It was awarded a certificate there, but failed to gain the premier award here. Richard E. West.—A large, well-shaped flower, of the Mrs. Rindge type. The colour is a pale yellow. This is a very promising variety, which will most likely be heard of again.

Little Joe, which was awarded a certificate at Regent's Park, by Messrs. D. PRIOR AND SON, was again exhibited for the higher award. The flowers were not in condition, and were not so good in colour as when first shown. The colour is a scarlet-crimson. The flowers are single or nearly so, and are fairly small.

Reg. Chaplin.—A small-flowered variety, with crimson-scarlet flowers, flushed with maroon. Ellen Terry.—A Rose with a buff centre, shading off to white at the edges of the petals. The blooms are small.

The two foregoing varieties were shown by Messrs. CHAPLIN BROS.

Mrs. I. I. Hudson.—This was shown by Mr. GEO. LILLEY, and is a flower of exhibition standard of the William Shean type. The colour is a rich rosy-pink.

Messrs. MCGREDY AND SON, Portadown, staged numerous seedlings, but the flowers appeared to be suffering from the late season, and were nearly all small and poorly developed. The most notable were Ivy McKee, which resembled a small Gorgeous, when that variety is at its best, in colour. The colour of this Rose was good, but the flowers were only miniatures. Jane Boyd.—A small-flowered Rose. The centre petals are a rich cerise, and the outer ones are flushed with yellow. This is a very shapely variety, and very showy, but the flowers, as seen, are far too small. Harriet Easlea was shown at the provincial show at Wolverhampton, last year. It reminds one of a more shapely and refined The Queen Alexandra, with a better tone of colour. The flowers, however, are too small. Gwyne Jones is a brilliant coral red flower. Vesuvius, which was also shown at Regent's Park, where it gained a certificate, is a single crimson-scarlet.

SALTAIRE AND DISTRICT ROSE.

THE seventeenth annual show of the Saltaire and Shipley and District Rose Society was held in conjunction with the N.R.S. Provincial Rose Show. There were good exhibits of Pansies and Violas, Roses, Sweet Peas, and Carnations. Hardy Herbaceous plants were also shown extensively.

In the Sweet Pea classes Sir R. BAKER, Blandford, was the principal prize-winner. Mr. C. ENGELMANN was supreme for perpetual flowering Carnations, followed by Mr. C. TAUDEVIN, Willaston. For hardy perennials, the leading prizes went to Messrs. G. LONGSTER AND SONS, of Malton, and Messrs. G. GIBSON AND CO., Bedale.

NON-COMPETITIVE EXHIBITS

Large Gold Medals.—To Mr. P. GARDNER, Ilkley; Messrs. BACKHOUSE AND SON, York; Messrs. J. PEED AND SONS, West Norwood; Messrs. MANSELL AND HATCHER, Rawdon; and Messrs. SUTTON AND SONS, Reading.

Small Gold Medals.—To LAKELAND NURSERIES, Windermere; Mr. T. M. PETCH, Horton; Messrs. CONWAYS, LTD., Halifax; Mr. C. ENGELMANN Saffron Walden; and THE DONARD NURSERIES, Co. Down.

BURY ST. EDMUNDS.

THE exhibition of the Bury St. Edmunds and West Suffolk Horticultural Society was held in the Corn Exchange, Bury, on Thursday, the 12th inst., and it must be said that the heat and protracted drought which have been experienced in the district for several weeks militated considerably against a full display. The hall is admirably suited for a flower show, as it is lofty and splendidly lighted, while the ventilation is so excellent that despite roundabout 90 degrees shade temperature outside, there was a reasonable degree of comfort inside.

There were two entries in the open-to-all class for 24 Roses distinct, and premier position was accorded to Messrs. D. PRIOR AND SONS for a bright, fresh set comprising some really fine specimens; Messrs. FRANK CANT AND CO. had to be content with the second prize, though it is more than likely that certain other judges would have put them several points in front of their opponents. Precisely the same thing happened in the class for 12 Roses, but since both growers knew before the judging the respective merits of the exhibits, the winner condoled with the loser on his bad fortune, while the loser congratulated the winner on his good fortune. Would that all similar happenings could have as happy endings!

A very attractive semi-circular group of flowering and foliage plants gained the first prize for Sir GEORGE AGNEW, Bart, Rougham, Bury St. Edmunds (gardener, Mr. J. Noble); carnations were the finest feature of this display. Sir PIERCE LACY won for six vases of hardy herbaceous flowers and Mrs. White for six vases of annuals, the set containing Antirrhinums of obviously last season's raising and therefore scarcely eligible for the class. Mr. A. D. LUSHER showed some really good bunches in the class for 12 varieties of Sweet Peas; Constance Hinton, Royal Scot, R. F. Felton, Picture and Tangerine were most noticeable. In Mr. F. WORBY'S winning set of six varieties Elegance, Royal Scot and R. F. Felton were the best vases.

Plants, cut flowers and decorative exhibits were attractively shown. The outstanding non-competitive exhibit came from SIR GEORGE AGNEW, and comprised well grown greenhouse plants in considerable variety.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE July meeting of this Society was held in the R.H.S. Hall on the 9th inst., Mr. T. R. Butler presiding. Five new members were elected. Five members withdrew double the amount of their interest from their deposit accounts, amounting to £19 7s. 6d. Three members over the age of 70 years withdrew sums from their deposit accounts amounting to £90 5s., and the sum of £14 9s. 5d. was passed for payment to the nominee of one deceased member.

The sick pay for the month on the private side amounted to £75 12s. 1d., and on the

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State side to £70 18s. 6d.; maternity benefits were £12. Grants for dental treatment were made to six members, amounting in all to £24 8s., and other cases were considered

WOLVERHAMPTON.

JULY 10, 11 AND 12.—Considered as a flower show only, the exhibition held on the above dates in West Park was one of the finest ever held at Wolverhampton during the past thirty-one years. The exhibits of fruit and vegetables were few in number, and their quality, though good, was below that expected at a great show in a normal season. The flowers and plants, however, atoned for any deficiency in other sections, and were unusually attractive. The group classes were well filled with fine displays of the art of arrangement, coupled with cultural skill, and in themselves constituted a show of no mean proportions. The hardy flower exhibits were also first-rate, if we except a tendency to crowding on the part of the exhibitors in the chief class, but the quality of the flowers staged in this and other classes was very high. Some excellent Sweet Peas were forthcoming, while Roses were so finely shown and displayed that they provided one of the chief attractions of a great show. The table decorations were good. It was regrettable that there were no exhibits in the classes for Carnations and for Delphiniums.

Not only are the traders and large growers catered for at Wolverhampton, but numerous classes are provided for amateurs, for allotment holders and cottage gardeners, and also for school children, and in all these sections there were capital displays, which afforded ample evidence of the interest the continuation of these classes has created.

Altogether, the Wolverhampton officials have every reason to congratulate themselves upon the success attending their efforts in an unkindly season. During the morning of the first day the weather was sultry and overcast and just after lunch-time rain fell for a short period.

GROUPS.

There was a grand display in the important class for a group of miscellaneous plants arranged for effect, where the total cash prizes offered amounted to £100. Premier award was won by Sir G. KENRICK (gr. Mr. J. Macdonald), Birmingham, who had a very pleasing exhibit arranged on a space 25 ft. by 12 ft. He produced an elegant and bright exhibit by the use of arching spikes of Odontoglossums, Cymbidiums, Miltonias and Oncidiums. Francoa ramosa. Ixoras, Cattleyas, Saxifragas, Begonias, and orange-red Fuchsias were other flowering plants used effectively, with small Caladiums, Rex Begonias, Nandina domestica, Alocasias, Dracaenas, Ferns, Fittonia and other foliage plants. Sir G. KENRICK is a steady and persistent exhibitor and was heartily congratulated upon winning the premier award from such notable exhibitors as Messrs. J. CYPHER AND SONS, who obtained second place and arranged a beautiful display in which highly coloured Codiaeums, Cattleyas, Laelio-Cattleyas, Liliums and Cypripediums were used with great taste. Mr. W. A. HOLMES, Chesterfield, 2nd; and Mr. R. MANNING, Dudley, 3rd, each showing groups which would have won first prizes at many prominent shows.

In the class for a group of ornamental foliage plants, but in which flowers and flowering plants were not admitted, Messrs. J. CYPHER AND SONS won the principal award with a very pleasing arrangement of Palms, Codiaeums, Rex Begonias, Nandina domestica, Aralias, Anthuriums and bold Alocasias, with a setting of useful Ferns. This exhibit was arranged on a space of two hundred square feet by the side of one of the principal tents. Sir G. KENRICK was second; Mr. W. HOLMES third, and Mr. MANNING fourth.

Competition was not so keen in the smaller class for a group of one particular kind of flowering plant, but Messrs. J. CYPHER AND SONS made an interesting display of Clerodendron fallax, winning therewith the first prize; 2nd, Sir G. KENRICK, with a pleasing exhibit of Clarkias. The best group of bedding plants was the one arranged by Mr. A. S. DUNTON, Penn, who associated various sections of Pelargonium in a very attractive manner. The class for fifteen specimen plants in pots not exceeding ten inches in diameter, at least eight to be in bloom, was not wholly a success as compared with exhibits in a similar class in pre-war times. Messrs. J. CYPHER AND SONS gained the first prize with well-grown examples of Ixoras, Codiaeums, Clerodendron Balfouri, Statice and Anthurium Andreanum; 2nd, Mr. MANNING.

In a section confined to gentlemen's gardeners and amateurs, premier award for a group arranged on a space not exceeding one hundred and fifty square feet was won by G. MANN, Esq. (gr. Mr. G. E. Clark), Penn, with a pyramidal display of Pelargoniums and other greenhouse plants; 2nd, W. F. H. REEVES, Esq. (gr. Mr. W. A. Deans), Wolverhampton.

ROSES.

Roses were particularly well shown at Wolverhampton, and it constituted one of the brightest and most attractive features of the large exhibition. For thirty-six blooms of distinct varieties Messrs. JARMAN AND CO. led with capital blooms of Gorgeous, Mildred Grant, Mrs. Foley Hobbs, Florence Forrester, M. E. West and W. Brunner; 2nd Mr. W. DREW; 3rd, Mr. C. GREGORY. Mr. J. MATTOCK, New Headington, led in the class for five baskets of cut Roses with beautiful blooms of Souvenir de Mrs. F. Boley, Mrs. H. Morse, and Margaret Dickson Hamill; 2nd, Mr. C. GREGORY, who also staged a grand lot of flowers; 3rd, Messrs. ENGLISH AND SON. Mr. J. MATTOCK was also the most successful exhibitor of one basket of dark-hued Roses, and Mr. C. GREGORY 2nd. In the class for one basket of light Roses, Mr. DREW excelled with a fine set of Nellie Parker; 2nd, Mr. C. GREGORY. Messrs. JARMAN AND CO. won first prize for a dozen blooms of Tea Roses with brightly coloured flowers of popular varieties; 2nd, Mr. DREW.

In the interesting class for eighteen distinct varieties of any perpetual-flowering Rose Mr. H. DREW showed a lovely set, in which the varieties William Shean, Mrs. C. Russell, and Mrs. H. Morse were conspicuously good; 2nd, Mr. C. GREGORY, Chilwell.

The displays of cut Roses were extraordinarily good, and in the class for an exhibit of cut blooms arranged for effect on a space twenty feet by four feet, Mr. J. MATTOCK won in a close competition. He had a pleasing arrangement of columns and stands of various sizes filled with charming flowers of Golden Emblem, Ophelia, Mrs. C. V. Howarth, Mrs. H. Morse, Trier, Isobel, and Los Angeles. The edging of this display was composed of small sprays of Polyantha and single Roses. Messrs. ENGLISH AND SON, Barnwood, Gloucester, 2nd, with a very fine bank of bloom; 3rd, Messrs. W. LOW AND SON, Beeston. In a somewhat similar class, but for a group arranged on a space ten feet by four feet, Messrs. H. BECKETT AND BARNES, St. Leonards, were placed first for a lovely arrangement of cream, pale yellow and pink Roses, associated with plenty of clean Rose foliage and with a festooning of sprays of Wichuraiana foliage in front; 2nd, THE BURBAGE NURSERIES, Hinckley.

FLORAL DESIGNS.

Competition was scarcely so keen in this section as we have seen it previously, except in the dinner-table classes.

Mr. C. J. VICKERS was the leading prize winner, winning the premier awards for a hand bouquet with a design in Odontiodas and mauve Cattleyas; for a bridal bouquet and two bridesmaids' bouquets, the first composed of white Orchids and the two latter of yellow Carnations; and for a feather-weight bouquet, with a pleasing arrangement of Odontiodas and Cattleya Mossiae Reineckiana.

In the principal class for a dinner-table decoration the leading award was made in favour of Sir G. KENRICK, who had a dainty design composed of Gloriosa flowers, Miltonias, one or two sprays of white Phalaenopsis, white Streptocarpus, and Epidendrum vitellinum majus; 2nd, Mr. W. G. GRIERSON (gr. Mr. T. Parry), Severn Stoke, who associated small sprays of golden Calceolaria with Francoa ramosa, Gloriosa blooms, and Oncidium sprays; 3rd, Mr. C. J. VICKERS, Leicester, who used Odontoglossums and Odontiodas, but had a slightly heavy arrangement.

A class was provided for a decorative display of plants and flowers arranged on a space six feet by four feet, and in this Messrs. J. CYPHER AND SONS were easily first, with bright Codiaeums, a few elegant Palms, Odontoglossums, Liliums and Kalanchoe; 2nd, Mr. MANNING; 3rd, Mr. HOLMES.

SWEET PEAS.

The chief award for eighteen varieties of Sweet Peas to be arranged in eighteen bridesmaid's or gypsy baskets or in vases, one variety in each receptable, was won by Mr. F. R. MINSHULL, Market Drayton, who had splendid flowers arranged in the orthodox vases, and his examples of Matchless, Conquest, Jean Ireland, Elegance and Mrs. Arnold Hitchcock were of outstanding merit; 2nd, Mr. A. S. DUNTON, who used baskets entirely, and made a very pleasing display; 3rd, Mr. H. SAMUEL, who used both baskets and stands.

The first prize for twelve vases of Sweet Peas distinct was won by Mr. A. S. DUNTON, who showed Austin Frederick, Elegance, Charity, and Hercules in fine condition; 2nd, Mr. A. MARSH, Warwick; 3rd, Major HARCOURT WEBB (gr. Mr. Gaiger), Bewdley. In the class provided by Messrs. E. Webb and Sons for six bunches of Sweet Peas Mr. T. MARKILL, Dudley, won the first prize and Mr. A. H. HICKMAN, Cookley the second.

Some of the very best Sweet Peas in the show were to be found in the amateurs' section, where Mr. P. MADELEY, Market Drayton, won first prize for twelve varieties, with unusually fine examples of Matchless, Jean Ireland, Mrs. A. Hitchcock, Constance Hinton, Austin Frederick, Hebe, Charity, Royal Scot, and Elegance.

HARDY FLOWERS.

One of the finest displays in the whole exhibition was made by the exhibits of hardy border flowers arranged on a ground space twenty-five feet by seven feet. In the matter of quality of flowers, Messrs. HARKNESS AND SON took the lead and deservedly won first prize, but their somewhat crowded arrangement left a good deal to be desired in so far as a display of border flowers is concerned. This firm was exceptionally strong with Delphiniums, Verbascums, Astilbes, Poppies and Gallardia The King. Messrs. GIBSON AND CO. had, we consider, the best arrangement of flowers, but lacked something with regard to quality. Their leading subjects were Delphiniums, Campanulas, Verbascums, Kniphofias and Oriental and Iceland Poppies; 3rd, Messrs. M. PRICHARD, Christchurch, who had a very beautiful set of Astilbes in their exhibit.

Two capital exhibits were set up in the class for a collection of Lupins, and Messrs. HARKNESS AND SON, Bedale, won first prize with flowers showing beautiful shades of pink, pale yellow and terra-cotta; 2nd, Messrs. GIBSON AND CO., with varieties in blue or purple shades of colour. Mr. A. S. DUNTON excelled in the class for a collection of Antirrhinums and showed some remarkably good spikes, especially of yellow varieties; 2nd, THE CHALKHILL NURSERY, Reading, who had a very stiff arrangement; indeed, all the exhibits in this class might have been greatly improved in the matter of their presentation.

VEGETABLES.

No doubt the severe weather conditions experienced this year were responsible for the lack of keenness in the vegetable section. Mr. W. GRESSON led in the class for eight distinct kinds of vegetables, and showed capital Cauli-

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flowers, Celery, Onions, Peas and Tomatos: 2nd Mr. A. H. HICKMAN. In a class for six distinct kinds Mr. GRESSON again excelled, showing Carrots, Cauliflowers, Onions, Marrows and Tomatos in good form; 2nd, Mr. A. H. HICKMAN; 3rd, Mr. H. WATSON SMITH, Stourbridge.

Messrs. Sutton and Sons' first prize for six distinct kinds of vegetables was also won by Mr. GRESSON, who was by far the most successful exhibitor in this section.

TRADE EXHIBITS.

The trade displays were numerous and extensive and added greatly to the beauty and interest of the show. The following are the principal awards made to traders :-

Challenge Cup.—This cup, offered for the best exhibit in the show, was won by Messrs. BAKERS, Wolverhampton, with a very fine contribution consisting of a formal garden, rock garden, hardy flowers and a "model" garden.

Large Gold Medal.—To Messrs. BAKERS, Wolverhampton; and to Messrs. E. WEBB AND SONS, Stourbridge, for a fine display of flowers, fruits and vegetables.

Gold Medal.—To Messrs. FORBES AND SON, Hawick, for Pentstemons and Phloxes; to Messrs JARMAN AND CO., for Sweet Sultans and Roses; to Mr. H. ELLISON, West Bromwich, for Ferns and Cacti; to Messrs. J. KING AND SONS, Coggeshall, for Sweet Peas, etc.: to Mr W. WELLS, Merstham, for hardy flowers; and to Messrs. HEWITT, Birmingham, for plants, flowers and designs.

Silver Medal.—To Messrs. MAXWELL AND BEALE, for alpines.

NATIONAL CARNATION AND PICOTEE.

THE National Carnation and Picotee Society held their annual exhibition in conjunction with the meeting of the Royal Horticultural Society on July 10.

The first prize for six vases of Carnations distinct was won by Mr. JAMES DOUGLAS, Great Bookham, Surrey. His blooms of Grenadier, Sunshine and Hy. Brett were fine. Messrs. LOWE AND GIBSON, Crawley Down, Sussex, were a good second with Fireman, Mary Murray, etc.

Mr. JAMES DOUGLAS also excelled in the class for six fancy yellow ground Carnations. A First-Class Certificate was awarded to the variety Waverley Honour in this class.

Mr. J. DOUGLAS was awarded the first prize for six fancy, white-ground Carnations; he also led in the class for six selfs.

Miss SHIFFNER was a successful competitor: she won first prizes for (a) three white ground fancy Carnations, (b) six selfs, (c) one white, (d) one yellow, (e) one orange, (f) one scarlet, (g) one crimson, (h) one rose, and (i) one heliotrope variety, three flowers of each.

Mr. H. A. KNAPTON, Orpington, was awarded first prizes for two vases of selfs, two fancy yellow grounds, and for three varieties in a vase. Mr. H. A. KNAPTON was also successful in the classes for three white-ground fancy Carnations, three yellow-ground Picotees and three selfs.

Mr. J. DOUGLAS was awarded a First-Class Certificate for Carnation King of Cloves (deep crimson): a similar honour for the fancy scarlet and heliotrope variety named James Griggs; and for a white self named White Fox.

Messrs. LOWE AND GIBSON were accorded a First Class Certificate for a fancy yellow ground Carnation named Enid Lowe. The flower is striped with heliotrope.

Mr. JAMES DOUGLAS secured the leading awards in the classes for (a) a yellow-ground fancy Carnation, (b) a heliotrope one, (c) a yellow-ground Picotee, and for (d) scarlet, (e) crimson, (f) yellow, (g) pink and (h) maroon selfs in vases.

Mr. JAMES DOUGLASS had a very fine non-competitive group of border Carnations.

Miss SHIFFNER had the premier white self in White Fox.

REDRUTH EXHIBITION.

JULY 4-5.—The annual show of this Society was held on these dates. The horticultural section was again a great success. For many years this show was well known for the excellence of the exhibits of stove and greenhouse plants. This year these subjects were represented by a single entry in each of five classes. The exhibitor was Mrs. LANYON, Tolvean, Redruth (gr., Mr. Harry Williams), who showed Anthuriums, Clerodendrons, Haemanthus, Richardias, Rondeletias, Gloriosas, Phyllanthus, Caladiums, etc., and a group of Orchids.

Messrs. ROBERT VEITCH AND SON, Exeter, showed a large group of hardy perennials (including Romneya Coulteri, Delphiniums in great variety, Lilium auratum, L. regale, Gaillardia Fire King, Sweet Peas, Roses, Alpines, Bamboos, etc.

Messrs. WATTS, Rosevale, Penzance, showed a handsome exhibit of Gladiolus Halley. The spikes were of the largest size, some of them with nine open flowers.

Messrs. COCK AND SON, Angarrack, Hayle, had a collection of herbaceous and annual flowers. Their Paeonies call for special mention.

Messrs. W. H. PROPHET AND SONS, St. Blazey, Par Station, put up a magnificent group of Sweet Peas.

Mr. HARRIS, Hayle, and Mr. CLUNAS, of the same place, two amateur exhibitors, showed Sweet Peas of wonderful growth and colour.

Messrs. RUSE, Falmouth, showed a group of flowering outdoor shrubs which are hardy in that favoured climate—Habrothamnus, Kalmias, Clianthus puniceus, Desfontania spinosa, Embothrium coccineum, Tricuspidaria dependens, several species of Leptospermum, Vitis Henryi, and Dracaena Banksii. They also had groups of Alpines and showy herbaceous flowers.

Messrs. TRESEDER, Truro, showed a collection of hardy plants, shrubs, herbaceous flowers, Crassulas, Cacti and Tree Ferns.

Messrs. BRAY, Okehampton, Devon, put up a large group of hardy shrubs, Roses in pots, cut flowers, etc.

The DEVON ROSERY, Torquay, made a grand display with cut Roses.

READING AND DISTRICT GARDENERS'.

BY the kind permission of the Rt. Hon. Viscount Elvedon, this Society's annual outing was held at Pyrford Court, near Woking, on Wednesday, July 4, and proved a splendid success. The party left the Abbey Square, Reading, at 9.30 a.m., four chars-a-bancs being required to convey the members. On arrival at Pyrford the party was met by Mr. W. Auton, the head gardener. At the lunch served, in a marquee in the grounds, the President, Mr. Councillor Frank E. Moring, presided over a company of one hundred and one, and was supported by Messrs. Auton, A. H. Fulker (Chairman), Mr. Goddard (Vice-Chairman) and the Hon. Secretaries (Messrs. H. G. Cox and E. J. Dove).

Under the guidance of Mr. Auton a careful inspection of the gardens and grounds was made. The first thing to claim attention was the colour scheme border, divided into five main divisions, the grey, golden and blue sections being seen at their best. The grey garden contained grey-coloured foliage plants and lavender-coloured flowers; the golden garden, golden Holly, golden Privet, backed with the taller-growing, golden Planes, golden Catalpas and golden Cupressus, whilst the blue garden was planted with Delphiniums, Anchusa and Veronicas.

Passing through a long, Larch-pole Rose pergola, planted underneath with Iris germanica, the visitors came to several enclosed gardens planted with herbaceous perennials and arranged according to the time of flowering, so as to give seasonal effects. Here also were groups of small gardens such as a herb garden, scent garden and medicinal plant border, enclosed with hedge, pillars or trellis of rambler Roses.

Passing in front of the mansion, where magnificent views were obtained across the undulating downs to the Hog's Back, the rockery was reached, the chief feature being good varieties of Primula japonica, doing well by the side of the moraine and round pool. Near by was the Nymphaea garden, with its large tanks of Nymphaeas in full flower. Roses, as a rule, are not a great success, owing to the lightness of the soil, but by careful selection and trial several varieties have been found to be useful, and these are planted in beds of various shapes and sizes in the Rose garden, and together with a massive Rose pergola about one hundred yards long give a very pleasing effect. A ramble through the wild garden which has been left in almost its natural state and noticeable for its fine group of Japanese Acers of striking colour, led to the lake garden, where Japanese Irises are grown by the thousand. Fortunately the flowers were at their best and presented a gorgeous sight. The large nursery was of interest, as thousands of plants are propagated here for the upkeep of the various gardens.

At the conclusion of tea a hearty vote of thanks was accorded to Viscount Elvedon for so kindly throwing open his gardens and grounds and for his personal interest in the outing, to Mr. Auton for his endeavours to make the day such an interesting one, and to the Vice-President, Mr. Leonard Sutton, for his kind help.

The party then proceeded to the Royal Horticultural Society's Gardens at Wisley, where, under the guidance of Mr. Chittendon, a most enjoyable hour was spent. The rockery was a source of great interest, as it was in splendid condition, hundreds of plants being in full flower.

Reading was reached just before 10 p.m., all having spent an enjoyable, interesting and instructive day, thanks to the admirable arrangements made for the comfort of the party.

ROYAL CALEDONIAN HORTICULTURAL.

JULY 3.—The ordinary monthly meeting of the Society was held at 5, St. Andrew Square, Edinburgh, on this date, Mr. W. G. Pirie, vice-president, in the chair. The meeting was an open one, and the subjects discussed were "Judging Roses," introduced by Mr. C. Comfort, and "Bastard Trenching," introduced by Mr. A. D. Richardson. Mr. W. Cuthbertson wound up the discussion, and proposed a vote of thanks to the various speakers.

The exhibits were :—Bearded Irises, from Mr. CUTHBERTSON (awarded a Cultural Certificate); Seedling Pink, from Messrs. JAMES GRIEVE AND SONS, Edinburgh; and a seedling Campanula, from Mr. W. ARMSTRONG, Musselburgh.

Obituary.

Mungo Chapman.—We regret to have to record the death, on July 12, of Mr. Mungo Chapman, a veteran Scottish gardener. We have no information regarding Mr. Chapman's earlier career, but he came into prominence when in charge of the gardens of the late Mr. Charles Jenner, at Easter Duddingston Lodge, Edinburgh. Mr. Jenner was a wealthy man, and his chief delight in his leisure hours was in his garden and its flowers, which were maintained in the highest condition by Mr. Chapman. At that time Mr. Jenner's gardens were looked upon as containing the finest collections of hardy and other plants in Scotland, outside a botanic garden, and many novelties and rarities found their way to Easter Duddingston, where they were as a rule successfully cultivated by Mr. Chapman and his staff. Among other difficult subjects successfully treated and flowered were the troublesome Ranunculus Lyallii, from New Zealand, and Mutisia decurrens, then a rare plant. Alpine plants, shrubs and border flowers were the main features of Easter Duddingston Lodge Gardens, but an admirably constructed range of glass structures provided accommodation for the many novelties cultivated there from time to time. On the death of his employer, who handsomely recognised in his will the long services of Mr. Chapman, and the disposal of the estate, Mr. Chapman removed to

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Torbrex Nurseries, Stirling, where for a number of years he carried on a considerable business, mainly in alpines, in which he was a recognised authority. On his retirement a few years ago Mr. Chapman went to Plean, Stirlingshire, where he died at an advanced age. Mr. Chapman contributed several papers to the Scottish Horticultural Association, and to the Stirling Natural History and Archaeological Association.

TRADE NOTES.

IN our reference to the horticultural section of the Royal Agricultural Society's show at Newcastle, on p. 28, we inadvertently gave Messrs. Laing and Mather's title as Lang and Mather; the well-known Kelso firm was awarded a Gold Medal for its display.

IN response to a request by members of the Chamber of Horticulture every effort has recently been made to obtain a reduction in rates for all land covered by glass by endeavouring to secure the inclusion of such land in the new Bill for Rating Relief, which is now in the Committee stage in the House of Commons. Owing to the fact that glasshouses are generally agreed to range in the same category as agricultural buildings, very great difficulties immediately arose.

Notice was given of an amendment to include "farm buildings, machinery and agricultural improvements," but this was ruled out of order by the Chairman, as he explained that the preamble of the Bill clearly referred to land; therefore the Bill was purely in reference to the relief from rates to be given in respect of agricultural land only, and could not include buildings, machinery, improvements, or woodlands.

The Minister of Health, when introducing this Bill for the second reading, stated that the present measure was only more or less of a temporary nature, but he hoped shortly to circulate a draft of a Bill on valuation and rating reform to local authorities, and to ask for their observations thereon with a view to introducing the measure next year. The Bill is to contain permanent provisions in regard to the rating of agricultural land. Steps are therefore being taken to endeavour to obtain the inclusion of land covered by glasshouses as agricultural land, If this can be accomplished it would mean a very considerable relief from the high assessments under which glasshouse growers are now labouring.

The Merchandise Marks Bill has now reached the end of the Committee stage and will shortly appear on the report state in the House of Commons. Owing to the powerful opposition and delay caused by certain members of the Labour Party, it at one time threatened to set up a record for the greatest number of sittings of any Bill. The new clause, for which the Chamber of Horticulture is responsible, in reference to the sale, or exposure for sale, of imported fruit or vegetables, was introduced by Mr. Pretyman on behalf of Mr. Basil Peto and was passed on a division by a majority of 18. The following is the clause which has now become part of the Bill :—

"Any person who shall sell or offer for sale by retail any imported raw fruit or vegetables other than any kind of fruit or vegetables which is not grown in Great Britain for sale, unless such articles bear at the time of exposure for sale a label with the word 'Imported' or a word or words indicating the country of origin of the raw fruit or vegetables, or unless such articles are only exposed for sale on a slab or counter or in a separate part of his premises clearly labelled in a conspicuous manner 'Imported produce,' shall be guilty of an offence against this Act. Where such imported produce is exposed for sale or sold from a barrow or cart, any such barrow or cart shall bear a clear and conspicuous label 'Imported produce,' and such a label shall be a sufficient compliance with the requirements of this Section."

ANSWERS TO CORRESPONDENTS.

CANTERBURY BELLS: *C. E. B.* The flowers represent a very fine strain of the cup-and-saucer type of Canterbury Bell, and the shades of blue and pink are particularly pleasing.

CHRYSANTHEMUM SHOWS AT WESTMINSTER: The exhibitions of the National Chrysanthemum Society held many years ago at the Royal Aquarium, Westminster, were usually of three days' duration.

CLAYTONIA SIBIRICA AND C. PERFOLIATA: *J. F.* There was a discussion concerning Claytonia perfoliata in *The Gardeners' Chronicle*, Vol. LXXIII., pages 138, 166, 190, and 249. This species was introduced from North America in 1794, and has since become a very common weed in sandy soils of this country. The genus was named after John Clayton who collected plants in Virginia and sent them to Gronovius in England. The earliest introduction was C. virginica in 1748. Paxton's date for the introduction of C. sibirica in 1768 is correct. It was first described by Linnaeus from specimens grown in the botanic garden at Upsala. It came from Siberia, and may have been brought or sent to him by some of his correspondents. There was no need to introduce Sweet Cicely (Myrrhis odorata), which is native to twenty-five counties of England and Wales and twenty-five in Scotland. Bistort (Polygonum Bistorta) is a native to forty-seven counties of England and Wales and eight or nine of Scotland.

LOOFAH PLANTS: *A. B. O.* The plants you have raised from Loofah or Loophar seeds are, no doubt, examples of Luffa aegyptiaca, a Cucurbitaceous plant which revels in heat and moisture, and, given head-room, will attain a considerable height, trained under the rafters in a heated house where tropical plants are cultivated. The plants would grow in a Cucumber pit, but would probably take up more room than is desirable.

GROWTH ON VINE: *W. P.* The excrescence is simply a mass of cellular tissue produced by the vine as a result of some injury which the vigorous plant has attempted to cover up.

HUMEA ELEGANS: *C. J. D.* The plant is not poisonous in the ordinary sense, but, like Primula obconica, it may prove troublesome to persons with a very sensitive skin, causing a rash on the hands or arms, more specially if the person happened to get scratched. The hairs on the plant are not capable of doing this, but when the juice of the glands gets into the scratch it causes injury to some people, but not to all. There are many plants capable of affecting very sensitive skins. One of the worst of these poisonous plants is Rhus Toxicodendron, yet a gardener has been known to cut his fingers with the knife while pruning the shrub without other ill-effect than the cut. Humea elegans belongs to the order Compositae, represented by Cassinia, Chrysanthemum, Michaelmas Daisy, etc.

PAEONY DISEASED: *H. W. Redruth.* The Paeony shoots are affected with Botrytis Paeoneae, and it is advisable to remove all diseased shoots and burn them: the plants should then be sprayed with potassium sulphide solution made by dissolving 1 oz. of potassium sulphide in 3 gallons of water. In the autumn, when the plants are dying down, the growth should be cut away at the soil level and removed from the ground and burned. When the new growth appears in the spring it is a good plan to dust the plants with flowers of sulphur.

VITRIOL FOR A GARDEN PATH: *T. B.* If by vitriol you mean oil of vitriol, you would have to dilute it with water to the extent of one part of vitriol to eight parts of water. Sulphuric acid is a very caustic and quick-acting chemical, and you would need to exercise great care in handling it.

Communications Received.—C. H.—O.—K. F. F.—C. S.—R. B.—W. A.—W. S.—J. H. W.—C. J. O. (thanks for 2s. for R.G.O.F. Box)—A. S. R.

MARKETS.

COVENT GARDEN, Tuesday, July 17, 1923.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples—Tasmanian, and N. Zealand		
—Newtown ..	20 0	22 0
Scarlet French, Crab	18 0	
—Sturmer ..	18 0	20 0
Currants—		
—English Black, per lb. ..	0 9	1 0
—Red, peck ..	4 0	7 6
Figs special ..	12 0	21 0
best.. ..	6 0	9 0
Gooseberries—		
—Cooking ½ sieves	5 0	6 0
—Sulphur large per lb ..	0 6	1 3
—White large lb.	0 3	0 6
Grapes		
—Belgian ..	1 3	1 6
—Cannon Hall..	5 0	10 0
—Hamburgh ..	1 6	3 6
—English Muscat	3 0	6 0
Grape Fruit—		
—Jamaica ..	30 0	35 0
Melons, English and Guernsey, each	2 6	10 0
—Cantaloupes ea.	10 0	20 0
Nectarine ..	12 0	30 0
Oranges—		
—South African Navels...	24 0	26 0
—Seedlings ..	24 0	26 0
Peaches—		
—English, doz...	6 0	36 0
Plums—		
—Spanish, crate	10 0	12 6
Spanish Greengage ½ sieve ..	12 0	18 0
Strawberries		
„ 2lb chips ..	1 4	2 0
„ 3lb „ ..	1 6	2 6
peck	6 0	10 0
—Kent 4lb. chips	3 0	4 0

REMARKS.—A brisk demand has ruled during the past week, although there are indications of a slackening in some directions at the time of writing. A considerable proportion of the fruit that has been delivered in the market from the Continent has been very much out of condition, and the losses to the shippers must be considerable. Choice fruits, such as Grapes, Melons, Peaches and Figs, have met a steady trade, and prices have held up well. Cherries have been more plentiful, but prices keep firm. Supplies of large dessert Gooseberries have come on very rapidly, and quotations are lower. Black Currants are more abundant, and inferior fruit is selling with more difficulty, although large, bright fruits continue to sell well. The stocks on hand of Australian Apples are not large, and prices quoted are higher. English Tomatos have sold freely, but prices are now easier with the larger quantities available. Cucumbers continue in good demand. Mushrooms, after a period of lower prices, are now rather scarce, and prices have advanced. A few French Beans are still coming to hand, but generally they are showing signs of the ending of the season. Salads, while not quoted so high, are still in demand at lower rates. The vegetable trade has not been brisk during the hot weather.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz. ..	10 0	18 0
—elegans ..	10 0	12 0
Aralia Sieboldii..	10 0	12 0
Araucarias ..	30 0	48 0
Asparagus plumosus ..	12 0	15 0
—Sprengeri ..	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Cacti, per tray, 12's, 15's	5 0	7 0
Crassulas, 48's pink, per doz.	24 0	30 0
red, „	24 0	30 0
Crotons, per doz.	30 0	42 0
Cyrtomium ..	10 0	15 0
Erica		
—candidissima	21 0	24 0
—Cavendishii ..	30 0	36 0
—magnifica ..	36 0	42 0
Heliotropes ..	12 0	15 0
Hydrangeas —paniculata, ea.	3 6	4 6
Hydrangeas white & pink, —48's, doz. ..	15 0	24 0
Lilium, longiflorum, each	3 6	4 0
—speciosum album, each ...	3 6	4 0
—speciosum, rubrum, each	3 0	3 6
Marguerites, per doz.	12 0	18 0
Mignonette ..	10 0	15 0
Nephrolepis, in variety ..	12 0	18 0
—32's	24 0	36 0
Palms, Kentia ..	24 0	30 0
—60's	15 0	18 0
—Cocos ..	24 0	36 0
Pelargonium ..	18 0	24 0
Pteris, in variety	12 0	21 0
—large 60's ..	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's ..	3 6	4 0
Verbenas, Miss Wilmott, 48's, per doz.	10 0	12 0
Viscaria ...	12 0	15 0

CUT FLOWERS.

REMARKS.—In this department similar conditions prevail to those described last week. Consignments are difficult to clear. Carnations and Roses greatly exceed the demand, and many boxes of these blooms have arrived practically unsaleable, while nearly all consignments have suffered in transit on account of the excessive heat. Delphiniums, white Pinks and Irises are about over for this season. Nearly all Sweet Peas are poor in quality. Lilium longiflorum is supplied sufficient for the present demand, and prices remain normal. L. speciosum album and L. s. rubrum are now arriving in excellent condition. Achillea The Pearl, Alstroemeria, Coreopsis, Cornflower, Gaillardia and Godetia are all in abundant supply. Sweet Sultans are also selling freely, principally the white and mauve sorts. Statice sinuata is also arriving in excellent condition, and S. Suworowi is good. There are no new lines to record this week, though Asters are making their first appearance and are very poor in quality. There is an abundant supply of all kinds of foliage.

GARDENING APPOINTMENT.

Mr. E. Young, for three years Gardener to G. A. GIBBS, Esq., Glebe House, Morden, Surrey, as Gardener to F. L. DOVE, Esq., The Mount House, Hadley Common, Hertfordshire.

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THE
Gardeners' Chronicle

No. 1909.—SATURDAY, JULY 28, 1923.

CONTENTS.

Albert Medal, presentation of the 52
Alpine garden, the—
Astilbe simplicifolia ... 53
Dianthus petraeus fl.pl. 53
Erigeron hybridus Elsie... 53
Books, notices of—
The origin of the Bagatelle Rose Gardens... 58
Bulb garden, the—
Van Tubergen's Scarlet Hyacinth 59
Cabbage root fly ... 60
Claytonia perfoliata ... 61
Dyer, Sir Wm. Thiselton- 52
Flower border, the hardy—
Aquilegia caerulea Mrs. Nicholls 58
Aster subcaeruleus Apollon 58
Morina longifolia ... 58
Nepeta Mussinii ... 58
Sunset Lupins ... 58
"Gardeners' Chronicle" seventy-five years ago 53
Garden notes from S.W. Scotland 57
Gentleman gardener, the 56
Kirton, Spring Cabbage trials at 52
Lachenalias 90
Phytopathological and Entomological Conference in Holland ... 52
Potatos, imports of ... 53
R.H.S. Gardens Club outing 52
Rosary, the—
Rosa cerasocarpa ... 55
Royal Society of Arts ... 52
Siamese plant names ... 52
Societies—
British Mycological I... 62
Elstree and District Horticultural ... 61
Ipswich Centenary ... 61
Reading Gardeners' ... 62
Royal Horticultural ... 62
Sparrows and Cerastium tomentosum 61
Stonehenge for local residents, freedom of access to 52
Trees and shrubs—
Clianthus puniceus in S.W. Scotland ... 55
Trees in southern lands, northern 51
Walhampton 56
Week's work, the ... 54

ILLUSTRATIONS.

Aster diplostephioides 58
Dyer, Sir William T. Thiselton-, portrait of 52
Hyacinth van Tubergen's Scarlet 59
Leptospermum ericoides at Monreith 56
Olearia macrodonta at Monreith 57
Rosa cerasocarpa 54, 55

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.1°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, July 25, 10 a.m.: Bar., 30.0; temp., 69°. Weather—Overcast.

Northern Trees in Southern Lands.

The importance of timber production is now fully recognised not only by the inhabitants of old lands, but also by those of countries more recently settled. Recognising this fact, Mr. Ernest H. Wilson, whose botanical explorations have been of such great service to horticulture, has put together in a pamphlet bearing the above title* the observations of forests and forest trees which he has made in the course of his extensive travels. Of the southern lands to which Mr. Wilson refers, South Africa, so richly endowed in other respects, is deficient in readily available timber-producing trees. South of the Zambesi, the high veldt bears at best trees growing in open park-like formation. In the coastal forest fringes of Natal, Zululand and Cape Province the forests are dense, and contain many useful timber trees, of which the soft-wooded Podocarpus latifolia, P. falcata and P. Henkelii are of great value. Unfortunately, however, the representatives of these species are scattered, and, as always happens in such cases, the most accessible trees have already been removed. As Mr. Wilson points out, South Africa requires trees for two purposes, for timber production and for shade, and the need for extensive tree planting in the Union is widely recognised. Experience in this as well as other southern lands has proved that, compared with trees of northern origin, indigenous species are of slow growth; fortunately, however, many northern species take kindly to the South African climate, and hence there is no lack of suitable subjects for the afforestation of the country. The continent of Australia is as yet imperfectly known. The northern region awaits thorough exploration, particularly of its forest wealth. The centre is in the main an arid region, much of Western Australia is dry and covered with thorny scrub, but the S.W. corner of this vast region, the total area of which is one-third that of the United States, is fairly well forested with Eucalyptus, the chief species of which genus are E. marginata (Jarrah), and E. diversicolor (Karri). Hard-wooded trees there are in plenty, but no soft-wooded trees of timber-yielding value. The native Conifers—species of Callitris and Actinostrobus are small and of little or no value as timber. Callitris species, however, yield useful fencing timber in New South Wales. Whereas Victoria and New South Wales abound with Eucalyptus, South Australia is poorly forested. Queensland, on the contrary, has coastal, mixed forests rich in timber-producing species. Fortunately as it may prove, this State is less settled than others of the Commonwealth, and, as Mr. Wilson points out, its timber resources, if properly exploited, should prove a most valuable asset to it. The trees include hardwoods as well as softwoods—species of Agathis and Araucaria. Except for Queensland, the States will need to plant exotic, soft-wooded, forest trees. To discover the most suitable is, of course, the first step toward successful afforestation. The same problem confronts Tasmania, once so well stocked with hard and soft woods. In this connection Mr. Wilson observes pertinently that "a few years ago Tasmania supplied the Admiralty Dock, Dover, with a number of piles, each one hundred feet long and squared twenty inches by twenty inches at each end," so that it needs only the value of Eucalyptus for timber production to be recognised for forestry to flourish in Tasmania. In New Zealand the rain forests bear evergreen trees, with Conifers and Taxads in predominance. Much clearing has reduced the forest area, and trees like the wonderful Kauri Pine (Agathis australis) have disappeared as suppliers of commercial timber. With unexcelled but disappearing soft-wooded trees and with no hardwoods of great timber value, New Zealand needs to take steps to conserve, regenerate and replant her forests. Mr. Wilson foresees the time when the native forests will have disappeared and with them such trees as the Totara (Podocarpus totara), the Matai (P. spicata) and White Pine (Podocarpus dacrydioides), the Silver Pine (Dacrydium westlandicum), the Rimu (D. cupressinum), and the Kauri (Agathis australis)—the glories of the New Zealand forest. He predicts that their places will be taken by Conifers of northern provenance, and particularly by the Insignis and Laricio Pines and by the Larch. The soft-wooded timber tree which is proving most useful in Australia is, according to Mr. Wilson, Pinus radiata, the Monterey Pine, and so it is also in South Africa. Indeed, Mr. Wilson thinks that this tree will prove the "north's greatest gift" to these southern forests. It is truly surprising that a tree which, in its native place, is both rare and almost unused should, like the stone which the builders rejected, become the head of the corner of New Zealand and South African afforestation. But so it is. The wood of this Pine improves when grown in southern lands, and provides an extremely serviceable "deal." In the lands of its adoption it is known as P. insignis. It thrives best in South Australia, Victoria, the South Island of New Zealand, and round Cape Town. In some places, *e.g.*, Western Australia, the Cluster Pine (P. Pinaster) does better. The rate of growth of P. radiata in southern lands is remarkable. Trees in forty years reach one hundred feet in height and eight feet in girth, and the tallest is one hundred and fifteen feet by eleven feet. Happy lands, where forestry is so profitable that, as in South Australia, the net profit on seventy-three and a half acres of P. radiata amounted to $1,170 per acre with trees felled at ages between thirty-three and thirty-six years. Yet more rapid growth of this species was witnessed by Mr. Wilson in Cape Town, where thirty-three-year-old trees were one hundred and thirty-eight feet tall and ten feet in girth. Even at twelve to fifteen years after planting the Monterey Pine is large enough to cut for box wood. Over great areas of Australia, New Zealand and South Africa, this Pine will yield three crops a century of merchantable timber. The Pine was first named P. insignis by Douglas, its introducer to this country in 1831-32, but was subsequently named P. radiata. Though fast-growing here it is hardy only in certain localities. It was probably introduced into Australia through one of the Botanic Gardens and was already growing in Tasmania in 1857. Its value was discovered in South Africa from a tree growing in the Municipal Gardens. Can any fact be more eloquent of the value of Botanic Gardens and arboretums to civilisation! No one of purely utilitarian mind would have chosen this forest wastrel of California as a promising emigrant. Surely there is much food for thought here! Pinus Pinaster of the French Landes has been naturalised at the Cape, and although a slower grower than P. radiata, its rate of increase in the southern hemisphere would make northern foresters envious. Another Pine familiar to visitors to Cape Town which grows well and forms splendid avenues is the Stone Pine (P. Pinea), but on the whole neither it nor the Aleppo Pine (P. halepensis) appears to have a great future in the south. Mr. Wilson is more sanguine with respect to P. canariensis, a tap-rooted tree which should be sown in place. Of other trees mentioned by Mr. Wilson, the Douglas Spruce (Pseudotsuga taxifolia) appears likely to do well in parts of Australia, promises not unfavourably in New Zealand, but is unlikely to succeed in South Africa. Larch in New Zealand has been much planted, and in some districts is successful. In the Rotorua forest reserve is seven thousand acres of fine stands of the European Larch (Larix europaea, or decidua), and on the mountain tops, especially where frost injury is rare, it does well. Spruce (Picea), Firs (Abies), Hemlocks (Tsuga) seem to take unkindly to the southern hemisphere, but Cedars do well in parts of New Zealand and Tasmania, and so does Cupressus, species of which flourish in Australasia and South Africa. With respect to hardwoods, many species have been introduced and tried, but none so far seems to have become a proved success. Eucalyptus would appear to be the southern hardwood tree, and destined to supply much of the timber required by the world in the future. Oaks, which people of our race will go on planting, do badly; but some Willows, such as Salix babylonica, flourish amazingly in S.E. Australia and in the South Island of New Zealand, and the Crack Willow, Salix alba, is used extensively there to hold the banks of rivers. To

* *Journal of the Arnold Arboretum*, IV., 1923.

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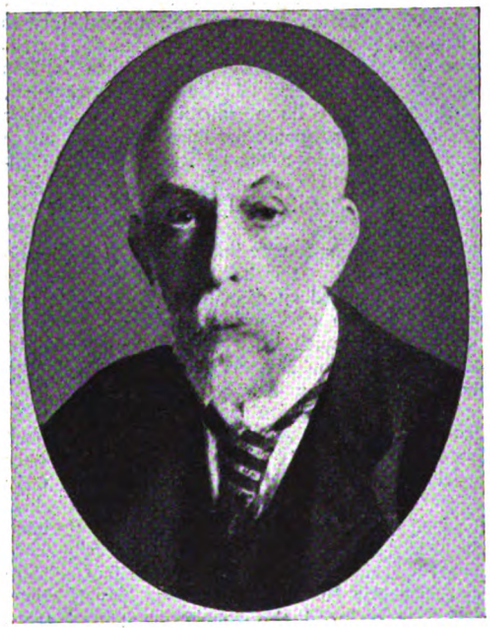
all interested in trees and tree-planting, Mr. Wilson's most readable and valuable account of the timber trees of southern lands is to be commended.

R.H.S. Gardens Club Outing.—On Saturday, the 21st inst., the members of the above club, to the number of more than fifty, journeyed from Wisley by charabanc, and others by rail, to Messrs. Sutton and Sons' establishment at Langley, where they were shown over the extensive seed grounds, now in fine condition in spite of the lack of rain in that district. The colours of the Antirrhinums, Linums, Lavateras, Gypsophila elegans Sutton's Crimson, Tropæolums and other annuals grown in great breadths were very impressive. The party next proceeded to the Crown Hotel, Slough, where an excellent lunch was provided by Messrs. Sutton and Sons. The journey was then resumed by charabanc and motor-cars to the firm's Trial Grounds at Reading, where members of the staff conducted the party in groups over the extensive premises. Here the plants are grown for trial and not for seeds, so that many varieties of a species were often grown in proximity, and thus provided a good opportunity for comparing them. Much interest was taken in the lawns and the numerous grasses desirable and undesirable in lawns and pastures. A crop of a new lawn grass, Festuca arenaria, had just been reaped at Langley, and much is expected of it on light soils. Eschscholzias Gaiety and The Geisha bore two different colours on the two sides of the silky petals, and caused considerable surprise and speculation. Lavatera, Malope, Dimorphotheca aurantiaca and its hybrids, Cosmea, Convolvulus, annual Chrysanthemums, Clarkias, Calendulas, Balsams, Pansies and other annuals too numerous to mention afforded endless entertainment. Carnations from seed were marvellously floriferous. Peas in great variety, even to the Mummy Pea and its hybrids, were inspected. Sweet Peas in pots reached to the roof in several houses, and Sweet Scabious in pots was four to six feet high. Other houses were filled with Begonias, Gloxinias, Streptocarpus and forty trials of Melons. Mr. Leonard Sutton was present at the tea provided in one of the seed houses. The annual general meeting and election of officers took place after tea, under the presidency of Dr. F. V. Darbishire. Mr. C. R. Fielder was elected President.

Siamese Plant Names.—A list of the vernacular names of the common trees, shrubs, plants, etc., of Siam, together with their botanical equivalents, has recently been compiled and published by the *Bangkok Times Press*, under the direction of the Chief Conservator of Forests, Siam. We gather from the current issue of the *Kew Bulletin* that the vernacular names are given in Siamese and roman characters and arranged under Siamese letters, as explained on the contents page. The work should prove valuable to forest officers, timber merchants and students, but, apparently, it loses much of its value to workers unacquainted with Siamese, owing to its lack of an alphabetical index in roman characters.

Freedom of Access to Stonehenge for Local Residents.—Freedom of access to the enclosure in which are the ancient Druidical remains known as Stonehenge has just been secured by an arrangement made between H.M. Office of Works and the Amesbury local authorities. The monument is to remain enclosed, but free tickets of admission will be issued to residents in the twenty-four nearest parishes. In the autumn of 1918 Stonehenge became national property, through the generosity of Sir Cecil Chubb, who had acquired it for £6,000. At one time it was claimed that Stonehenge was public property owing to certain rights of way which ran through the ground, but the claim was not capable of proof, and the owners of the property have always had the right to charge a fee for admission. When it became national property, the Office of Works was urged to admit the public free of any charge, but as it was a condition of the gift that half the fees charged should be paid to the Red Cross Society, it was pointed out that by removing the fees altogether this deserving charity would suffer. The fee was, however, reduced from 1s. to sixpence, and by the arrangement now made, even this modest amount is no longer demanded from local inhabitants. It is hoped that before long the present disfiguring fence will be replaced by a sunken ha-ha. It is calculated that there should be a sum in hand, the accumulated profits from admission fees, of at least £800, which could be devoted to this object.

Sir William T. Thiselton-Dyer.—The many friends of Sir William T. Thiselton-Dyer, F.R.S., will be delighted to learn that he is enjoying good health in his charming, quiet, country home at The Ferns, Witcombe, Gloucestershire, whither he retired in 1905, after completing twenty years' service in the Royal Gardens, Kew, first as Assistant Director and then for ten years as Director. So long as Kew remains a national institution so long will Sir William Thiselton-Dyer have an enduring monument. On the occasion of his



SIR WILLIAM T. THISELTON-DYER, F.R.S., DIRECTOR, ROYAL GARDENS, KEW, 1885-1905.

retirement his work at Kew was thus epitomised in the *Gardeners' Chronicle*, 1905, p. 424 :—"During the time that Sir William Thiselton-Dyer has been in charge even more attention than before has been paid to the horticultural department; the Temperate House has been completed, and is now by far the largest establishment in the world. Many of the other houses have been enlarged or renovated. The Herbarium has been more than doubled in size, the Museums have been overhauled, and the library has been rearranged and largely added to." Truly a wonderful record. He devoted himself unsparingly and unselfishly to the development of Kew, and had the great faculty of inspiring others with his own intense devotion and loyalty. Apart from his duties as Director, and his botanical and literary activities, Sir William took a keen interest in gardening and in Kew gardeners; he became the first President of the Kew Guild in 1893, and on that occasion in a letter to Mr. W. Watson, he wrote :—"Kew has now completed the first half-century of its existence as a national and public institution. It has accomplished work already of which any institution might be proud. It carries its influence through its men to every part of the world. That it is so strong arises in great measure from the fact that the uniform tradition which has animated every member of the staff from top to bottom is to work self-sacrificingly for Kew rather than for himself. Officials and employees arrive and pass away: the institution remains, and grows in usefulness, in strength, and in beauty. All who have had a hand in the work are content that that should be their 'record.'" Sir William is held in the highest esteem by hundreds of old Kewites scattered throughout the world, and from none will he receive heartier congratulations upon the completion of his eightieth year—on Saturday, July 28—than from those who served under him at Kew.

Royal Society of Arts.—During the present and the past two years the Council of the Royal Society of Arts has made an earnest endeavour to raise sufficient money for the purchase of the Society's house in John Street, Adelphi, and to thoroughly renovate and decorate it. The amount aimed at by the Council is £50,000, and of this sum £43,033 17s. 4d. has already been contributed.

Presentation of the Albert Medal.—On the 13th inst. the Council of the Royal Society of Arts attended Clarence House, St. James's, when His Royal Highness the Duke of Connaught, President of the Society, presented the Society's Albert Medal for the present year, in duplicate, to Major-General Sir David Bruce, F.R.S., and Col. Sir Ronald Ross, F.R.S., "in recognition of the eminent services they have rendered to the Economic Development of the World by their achievements in Biological Research and the Study of Tropical Diseases."

Spring Cabbage Trials at Kirton.—The Holland Horticultural Committee is again arranging to carry out trials of Spring Cabbage at the Agricultural Institute, Kirton, near Boston, Lincolnshire. Similar trials have been visited by growers from all over England during the past three years. The Committee is now prepared to receive seed for trial purposes, and two ounces of seed of each variety for trial should be sent, addressed to the Secretary of the Institute at Kirton.

Royal Prize at a Flower Show.—The East London Horticultural Society's exhibition which was opened at the People's Palace, Mile End, on the 17th inst., contained some six hundred exhibits. A section was set apart for exhibitors from congested areas, comprising the densely populated streets of Stepney, Poplar and Bethnal Green, these districts being represented by exhibits of undoubted merit. Queen Alexandra, who is a very keen lover of flowers and gardening in general, offered a timepiece for the best exhibit in the open class, and it was won by Mr. J. Bolt, of Alfred-street, Bow, with a very excellent decorative exhibit of flowers and foliage.

Phytopathological and Entomological Conference in Holland.—An important conference of phytopathologists and agricultural entomologists from all parts of the world was held in Holland during the week June 25-July 2. It was held under the auspices of the Netherlands Government in co-operation with various scientific institutes, and was formally opened at Wageningen by the Minister for Home Affairs and Agriculture. The meetings were presided over by Professor H. M. Quanjer, with Dr. L. O. Howard, Chief of the Bureau of Entomology at Washington, as President of Honour. The first two days were devoted to the reading of papers and the inspection of the new laboratory for Potato research, together with the experimental station at Wageningen. An interesting and extensive exhibit was displayed by Dr. van Poeteren, Chief of the Netherlands Phytopathological Service, which indicated the importance attached by the Dutch to an efficient phytopathological service, and the care and thoroughness with which they are endeavouring to protect the plants and bulbs grown for export. On the following days two excursions were organised—(1) to the Groningen Potato district, where the experiments and trials of Dr. O. Botjes, aiming at the production of "seed" entirely free from virus diseases, were examined; and (2) to the plant and bulb nurseries at Boskoop and Haarlem, members being able to join one excursion or the other. The two groups of members met again at Baarne at the W. C. Sholten Phytopathological

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Laboratory, where papers and discussions were resumed. Though papers on various subjects were read, the chief interest on the scientific side was attached to the work on virus diseases of the Potato, the research and equipment of Dr. Quanjer's laboratory, and the papers on the biology of aphides being especially instructive. The principal theme on the economic side was that of import regulations and the practical value of a phytopathological service in keeping a country free from new diseases and pests, the U.S.A. Quarantine 37 being frequently referred to. A paper by Dr. H. T. Gussow, of Canada, expressed the views of an importing country, and speeches by Dr. van Poeteren and Dr. van Stogteren (Director of the Laboratory for Bulb Diseases, near Haarlem) that of exporting countries. After considerable discussion, chiefly in private, between the sessions, a resolution was come to in which all joined in expressing full agreement with the essentials of international trade and commerce in living plants—namely, reasonable freedom from all insect pests and plant diseases. The final expedition was to the Westland to examine the extensive glass area under Tomatos, Cucumbers, Grapes, Peaches, etc. The conference, which was voted an entire success, owed much to the indefatigable efforts of Mr. T. Schoevers, the Secretary, and to the Committee of Management, who arranged such an attractive programme, for all showed great hospitality and kindness during the proceedings. A full Report is shortly to be published, price about 4s., to be obtained from the Secretary, Netherlands Phytopathological Service, Wageningen. The formal proceedings terminated by a reception at The Hague by the Minister for Home Affairs, and by a dinner given by H.M. the Queen of the Netherlands.

Imports of Potatos.—Much larger quantities of Potatos were imported during June of this year than in the corresponding month of 1922. Over ninety per cent. of the tubers were received from France and the Channel Islands, the former country sending 58,000 tons and the Islands 43,000 tons. Of the total imports of Potatos to date France has supplied 69,000 tons, and the Channel Islands 56,000, the corresponding figures for 1923 being 35,000 tons and 39,000 tons respectively.

Appointments for the Ensuing Week.—Wednesday, August 1.—Lewes and District Horticultural Society's meeting; Whitchurch and District Horticultural Society's show; Sevenoaks Horticultural and Floral Society's show; Chesterfield Flower show. Thursday, August 2.—Royal Lancashire Agricultural and Horticultural Society's exhibition (3 days); Appin Flower show. Friday, August 3.—Bradford Hospital Convalescent Fund's exhibition (2 days). Saturday, August 4.—Illogan Gardening Society's exhibition; Filkins and Broughton Vegetable, Fruit and Flower show; Dumbartonshire Sweet Pea Society's show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Propagation of the Hollyhock.* Of late years the Hollyhock has assumed a prominent place in the flower garden, especially in the south of Scotland, and as this plant is very ornamental, both for the garden and the shrubbery, I send you the mode of propagating it, which I have found to be very successful, and at the same time very simple. In the month of July, or beginning of August, take a stem of the sort you wish to increase, and having divided that into lengths of two inches each cut, including an eye or bud, slice the stem through the middle and pare the central pith entirely out, so as to prevent rotting, leaving about three inches of the leafstalk remaining at the bud, in the manner of fruit budding; having prepared a little sandy soil suitable for striking cuttings, these buds are to be inserted therein horizontally, about one inch below the surface, the leaf-stalk protruding as an index of position; a hand-glass is then put over them, and in a few weeks they form nice little plants, like the current year's seedlings, and flower luxuriantly the following season, if properly treated. *J. B. Weir, Galashiels, July* 14. *Gard. Chron., July* 22, 1848.

THE ALPINE GARDEN.

ASTILBE SIMPLICIFOLIA.

ASTILBE SIMPLICIFOLIA is one of the choicest, as well as the smallest member of the genus. It is a diminutive, herbaceous species, sending up in spring a low tuft of glossy, bronzy-tinted leaves with serrated margins, but only slightly lobed. Just above these the flowering stems arise in June; graceful, airy plumes of tiny white blossoms which do not grow more than about six inches tall. These flowering sprays, that are sometimes slightly tinted with rose in exposed positions, are often produced so numerously that the whole of the little plant is canopied by a foamy mass of flowers.

This Astilbe enjoys a moderately cool, free soil. It appears to be perfectly hardy. It may be propagated by division or seed, but the latter cannot always be relied upon to produce true stock. *A. T. J.*

DIANTHUS PETRAEUS FL. PL.

THE double variety of Dianthus petraeus from the stony places of Bosnia, Croatia and adjacent regions, is a small-flowered Pink which I once obtained long since from a nursery in the south-west of England, but which I lost some years afterwards during a prolonged absence from home, when numerous plants failed. I have sedom seen this Pink offered for sale, and I have searched several catalogues for it in vain. I was, therefore, pleased indeed when I saw a large carpet of its sharp-pointed grey leaves surmounted by a host of flowers in the Royal Botanic Garden, Edinburgh, in early July. My early admiration of it has lost some of its keenness, owing to a wider knowledge of Pinks of many kinds, yet I was glad to meet with it again.

There is some confusion amongst growers regarding the single, or typical form of D. petraeus, but, so far as I am aware, no doubt has ever been cast upon the name of D. petraeus fl. pl. as applied to the plant in question. In Edinburgh it made a big mat or carpet of its grey, sharp, short leaves, and these were well covered with small, very double, prettily fringed and scalloped flowers of white. As D. petraeus varies from white to pink there may possibly be a double-pink variety in existence, although such is not recorded anywhere. I do not consider that it would be prettier than the white one. *S. Arnott.*

FIG. 18.—ROSE LITTLE JOE; NATIONAL ROSE SOCIETY'S CERTIFICATE OF MERIT, REGENT'S PARK, JUNE 28, SHOWN BY MESSRS. D. PRIOR AND SONS (SEE P. 11).

ERIGERON HYBRIDUS ELSIE.

A MOST effective useful perennial for the front row in the herbaceous border is Erigeron hybridus var. Elsie. The plant grows from 12 inches to 15 inches high, and bears large rose-pink flowers, which are freely produced from June until August. This variety is also well adapted for the rockery. *W. Logan.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Miltonia vexillaria.—Miltonia vexillaria, with its varieties and numerous hybrids make up a family of Orchids which has few equals among flowering plants. Under proper conditions they are mostly vigorous, and it is now possible to make a good display over a long period, by keeping the plants in cool quarters. Miltonias, as cut flowers, have a short life, but as pot plants the flowers last for a considerable time, even in a dwelling house, and under electric light their beauty is much enhanced. When cultivated well they start into growth before the flowering period is over; therefore, the roots should never be allowed to suffer from lack of water, even whilst the plants are at rest. Some of the plants which produced their flowers early in the season, and were rested slightly, are now commencing to grow actively, and those that require fresh rooting material may have attention at this season, whenever the new growths are about to push forth roots.

Potting. — Miltonias are best repotted annually, for, if the compost is at all sour or decayed, there will be a general decline in the vigour of the plants. Vigorous specimens that require more root room should be shifted into larger pots, or pans—I prefer the latter, with as little root disturbance as possible, taking care that none is overpotted. Exhausted or weak plants are best divided and potted in small receptacles. It is advisable to take every opportunity of increasing the stock of choice plants, therefore the back pseudo-bulbs removed during the process of repotting should be taken care of, placed on damp moss, or even in small pots, where many will make new growths and become healthy specimens. To maintain and increase the stock of all choice plants should be the aim of every cultivator, but only by persistent effort can this be accomplished. A suitable potting compost consists of equal parts of Osmunda fibre, A1 fibre, and Sphagnum moss, with some half-decayed, broken leaves added. The pots or pans should be well drained, as the plants are surface rooters. Potting should be done moderately firmly, as the compost then remains sweet and healthy much longer than it would if placed loosely in the receptacles.

HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Fruit Storage.—Fruit rooms should now be prepared for the reception of fruits. The stages should be thoroughly scrubbed with carbolic soap or disinfectant, and all woodwork stained by fruit should be scraped with glass or rubbed with coarse emery paper. Walls, and ceilings, if any, should receive a coat of whitewash, and if the floors are of cement or brick they should be thoroughly cleansed. Admit air freely, and allow ample time for the room to become dry and sweet before fruits are stored in it. Trays should be overhauled and made clean.

Woolly Aphis.—With increase of temperature this pest is increasing rapidly, and every means must be taken to keep it in check. Aphides of all kinds have become very troublesome. Paraffin emulsion, Quassia extract, or other suitable insecticide may be used.

Wall Fruit Trees.—Spraying wall fruit trees with soft water towards evening on hot days will tend to keep red spider in check; this pest is often troublesome at this time of the year, and does much harm to the foliage of wall trees.

Summer Pruning.—This operation may be undertaken, according to local conditions, from now onward. Cut back all subsidiary shoots, retaining only those required for improving the symmetry of the tree, and also any extension or leading shoots. In the case of several good varieties of Apples it is possible to summer prune them so that they will require little, if any, winter pruning, and almost without exception this applies to cordon-trained trees.

FIG. 19.—ROSA CERASOCARPA; FLOWERS ONE-SIXTH OF NATURAL SIZE.
(SEE PAGE 55.)

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Bulbs for Forcing.—Bulbs for early forcing should be potted during August, as successful results depend, in a great measure, on the plants being well rooted. Roman Hyacinths and Paper White Narcissus required for Christmas flowering should first receive attention, and also Duc Van Thol Tulips. Where the Tulips and Hyacinths are required in quantity a portion of the bulbs may be put into small boxes, as they may readily be lifted from them when in flower and used for making up bowls and similar receptacles for house decoration. After being potted they should be stood at the base of a wall and covered with several inches of well-weathered ashes. Mark the position of the various subjects with large labels. When they are well rooted and show signs of starting into growth remove the bulbs to cold frames.

Freesias.—Where Freesias are required for Christmas flowering they should be potted during August, and the pots plunged in ashes or leaf soil in cold frames, keeping them well shaded until they start into growth. I do not advise covering the pots with ashes or fibre, for, should they be overlooked and make several inches of growth before they are removed, they seldom recover properly from the check. Freesias always succeed best when grown perfectly cool, but if required for early flowering a little heat is needed, but the flowers so produced are never of the same quality as those from cooler grown plants.

Lachenalias.—These also are deserving of more general cultivation for the cool greenhouse. They require the same cultural conditions as Freesias. L. tricolor, and its varieties, and L. Nelsoni are the best for general cultivation.

Gladioli.—Gladioli of the nanus and ramosus sections should be more generally grown in pots, as they are very useful not only for conservatory decoration, but also for giving a supply of cut flowers. They are very free rooting plants, and I find it pays to give them larger pots than those generally considered necessary; five or six corms may be put into a 7-inch pot. Where it is desired to grow them in quantity for a supply of cut flowers they may be placed in boxes, or even planted out in cold frames. There are many good varieties, varying in colour from delicate pink through shades of scarlet to crimson. Gladiolus Colvillei, which is a garden hybrid, and its white form G. Colvillei alba, generally known as "The Bride," are largely grown for market purposes, and are equally valuable for the private grower.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Sweet Peas.—Plants raised under glass and planted out early in the spring have not done so well as usual—being later and less vigorous than in ordinary seasons. It will help the more backward plants if the side shoots are reduced in number and some of the flower buds pinched off as they appear. Watering should be attended to, as necessary, and stimulants given unless the trenches were well manured at planting time. Autumn-sown plants, on the contrary, have been and are still making a splendid show, giving good material for decorative work as cut blooms. It preserves the vitality of such plants to remove all seed pods as they appear.

Transplanting Seedlings.—The various biennial and perennial plants recently raised from seed have been very slow to develop. However, as the seedlings reach a handy size the strongest plants should be drawn from the seed bed and planted where light and air may assist them until they appear in their permanent quarters. Present transplanting is best done in rows spaced 1 foot or so apart, as it will then be possible to apply water easily, and to use the hoe between the rows. Myosotis, Polyanthuses and Canterbury Bells prefer a semi-shady position.

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Dahlias.—The quality of Dahlia flowers will be improved if the number of growths on each plant is somewhat reduced; cut away the weak shoots and thin out the others. As regards staking, perhaps the ideal plan is to allow a strong cane to almost every stem retained, "looping-in" those stems not so supported. Where this plan is not deemed practicable, an effective and fairly neat method is obtained by fixing three stakes, triangular fashion, so that growths may be tied securely without giving the plant a bunchy appearance.

Veronica Traversii.—Large specimens of this shrub are now making a good display with their spikes of pale mauve flowers. This Speedwell is quite hardy, but too much moisture about its roots in autumn and winter will in time prove disastrous. One of its weaknesses—if such it may be called—is its failure to make growth freely after being cut back. This being so, large plants have to be left as they become leggy, or done away with entirely. Happily, stock is easily raised from cuttings or seeds.

Dead Flowers.—The regular removal of dead flowers is essential for the sake of tidiness, and also in many cases to enable the plants to continue in beauty over as long a period as possible. In addition to Violas, Sweet Peas and Roses, already mentioned in earlier notes, Antirrhinums, Pentstemons, Tropaeolums and Verbenas are especially benefited by the early removal of spent blooms. Most annuals, too, retain their vitality and freshness for a long time if not allowed to seed.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Strawberries.—To obtain plants for forcing, the layers should be rooted without delay. The size of pot is optional; the layers may either be rooted direct in the fruiting pots, or in small pots, transferring them to the fruiting pots later. In either case, the insides of the pots should be quite clean. In layering, select the first plantlet nearest the parent, cutting back the runner to this point. When layering in large pots, arrange the latter in alternate rows to provide easy access for watering, etc. Pegs made of wood or the stalks of Bracken Fern will keep the layers in position on small pots, but for the larger pots stones or pieces of brick are suitable for the purpose. It will be found that layers which are kept in position by stones root more quickly than those pegged down. Water should be afforded the plants with extra care until the roots are growing freely in the soil; more particularly is this necessary when large pots are used, for if the soil becomes sodden the roots will receive a check, and the plants suffer accordingly. A sprinkling of clear water overhead late in the afternoons on warm, bright days will be of great assistance to the young plants. The runners rooted in small pots should be repotted at the earliest opportunity, standing the pots on a layer of coal ash in a situation fully exposed to the sunshine. The larger pots may be removed to similar quarters when the layers have rooted well in the soil.

Orchard House.—All pot trees should be plunged out of doors immediately they are cleared of their fruits, allowing ample space between them to permit of syringing and watering. The trees require careful attention to fully mature their flower-buds. Cleanliness and a liberal supply of moisture to the roots are essential to success. Peaches and Nectarines should be examined, and all useless shoots removed, it being necessary that light and air should reach the growths. Trees carrying crops that are approaching the ripening stage will need plenty of water at the roots, but none overhead until the fruit is gathered. If there is no occasion for hurrying the ripening to have the fruits for use on any particular date, allow the trees the benefit of all the light and air it is possible to give them. Stimulants should be freely afforded to trees that are carrying heavy crops, not too much at one time, but weak and often. If the growth is poor and weak, it is not wise to apply an excess of food, for with such trees root action will, in most cases, be faulty, and until this is remedied stimulants will do more harm than good. Trees on which the fruits are swelling freely should receive generous treatment, and every effort made to keep them clean and healthy. Syringe the trees thoroughly late in the afternoons, damp the house frequently when the weather is bright and hot, and admit an abundance of air whenever the weather is favourable for ventilating freely.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Early Potatos.—If the ground is wanted for sowing autumn vegetables early Potatos may all be lifted and placed in a dark shed. Ground that has carried a crop of early Potatos is very suitable for growing quickly maturing crops, such as dwarf Peas, small Carrots, Globe Beets, Lettuces, Turnips, and Endives, all of which will come into use in late autumn, and help to supplement the main crops. After the tubers are all lifted clear away the tops, fork over the ground, and break it down as finely as possible. Before sowing such seeds as are decided on, give the ground a good soaking of water during the afternoon, and it will be in good condition for sowing the next day.

Herbs.—Such herbs as are required for drying for winter use may now be cut, the best time being just as the respective varieties are coming into flower, as then they have the best and fullest flavour, and will better retain it. Cut the herbs when they are quite dry, and hang them in the sun for a day or so, and then remove them to a dry place under cover, where plenty of air can reach them.

Coleworts.—Make another sowing of these useful, hardy greens to withstand the winter, and net the seed-bed against birds. Coleworts may be planted 1 foot apart on any vacant ground that is firm and in good condition.

TREES AND SHRUBS.

CLIANTHUS PUNICEUS IN S.W. SCOTLAND.

THERE are not many Scottish gardens in the north in which Clianthus puniceus is successfully cultivated in the open. In the S.W., however, there are a few, and further north on the west coast it is hardy enough for a number of places in mild districts. It is, however, necessary that this Clianthus should be grown on a warm wall, although perhaps it might succeed on a trellis in a few districts. In the middle of May I had the pleasure of seeing two exceedingly fine specimens in full flower in two Wigtownshire gardens, one being that of Sir Herbert Maxwell, at Monreith, and the other in that specially favoured garden, Logan, where Mr. M'Douall has so many charming things.

In both cases the plants were growing on walls and had been unharmed by the frosts of winter and spring. The brilliant scarlet flowers were in big trusses, and great numbers of the latter were on each plant, which covered large spaces. The beautiful light green foliage and scarlet flowers produced an effect which was highly satisfactory.

I have myself failed to establish this plant in gardens further east, but there is no reason why Clianthus puniceus should not be more frequently cultivated in numerous other gardens having a genial winter climate.

A dry soil and sunny situation should be preferred. Clianthus puniceus is a native of New Zealand, where it is, I understand, becoming scarce in a wild state. *S. Arnott.*

FIG. 20.—ROSA CERASOCARPA GROWING ON THE HOUSE WALL IN SIR WILLIAM THISELTON-DYER'S GARDEN AT THE FERNS, WITCOMBE.

THE ROSARY.

ROSA CERASOCARPA.

ROSA cerasocarpa belongs to the group of Musk Roses and was collected by Prof. Henry at Ichang in central China many years ago. It is a very distinct scandent species, with a few stout, recurved prickles on its glaucous branches. The leaves are from five to seven inches long and usually five-foliolate, though occasionally only three-foliolate. The ovate or elliptic-ovate leaflets are stout, prominently veined, bright green above and glaucescent beneath. The white flowers are from one inch to one and a quarter inch wide, and borne in many-flowered cymes.

We are indebted to Sir William Thiselton-Dyer for the accompanying illustrations, Figs 19, 20, and in a recent letter to us he states that he considers that the fine double-page illustration of this species in *Bot. Mag.*, t. 8,688, gives no real idea of the beauty of the plant. He adds, "The solid trusses are unlike those of any Rose I know, and suggest an Azalea." As the flowers are followed by roundish, bright-red fruits, the plants are attractive over a long period, and it is probable that hybridists would find this species extremely useful for the production of a new race of garden Roses. The plant growing in Sir Wm. Thiselton-Dyer's garden was obtained originally from China through the late Sir T. Hanbury, of La Mortola. The flowering period is in June and July.

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THE GENTLEMAN GARDENER.

THE second decade of the 18th century was rich in the output of books on gardening by such men of repute as Bradley, Switzer and Lawrence. Less well known is the Rev. Henry Stephenson, headmaster of a Free School at East Retford, and his books are scarce. He published *The Young Gardener's Director* in 1716, and the same date is given for the first edition of *The Gentleman Gardener*. That I quote from is the fifth edition, 1764, and Johnson notes an eighth in 1769, which is hardly probable.

The heading of the pages in this book is *The Gentleman Gard'ner's Director*, and the material is arranged alphabetically in dictionary form, a form which was first used by Mortimer and carried to the utmost extent by Philip Miller. In addition to a Gard'ner's Kalender, Stephenson includes a brief chapter on the management of Bees, and a yet more brief one on home-made wines from fruit and herbs. The matter is presented in an easy, semi-colloquial style—yet brief and terse—and the book is certainly quite original, and contains much that we do not find elsewhere.

On the Pineapple, it is stated that "The Ananas was brought from—Patna near Bengal," and "its natural taste is like that of Abricot." The lists of hardy fruits contain a number of names undoubtedly English, e.g., Ladies Longing, Cushion, Mayflowers, Sheep's Snout, Lording and July-flowers in Apples. Similarly with Pears—The Maudlin, Pearl, Slipper, Norwich, Chester, Bishop's Tongue and The Squib. Again, in Plums—King's, Lady Elizabeth, Jane Plum, and Pease Plum.

In like manner lists of florists' flowers bear not only local names, but also those of the raiser. Thus we know that Fener, Fitter Potter, Woodman and Good were raisers of Auriculas; and in addition to Gilbert's list of Gilliflowers, which is copied, there are included names of "Whole Blowers," which were then the "modish taste," the cultivators of which were not the same as the Auricula-men. Since his day some of the distinctive names of floral parts have been lost. Thus we are informed that "Every bulbous Iris has nine leaves in each flower; those on the Outside are called *Chins*, those that run straight out are called *Tongues*, and the upright Leaves we term *Sails*." Leaves, it will be understood, are petals and sepals. Then Ranunculuses "were increased by—Flaps or Dugs," and of their cultivation it is stated that "old Thatch well rotted and mixed with light Mould is very proper for it."

Among other obsolete names are China Starworts, for Asters, a flower called "Double Paradise" (an Apple?). One named Lisole, which I do not recollect to have seen elsewhere, and a vegetable, Beach-Cale "brought from Italy a few years ago." The seeds sold at 5s. per ounce, and these "were first sold by Mr. Gray, seedsman in Pall-Mall." In "the second year the Sprouts may be cut several Times." The "roots" were covered with gravel drawn round about them like "an Hop Hill." Obviously this is Seakale, and the note reveals the interesting fact that this vegetable had been

FIG. 21.—LEPTOSPERMUM ERICOIDES AT MONREITH. (SEE PAGE 57.)

cultivated in England long previous to the date given in books.

In Pulteney's interesting *Sketches* it is noted that Turner, our earliest botanist, had quoted Lobel, "the seeds of the Seakale," but in this instance it may have been merely as a curiosity. Remarks on cooking are thickly interspersed throughout, and in this instance the heads are said to have been tied in little bundles and boiled

The "female Balsams," so popular 60 and more years ago, were cultivated to be placed in fireplaces in summer, the variety being white, striped with crimson or purple. At the period in question Teasel was a valuable crop, the heads being used in finishing cloths. Our author states that it was sown, 1 peck to the acre, which yielded 120 to 180 bunches, each of the value of one shilling.

Stephenson's observations regarding the cultivation of Potatos show that a practice which probably is still observed, that of planting the sets on a layer of dung, was at that early date customary. There is a very lengthy list of Peas—seven varieties of Hotspurs, five of Rouncivals, a very old type, and many others, including the "long crooked sugar Pease eaten as Kidney Beans, Shells and all," the *toute mange*, heard so much of a few years ago. When quite young the pods were eaten raw in salads. Writing of the latter, it is explained that in gathering salads a Pugil is a small handful, and a Fasciat, a large one, but no indication of the size of the "hand" is given. Of Rampions it is said that they have the same culture as Radishes, and "The roots are eaten accordingly, but are reckoned much more nourishing." Evelyn in the *Acetaria* mentions 10 roots of Rampion as enough in one salad.

Orange trees were as popular 200 years ago as perpetual-flowering Carnations are in these days, and, like other plants, they sometimes got into a sickly condition, to overcome which it was advised to water them with milk or milk and water.

The "Kalendar" is sub-divided into sections: Kitchen Garden, Fruit Garden, and Pleasure Garden, and is useful as extending the notes in the earlier part of the volume, and was probably written by another person, if we may judge from its containing dissimilar advice. In this part is the method of protecting Globe Artichokes in winter. The plants were to be cut over close to the ground, then covered with soil taken from between the rows, which is said to be preferable to litter. Once started into growth in spring, the shoots were reduced to three or four on each plant, and the offsets removed and planted to provide heads late in the year. The custom of hanging up Cabbages for seed-bearing, by their stalks, under cover for three or four days before replanting, seems strange. That of cutting off the upper part of the seed-stem in order to strengthen the parts left is, however, admirable advice.

A leaf is devoted to a discussion of "The Modish Way of Having Flowers to Blow in Winter Within Doors." "Modish," it may be explained, was a word in common use to denote anything in fashion, and even preachers of the period, and earlier, employed it in that sense. So that this expression means the fashionable custom of flowering plants in winter, just as it was fashionable to cultivate Carnations that did not burst their calyces, or, as they were termed, "Whole-Blowers."

The directions are so like those given at greater length and detail in *A Flower Garden for Gentlemen and Ladies* that it is impossible not to believe that plagiary has been committed by one or other of the parties, and not improbably this, like the "Kalendar," may be by another hand. The system was to plant spring flowering plants in basins in soil, and bulbs in glasses of water, the bulbs to rest on perforated corks. Kept in a warm room they flowered in winter. *R. P. Brotherston.*

WALHAMPTON.

WALHAMPTON, the seat of Viscount St. Cyres, lies to the N.E. of the Hampshire town of Lymington, and about 1½ mile from it.

A short time ago I had the pleasure of inspecting the gardens in company with Mr. Honess, the head gardener, and saw many shrubs and plants not often found in private gardens. In the forecourt, on the wall, is a fine specimen of Salvia Grahami with Tricuspidaria lanceolata opposite. Rose Mrs. Rosalie Wrinch, in full bloom, was a very effective plant. On the grass is a row of clipped evergreen Oaks, of pyramidal shape—rather an unusual bit of topiary work. Lapageria rosea on north walls in several places was growing well, and in the front of the house, on the wall, were Actinidia Kolomikta, with very pretty foliage; A. chinensis, a very fine specimen, Rhyncospermum jasminoides, and two species of Mutisia.

From the lawn a fine view is obtained over the water on to the Isle of Wight. Near this lawn are the shrub borders, which are being reconstructed, and when finished they will be very effective. Even now they are full of interest. The borders are on each side of a wide strip of grass which leads down to the lake.

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Pittosporums are well represented, and P. Silver Queen was very good. Cistus Silver Pink took my fancy, as did several species of Erica. E. australis was just passing out of bloom; E. cinerea coccinea was in full bloom; it was very striking, and is, I think, the finest variety of all. A splendid lot of Desfontainia spinosa attracted attention, as did several Plagianthuses, P. Lyallii promising a fine show of bloom. Polygala myrtifolia, with its purple blossoms, was very showy. Embothrium coccineum is also very fine here. Leptospermum Nichollii is good, and L. Chapmannii, as large specimens, was smothered with flower buds, which were just opening.

Nearer the water side is a wide border of herbaceous plants, and this was very effective. Close by is the wild garden, a mixture of woodland and water, and one of the prettiest I have seen. There are two pieces of water, one a large pond, and the other a lake. I was sorry to be too late to see the wonderful effect of Azalea colouring from across the pond. Near by is a fine planting of Camellias in variety, all big bushes, and close to these are specimens of Eucalyptus which, planted out four years ago, are now about 30 ft. high, and remarkable examples of these exotic trees. By the water side I noticed a fine lot of an evergreen Fern—Lomaria.

In a sheltered clearing under some large Scotch firs, Musa japonica, I think, is growing, and here are more fine specimens of Eucalyptus, and some large, shapely plants of Tricuspidaria lanceolata, full of bloom, but not so fine as the big specimen at Pylewell. I noticed Metrosideros lucida coming into bloom; this I believe is rather rare and not often seen in flower. Cistus populifolius was very fine, and the evergreen Mitraria coccinea, climbing over a stone pedestal, was brillant in colour. Ixias and Sparaxis were blooming close by, and also a colony of plants in flower, which puzzled me until I got close to it, and found it consisted of Cyclamen persicum, naturalised at the base of the Scotch Firs, with Lachenalia Nelsonii adjoining, but just out of flower.

In a hollow, Richardia Mrs. Roosevelt and R. Elliottiana were growing, and Desfontainia spinosa represented by plants of all sizes, each well furnished with good foliage, and with nothing of the ragged, bare look that so often characterises this plant.

This was my first visit to Walhampton gardens, and I have omitted in this note reference to many interesting plants, but I have not forgotten the kindness of Mr. Honess, or the fine condition of the plants under his care, so many of which are seldom seen in such splendid condition out of doors. Walhampton is a most attractive place, and I was struck by the blending of the foliage of the shrubs, which forms almost a colour scheme. I have never seen this idea worked out before, and it is well worth considering in large plantings of shrubs, as it is very effective; I think I am right in saying that it was Lady St. Cyres' idea, and Mr. Honess has carried it out remarkably well. *Visitor.*

GARDEN NOTES FROM S.W. SCOTLAND.

THE effect of the dismal, dark summer of 1922 has been very apparent in the sparse flowering of many shrubs and trees that bloom on the previous season's growth. Hawthorn, common and alpine Laburnums, Horse-Chestnuts, shrubby Spiraeas, Philadelphus, and several species of Rhododendron are conspicuous examples of this. It is partly due to reaction from the extraordinary profusion of blossom borne by such plants in the summer of 1922, but chiefly to the want of sunshine in that year to mature the season's growth.

But there is one family of shrubs—Olearia—that never vary in the wonderful profusion of flower that they produce year after year. One might have expected that these Daisy-bushes, being natives of Australia, New Zealand, and the Chatham Islands, would be specially dependent on plenty of sunshine to ripen their annual growth; and, in fact, except O. Haasti, it is only in relatively mild districts that they can pass safely through British winters. But "relatively mild" is the character of the climate over a large part of our islands, covering all the south and west coast of Great Britain as far north as Duncansby Head, including the Western Isles, specially favoured districts on the east coast, such as the Moray Firth, and nearly all Ireland. Within that range there are vast numbers of gardens, in very few of which is any use made of Olearias. Yet they are of special value in maritime places, being impatient of overhead shade and enjoying the buffeting of sea winds, nor do they suffer from full exposure to winter gales.

When in flower these evergreens are very decorative. O. stellulata and O. nitida are at their best in May, the latter growing from 8 to 10 feet high.

The leaves of O. nitida are broadly ovate, 2 inches to 3½ inches long, leathery, shining green above and clothed with smooth white tomentum beneath—they are almost entirely hidden by the dense corymbs of white blossom. O. macrodonta follows in June, and is a taller plant which may reach a height of 20 feet (Fig. 22); O. ilicifolia comes into flower a fortnight later. The foliage of both those species is very beautiful in winter. Very different in appearance are O. chathamica and O. semidentata, both from the Chatham Islands, having lanceolate leaves 3 to 4 inches long, very leathery, and clothed on the underside with pure white tomentum; the flowers of both species are solitary on long footstalks, the ray florets of O. semidentata being purple, those of O. chathamica white tinged with purple, the disk florets of both species being dark violet. These flowers have the peculiarity of increasing in size after opening, and measure two inches across when fully expanded. These two species require moderately moist soil, being impatient of drought. O. nummularifolia, again, is quite distinct from any other species that we grow here, a far-spreading bush 6-8 feet high, the branches densely set with very thick, appressed leaves ¼ to ½ an inch long. Unlike others of the genus, it is uncertain in flowering; last year the bushes were white with blossom in July, this summer there is not a flower to be seen.

Olearia Haastii, flowering in July and August, is thoroughly hardy everywhere, and very well known in British gardens; while O. Traversii, tallest of the family, rising to a height of 30 feet, may be recognised from having opposite leaves, whereas in all the other species named here they are alternate. As a flowering shrub O. Traversii is a fraud, the innumerable axillary panicles that promise so fair in bud resulting in a mist of dingy, yellowish blossom. This species is not worth growing, except in a botanic garden.

FIG. 22.—A TREE-LIKE SPECIMEN OF OLEARIA MACRODONTA IN SIR HERBERT MAXWELL'S GARDEN AT MONREITH.

The flora of New Zealand is peculiarly rich in plants of the order Compositae. In the genus Senecio, our own Groundsel and Ragwort are but the poor relations of S. Greyi and S. laxifolia, whereof the sheets of golden blossom are so well set off by the silvery foliage and snow-white, young growth and flower buds. S. Huntii forms a small tree 20 feet high, and S. Hectori, more tender than the rest, is distinguished by its handsome foliage, the leaves being grass green, 6-12 inches long and 3-5 inches broad. The ray florets in this last species are white.

Where the climate will not allow the Manuka—Leptospermum—to be grown in the open, some of the species are well worth training against a wall. L. scoparium, with white flowers, and its varieties Nichollii, with crimson, and Chapmannii, with pink flowers, and L. ericoides (Fig. 21), are the best for such a position; but the full beauty of these graceful shrubs can only be seen where the climate admits of their being grown in the open. Full sunshine and plenty of wind are what they like. L. lanigerum is of more compact habit, making a rounded shrub 6 to 8 feet high. *Herbert Maxwell, Monreith.*

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HARDY FLOWER BORDER.

THE GIANT THRIFT.

Of the many forms of Thrift, Armeria plantaginea gigantea is unquestionably the finest. From close tufts of olive-green foliage, rise stout flower stems to a height of two feet and more, terminating in large, globular-shaped heads of small flowers of a delightful shade of glistening, rosy pink. Another handsome variety is Ruby, bearing globular heads of ruby rose flowers; it is from 15 to 29 inches high. These tall Armerias are very attractive when associated with herbaceous perennials, on account of their bright green foliage and numerous heads of flowers produced on stiff, wiry stems during spring and summer. The dwarf kinds are particularly useful as edging plants, and all the Thrifts are easily cultivated.

ASTER SUBCAERULEUS APOLLON.

This is a showy edging plant, with dense, tufted habit. It flowers from May onwards, and produces flowers in great profusion. These are extra large, fully three inches across, and a pretty shade of lavender blue, with conspicuous orange centre. The whole plant is from 9 inches to 12 inches high.

ASTER DIPLOSTEPHIOIDES.

This species of Aster (see Fig. 23) belongs to the same group as A. subcaeruleus, but is rather taller growing, the flower-stems, which are unbranched, attaining a height of about eighteen inches. It is a very floriferous plant, producing, as the illustration shows, a wealth of mauve-coloured blossoms with a satiny sheen, and set off by a beautiful yellow disc passing to light orange. The flower-heads measure three or four inches across.

The plant grows freely in rich soils, and increases rapidly by means of surface runner growths. It is best grown in a mass, when it presents a beautiful patch of colour, and the blooms supply excellent material for decorative purposes in the dwelling-house.

MORINA LONGIFOLIA.

This is a hardy herbaceous perennial that attracts many growers by reason of its handsome spiny foliage, and singularly strange resemblance to the Thistle family. It is from the Himalaya. The large, spiny tufts of evergreen, prostrate leaves are very effective, and from June to September spikes from 2 feet to 3 feet high rise erectly, and are as attractive as anything I know. The flowers are produced in whorls on the erect, stately stems, and are a pretty combination of rose and white, with a very agreeable aromatic odour. The plant requires an open position, in ordinary well-drained, deep and fairly moist soil.

SUNSET LUPINS.

The perennial border contains many beautiful flowering plants, and is illuminated by their grandeur during certain months in the year, but few plants suitable for the herbaceous border produce flowers of such varied hues and colour combinations as the Sunset Strain of Lupinus polyphyllus. The inflorescences are from 12 inches to 18 inches long and borne on tall, stately stems. Such Lupins are practically indispensable during May and June, as their pyramidal branching spikes and beautiful foliage are extremely effective. The plants revel in a fairly deep and rich soil, in full sun or partial shade, and if severe cutting away of the early flower heads is practised as they fade, a second crop of flowers will be produced during the autumn when they will be highly appreciated.

FIG. 23.—ASTER DIPLOSTEPHIOIDES.

NEPETA MUSSINII.

One of the most attractive of Catmints, Nepeta Mussinii is already a garden favourite. Introduced from the Caucasus during the early part of the 19th century, this Nepeta is unquestionably one of the most desirable perennials to form edgings to herbaceous borders, carriage drives, or indeed to plant anywhere where a permanent edging is in request, furnishing, as it does, dense, neat prostrate tufts, and numerous lavender-blue flowers in great profusion, from 15 inches to 18 inches high, from May until September. It is easily propagated by division or cuttings.

Nurserymen have made selections of this continuous blooming plant and forms of a better habit than the type, and with superior coloured flowers are now available. *W. Logan.*

AQUILEGIA CAERULEA MRS NICHOLLS.

Among the numerous improved forms of Aquilegia this form of caerulea is decidedly the best. The individual flowers are much larger and of a deeper colour than the type, and when seen growing in a mass the effect is beautiful. *Paul T. Moore.*

NOTICES OF BOOKS.

The Origin of the Bagatelle Rose Gardens.

"Bagatelle is two hundred years old; its history is composed of little tales, little names, little costly, elegant trifles, the toys of princes . . ." Thus the author of this very interesting little work* commences his historical description of the tiny estate in the Bois de Boulogne, of which the "château" was built during 1775, in two months of frenzied night and day labour to satisfy the caprice of a boy-prince.

The first Bagatelle, however, was in existence in 1716, during the Regency, although the exact date of construction of the original building is not known. Bagatelle was much further from Paris in those days than it is now, and the Bois de Boulogne, of which the estate had originally formed a part, made it a delightfully quiet retreat. So thought the Regent, who thoroughly appreciated its discreet retirement; so, a little later, thought the emancipated Louis XV.; so also, later still, thought his grandson, the young Comte d'Artois, in the gay spring-time of his life—the same count, who, in the sad years which followed his return from exile, was glad, in old age, to get back to the little château and its peace and quietness once more.

When the young Comte d'Artois took over Bagatelle, he was dissatisfied with the château and determined to replace it. He had at one time the astonishing intention of building it on the Mont Valérein itself, whose beautiful wooded slopes formed one of the most charming of the views of the vicinity. Luckily he found the site unsuitable and abandoned the idea. The author of the book under review tells in some detail the well-known story of the building—how the prince took a whim into his head to give, in the new house, a feast to his young sister-in-law, Queen Marie Antoinette, on a day scarcely two months distant. It was not difficult in those days for a prince to indulge his caprices. For instance, when building stone was found to be lacking, Swiss guards were sent along the roads to commandeer—for cash to the full value, be it said—any carts of this material which happened to be passing! The little château cost its owner in the end 1,200,000 livres, the approximate equivalent of a pre-war three million francs. However, he recovered 100,000 livres from the queen, who had wagered that sum that he would not have the château ready in time for the fête.

At the end of the eighteenth century, what were known as "English gardens" had begun to be popular; gardens, that is to say, which had curved paths instead of straight ones, artificial brooks instead of square, stone-rimmed ponds, and grass lawns in the place of paved walks. Nowadays these gardens would not seem very natural, but then they were considered triumphs of imitation, and English gardeners were specially imported to form and tend them. Such a gardener the Comte d'Artois introduced to Bagatelle in the person of one Blaikie. The young proprietor asked for, and easily obtained from his all-too-complaisant royal brother, permission to enlarge his little domain at the expense of the Bois de Boulogne, and it contained then about 16 hectares, enough for Blaikie to work on with success.

One of the chief attractions of the garden was a water pump, suitably disguised, by which water was drawn up from the Seine, and ran through the grounds with quite a "natural" effect. Unfortunately, either because money ran short or from some other cause, the "river" which was to run through the gardens and surround several artificial islets, stopped short half way, so that one of the islets, prematurely and rather gloomily named "L'Ile des Tombeaux," remained high and dry.

Belanger, the architect of the house, who had a considerable share in designing the gardens, gave (or was to have given) some years later a lecture on gardening, which he concluded by

* *Bagatelle et ses Jardins*, by J. C. N. Forestier, Conservateur des Promenades de Paris. 2nd Edition. Paris, Librairie Agricole de la Maison Rustique, Rue Jacob, 26.

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this ponderous peroration, in a style of oratory then immensely admired :—

'Choisir un site salubre, productif et agréable, enrichir son voisinage de tous les différents aspects que peut conquérir la vie pratique, des promenades . . . y réserver des repos, élever des autels à Flore, à Céres, à Pomone, à la Céleste Amitié, tel doit être le but, qui conduit l'homme sensible à se créer un jardin. . . ." ("To choose a salubrious site, productive and agreeable, to enrich it in every way possible, to prepare pleasant ways, to encourage repose, to raise altars to Flora, to Ceres, to Pomona, to friendship, such should be the aim of the man of refined taste, when he would make to himself a garden.")

The gardens at Bagatelle had a great vogue for the few last years before the Revolution: all the fashionable world of Paris at times strolled along its winding paths, admired its artificial streamlet, or supped pleasantly in the little château. Then came the first mutterings of the coming storm; in 1789 the stream of wealthy emigrants began to cross the frontiers. Bagatelle, deserted by its owner, was for three years a prey to the malicious and idle curiosity of the Paris crowds, and even after that, though nominally cared for by the State, was used as a picnic ground by all and sundry.

Not until 1812 did Bagatelle again become a royal residence. Nor was it the proud Bourbons who now graced its gardens, but the puny King of Rome, Napoleon Bonaparte's only son, who was brought there by his nurse to breathe the pure air of the Bois. Three years later came another turn of fortune's wheel, and Bagatelle was again abandoned. Later on, the old Comte d'Artois, no longer the dashing youth of bygone days, gave the little estate to his son, the Duc de Berry, and for a time it seemed as though Bagatelle might enjoy a permanent revival; but 1830 came, and exile again, and after years of neglect, and almost oblivion, it passed into the hands of an Englishman—Lord Yarmouth, soon afterwards to become Marquis of Hertford.

"Lord Yarmouth," says the author, with a touch of good-humoured sarcasm, "is declared, for the sum of 313,100 francs, owner of Bagatelle and its water-pump!" Perhaps the gardens did then contain little of value besides the pump; at any rate, Lord Hertford, though anxious to preserve every possible amenity, seems to have made considerable alterations in the gardens, levelling the steep slopes beyond the Orangery, and making a horse-ride. The new owner of Bagatelle was fortunate in being able to acquire a little more land, and the total area become 24 hectares, as compared with 16 in the time of the Comte d'Artois. Lord Hertford also made some alterations in the château, chiefly in the shape of the roof and the rooms on the first floor. A landscape gardener named d'Alphand was employed to remodel the garden, and it is to him that the large lawn at the east of the pavilion is due, besides other improvements.

Lord Hertford died in 1870, but Sir Richard Wallace, his son, was quite as interested in Bagatelle as his father had been. He it was who removed the Pages' House, and built another small dwelling known as Trianon, which, however, was never inhabited. M. Forestier regrets the disappearance of Pages' House, and also the fact that the alterations made in the château have marred the graceful lines of the original; but he admits, both in father and son, a "goût passionné" for Bagatelle and its surroundings.

After the death of Sir Richard Wallace in 1890, Bagatelle fell into desuetude. In 1903, rumours were heard that it was to be sold by auction, and it is to the credit of the Paris municipal authorities that, with the energetic aid of M. Forestier, they never rested until in 1905 they were able, for the sum of six and a half million francs, to add Bagatelle and its gardens permanently to the amenities of the Bois de Boulogne.

According to M. Forestier, Kew was the model which he and the authorities had in mind when planning the development of Bagatelle. The idea of the Rosary, where practically every variety of Rose known to horticulture should find a place, seems to have been evolved by degrees. The collection was generously started in 1907 by M. Gravereaux, who sent a large number of named specimens; and there are now no fewer than 12,000 different varieties. None of these, however, dates back for its introduction further than the beginning of the 19th century; the oldest is Rose du Roi, introduced in 1812.

The author, now on his own ground, as it were, leaves the historical aspect of Bagatelle, and discusses its present condition. He frankly condemns the soil, from the Rose-grower's point of view. "It is of such bad quality," he says, "that good soil has had to be imported in considerable quantities; in spite of every care, Roses at Bagatelle are frequently not so free-flowering as they are in private gardens. The soil," he adds elsewhere, "is composed of sand and gravel, very unsatisfactory (*ingrat*) for every kind of cultivation." It seems a pity that these conditions should await the new Roses sent each year by hopeful growers; for in Paris at least the results of the trials would carry weight.

The author gives an interesting account of the rest of the gardens—for the Rosary is only a part of the domain, though, perhaps, the part nearest to M. Forestier's heart. He gives a useful list of the Roses, under their various sections, and also lists of novelties to which awards have been made in the various trials. A final chapter, unnamed, consisting of a discourse on gardens in general, is less interesting than the remainder of the book; which, however, in spite of its real interest, and the patient research it must have occasioned, is, we are bound to admit, poorly arranged. The method is apparently chronological; yet the account of the acquisition of the gardens by the municipality, omitted in the first edition, now forms a kind of preface. After describing the vicissitudes of the estate, and bringing us safely to the year 1905, the author jumps back, and gives some very valuable contemporary accounts of Bagatelle under the Comte d'Artois, which would have been much more appropriately placed in their datal order. Then the illustrations, though excellently chosen and reproduced, are not all quite happily placed; for instance, a view of the modern Rosary flanks one of the obelisk and cascade in 1780; and a view of Bagatelle in that same year is placed opposite the text which describes the old château, demolished three years previously.

These small defects, however, can easily be remedied in any future editions of a book which should prove of value to all who are interested in horticulture and the annals of Paris.

FIG. 24.—HYACINTH VAN TUBERGEN'S SCARLET.

THE BULB GARDEN.

VAN TUBERGEN'S SCARLET HYACINTH.

I THINK there is ample room for a good bright, deep red Hyacinth, which lends itself to "early work." General Pelissier is a good old variety; but it is not to be compared with Van Tubergen's Scarlet. The new comer is a sport from the old, but not over well-known deep claret, Distinction, and has very much the same habit of growth. The flower spike is on the small side, but what it lacks in size it more than makes up for in its smart, refined appearance. The photograph (Fig. 24) was taken on December 23, 1922.

I ought to add that the bulbs of the plants shown in the photograph had been "prepared." There is no doubt very considerable strides have been made of late years in the technique of their preparation, and I would urge my English friends to take advantage of this and cultivate "prepared" Hyacinths largely. Treated exactly the same as ordinary bulbs, I find they bloom from ten days to a week in advance of them. *Joseph Jacob.*

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ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM GRANDE AND ITS ALLIES.

ODONTOGLOSSUM grande, the largest and one of the most beautiful members of the genus, has been well represented in gardens since it first flowered in the collection of the Duke of Bedford, at Woburn Abbey, in 1841, from plants collected by Mr. G. Ure-Skinner at Guatemala. Many importations have been made since then, the flowers showing considerable variation in occasional forms, although the large yellow with deep chestnut-red markings is the type. O. grande Pittianum is almost entirely yellow, and there are other forms with slight markings.

Odontoglossum Insleayi, collected in Mexico, flowered in gardens about the same time as O. grande. It is of similar habit and colour, and some variation is shown in different importations, the varieties splendens and leopardinum being the showiest, whilst Mr. C. J. Lucas's O. Insleayi aureum is wholly yellow, like the colour-suppressed form of O. grande.

O. Schlieperianum, now flowering in several gardens, and which was first imported from Costa Rica, is intermediate in character between O. grande and O. Insleayi, and some variation in the colour of the flowers occurs, the light yellow form being now in flower with Messrs. Sanders.

But the interesting point which deserves attention in these days of intensive hybridisation, when other members of the genus have been crossed with most other members of the class—and with others of different genera, including Cochlioda, Miltonia and Oncidium—is that no satisfactory record of hybridising any member of this section with other Odontoglossums, or of intercrossing the three species referred to, has yet been given. O. Williamsianum, a reputed natural hybrid between O. grande and O. Insleayi, which flowered in the collection of Comte de Germiny, near Rouen (Rchb. f. *Gard. Chron.*, Vol. XVI., 1881, p. 134), at that time a rare plant, imported from Costa Rica, probably with O. Schlieperianum, has always been considered a very doubtful record, for it is not authenticated that the two supposed parents grow together. Subsequent importations of O. Schlieperianum have produced similar forms to the one named Williamsianum, as well as connecting varieties of the type. In 1895 Mons. Charles Vuylsteke was reported to have raised O. Insleayi × O. crispum, the former being the seed-bearer, but the plants seem to have failed to mature. Probably others have had experience in crossing these, and their remarks would be interesting and might help a very desirable effort to make the "break" which would open up a new class. Even crossing the species of this small section should give interesting results, and among other points might settle the question of the O. Williamsianum record. *J. O'B.*

ONCIDIUM TIGRINUM.

ONCIDIUM TIGRINUM is a most useful winter-flowering Orchid, which makes better growths when cultivated in an intermediate temperature than when subjected to cool treatment. It has been resting since maturing its pseudobulbs last season, but is now beginning to grow again. Until the flower spikes appear in the young growths, very little water should be given the roots, but as the spikes and growth develop, the supply of moisture should be increased. When new roots develop any necessary repotting may be done. If the plants are exhausted by the strain of flowering, it is advisable to remove the spike forthwith. It is not good policy to attempt to flower the plants two years in succession.

EPIDENDRUM VITELLINUM MAJUS.

THE winter flowering variety of the brilliant Epidendrum vitellinum majus is a cool-house Orchid which should be repotted when the new growths are about to develop fresh roots. Employ shallow pans furnished with ample drainage, and either suspend the pans or stand them on the stages near the roof glass in a light, airy part of the cool house. Water should be applied sparingly during the early stages of growth, but when the roots become active, more liberal supplies are necessary, until the season's growth is completed. During the resting season only sufficient water is needed to prevent the pseudo-bulbs shrivelling. *J. T. B.*

CULTURAL MEMORANDA.

LACHENALIAS (CAPE COWSLIPS).

As the most suitable time for planting Lachenalias is approaching, possibly a few notes with reference to their successful culture may be welcome. It is a Cape bulb, and although introduced many years ago, it appears to be too seldom grown, considering the minimum of trouble it gives and the beauty of its flowers and foliage. The former resemble pendulous bells set round a stout stalk, which is some six to eight inches high, and the colour is generally of a greenish yellow shade, occasionally marked at the edges by red or crimson. The foliage is in some varieties blotched with dark splashes, somewhat similar to the leaves of our British Orchis maculata. As soon after July as the bulbs can be obtained they should be planted in 6-in. pots, four to six in each pot. A mixture of sand, leaf-mould, and a little old turfy loam will suit them well. No water will be required until growth commences. A cold frame will suit them until severe weather is at hand, then, as they are but half hardy, a greenhouse is the most suitable place for them, and if a temperature of 45° to 50° is maintained they will thrive and flower about April.

Lachenalias may also be grown in a warm, sunny window in the dwelling house, yet not quite so happily. I must, however, confess that my interest in these plants was first created by seeing a potful of them blooming freely in a cottage window. After flowering the plants should be gradually dried off by withholding water. Repotting the plants annually is not necessary; the exhausted soil may be removed down to the bulbs and fresh material added. Suitable kinds are Nelsonii, golden yellow; L. pendula, red, edged green and L. tricolor, orange, yellow, and green. *T. D. T.*

PLANT NOTES.

HELICHRYSUM HUMILE.

THERE are several varieties of Helichrysum, which, like Phaenocoma, has beautiful, so-called "everlasting" flowers. This plant succeeds under the same cultural conditions as Phaenocoma, and may be propagated at this season of the year by means of half-ripened side-shoots, failure to root them successfully generally results from careless trimming of the cuttings. In days gone by this plant was better known under the name of Aphelexis humilis. *C.*

AOTUS GRACILLIMA.

THIS beautiful Australian greenhouse plant may be successfully propagated during July by means of half-ripened, twiggy side-shoots, which root readily in a sandy soil, stand the cutting pots under a bell glass in a cool greenhouse. Aotus gracillima, with its slender, drooping shoots, is seen to best advantage when grown as small standards. To obtain good heads it is best to stop the young plants once, and, when they break, to train up two or three shoots, rubbing out all side-shoots until the stems are 2½ feet to 3 feet high, when they should be pinched for the formation of the future head. Established plants, which flower during the spring, should be pruned hard after they have finished flowering. A few cuttings should be inserted each year, as the plant is not long-lived under cultivation. *J. C.*

CABBAGE ROOT FLY.

AMONGST the disasters which are caused by the Cabbage Root Maggot there is one which is not mentioned on p. 25 (*Gard. Chron.* of July 14 last), yet, so far as I have observed, it seems always correlated therewith. I refer to "going blind" in Broccoli, etc. The heart bud fails and no head develops. At much later dates some side shoots may develop, but for a long while the few existing leaves merely ripen and grow to some extent. Examination of such plants always reveals root maggot damage.

This "going blind" is a useful index when finally planting out from a nursery bed; in fact, the greatest use of the nursery bed planting seems to be a mode of combating the pest. It seems especially after planting from the seed bed that attack takes place, for the remaining plants in the seed bed do not, in my experience, usually show signs of the mischief. By the use of the nursery bed, one not only obtains more stocky plants and more resistance to removal, but one can select specimens which have not been fly-infested. The causation of the production of tiny heads in Cauliflowers is more often due to conditions of temperature and other checks to uniform and rapid growth; thus, usually, a superfluity of wintered seedlings leads me to plant some out. Without protection, and given cold or uncongenial weather, the results are miserable, whilst plants for which protection can be afforded progress well.

On the whole, I think that the Red Cabbage varieties are less prone to attack than others, but I have seen them badly stricken. Some defoliation when planting out most seedlings generally leads to aerly accession of vigour,

Another point, which is perhaps not without importance in combating the pest, arises from the observation I made some years ago, that, when pupating, the maggots locate themselves some inches from the stem, in the zone of the peripheral roots. The result is that when the plant is simply pulled out of the ground, the pupae remain well protected from wandering birds; if, however, a spade is used and the infested ground loosened and turned, there is a better chance for birds to pick them up.

With regard to deterrents; some years ago I tried safrol, in the form of artificial Sassafras oil, about 10 c.c. of which was incorporated with sifted sawdust (one pint shaken down); the dust was heaped round the plants and caused them no inconvenience; unfortunately, that season there was but little attack by the fly and too few of the controls suffered. I have not yet retried this material. Nitrobenzol was tried the same season. Otherwise, I have used the tarred squares and relied upon selection from the nursery bed.

When the reddened, coppery appearance of a leaf is recent, I have succeeded in getting good plants from stricken Cabbages, but not Cauliflowers, by digging them up carefully, placing the whole root with much earth in a bucket of water, and carefully washing away all maggots and soil: the plant is then replanted by puddling it in. Watering with thiocarbonate of potash or saturated solution of carbon disulphide has had no good effect; perhaps from too late an application, for damage is really done before it is appreciable from inspection of the growing plant. *H. E. Durham.*

FRUIT REGISTER.

STRAWBERRIES UTILITY AND THE EARL.

DURING the present drought and on a light, dry soil, Utility and The Earl have alone given good crops; nine other varieties of Strawberries have failed. It is very refreshing to see it announced that copious rains have fallen in certain parts of the country, but in this district the ground is practically dried out. Our rainfall for the past two months amounted to only 0.91 inch. In these conditions our Strawberry beds are dried up, so there is no prospect of obtaining runners. *A. B. Wadds, Englefield Gardens, Reading, Berkshire.*

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HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Gardeners' Wages (see p. 10).—The low wages paid to gardeners is not, as some correspondents have suggested, a post-war problem, but the result of a system that obtains in no other trade or profession. The head gardener in a large establishment received low wages, but was allowed house, light, coal, vegetables, fruit, and often milk, butter, rabbits, game and other foodstuffs for himself and family. To this may be often added prize money, judging fees and, at one time, 5 per cent. commission on everything purchased for the garden. These allowances converted a low wage into a comfortable income. Now comes the injustice of this system. The wages of foremen and journeymen were based upon the head gardener's *wages* and not upon his *income*, and their allowances were usually bothy, milk and vegetables for self only. The wages paid to gardeners in smaller establishments in the same district were also based upon the wages paid in the large establishments, while the allowances were proportionately smaller. To alter this system now would be very difficult, but the fact remains that gardeners should be paid wages commensurate with their knowledge and ability, and should themselves pay for their house, light, food, etc. Much has been written regarding organisation and the failure of previous attempts to organise gardeners. I am fully aware of the difficulties attending organisation, also the evils that exist in the trade union movement, but those who are ready to condemn unions should remember that even in a public parks department the trained gardener does not receive as much in wages as the blacksmith, painter, or carpenter employed in the same department. This seems still more strange, when we know that the majority of men in charge of such departments are gardeners. Is there a remedy? It seems to me the race of men is fast dying out or going into retirement who have raised the standard of British horticulture to the high position it now holds. Will these men, who have great influence with all garden lovers (and all good employers are that), devote the remaining years of their lives to an endeavour to make the workers in the garden as happy as they tried to make the plants in their garden? *S. Alvia.*

Claytonia perfoliata.—I read with interest your reply to *J. F.*, in your issue of July 21 (p. 50), regarding the Claytonias. It recalled to me the fact that when botanising in the S.E. of Kirkcudbrightshire, along with the late Mr. M'Andrew, between twenty-five and thirty years ago, we came upon a colony of Claytonia perfoliata in a secluded glen at a considerable distance from any other place we knew, or afterwards found, where this plant was observed. Mr. M'Andrew, perhaps the best-informed botanist of the south-western counties of Scotland, with the exception of Mr. G. F. Scott-Elliott, told me that it occurred in a naturalised state in several areas in the district, but that these were widely scattered, and in most cases a good way from each other. *S. Arnott.*

Sparrows and Cerastium tomentosum.—Referring to the interesting note by *J. P. Carlisle*, on page 43, it is to be feared that sparrows do not confine their attentions to Cerastium tomentosum, or, as an alternative, to the flowering stems of Alyssum saxatile. They are particularly destructive to some of the Mossy Saxifrages, and good masses in my garden have been badly mutilated in former years by these birds. Your correspondent's information about the traps is good news, and many folks who have trouble with sparrows in their gardens will probably discover whether traps will be effective, even if unbaited and "unset." One wonders if these would prove of any use in keeping sparrows away from the golden Crocus, that beautiful spring flower these birds delight in pulling to pieces? *S. Arnott.*

SOCIETIES.

IPSWICH CENTENARY SHOW.

THE centenary show of the Ipswich and East of England Horticultural Society was held in Christchurch Park on Wednesday, the 11th inst., and it was a conspicuous success as well from the point of view of the number and excellence of the exhibits as from that of the management. The great marquees, completely filled with groups of plants and flowers and artistic table decorations, were admirably arranged to enable the individual exhibits to be inspected without the slightest personal inconvenience, except that caused by the weather, over which neither the officers nor the committee responsible could be expected to have control.

Christchurch Park is an ideal venue for a flower show, but the heat on the 11th inst. was so intense that it was quite impossible to enjoy the many handsome features in any degree of comfort. Officials, judges and visitors alike suffered, but the fact that it was the finest display of plants and flowers that has ever been brought together in East Anglia remains incontrovertible.

Roses were superb and numerous, and the competition in practically all the principal Rose classes was exceedingly keen. Messrs. Frank Cant and Co., Colchester, secured the first prize and challenge bowl for 36 blooms, distinct, with a set notable for its excellence; Messrs. B. R. Cant and Co. and Messrs. D. Prior and Sons followed in the order named. Messrs. B. R. Cant and Co. and Messrs. D. Prior and Sons were first and second prize-winners for 12 Roses distinct; while for 12 Teas, distinct, Dr. Pallett, Earl's Colne, with a refined and beautiful exhibit secured the premier position; Messrs. D. Prior and Sons were second for Tea Roses.

In the grand centenary class for a representative group of Roses arranged on a floor space of 12ft. by 10ft. Messrs. A. J. Allen, Norwich, were handsomely first, with Mr. Walter Easlea, Leigh-on-Sea, as a keen runner-up. Messrs. B. R. Cant and Co. won for a representative group of cut roses, and were followed by Messrs. Morse Bros., Woodbridge. Roses were splendidly shown in several classes by amateurs.

The display of Sweet Peas was of surprising excellence and extent when the weather is taken into consideration. The open class for a collection arranged on a table space 18ft. by 5ft. was won by Messrs. R. Bolton and Sons, Baythorne End, with a magnificent exhibit in which colour, size, refinement and artistic arrangement were all alike conspicuous; this being the firm's third win in the class, the challenge trophy, presented by the President of the Society, Sir F. J. C. Ganzoni, M.P., becomes Messrs. Bolton's property, but they can still look ahead, since the donor has promised to provide another trophy. In the section for amateurs' Sweet Peas Mr. A. E. Garrod, Stowmarket, was easily the most successful competitor with several beautiful exhibits.

Carnations were excellent in quality, but not as numerously staged as might have been anticipated, especially by amateurs. In the open classes Mr. H. Lakeman, Thornton Heath, carried all before him. There were several classes for various cut flowers and the contests were noticeably keen owing to the general high standard of the exhibits. Similarly in the pot plant classes, but here the individual exhibits were not, as was only to be expected, so numerous.

Table decorations and other classes calling for artistic arrangement were delightfully displayed and caused the greatest enthusiasm and the inevitable controversies as to respective merits. Open and local classes for fruits and vegetables demonstrated the patience and skill of many growers and were very creditable throughout.

All the praise for the collective excellence and beauty of the show must not, however, be accorded to the competitive sections. There were beyond these the trade displays, and they may be described in a word as magnificent. The fact that Mr. R. C. Notcutt, Woodbridge, secured the coveted challenge bowl for the best trade exhibit must not be taken to mean that the others were substantially inferior—the margin between the best and the remainder was a thin line which left every contributor in an honourable position. Among those represented were Messrs. Thompson and Morgan, Ipswich; Mr. J. Mann, Ipswich Arboretum; Mr. H. J. Pierce, Ipswich; and the Britannia Nurseries, Ipswich, with the several firms whose names are recorded as showing Roses, Sweet Peas and other things in the competitive classes.

ELSTREE AND DISTRICT HORTICULTURAL.

THE exhibition held annually by the Elstree and District Horticultural Society is one of the best of the village flower shows in this country, and, notwithstanding the unfavourable season, the exhibition this year, on Saturday, the 7th inst., was again a remarkably fine one. The show is held in Aldenham Park, and the gardens of Aldenham House are thrown open to the inspection of visitors, constituting, as one of the speakers at the luncheon aptly described it, one of the finest non-competitive exhibits attached to any show in the country. In other directions, the Hon. Vicary Gibbs gives valuable support to the show, including his services as a judge in the more important classes.

The day was gloriously fine, and large numbers of visitors were present, the majority taking the opportunity of inspecting the Hon. Vicary Gibbs' beautiful gardens, which were in their full summer glory. The chief attractions, besides the summer bedding, were the seedling Delphiniums, the new Bamboo garden, and the houses of Streptocarpus and scented-leaved Pelargoniums, the collection of the last being the most complete in the country.

This exhibition is noteworthy for Roses and Sweet Peas, and on this occasion some outstanding exhibits of these flowers were staged. In the class for an exhibit of Roses occupying a space 9 feet by 3½ feet, Messrs. CHAPLIN BROS., winners of the first prize in 1923, again excelled, and their exhibit was so excellent the judges awarded it a special commendation in addition to the first prize, which included a silver challenge cup. They arranged their blooms in tall pillars with epergnes at the corners, one sort in each stand, the more notable varieties being K. of K., Isabel Innocence, Mrs. Henry Morse, Lady Pirrie, and the Rev. Page Roberts. Messrs. HARKNESS AND CO. were awarded the second prize; and Messrs. F. CANT AND CO. the third prize.

In the class for twelve distinct varieties of Roses Mr. J. H. HART, Potters Bar (gr., Mr. A. J. Smith), last year's winner, was again successful. His blooms of Mabel Drew, Caroline Testout, Joseph Hill, A. E. Coxhead, and Molly Bligh were of outstanding quality; second, Mr. G. I. E. Pryor, Preston, Hitchin, who had fine flowers of Modesty and Nellie Parker.

Sweet Peas were of equal merit as the Roses, and Mr. EUSTACE E. PALMER, Drayton House, Sherfield-on-Lodden, Hampshire (gr., Mr. J. Dibben), was successful in the majority of the classes. This exhibitor won first prize for twelve distinct varieties, with exceptionally fine flowers of Tangerine, Mrs. A Hitchcock, Valentine, Constance Hinton, Mrs. Tom Jones, Geo. Shawyer, and others. Mr. J. GUTTRIDGE, Woburn Green, who was placed second, had splendid vases of Jean Ireland, Bunty and Royal Scot. Mr. PALMER excelled easily in the class for six distinct varieties in which four competed. His outstanding varieties were Orchid, Hebe and Constance Hinton. Mr. GUTTRIDGE was again second; he showed a very excellent vase of Royal Scot. Mr. PALMER was also successful in Messrs. Sutton and Sons' class for six bunches of Sweet Peas, and in the colour classes for (*a*) pink, with Elegance; (*b*) lavender, with Orchid; (*c*) cerise, or scarlet cerise, with Royal Scot; and (*d*) crimson, buff, or ivory, with Matchless. Dr. LEGGATT (gr., Mr. E. J. Pratt) had the best vase of a white variety in Constance Hinton, and the best vase of a crimson or scarlet variety in Charity.

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Non-competitive exhibits added greatly to the success of the exhibition. Messrs. SUTTON AND SONS staged a magnificent display of Sweet Peas, for which a Gold Medal was awarded. Sweet Peas of extraordinarily good quality were also staged by Major ALBERT PAM (Silver-gilt Medal), and by Messrs. IRELAND AND HITCHCOCK, Marks Tey (Gold Medal).

Mr. J. C. ALLGROVE, nurseryman, Middlegreen, Slough, showed Roses of exhibition quality in boxes (Silver-gilt Medal). Mr. AMOS PERRY showed a comprehensive exhibit of hardy flowers interspersed with specimen hardy Ferns (Silver-gilt Medal). Mr. C. ENGELMANN had one of his outstanding exhibits of Carnations (Silver-gilt Medal). These flowers were also well shown by Messrs. W. CUTBUSH AND SON, who, in addition to Carnations, staged a number of greenhouse plants (Silver Medal). Messrs. CARTER, PAGE AND Co. put up a very large exhibit of hardy flowers, alpines and Dahlias (Gold Medal). The most remarkable, however, of all these exhibits was the collection of one hundred and fifty dishes of vegetables staged by Mr. BECKETT. It is difficult to know how to appraise each succeeding exhibit of vegetables by Mr. BECKETT, but this certainly was one of the best he has ever shown, and we have never seen Peas of better quality, from either Mr. BECKETT or any other exhibitor, the pods of Quite Content variety being magnificent. All kinds of vegetables from Potatos to Mustard and Cress were included in the collection, and the judges awarded the exhibit a large Gold Medal and special Silver Cup.

BRITISH MYCOLOGICAL.

ABOUT twenty-five members of the British Mycological Society visited the South-Eastern Agricultural College, Wye, on Saturday, July 7. This was the first purely phytopathological meeting of the Society, and it was appropriate that it should be at such an active centre of research. After Mr. E. S. Salmon, Head of the Mycological Department of the College, had given a short sketch of the manner in which it was proposed to spend the day, the College Farm was visited. A walk through a field of Potatos, on the look-out for "mosaic," "leaf curl," and the similar peculiar troubles that the Potato is heir to, led to the experimental Hop garden, with its large numbers of varieties, where examples of the "mosaic" disease of the Hop were shown. Plots of Wheat and of Barley, where the treatment of the seed with formalin for the control respectively of "Bunt" and "Covered Smut," is being investigated, were then inspected.

The party was then conducted by Mr. Ware over the Botanic Garden, which is managed for the production of class material. Numerous Grasses exhibited their appropriate rusts, and a Barberry bush showing a few aecidia was a sufficiently rare sight in these days to interest several of the party. The disease of Red Clover caused by Glaeosporium caulivorum was in evidence, and it could be seen very clearly that certain strains of the Clover showed a marked resistance to the disease. The variety trial plots of Wheat and Barley were then visited, and the incidence of Rusts noted. A return was then made to the College, where an excellent lunch was provided by the Governors and Principal, in the fine old monastic refectory. The visitors found the brand of cider affected by the college exceedingly attractive.

After lunch the party divided, Mr. Salmon and Dr. Wormald explaining their researches to the two sections in turn. The former showed his new varieties of Hop, resistant to Hop-mould (Sphaerotheca humuli). Different plants were on view exhibiting all degrees of attack, from complete susceptibility, through semi-immunity to complete immunity—a more striking series, or one more clearly displayed to the naked eye, could scarcely be imagined. The exhibition of plants of immune and susceptible varieties twining around each other ought to convince even those Hop growers who argue that the plants become mildewed owing to the soil, the cold east wind, or the acts of the King's enemies.

Dr. Wormald showed cultures of "Brown Rot" fungi, where the differences in growth of Sclerotinia fructigina and the forms of S. cinerea referred to for convenience as S. f. pruni, S. f. mali, and S. f. americana, are very clear. He further demonstrated his inoculation experiments of crown gall on young Apple stocks and parallel cultures of the organism he has isolated from Apple galls, with strains of Bacterium tumefaciens obtained from America. Cultures of organisms associated with a bacterial leaf spot and die-back of Cherry and Plum together, with preliminary inoculation experiments, were exhibited.

An adjoining farm was then visited, where there is a severe attack of "blindness" in Barley, caused by Helminthosporium gramineum. The fruit plantations had the usual Apple mildew, Apple Scab, brown rot of Plums, etc., and gave rise to a number of interesting discussions. By this time the high temperature was producing a physiological drought, and tea in the delightful old library was much appreciated—the College-grown Strawberries vied in popularity with the cider at lunch.

Mr. F. T. Brooks, chairman of the sub-committee for Plant Pathology, in proposing a vote of thanks to the governors, principal, and the members of the Mycological Department, spoke of the high position the College held in matters of plant pathology, and Mr. J. Ramsbottom hailed the head of the Department as the father of British Plant Pathology.

Much was seen and discussed during the visit which was one of the most enjoyable of any made by a society which has a reputation for pleasant meetings. The Phytopathological excursions will certainly become an annual event—and Wye has set a very high standard.

READING GARDENERS'.

NEARLY one hundred members and friends of the Reading District Gardeners' Mutual Society paid a visit to the University College Gardens, Shinfield, on Saturday, July 14, with the object of inspecting the Sweet Pea Trials of the National Sweet Pea Society, carried out by Mr. A. J. Cobb, Trial Superintendent of the Society. There were 150 lots, the seeds being sent by experts residing in all parts of the country, and supposed to be of new varieties or improvements on old varieties. Owing to the very hot weather experienced the blooms were slightly past their best, yet the trials were very interesting. Other things to interest the visitors were Tomatos, one house alone containing 1,300 plants. Grapes, the vines having been grown from eyes planted by the students in January, 1921, and transplanted the following July. These were fruiting for the first time, each vine averaging ten bunches, Carnations and Peaches (Violet Hâtive was ready for gathering). The outdoor fruits, as in other districts, are not doing so well as usual; in fact, Cherries and Plums are failures, and Apples only a fair crop, the best cropping varieties being Newton Wonder, Worcester Pearmain, and Cox's Orange Pippin.

In connection with this meeting a Sweet Pea competition was held for the members, and notwithstanding the unfavourable weather the flowers have experienced some fine blooms were shown, although short in stem. The judges' awards were as follow:—For three vases of Sweet Peas, three distinct varieties, twelve stems to a vase, own foliage, 1st, Mr. J. B. LOWE, Croft House Gardens, Pangbourne; 2nd, Mr. H. WELLAND, Merton House Gardens, Reading; 3rd, Mr. F. J. GREEN, Aldermaston Court Gardens. One vase of Sweet Peas, one variety, eighteen stems, own foliage.—1st, Mr. W. GOWER, Calcot Grange Gardens, with Sutton's Black-seeded Cream; 2nd, Mr. J. B. LOWE, with Royal Scot; 3rd, Mr. H. WELLANDS, with Mrs. Tom Jones. One vase of Sweet Peas, mixed colours, eighteen stems, own foliage.—1st, Mr. H. REEVES, Broadfield House Gardens, Reading; 2nd, Mr. T. C. WAITE, Basingstoke Road, Reading.

ROYAL HORTICULTURAL.

JULY 24.—The Royal Horticultural Hall was well filled with exhibits on this date, but there was a distinct falling-off in the attendance of Fellows and visitors. Stove plants, Carnations, Pinks, Delphiniums, Gladioli, Phloxes, Dieramas, Scabious, Roses, scented-leaved Pelargoniums, Water-lilies and Gooseberries were the chief attractions. There were few novelties, and even the Floral Committee had a comparatively short sitting, although it awarded no fewer than twenty-seven medals to groups. The two exhibits of Gooseberries, one from Mr. Allgrove and one from the Wisley Gardens, were of great interest and considerable educational value. It was a thousand pities that Mr. Allgrove's magnificent exhibit should have been crowded into one end of the Orchid annexe, while there was at least one ample vacant space in the body of the hall where it would have been far better displayed and therefore of greater value to the visitors.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson (assistant secretary), C. J. Lucas, Clive Cookson, Chas. H. Curtis, J. E. Shill, Fred. K. Sander, H. T. Pitt, Arthur Dye, Stuart H. Low, and Pantia Ralli.

CULTURAL COMMENDATION.

To Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tunbridge Wells, for a most remarkable albino variety of Odontoglossum percultum (album) (ardentissimum × Rolfeae). The plant, which was in a small pot, exhibited exceptionally good culture, and bore a gracefully disposed nine-branched spike of fifty-nine flowers. It is a remarkable variation and the first albino of the cross, the flowers being white with purple markings on the lip. The hybrid has reverted towards O. Pescatorei, which is in each of the parents, and the colours have been eliminated.

OTHER EXHIBITS.

Messrs. STUART LOW AND Co., Jarvisbrook, Sussex, were awarded a Silver Banksian Medal for a very effective group, at the back of which was the elegant mauve and white Oncidium incurvum, and Cattleya Warscewiczii varieties and hybrids, the best of which was C. Van Houtte Low's variety (Lord Rothschild × Warscewiczii), a grand flower with rosy mauve sepals and petals and broad ruby-purple lip. Among Laelio-Cattleyas were good forms of L.-C. Canhamiana, L.-C. Aphrodite and L.-C. Dominiana, and among species noted were the pretty Epidendrum prismatocarpum and Bulbophyllum Lobbii Colossus.

DR. MIGUEL LACROZE, Bryndir, Roehampton (gr. Mr. Taylor), exhibited the new Brasso-Cattleya Siatiago del Estero (B.-C. Digbyano-Mendelii × C. Hardyana), with mauve-tinted sepals and petals, and very showy, ruby-purple, crimped lip, with large yellow centre and gold lines on purple at the base.

PANTIA RALLI, Esq., Ashtead Park, Surrey (gr. Mr. Farnes), showed the new Odontioda Eclipse (Oda. Madeline × Odm. Alexandrina) with its first two flowers, which are large, heavily blotched with dark ruby-purple, the margins, tips and front of the lip being white.

Messrs. SANDERS, St. Albans, staged an interesting selection in which the natural hybrid form of Odontoglossum excellens, the pretty Cattleya Majali Sander, and good hybrid Cattleyas were noted. Interesting species included the rare little Dendrobium asperifolium which was first shown by Sir Jeremiah Colman, Bifrenaria tetragona, the true Brassavola Digbyana, the parent of one of the showiest races of hybrids; Cypripedium Godefroyae ochrochilum, a large, pale yellow flower with purple markings; and several species of Vanda.

Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tunbridge Wells, showed a fine home-raised form of Cattleya Hardyana, also C. Warscewiczii Fr. M. Beyrodt.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), showed Odontoglossum Purple Emperor, Pitt's variety (The Czar × Dusky

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Monarch) with three noble flowers of large size and perfect shape, the broadly ovate segments meeting at the edge. The colour is intense violet-maroon, the margins having a thin, silver-white line, and the front of the lip is white. The plant was not entered for the consideration of the Committee.

Floral Committee.

Present: Messrs. H. B. May (in the chair), D. B. Crane, J. F. McLeod, John Heal, Geo. Harrow, W. B. Gingell, Andrew Ireland, G. Reuthe, J. Jennings, J. B. Riding, Gerald W. Loder, H. R. Darlington, C. Williams, W. P. Thomson, T. Hay, Thos. Stevenson, Hugh Dickson, J. W. Barr, H. J. Jones, H. V. Warrender, M. C. Allwood, Reginald Cory, R. C. Notcutt, E. A. Bowles, W. J. Bean and Sir Wm. Lawrence.

AWARDS OF MERIT.

Dierama pulcherrima var. Heron.—An exquisite variety of an extremely beautiful and graceful plant. The spikes are four feet tall, arched, and bear pendulous clusters of flowers, the latter of a rich purple colour shaded with maroon. Shown by the DONARD NURSERY CO., Newcastle, Co. Down.

Cladrastis sinensis.—Discovered by Pratt in Szechuan in 1890, and introduced to cultivation by Messrs. J. VEITCH AND SONS, through their collector, Mr. E. H. Wilson, in 1901, Cladrastis sinensis is a deciduous late-flowering tree of considerable garden value. The tree is freely branched, and almost every branchlet bears a terminal, pyramidal, branched panicle of small, fragrant, white, Pea-shaped flowers, with a small brownish-yellow mark at the base of the recurved standard. The large, soft green leaves, glaucous beneath, are usually composed of from thirteen to twenty-five leaflets. Cladrastis sinensis, the Chinese Yellow Wood, is quite hardy and a useful garden subject by reason of its lateness and freedom of flowering. Shown by the DIRECTOR, Royal Gardens, Kew.

Aristolochia gigantea.—This species is quite distinct from A. gigas, having smaller leaves and smaller, differently shaped flowers. A plant of A. gigantea is now flowering freely in the Mexican House at Kew, where it is a great attraction. The flowers are large, broadly heart-shaped, crimson, with mottlings of buff, and with a dull yellow centre where entrance is given to the curved and inflated spur-like base. Most of the Aristolochias have flowers with a very unpleasant odour, but A. gigantea is an exception, as its blooms possess a fragrance suggestive of the crushed leaves of Lippia citriodora—the Lemon-scented Verbena. Shown by the DIRECTOR, Royal Gardens, Kew.

OTHER NOVELTIES.

The DONARD NURSERY CO. exhibited a series of beautiful forms of the graceful Dierama pulcherrima, in several shades of colour from white to deep purple; these made a fine show in the Committee-room, and are referred to in connection with the firm's exhibit in the hall.

Hydrangea Sargentiana, with large mauve-pink heads and a ring of white bracts, was shown from Kew; as exhibited, it is a strong-growing species with big, soft green, ovate leaves. The specimens were grown in the shade of big Rhododendrons in the Temperate House. An interesting Cooperanthes, named Sweetheart, with one white flower on a small bulb, was shown by Sir W. LAWRENCE, Burford Lodge, Dorking; it was raised by Mr. P. Lancaster.

GROUPS.

Roses were shown in moderate quantity and of fair quality, by half a dozen or more growers. That the season has not been favourable to Roses has been abundantly clear at nearly all the shows. The ORPINGTON NURSERIES COMPANY associated a fair number of standard varieties with some very attractive vases of Iris Kaempferi (Silver Flora Medal). Messrs. WATERER, SONS AND CRISP displayed vases and stands of many Roses. The tall stands of Los Angeles and Lady Pirrie were above the average merit of the blooms in the hall (Silver Flora Medal). Ophelia was represented by a large stand of excellent blooms, in the collection of Messrs. D. PRIOR AND SONS (Silver Banksian Medal). The free flowering cluster varieties were most prominent in the exhibit of the Rev. J. H. PEMBERTON, and these included Vanity, Moonlight and Paul's Scarlet Climber (Silver Flora Medal). Mr. A. EDWARDS showed Roses and Gladioli (Bronze Flora Medal), while on a table under the clock Mr. ELISHA J. HICKS set up several vases of Dorothy Dix, a very attractive dwarf variety, much like a looser built, more rose-coloured Ellen Poulsen.

Herbaceous Phloxes were freely shown, and of much better quality than might have been expected in view of the difficulties of the season. Just inside the entrance Mr. H. J. JONES set up one of his handsome collections, in which the colour associations were particularly happy. He had a great many varieties, in goodly sized baskets, and of these it was such brightly coloured sorts as Homeland, Dr. Koningshofer, Jessie Waters and Coquelicot that demanded most admiration (Silver-gilt Flora Medal). Mr. JOHN FORBES included in his collection such good pink coloured varieties as Aurore, Pierre Bayle and Baron M. Dedem. He also showed some very good Pentstemons (Silver Banksian Medal). Mr. G. REUTHE included herbaceous Phloxes in a general collection, which also contained some interesting Liliums; the spike of L. chalcedonicum was very vividly coloured (Silver Banksian Medal). Asthoes were associated with Phloxes and other border flowers by Messrs. SKELTON AND KIRBY.

A large stem of Sidalcea Rose Queen was greatly admired in the collection of border flowers displayed by Mr. W. WELLS, Junr. (Silver Banksian Medal). Messrs. BEES, LTD., showed Delphiniums, Queen Mauve, The Villian and Starlight. Salvia turkestanica and Chrysanthemum maximum Mayfield Giant, were prominent in the exhibit of Mr. FRED. G. WOOD (Silver Banksian Medal). Various border flowers and alpines were staged by Mr. M. PRITCHARD (Silver Banksian Medal), while Mr. T. CARLISLE included well-flowered examples of Delphinium Belladonna, in an interesting collection of border flowers (Bronze Flora Medal). Messrs. CARTER, PAGE AND CO. showed Violas and Alpines (Bronze Flora Medal). Mr. R. G. DOWNER included very good Gaillardias in his exhibit (Bronze Flora Medal).

There was a spendid mass of Lavatera Olbia rosea in an extensive collection of herbaceous flowers set up by Messrs. B. LADHAMS, LTD. (Silver Flora Medal). The Misses HOPKINS, the WEST END NURSERIES, and Messrs. J. PIPER AND SONS also showed hardy plants.

A long stretch of tabling was filled by Messrs. KELWAY BROS. with good spikes of Gladioli. There were many varieties of Primulinus hybrids, but the larger flowered types predominated, and amongst these Thos. Bruce, Lady M. Digby, and Queen Mary, which have a vivid crimson blotch on white or cream ground, were very prominent (Silver Flora Medal). Messrs. LOWE AND GIBSON had an interesting collection of Gladiolus hybrids and un-named border Carnations (Bronze Flora Medal).

The wide range of colours to be obtained in the annual Scabious was well shown by Messrs. SUTTON AND SONS, who had large vases of named colour varieties; Black Prince and Mauve were especially good (Silver Flora Medal).

An uncommon and most successful exhibit was made by Major ALBERT PAM (gardener, Mr. F. Streeter), Warmley, Bury, Broxbourne. This was a goodly sized hardy Nymphaeas pool surrounded by tall, graceful Bamboos and elegant grasses. The Nymphaeas were of great merit and included Wm. Doogue, James Bryden, Escarboucle, Galatee, Conqueror, chromatella and albida (Silver-gilt Flora Medal).

At the opposite end of the Hall the Hon. VICARY GIBBS (gardener, Mr. E. Beckett), Aldenham House, Elstree, contributed a valuable collection of "Scented Geraniums." There was great variety, and in addition to their fragrance many of the plants had distinct claims as flowering subjects. These included Scarlet Unique, Crimson Unique, Zermattii, conspicuum, Miss Godolphin Osborne and Prince of Orange (Silver-gilt Banksian Medal).

In the centre of the Hall Messrs. L. R. RUSSELL, Ltd., arranged a large circular group of their excellent stove plants. On tall stands such Nepenthes as N. Sir W. Thiselton-Dyer, N. Henryana and N. Dominiana were especially furnished with their interesting "pitchers." The ornamental foliage species included a variety of splendidly-grown Codiaeums, Cordylines, Marantas, and Caladiums, while amongst the flowering plants the chief were Ixoras in variety, and Thurbergia grandiflora (Silver-gilt Banksian Medal).

Carnations were staged in their accustomed quantity and quality. Messrs. ALLWOOD BROS. had a blazingly beautiful central stand of Edward Allwood, and also included a beautiful stand of mixed Perpetual Malmaison varieties (Silver-gilt Flora Medal), and Mr. C. ENGELMANN (Silver Banksian Medal) also showed excellent blooms. Mr. C. H. HERBERT had a fascinating collection of his valuable border Pinks. Amongst them were such beautiful perpetual varieties as Queen Mary, Sweet Nell, Victory and Ruby, while the best of the laced Pinks were Bertram, Diana, Harry Hooper, Iona and Rosebud (Bronze Banksian Medal).

On behalf of T. A. BULL, Esq., of High Top, Norwood, W. R. Portal, Esq., showed some excellent plants of hybrid Gloxinias (Silver Banksian Medal). Messrs. J. CARTER AND CO. had a very interesting group of Trachaelium coeruleum bearing large heads of cloudy blue flowers, surmounting the deeper blue of Browallia speciosa major (Silver Banksian Medal).

The DONARD NURSERY CO. had an exquisite group of countless specimens of the uncommonly graceful spikes of Dierma pulcherrima and several varieties. Their new Heron and Osprey were very fascinating. They also included in this large group plants of Desfontainia spinosa and many Iris Kaempferi (Silver Flora Medal).

Fruit and Vegetable Committee.

Present:—Messrs. C. G. A. Nix (chairman), J. Cheal, S. B. Dicks, Geo. F. Tinley, W. J. Jefferies, J. Wilson, F. Jordan, J. Vert, E. Beckett, E. Neal, T. Pateman, J. Harrison, W. H. Divers, W. Lobjoit, E. A. Bunyard, A. N. Rawes, H. V. Taylor, E. Harriss, and A. Metcalfe.

Messrs. LAXTON BROS. showed their new late Strawberry named Omega, which they claim to be the latest cropping variety in cultivation. The fruit is of large size, oval in shape, and of a very rich scarlet colour. The plant makes a very large crown and fruits with freedom.

Mr. J. C. ALLGROVE showed an exhibit of Gooseberries, for which a Gold Medal was awarded. It is a pity that this outstanding exhibit of fruit was placed in the annexe, for it was missed by several of the visitors. The collection comprised some eighty different sorts of Gooseberries, with a few Red Currants. The Gooseberries were of remarkable quality and exceptionally large in size. The gathered fruits were arranged on dishes, with triple cordon bushes in pots at the back, the trees carrying an abundance of large, luscious berries. The principal varieties shown were Gretna Green, Dan's Mistake, Leveller, Whitesmith, Clayton, somewhat like Crown Bob; Careless, white; Sulphur, Speedwell, a hairy red berry; Langley Beauty, golden; Langley Gage, of small size but of exceptional flavour; Golden Gem, Early Green Hairy, and Pitmaston Greengage.

The well-known variety Leveller was shown by Mr. Allgrove for award, but the Committee decided to recommend its inclusion in the trial of Gooseberries at Wisley in 1924, and this recommendation was also adopted in the case of Raspberry Brocket Hall, shown by Mr. T. Pateman.

The competition for the Bunyard medal resulted in two exhibits of Gooseberries, from Mr. F. S. Stoop, Byfleet (gr., Mr. G. Carpenter), and Sir C. Nall-Cain, Brocket Hall (gr., Mr. T. Pateman), respectively. Mr. Stoop

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showed thirty-two varieties and was awarded the Silver-gilt Bunyard medal, whilst Sir C. Nall-Cain's collection comprised only fifteen dishes and was awarded a Bronze Bunyard medal. Both exhibits contained fruits of excellent quality.

Obituary.

William Scott.—It is with regret that we announce the death, on July 16, of Mr. William Scott, for many years gardener at Drumpark, Kirkcudbrightshire. Mr. Scott, who was an able gardener, was for many years with the late Mr. and Mrs. Kay, of Drumpark, and retired a few years ago, when, on the death of Mrs. Kay, the estate passed into other hands, and went to live in Maxwelltown, where he died at the advanced age of 77 years. For a considerable time he was a well-known exhibitor, principally of fruit, at the Edinburgh and local shows and gained numerous awards, while in other departments he was an equally proficient gardener.

INQUIRIES.

ACORUS CALAMUS.

WE shall be glad to hear from any reader resident in the Fen country who has the Sweet Flag (Acorus Calamus) growing in large variety and is willing to dispose of it.

CLEMATIS GUIDING STAR.

I SHALL be glad to know if any readers of the *Gardeners' Chronicle* have Clematis Guiding Star true. I have bought plants under this name more than once and in every instance instead of being Guiding Star the variety has turned out to be Duke of Edinburgh. I believe it was in the year 1875 that the variety Guiding Star was sent out by Messrs. Cripps and Sons, of Tunbridge Wells, where I was then foreman. The variety was one of my own raising and I should therefore be happy to pay any reasonable price for a plant if I could get it true.—*H. Collyer.*

ANSWERS TO CORRESPONDENTS.

BROMPTON STOCKS: *I. B.* The specimens received were very fine, and you certainly have an excellent strain of these beautiful flowers. The spikes are large, free branching, and the flowers full-sized and sweetly fragrant.

CANKER IN MELONS: *S. T., Derby.* A reply to your query *re* Canker in Melons appeared in our issue of July 14, p. 25.

DELPHINIUM FASCIATED: *A. V.* The observations made in a reply to *W. N.*, regarding fasciation in the Ox Eye Daisy apply to your case also. Fasciation is probably more frequent in highly cultivated plants than in those poorly grown.

FOXGLOVES WITH CUP-SHAPED TERMINAL FLOWERS: *A. R. R.* and *J. E.* Foxgloves with terminal, cup-shaped flowers are by no means uncommon, indeed, seedsmen offer strains which produce this peculiar style of flowering which is known as peloria.

GARDENER'S NOTICE: *G.* You are entitled to four weeks notice, and should give up possession of the cottage at the end of four weeks, but if you do not, your employer would have to take ejectment proceedings in the local county court. This would take time, and even then it would be for the judge to use his discretion as to whether he would make an Order for immediate possession. If you cannot find accommodation elsewhere, most judges would decline to make an immediate order for possession, especially as there is another empty cottage on the estate, but you would probably have to pay costs. Your employer, through his wife as agent, appears to have misrepresented the size of the property, but it would probably be a case of your word against the lady's. If the judge was satisfied that the evidence of the latter was untrue, he would have power to award you damages, probably being the cost to which you have been put in moving to the cottage and moving out again, together with any incidental expenses; but the burden of proving the misrepresentation would be on you, and if the judge had any doubt as to whose version was the more correct, he would be obliged to give the employer (as defendant to your claim) the benefit of the doubt.

GARDENERS' UNION: *Wild Rose.* The British Gardeners' Association has been amalgamated with the National Union of Agricultural Workers, 72, Acton Street, W.C.1. We understand there is still a section dealing with horticultural matters.

GOOSEBERRIES FAILING: *J. E.* No fungus disease could be found on the Gooseberry branch, but there was some indication of an attack of Gooseberry red spider. The growth had a very sickly appearance, which may possibly be due to drought and a general reduction of the vitality of the plant as a result of heavy cropping of recent years.

GRAPES AND OTHER INDOOR FRUITS FOR A LARGE INSTITUTION: *J. L. G.* A good selection of Grapes for your requirements would be Black Hamburgh, Madresfield Court and Muscat of Alexandria, with one or two vines of Buckland Sweetwater. Gros Colman, Lady Downes and Muscat of Alexandria would be suitable for planting in the late vineries. Lady Hutt variety does not do well in many gardens. With regard to Peaches, we advise you to plant one tree of Duke of York or James Walker, with Peregrine, Diamond, Bellegarde and Princess of Wales. Plant Nectarines, Early Rivers, Lord Napier, Pitmaston Orange, and either Humboldt or Pine-apple, you will not require both. Cut the turf and stack it, dusting quicklime freely between each layer to clear it of wireworms, etc. Only partially make the border the first year, and see that the compost is made firm, and allow for it settling. Raise your vines from eyes, and place them in pots or collapsible boxes when they are about 3 inches high, to prevent damaging the roots in transplanting. Plant them in the vinery in April after the border has become well warmed. Stop very few laterals the first year, and water the roots carefully and regularly to encourage them to develop. Shorten the rods to two or three eyes at pruning time to build up strong canes that will fruit satisfactorily.

LARGE PEACH: *G. M.* Your fruit of Condor weighing 12½ oz. is certainly a remarkable specimen, but it is by no means a record weight for a Peach. Mr. Godman, of Maidstone, gathered a fruit of Dr. Hogg variety in 1880, weighing 23¾ oz., and the next heaviest weight of which we have record is a fruit of Salwey grown by Mr. G. Brown, of Brownsea Island, Pool, weighing 17¾ oz.

PEACH AND NECTARINE FRUITS FALLING: *W. H. B.* We believe the falling of the fruits is due to lack of moisture at the roots of the trees; probably the borders were insufficiently moist during the late autumn of last year. Every care should be taken to test the soil in which fruit trees are growing at intervals, as only in this way can it be determined whether water is necessary or not.

PELARGONIUM ROSSWAY CRIMSON: *O. H.* We congratulate you on the excellent cultivation exhibited by the enormous trusses and fine blooms of Pelargonium Rossway Crimson received a few days ago. The variety is certainly strong-growing and free-flowering, and its brilliant crimson-scarlet colouring should make it effective as a bedding variety or for cultivation in pots.

Communications Received.—W. S.—Iris—J. S.—R. B.—D. R. W.—D. T.—G. D.

MARKETS.

COVENT GARDEN, Tuesday, July 24, 1923.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples—		
Tasmanian, and N. Zealand		
—Sturmer	18 0	20 0
—Others	16 0	17 0
Cherries—		
—Napoleon, ½-sieve	12 0	18 0
—Bigarreau	10 0	14 0
—Waterloo	14 0	18 0
—Turks	12 0	16 0
—Dutch, half	8 0	11 0
Currants—		
—English Black, per lb.	0 7	0 10
—Red, peck	3 0	6 0
Figs special	10 0	15 0
best	4 0	8 0
Gooseberries—		
—Cooking ½ sieves	4 0	5 0
—Sulphur large per lb	0 6	1 3
Grapes		
Alicante	1 9	2 6
—Belgian	1 3	1 6
—Cannon Hall	4 0	8 0
—Hamburgh	1 6	2 6
—English Muscat	3 0	6 0
Grape Fruit—		
—Jamaica	30 0	65 0
Lemons—		
—Murcia, case	50 0	60 0
—Naples „	55 0	65 0
Melons, English and Guernsey, each	2 6	7 6
—Cantaloupes ea.	8 0	15 0
Nectarine, doz.	12 0	36 0
Oranges—		
—South African Navels	—	—
—Seedlings	28 0	30 0
Peaches—		
—English, doz.	6 0	36 0
Plums—		
—French, half	8 0	12 0
—Spanish, crate	10 0	12 6
„ half	8 0	11 0
—Spanish Greengages ½ sieve	10 0	18 0
Raspberries chip	2 0	3 6
Strawberries peck	5 0	9 0
—Kent 4lb. chips	2 6	4 0

REMARKS.—After a period of activity, with an almost daily advance in prices, the market is experiencing a set-back in most sections, with falling values. Tomatos are a notable example, the reaction being particularly acute. Trade in choice fruits, such as Grapes, Peaches, Melons, Nectarines and Figs, is feeling the effect of the ending of the London season, and the demand is quieter. The values of English Cherries have been fairly steady, except at the end of the week, when prices were lower. At the time of writing there has been a sharp recovery, and prospects are good. Gooseberries have been more plentiful; while dessert varieties of the higher grade have sold fairly well, common sorts have not been wanted. Black Currants also are quoted lower. English Apples have made their appearance, and have sold well. Mushrooms have fluctuated in value considerably, and prices are now back to normal. Outdoor Beans from the West of England have reduced the prices of forced Beans. Cucumbes in firm, green condition have sold well at high prices, but those of inferior quality are difficult to sell.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz.	10 0	18 0
—elegans	10 0	12 0
Aralia Sieboldii	10 0	12 0
Araucarias	30 0	48 0
Asparagus plumosus	12 0	15 0
—Sprengeri	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Cacti, per tray, 12's, 15's	5 0	7 0
Crotons, per doz.	30 0	42 0
Cyrtomium	10 0	15 0
Heliotropes	12 0	15 0
Hydrangeas —paniculata, ea.	3 6	4 6
white & pink, 48's, doz.	15 0	24 0
Lilium, longiflorum, each	3 6	4 0
Lilium	s. d.	s. d.
—speciosum album, each	3 6	4 0
—speciosum, rubrum, each	3 0	3 6
Marguerites, per doz.	12 0	18 0
Mignonette	10 0	15 0
Nephrolepis, in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	24 0	30 0
—60's	15 0	18 0
—Cocos	24 0	36 0
Pelargonium	18 0	24 0
Pteris, in variety	12 0	21 0
—large 60's	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's	3 6	4 0
Verbenas, Miss Wilmott, 48's, per doz.	10 0	12 0
Viscaria	12 0	15 0

CUT FLOWERS.

REMARKS.—The supplies in this department are still very large, and those of many subjects greatly exceed the demand. Carnations are arriving in a very bad condition, the majority of the blooms showing signs of the petals curling immediately they are unpacked for sale. Many Roses are arriving full blown and unsuitable for re-dispatch. There is no great demand for any particular subject. Since last Saturday morning the supplies of Lilium longiflorum have been soon cleared, and this morning prices were advancing owing to the much shorter supply. The pink and white forms of L. lancifolium are in excellent condition and moderate in price. Large-flowered Gladioli are very attractive; there are small consignments of these flowers from Holland, including The Bride variety. The most prominent sorts from some growers are Hally, Prince of Wales, and Giant White, which is very useful for decorative purposes. Statice is arriving in much larger quantities, including S. latifolia, S. incana, S. sinuata, in mauve, white and yellow sorts, also a few bunches of the pink variety. Lavender has appeared in the market quickly, and is in excellent condition.

GARDENING APPOINTMENT.

Mr. G. Lammas, previously for four years Inside Foreman at Aston Clinton Park, Aylesbury, Buckinghamshire, as Gardener to Mrs. MELVILLE, Stratton House, Cirencester, Gloucestershire. (Thanks for 2s. 6d. for R.G.O.F. BOX.—EDS.)

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THE

Gardeners' Chronicle

No. 1910.—SATURDAY, AUGUST 4, 1923.

CONTENTS.

Books, notices of—
Delphiniums 69
Chamber of Horticulture, new President of the... 33
Dianthus Atkinsoni ... 70
Eucalyptus, the genus ... 66
Fruit crops, the hardy 65, 71
"Gardeners' Chronicle" seventy-five years ago 66
Hardy flower border—
Calliirrhoe linearifloba... 69
Helenium 69
Imperial College of Science £15,000 donation to ... 66
Indoor plants—
Callicarpa purpurea ... 67
Iris Kaempferi and other "difficult" plants ... 77
Johns, Mr. W. H. ... 66
King's Walden Bury Gardens 33
Lindley up-to-date ... 77
National Diploma in Horticulture, examination for the 33
Obituary—
Nicholas German ... 78
Orchid notes and gleanings—
Cattleya Gladiator ... 69
Laelio-Cattleya Biddy 69
Parks and Gardens, public 69
R.H.S. meeting, next ... 33
Rose garden, the—
Rose season in southern Scotland 67
Societies—
Beckenham Horticultural 78
National Carnation and Picotee... ... 77
Saffron Walden Horticultural 77
Swanley Horticultural College 66
Trees and shrubs—
Cladrastis sinensis ... 70
Week's work, the ... 68

ILLUSTRATIONS.

Callirrhoe linearifloba 69
Carnation Ivan Low 77
Cladrastis sinensis 70
Johns, Mr. W. H., portrait of 66
Rose Maud Cuming 67

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.3°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, August 1. 10 a.m.: Bar., 29.8; temp. 73°. Weather bright.

The Hardy Fruit Crops. It will occasion no surprise to gardeners to learn that the hardy fruit crops of 1923 are amongst the worst on record, and that the failure is general in all parts of Great Britain and Ireland, and even in such favoured districts as the Channel Islands. The causes leading up to the failure are many and varied, and there is no doubt that the tropical summer of 1921 is in part responsible, for it resulted in the formation of flower and fruit buds so extensively in the autumn of that year that last season many plants exhausted their energies in fruiting abundantly and many of the blossoms that developed this spring were so weak as to be incapable of developing fruit. Added to this was the miserably cold autumn in 1922, when the wood of fruit trees failed to ripen satisfactorily, and to this cause, rather than to any other, is due the abnormal scarcity of Pears this season, for hardly any fruit buds formed on Pear trees. Most other fruit trees seemed to develop the usual amount of blossom, but observers in different parts of the country report that the blossom was, in many cases, weak. The winter of 1922-23 was exceptionally mild, and frost of any great intensity was registered only on very rare occasions. Vegetation of all kinds was exceptionally forward in the spring of this year and the period of blossoming was very early, so that when the weather turned very hot, in the early part of May, Plum trees, which are amongst the earliest to flower, suddenly became covered with white, and the blossoms of other trees, including Pears and Apples, developed rapidly. The whole of the week ending May 5 was oppressively hot, and Sunday, the 6th, was very warm, but on Monday, the 7th, the conditions changed entirely, causing people to shiver with the cold. On that and the following day, frost was reported in various parts of the country and great fears were entertained that the Plum blossom, which was well advanced, would suffer severely. Happily, the condition of the atmosphere was dry and much of the Plum blossom escaped, although the flowers of Gooseberries and other small fruits were much injured. The cold weather continued, but Apple blossom, which had received such an impetus from the sunny weather of the previous few weeks, continued to develop, and Apple orchards everywhere presented a beautiful spectacle. Other fruit trees, including Peaches, Nectarines and Apricots also flowered satisfactorily, but there was over the whole of the country a scarcity of Pear bloom, such as the oldest gardener had never remembered and the Pear crop is one of the poorest ever known; indeed, in some parts of the country Pear trees are fruitless. The cold, wet weather that succeeded the outburst of summer in May was accompanied by north winds and in some districts in Scotland frost was experienced on twenty nights; the unfavourable conditions continued until the end of June. After a brave attempt at fruiting, Plums found the conditions too much for them, and the fruits dropped wholesale, whilst the trees became a prey to insect pests of all kinds, and especially aphis. Aphis infestation everywhere was the most disastrous within the memory of gardeners and the use of insecticides seemed of no avail, for as fast as the insects were destroyed others appeared in their places. It would be interesting to learn the experiences of readers in combating this plague of aphides, i.e., whether nicotine in solution is the best specific, or whether, as some claim, Quassia extract is best; this cheap and old-fashioned insecticide seems to have been discarded by many in favour of proprietary washes, but not a few growers consider it as efficient as any in the destruction of aphis. Blight and cold weather caused the leaves of fruit trees to become stunted and curled, and much of the foliage dropped, giving the trees such a severe check that they were unable to retain their fruit, which strewed the ground beneath them. In their debilitated condition, other pests attacked the trees, and American blight on Apples and leaf blister on Peaches, to mention only two, were very prevalent. There were thus no mitigating circumstances for the trees which, after experiencing such untoward conditions in spring, were further subjected to drought of great intensity in June. From this cause, the Strawberry crop was largely reduced, for after the first blossoms had been ruined by frost the berries that did form were small, owing to the absence of rain. Not for many years was June so miserably cold and dull, there being many days when the temperature did not rise much above 50°, so that many despaired of there being any summer at all; when, in the latter part of the month, the weather became more favourable, the damage was already complete and the result is one of the worst fruit years on record. Taking the six years 1918-1923, there have been three very bad fruit seasons, those of 1918, 1920 and 1923, and three good years, 1919, 1921 and 1922. Of the three bad years, 1923 is easily the worst, even more so than 1918, which many old gardeners declared to be the worst within their experience. Of the whole of the crops this year, the smallest is the Pear crop, for out of 181 returns, no fewer than 176 record a yield below the normal, while in only five instances, two of which are in Scotland, is the crop of Pears equal to the average, and every grower in England reports an under crop. Plums are not much better, for of 132 returns from English growers, there is a deficiency in 122 gardens and, taking the whole of the returns for Plums, there are no fewer than 165 under crops, 18 of average quantity and not one exceeds the normal. Apples, which constitute the most important of all the hardy fruit crops, are a little better with 41 crops of average yield, and seven of more than average yield, out of 183 returns. Cherries have been moderately good and many growers have satisfactory crops of Peaches and Nectarines, but Apricots are almost as disappointing as Plums. The best of all crops are those of small fruits, which include such kinds as Gooseberries, Currants and Raspberries, and these, together with Loganberries, are the most consistent in cropping of all hardy fruits. Of 184 returns in this section there are satisfactory crops in 119 cases, whilst the number of crops of more than average yield, namely 35, exceeds the number of crops below the average, which comes to 30. The yield of Nuts, which are not so generally grown as the other subjects, is much below the normal, following the bumper season of 1922, when the harvest was one of the most satisfactory of recent years.

Next R.H.S. Meeting.—The transport difficulties inseparable from a Bank Holiday have induced the Council of the Royal Horticultural Society to hold its next meeting on Wednesday, August 8, instead of on Tuesday, August 7. This alteration will give exhibitors a better opportunity of conveying their plants and flowers to Westminster than would be possible if the usual Tuesday meeting had been arranged.

King's Walden Bury Gardens.—On the occasion of the King's Walden Bury Flower Show on August 8, the King's Walden Bury pleasure grounds will again be open to visitors, by kind permission of Major F. J. Harrison. A year ago a similar privilege was granted, and many people came from long distances to inspect the grounds. For the convenience of visitors, special omnibus services will run to King's Walden Bury hourly, from Hitchin and Luton, on August 8.

New President of the Chamber of Horticulture.—Mr. H. O. Larsen, who was elected President of the Chamber of Horticulture at the annual general meeting, has notified the Council that, for reasons of health, he is unable to undertake the duties of that office. At the recent meeting of the Council Mr. Larsen's decision was accepted with regret, and on the motion of Mr. G. W. Leak and Mr. G. Monro, Mr. John Harrison, junr., of Leicester, was unanimously elected President for the ensuing year. Mr. Harrison took up his duties immediately.

Sweet Pea Trials at Reading.—The Sweet Pea Trials conducted by Mr. Cobb at the University College Gardens, Reading, on behalf of the National Sweet Pea Society, are now open to inspection by members of the N.S.P.S.

Examination for the National Diploma in Horticulture.—The Royal Horticultural Society's National Diploma in Horticulture has been awarded to the following as a result of the written and practical examinations held this season. Section 1: General Horticulture:—Henry Fraser, 21, Victoria Crescent, Chelmsford; F. J. Fanner, Drayton Manor, Chichester, Sussex; Miss V. G. Hartley, Hockerill Training College, Bishop's Stortford; and Ivan A. T. Dowding, 20, Rising Brook, Stafford. Section 2: Hardy Fruit Growing:—William E. Cole, Dyrham, Staple Hill, Bristol. Section 3: Market Gardening; Under Glass:—Wilfred G. Ayres, 3, Anton Lane, Enham Village Centre, Andover; Albert J. Purser, 1, Hewlett Place, Cheltenham; and J. R. Lewis, 130, Church Road, Burgess Hill. Section 3: Market Gardening; Outdoors:—J. S. Mitchell, 49, Belvedere Road, Bexley Heath, Kent. Section 8: Horticultural Teaching:—

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J. R. Lewis, 130, Church Road, Burgess Hill; and Ivan A. T. Dowding, 20, Rising Brook, Stafford. The following have also passed the Preliminary Examination and will be eligible to take the Final Examination when they have completed the necessary six years of practical experience in gardening:—Ira Treseder, 4, The Avenue, Truro, Cornwall; Miss G. Henderson, The Training College, Darlington; E. Fenswood Barker, Long Ashton, Bristol; Miss E. Eagle-Bott, 12, Pine Avenue, W. Southbourne, Bournemouth; Miss A. M. Dunnant, Club House, Middleton-by-Youlgrave, Bakewell; Charles P. Barrett, 24, Granville Road, Bournemouth East; G. H. Nash, The University, Leeds; Miss R. Collett, The Laurels, Gt. Shelford, Cambridgeshire; A. D. Blaxill, Hillsborough, Inglis Road, Colchester; Jesse Amos, High Street, East Malling, Kent; Miss Lloyd Jones, Glyn-Cerrig, Mumbles, S. Wales; Miss N. Youatt, St. Andrew's Hall, Reading; Miss A. Hodgkinson, Rose Hill, Penistone, Yorks; C. R. S. Gregory, 34, Leabourne Road, N.16; Arthur W. Witt, Broomfield, Offham Road, West Malling; Percy Clare, 62, Lindum Avenue, Lincoln; T. F. Lloyd, 28, Rostherne Avenue, Fallowfield, Manchester; Gilbert Oule, 46, Wellington Street, Moss Side, Manchester; Miss G. Pollard, St. Leonard's House, Park Road, Edinburgh; H. D. Bennett, Wantage Hall, Reading; Stewart D. Read, 49, Burlington Avenue, Kew; James Pirie, 11, Watcombe Cottages, Kew; A. S. Thomas, Wantage Hall, Reading; Miss C. M. Christy, 51, Broomfield Road, Chelmsford; Miss J. Macdonald, The Haven, Inverness; and Miss R. Leir, Aldersey Horticultural College, Chester.

£15,000 Donation to Imperial College of Science.—It is with pleasure that we are able to record an offer by the Clothworkers' Company of the City of London of an annual contribution of £3,000 for the period of five years, 1923-1927, to the Governing Body of the Imperial College of Science and Technology, South Kensington, to be applied towards the maintenance and development of the City and Guilds (Engineering) College, one of the three constituents of the Imperial College of Science. This donation is supplemental to the sum voted some years ago by the Goldsmiths' Company, a gift amounting to £85,000, which enabled the Engineering College to extend its premises, and is quite distinct from the annual vote of £5,000 from the City and Guilds of London Institute which has been paid to the Imperial College since the Charter was granted some fifteen years ago and applied to the City and Guilds (Engineering) College. It is another indication of the value which practical men in the City of London attach to the research and general teaching in science in relation to industry.

Swanley Horticultural College.—Kathleen, Viscountess Falmouth, presided at the Swanley Horticultural College Speech Day, on Wednesday, July 22, when Lord Lambourne presented the diplomas and certificates to successful students. Dr. Barratt, the Principal, stated that the number of students this year was seventy-three. All who had wished for posts had been successfully placed. Lord Lambourne said the syllabus of the college was one of the best he had seen. He was glad that they were starting a rock garden. Rock gardens were very beautiful if properly conducted, but one of the ugliest things he knew was a rock garden not properly constructed or cared for. Princess Mary, Viscountess Lascelles, visited the College on Tuesday, and expressed great satisfaction at the excellence of the work.

Birmingham Chrysanthemum Show.—An attractive schedule of one hundred and thirty-four classes has been provided by the Committee of the Birmingham Chrysanthemum Society for the exhibition to be held in Bingley Hall on Tuesday, Wednesday and Thursday, November 6, 7 and 8 next. Liberal prizes are offered for thirty-six Japanese blooms, together with a handsome Silver Challenge Shield. Two group classes are provided, and there are classes for plants in addition to many for cut blooms, these latter being divided among all comers, amateurs and local exhibitors. Other classes are for winter flowering plants of various kinds, for Apples, Pears and vegetables. The Secretary is Mr. A. Noakes, 148, Bristol Street, Birmingham.

Mr. W. H. Johns.—The recently appointed superintendent of the Gardens and Open Spaces Department under the Metropolitan Borough of Bermondsey, Mr. W. H. Johns, has had a varied and practical experience in horticulture. He first served under his father in the late Mrs. Bickford's garden at Camborne, Cornwall, and then secured employment in the Rose department at Messrs. Low and Co.'s nursery, Enfield. He entered service at Kew in 1907, and during two years spent in the Royal Gardens he became a sub-foreman, and was also successful in winning first prize for a garden design sent to the Letchworth Garden Design Competition. From Kew Mr. Johns went to Kilmarnock to fulfil an appointment as Horticultural Instructor to the Academy and Technical Schools. In 1912 he was appointed Horticultural Instructor to the Municipal Technical Institute and County Borough of Belfast. Here he remained nearly four years and organised schemes of instruction for professional and amateur gardeners, for

MR. W. H. JOHNS.

allotment holders and teachers. He also surveyed and planned out large areas for allotments, and under his supervision allotment gardens increased from 300 in 1912 to 3,000 in 1916. While at Belfast he was appointed Inspector of Plant Diseases for the Belfast area and was elected President of the Belfast Nature Study Association. His next appointment was as Staff Instructor to the Irish School of Gardening for Women and special lecturer to the Alexandra College, Dublin, and to the Rathmines Technical Institute. While at Dublin he conducted teachers' classes in rural science and school gardening for the Irish Department of Agriculture and Technical Instruction. From Dublin Mr. Johns passed on to Kilkenny and Waterford, where he acted as instructor for teachers' classes and to allotment holders, and in April, 1920, he was appointed Horticultural Superintendent to the Cornwall County Council Education Committee. In Cornwall he organised schemes of horticultural instruction and carried out numerous trials of Potatos, Broccoli, and other crops of special value in the favoured Duchy. He also commenced experiments with a view to the improvement of the strains of Broccoli suitable for market garden crops in Cornwall. After excellent work in this connection he obtained the appointment of Superintendent of the Parks and Gardens at Bermondsey. Mr. Johns holds the N. D. Hort. degree in general horticulture and horticultural teaching, and has obtained teacher's certificates in art and nature study. He also holds the Board of Education certificates in botany, chemistry, physics, physiology, mathematics, and drawing. Besides being a most capable organiser, he is also an attractive lecturer, and has contributed articles on gardening subjects to numerous publications.

The Genus Eucalyptus.—In Part 10, Vol. VI. (Part LX. of the complete work) of *A Critical Revision of the Genus Eucalyptus*, Mr. J. H. Maiden discusses the value of the fruits as a means of classifying the members of this extensive genus, and groups the species in accordance with the shape of the fruits and the form of the valves. The four plates are used to illustrate the different forms of leaves and of venation, and are additional to the full text and illustration on these subjects given in part LVII., issued in January, 1923.

Appointments for the Ensuing Week.—Sunday, August 5.—Wakefield Tulip Society's meeting. Monday, August 6.—Seaham Harbour Horticultural Society's show; Warwick Horticultural Society's show; Heathfield and District Horticultural Society's show; Chippenham Horticultural Society's show; Marlow Horticultural Society's show; Rutland Horticultural Society's show; Leagrave, Limbury and District Horticultural Society's show. Tuesday, August 7.—Northampton Municipal Horticultural Society's show in Abington Park (two days); Leicester Abbey Park flower show (two days); Walsall Floral Fête (two days); Sevenoaks Gardeners' Chrysanthemum Society's meeting; Royal Caledonian Horticultural Society's meeting. Wednesday, August 8.—Royal Horticultural Society's Committees meet; Kingsclere and District Horticultural Society's show; Sheffield Chrysanthemum Society's meeting; Morley and District Paxton Society's meeting. Thursday, August 9.—Taunton Dene Horticultural Society's show; Swanage Horticultural Society's show; Market Bosworth Horticultural Society's show; London and North Western Railway Horticultural Society's shows at Cheshire and Yorkshire. Friday, August 10.—Brechin Flower Show. Saturday, August 11.—Stonehaven Flower Show; North of England Pansy and Viola Society's show in conjunction with the Nelson Small Holders' Society's show at Nelson; Aberdour Flower Show; Auchencrow (Berwickshire) Flower Show; Dysart Flower Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Transplanting Evergreens.* The following extract from Downing's book may be interesting to some of your readers:—"Another mode of transplanting large Evergreens, which is very successfully practised among us, is that of removing them with frozen balls of earth in mid-winter. The trees to be removed are selected, the situations chosen, and the holes dug while the ground is yet open in autumn. When the ground is somewhat frozen, the operator proceeds to dig a trench around the tree at some distance, gradually undermining it, and leaving all the principal mass of roots embodied in the ball of earth. The whole ball is then left to freeze thoroughly (generally till snow covers the ground), when a large *sled*, drawn by oxen, is brought as near as possible, the ball of earth containing the tree rolled upon it, and the whole is easily transported to the hole previously prepared, where it is placed in the proper position; and as soon as the weather becomes mild, the earth is properly filled in around the ball. A tree, either evergreen or deciduous, may be transplanted in this way, so as scarcely to show at the return of growth any ill-effects from its change of location."—*Hortulanus.* (This is the best of all the modes of removing Trees, but it is difficult and costly, on account of the weight to be dealt with.) *Gard. Chron., July* 29, 1848.

Publications Received.—*Variety in the Little Garden.* By Mrs. Francis King. The Atlantic Monthly Press, Inc., 8, Arlington Street, Boston. *Annuaire du Fleuriste.* Obtainable from E. Bocion, 2, Rue Paganini, Nice. Price, 20 francs.

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INDOOR PLANTS.

CALLICARPA PURPUREA.

Some of the plants that found favour with gardeners twenty to thirty years ago are, at the present day, either almost lost to cultivation or forgotten. Amongst their number is Callicarpa purpurea. This is a very attractive plant for the decoration of the greenhouse or conservatory during the winter, and a great acquisition for grouping amongst a miscellaneous collection of plants.

The beauty of the plant lies in its fruit rather than in its flowers, and when grown as standards with its long, arching shoots covered with small clusters of bright purple berries it is most effective, and the berries hang for a very long time on the plant.

This Callicarpa is a good plant for hanging baskets in a conservatory, and three or four young specimens in berry should be placed in a basket and suspended from the roof rafters. It is of easy culture, and the aim of the grower should be to procure long shoots, with clusters of purple berries in the axils of each leaf, clothing the stems nearly their full length.

Mr. Latham, when Curator of the Birmingham Botanic Gardens, grew this plant most successfully. His plants were grown as standards on stems about 4 feet high, and had shoots about 2½ feet to 3 feet long that dropped slightly, the whole plant being similar in shape to an open umbrella.

Stock of this Callicarpa may be increased by means of seed sown in pots and pans in spring and germinated in a warm temperature. Cuttings from cut-back plants root readily, or half-ripened shoots may be placed in moist, bottom heat under a hand-light or frame. The cuttings may be rooted singly in small pots, or several may be inserted in a 3-inch or 4-inch pot. When rooted the cuttings should be transferred to larger pots and placed in a temperature of about 60° to 65°. When they commence to make good growth, and three or four shoots are required, the leading shoots should be pinched out once or twice to encourage the development of more shoots.

Before the plants are finally potted into the 6-inch or 8-inch pots, in which they will flower in July or August, in time for them to set their berries, they should be grown on in an intermediate house or warm greenhouse in a moist, growing atmosphere, and shaded from the direct rays of the sun. A little air should be admitted when the weather permits of ventilating, but the plants should not be exposed to cold draughts.

Be careful not to syringe the plants when they are in flower, otherwise the berries will not set. After the berries have set, and the pots are full of roots, give the latter liquid manure once or twice a week.

For training as standards select the strongest specimens with straight shoots, and grow them on to the height required before stopping them, similar to growing standard Fuchsias.

When the berries commence to shrivel and drop, water should be gradually withheld from the roots to allow the plant a period of rest before again starting it into growth.

In the beginning of February the shoots should be pruned to within three or four buds of their base, and the plants started again in a moderate amount of warmth. After the plants have commenced to make fresh growth, repot them, first removing the old, loose soil. Be careful not to over-pot them, and use plenty of drainage material. The soil should consist of two-thirds rich turfy loam and one-third fibrous peat or leaf-mould, with a little decayed cow manure, and silver sand added.

The winter temperature, when the plants are in fruit, should be about 50°. Should green fly appear, fumigate the plants, otherwise the young growths will become crippled and stunted, and the plants be a failure for the season.

Callicarpa purpurea was introduced from China in 1822, and belongs to the Natural Order Verbenaceae. *John Heal, V.M.H.*

THE ROSE GARDEN.

THE ROSE SEASON IN SOUTHERN SCOTLAND.

In this peninsular region, chiefly owing to the almost ideal atmospheric conditions for Roses that prevailed during July, the blooms have been fuller, and richer in colour than they have been for many years past. The most beautiful of the newer varieties I have seen this season is Leslie Pidgeon, whose colour is intensely attractive, and whose central petals are marvellously full. It is grown by my successor, the Rev. Louden MacFadden, in Kirkmaiden Manse Gardens, where I was a cultivator or Roses, oriental Lilies, and other fragrant flowers, for thirty-three years. Other varieties that have been conspicuous by reason of their size and brilliant colouring in my new borders this year are Lady Craig, W. E. Wallace and Mrs. James Williamson.

A very beautiful new variety, sent to me some months ago by Monsieur J. Pernet Ducher, of Lyons, and named after myself, is of the palest pink in colour (not unlike Duchess of Sutherland grandiflora Sweet Pea, which I greatly admire), and perfect in formation. Its predecessor was, it will be remembered, coral red in colour, shaded with carmine-lake.

The finest of Pernet Ducher's Roses are magnificently grown in Logan Gardens in this peninsular parish by that ardent horticulturist, Mr. Kenneth A. McDouall, and luxuriate there in fertile soil. Such beautiful sorts as Madame Edouard Herriot, Constance, Rayon d'Or and the Lyons Rose are invariably grandly effective.

At Lochinch Castle Gardens, also situated in this county, the finest Roses that have emanated from the great Rosariums of Waltham Cross, Newtownards, Belmont and Colchester are particularly impressive. I find that whilst cultivating a large number of varieties of recent introduction such as the brilliantly coloured Souvenir de Georges Pernet, The Queen Alexandra (which is quite vigorous in Logan Gardens, near the picturesque ruins of the ancient castle, and splendidly effective), Florence Izzard (a very beautiful hybrid Marechal Niel), W. E. Wallace, and those of some other raisers, besides those originated quite recently, such as Messrs. Dobbie's varieties and Mrs. Tom Smith, a charming native of Stranraer, I still cling fondly to some of the older Roses, such as Margaret Dickson, Ophelia, Bouquet d'Or and Madame Alfred Carriere, which still adorns the walls of my old Manse gardens, with Hugh Dickson (of Belmont) and George Dickson, contrasted in their aspect like light and shade, and brilliant "rivals in renown." Just as I have always advocated very strongly the retention of several of the grandiflora Sweet Peas by reason of their splendid fragrance and exquisitely hooded form, which is little affected by atmospheric influences, for the conservation of odour and floriferousness, so, for similar reasons, such fine Roses as I have indicated (and Frau Karl Druschki for its imperial impressiveness, though absolutely inodorous) should be retained. The grandest Rose creations, if they have not the inestimable attribute of fragrance, are like a majestic woman devoid of amiability. *David R. Williamson.*

FIG. 25.—ROSE MAUD CUMING: NATIONAL ROSE SOCIETY'S CERTIFICATE OF MERIT, JUNE 28; A PINK VARIETY RAISED AND EXHIBITED BY MESSRS. ALEX. DICKSON AND SONS (SEE P. 11.)

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The Week's Work.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Scything and Pruning.— In addition to places where the mowing machine cannot be used, such as around certain trees and on banks, there are glades and woodland paths where a general trim up with the scythe is advisable to ensure an easier foot passage, and to give an appearance of tidiness to the surroundings. Overhanging branches of trees may also be cut back or removed to allow easy passage along the walks, and any openings made to secure distant views should be kept quite clear. Encroaching shrubs should be pruned back, and straggling briars cut away. The latter sometimes spring up, from wind or bird borne seeds, among good shrubs, in which case the roots must be dug out, as cutting back the growths only induces stronger shoots to grow.

Orchis pyramidalis.—A patch of this lovely wild flower has been both interesting and attractive in the rougher parts of the pleasure ground here. It is not found in every part of the country, therefore where it does abound the growths should be allowed to fully ripen before the site is scythed over, to allow an opportunity for seeding. The latter suggestion holds good concerning any other kind of wild flower that finds a place in the woodlands and is sufficiently appreciated.

Chrysanthemums.—The dry weather and intense heat has caused some of the border varieties to show buds unusually early. This will mean earlier attention to the thinning of the flower buds of those sorts which produce flowers too closely together; if the ground is poor a top-dressing of old, decayed manure will be beneficial. If not already done staking and tying will be necessary, at least with most varieties, and a continued dry period will necessitate much watering.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Melons.—If fruits are desired late in the autumn now is the time to set out the plants. For such a crop a suitable house, with both top and bottom heat at command, is essential to secure the best results. The bed of fermenting material should be carefully prepared, also the soil. The soil should be on the heavy side, with a liberal addition of broken mortar or old plaster and wood-ash to render it porous; a good sprinkling of bone-meal thoroughly incorporated with the soil will be beneficial. When the Melons are planted keep the house closed, and, if necessary, lightly shade the plants for a few days until the roots begin to permeate the soil. Force the plants along with a high day temperature, closing the house early in the afternoon to maintain a temperature of 85° to 90°, but in the evening allow a fall to 65° or 70°, and keep this temperature steady during the night. As growth progresses keep all superfluous lateral growths closely pinched or rubbed off, and train the main growths thinly; by so doing the foliage will be of good substance, which is so essential to the health of the plant. Maintain a humid atmosphere in the house, and thoroughly syringe the plants twice a day to prevent red spider from gaining a foothold.

Ripening Melons.—Plants on which Melon fruits have commenced colouring should be afforded more air, with a drier atmosphere; cut the fruits before they break away from the stems. Certain varieties break away more readily than others and their fruits need to be cut on the first signs of cracking around the stem.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Ixias, Sparaxis and Babanias.—All these South African bulbous plants used to be grown freely in gardens, but are seldom seen now. This is rather surprising when one considers how easy is their cultivation. Ixias at least are delightful subjects for the supply of cut flowers. September is early enough to pot them up, and in the initial stages they may be grown in cold frames, removing them to a cool airy greenhouse as they approach the flowering stage. Tritonia crocata and its varieties should be grown in the same way; they flower with wonderful freedom, and last in good condition for a long time in the cool greenhouse; they are also very useful when cut, making charming subjects for table decoration.

Kalanchoe flammea.—This Kalanchoe is also very useful for greenhouse decoration, and is easily propagated by means of cuttings inserted at this time. Plants that have finished flowering usually produce plenty of growths at their base suitable for use as cuttings; being of a fleshy character, they root readily on an open bench in a cool greenhouse. During the winter they are best grown in a warm, airy greenhouse, and should be kept somewhat on the dry side during that period.

Kalanchoe Dyeri.—This Kalanchoe and the hybrid K. kewensis are also very useful for conservatory decoration. They are larger growing plants than K. flammea, well grown specimens attaining a height of 4 to 5 feet. They are both easily propagated by means of cuttings inserted at this time, and succeed under the same cultural conditions as K. flammea.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Cucumbers.—Plants growing in houses will not give much trouble now except in keeping the old leaves cut out and the growths thinned. Water the roots occasionally with liquid manure or an approved fertiliser in solution, and top dress the beds with rich soil as the roots show on the surface. Any plants that are exhausted should be cleared out of the house and the latter cleansed. Sow a few seeds to obtain plants for autumn fruiting, and place the seed-pan in the propagating pit, in which the seeds will soon germinate. In the meantime, make up a fresh bed of fermenting materials, and place some rich soil on the dung when it has settled down. As soon as the young plants have made two rough leaves, plant them out as advised for the previous crop, and treat the plants in the same way. Take advantage of the sun's warmth by closing the house early after syringing the plants overhead, and thoroughly damping the floors and walls. Shade the plants from very strong sunshine, but do not overdo this, especially in the afternoons. Cucumbers in frames require much the same treatment; the growths should be regulated and the plants kept well supplied with water.

Leeks.—Plants raised from an outdoor sowing in April or May will now be large enough for planting. Select an open site, and make holes about a foot or 15 inches deep with an iron bar, and drop one plant in each hole. As each row is finished afford water, but leave the holes open. As the plants grow, they may be earthed up once or twice. This crop will stand all through the winter, and prove most useful in the spring, when the earlier-sown Leeks in trenches are over. These latter, by the way, should be earthed up as necessary and the roots should be liberally supplied with water.

Cauliflowers.—These should now be providing plenty of good heads. The bed should be inspected daily, and some of the leaves turned down over the curds to protect them from the sun. Keep a look-out for caterpillars, especially if there is rain, and hand pick them. In the event of dry weather afford this crop good soakings of water now and then, and, better still, diluted liquid manure if this is obtainable.

HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Summer Pruning.—This operation should be continued, but shoots that may be desirable for the proper formation of the tree should be retained. Clean cuts are essential, and should be made with the view to avoiding further cutting in winter. Cordon trees should be dealt with first, as these will be somewhat crowded with growth, thus preventing the fruit from receiving sufficient air and light. The extension system, or the introduction of young wood to replace the old stems, is generally practised now, and has much to recommend it. It must be recognised that the continual hardening of the tissue as the tree grows older, whether it is an Apple or a Vine, must tend to restrict the flow of sap and thus decrease the size of the fruit.

Strawberries.—The layering of Strawberries will now have been completed. The first batch should be removed as soon as rooted to a place where the plants may receive proper attention. Remove the straw and the older and decayed leaves from the parent plants and hoe the surface of the bed. Auxiliary plants placed in the rows last season, between the permanent plants, should now be cut out with the hoe. After hoeing, the bed may be dressed with some good fertiliser. The plants should be encouraged in every way to make good stools, and should not suffer from lack of moisture.

Various.—Apples continue to fall, and it is difficult to state whether the cause is to be attributed to the reaction caused by rains following dry conditions, or to the extreme heat experienced recently. There was a good crop in the continuously dry year of 1921, therefore alternative extremes of temperature may have something to do with the present partial failure. Pots of hay or hollow Bean and Delphiniums stems should be placed among the growths of Peach and Nectarine trees to trap earwigs before the fruits are attacked.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Seedling Cypripediums.—The present is a suitable time to examine seedling Cypripediums to ascertain which need larger receptacles. The compost will usually be found to be in good condition, and, in most instances, the plants may be transferred to larger pots without much disturbance. The roots should be disentangled and placed carefully in a pot some two sizes larger, and the pot should be well drained. A compost of peat fibre and Sphagnum moss cut into moderately fine pieces provides a suitable rooting medium for these small plants, and it should be pressed moderately firmly in the receptacles. Over-potting the plants should be carefully guarded against, as they are not capable of extending their roots through a large amount of compost. Plants that are nearing the flowering stage may be left until the spring, unless there is a danger of them suffering from starvation, when they will be the better for a supply of new material. Smaller seedlings, in store pots, may be potted singly; we use pots of 1 inch in diameter and a compost consisting of peat fibre and moss cut up finely. Seedlings which are now showing on the seed beds, raised from seed sown in the spring, are large enough to handle, and should be pricked off into store pots, in which they should remain until they are large enough to be transferred to larger receptacles. Every assistance should be given these small plants to enable them to make rapid growth and reach the flowering period in the shortest time possible, for if they once receive a check their progress will be slow. They should be grown in a brisk temperature and humid atmosphere, and kept rather heavily shaded. Thrips are troublesome pests, and if allowed to infest the plants will soon ruin them. Directly any of these pests are detected, the house should be fumigated at once, and in hot weather it is advisable to fumigate all the houses once or twice at intervals of one or two nights.

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PUBLIC PARKS AND GARDENS.

Sir James Calder, who was for some time a member of Bo'ness Town Council, recently offered to present Bo'ness with a park of six acres situated in the mining district of Castleloan. The condition attached to the gift was that Sunday games must be allowed on the grounds. There was strong local opposition to this stipulation, and a poll of the electors was taken on the question, with the result that the proposal to allow Sunday games was rejected by an eight to one majority. Only 24 per cent. of the electors polled, and a 50 per cent. vote was necessary to decide the matter. Subsequently Sir James expressed his intention of presenting the park without imposing this condition.

On the 19th ult., two valuable additions were made to the open spaces of Liverpool, consisting of a charming piece of woodland and lake at Larkhill and the more imposing Camphill estate at Woolton. Camphill estate was presented to the Corporation of Liverpool by the late Mr. Chas. Williamson, and it was fitting that Lady Royden (formerly Mrs. C. Williamson) should have been asked to open the new park to the public. At the opening ceremony hope was expressed that the Camphill estate and Woolton Wood would eventually form one park, and Mr. Rankin, chairman of the Housing Committee, said that his committee wished to hand over to the Parks and Garden Committee of Liverpool a strip of land on each side of Tue Brook, from the Clubmoor Recreation Ground to the proposed new Walton Park. This strip would consist of land fifty to sixty yards deep on each side of the stream, and thus provide ample space for bowling greens and tennis courts over a length of about one-and-a-half mile. Needless to say, Mr. Rankin's proposal was received with enthusiasm, and will be considered by the Liverpool Parks and Gardens Committee at an early date.

NOTICES OF BOOKS.

Delphiniums.

The popularity of Delphiniums and their value for garden decoration is so obvious that Mr. A. J. Macself has no need to apologise for his neat little booklet* dealing with these splendid flowers. No one is likely to quarrel with the author in regard to his advice as to cultivation, and those who desire to excel with Delphiniums as exhibition flowers will welcome his detailed account of the methods to be followed for the purpose of securing first prize. But not all will accept his statement that "blue is the rarest colour in Flora's kingdom." Mr. Macself rightly places emphasis upon the desirability of growing the finer varieties instead of older and less beautiful ones, although he is careful to point out that for "many decorative schemes the light and airy flowers on slender stems are superior to the heavier flowers."

The author expresses his belief that autumn planting has killed more Delphiniums than any disease, and considers that planting should be finished before the first week of October is over. Propagation is dealt with at some length, and quite clearly, but Mr. Macself makes no reference to propagation by means of cuttings of basal growths in July, nor does he mention the method of layering which, we believe, certain growers follow with considerable success. The booklet is pleasantly written, and should prove useful to all who are interested in the cultivation of one of the most beautiful races of garden plants. A reference, made at the end of the booklet, to the Delphinium as a pot plant is timely, because the unheated greenhouse in which plants may be flowered in spring is becoming increasingly popular.

* *Delphiniums and How to Excel with Them.* By A. J. Macself. Country Life, Ltd., 20, Tavistock Street, W.C.2. Price 9d. net.

ORCHID NOTES AND GLEANINGS.

CATTLEYA GLADIATOR.

This bright and richly-coloured hybrid derived from Cattleya Gladys (Atalanta × Dowiana) again crossed with C. Dowiana aurea, gives a fine example of progressive hybridisation, the form of C. Gladys used having been raised by Messrs. J. and A. McBean, Cooksbridge, the senders of the present novelty. The influence of C. Leopoldii in C. Atalanta is seen in the firm texture of the flower and in the marking of the lip, but the form of C. Dowiana is maintained. The sepals are tinged and veined with vinous purple and the petals are bright mauve with dark purple veining. The crimped lip is purple, shaded with red, and with distinct gold lines from the base to the yellow disc which extends over the side lobes.

LAELIO-CATTLEYA BIDDY.

C. J. Lucas, Esq., Warnham Court, Horsham (gardener, Mr. Duncan) sends the first flower of a very attractive cross between Cattleya Iris (bicolor × Dowiana aurea) and Laelio-Cattleya Wellsiana (C. Trianae × L. purpurata). In form it resembles Laelio-Cattleya Wellsiana, the constriction in the middle of the lip often seen in C. Iris hybrids, and acquired from C. bicolor, not appearing. The sepals and petals are of that clear white which is often seen in Laelio-Cattleyas of C. Dowiana ancestry. The front and broad margins of the side lobes of the lip are bright purplish-violet, the base being primrose-yellow with faint mauve lines on the inside and white on the exterior. It is a good addition to the favourite class which includes L.-C. Canhamiana and L.-C. Aphrodite, but other plants of the same small batch will probably show more of the C. Iris parent.

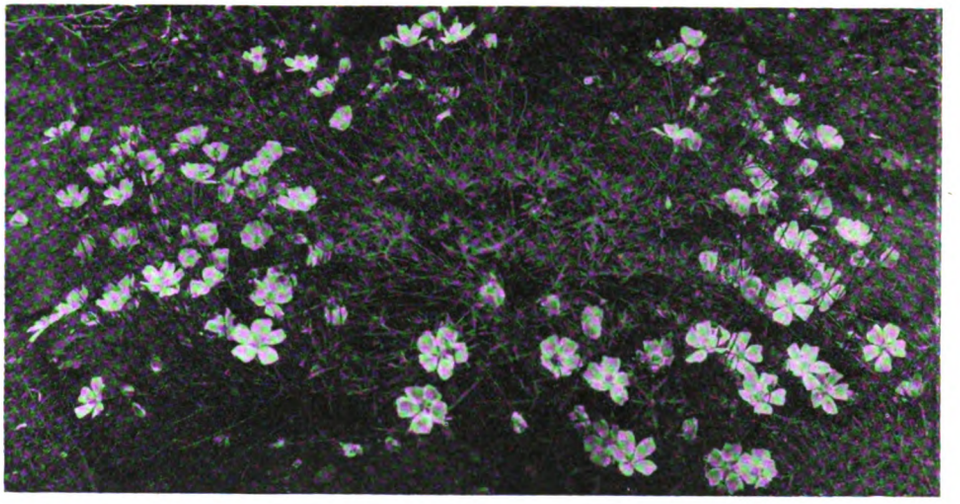

FIG. 26.—CALLIRRHOE LINEARILOBA.

HARDY FLOWER BORDER.

HELENIUMS.

The Heleniums comprise a very useful genus of hardy perennials belonging to the Natural Order Compositeae, and are known under the popular names of Helenflower, Sneezewort and Sneezeweed. Several of the named varieties of Helenium are fine border flowers. The one named July Sun is very attractive from June onwards, with its well-branched, stout stems bearing numerous large golden-yellow flowers with faint crimson markings. The plant is of bushy habit and grows from 2½ feet to 3 feet tall. The variety Wyndley, of recent introduction, has much larger flowers, of a rich golden yellow, prettily shot with crimson. This sort flowers from June to August, and grows to a height of 3 feet.

The compact, free flowering Helenium pumilum magnificum is perhaps the most handsome of the soft yellow-flowering varieties. It reaches a height of approximately 2½ feet to 3 feet, and produces freely branched stems of stout, erect habit, that are covered with large flowers from June to August. The variety pumilum aurantiacum is of more recent introduction, and similar in every respect to the preceding, but has large clear orange-yellow flowers which appear from June to August.

H. cupreum forms a dwarf neat plant of branching habit, and is covered with coppery-red flowers, that are faintly shot or streaked with yellow, from June to August. H. Bolanderi is one of the most distinct of the Heleniums, on account of its bold, black, central disc, which shows the bright golden-yellow flowers to advantage. The blooming season of this species is June to August. The plant grows 2 feet tall.

The Heleniums are all vigorous growing plants and quite hardy. They thrive in ordinary garden soil that has been deeply cultivated, and are well adapted for the second row in the herbaceous border or for forming groups or beds. Three to six plants growing together in the border soon form handsome clumps, and bloom over a long period, frequently until the autumnal varieties show colour. These Heleniums should be transplanted in autumn or early spring. They delight in deeply worked soil of a sunny position. *W. Logan.*

CALLIRRHOE LINEARILOBA.

Among the interesting Malvaceous plants native of North America, the Poppy Mallows, of more or less trailing character, form a group not commonly met with in gardens, but none the less showy when in flower and interesting by reason of their radiating habit. They consist of annual or perennial herbs, and are fairly easy of cultivation provided they have a sunny position and are grown in light, rich, sandy soil. The perennial species may be increased by means of seeds and from cuttings, the former sown in spring, in pans, in a cold frame, and the latter inserted in sandy soil in a cold frame.

The two species most often met with in gardens are Callirrhoë involucrata and C. linearilobа (Fig. 26). The former has purplish-lilac flowers, and the latter purplish flowers, each with a white base. Although the flowers are not long lived, they are freely produced in succession, and are very effective on a well-grown plant.

The late Mr. Reginald Farrer summarily described the Callirrhoës as "a group of trailing Mallows, of indifferently hardy temper, even in hot and sandy soils, with rapidly evanescent flowers of rather aniline tone."

The *Index Kewensis* lists seven species of Callirrhoë and makes C. palmata, Buckl., and C. verticillata, Groenl., synonymous with C. involucrata. At least one species, C. spicata, is now referred to the genus Sidalcea.

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EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the **PUBLISHER**, 5, Tavistock Street, Covent Garden, W.C.2.

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

DIANTHUS ATKINSONI.

IT would be interesting to know how long ago, and by whom, that most gorgeous of all Pinks, Dianthus Atkinsoni was raised, and what was its parentage. Almost certainly the Sweet William was one parent. What can have been the other? I have known Dianthus Atkinsoni for nearly twenty years, and it has always during that time been a rare plant. It is a hybrid, and a sterile mule at that. It is never very robust, yet flowers with extra-ordinary freedom, and unless special precautions are taken it makes very little "grass," and so is not easy to increase.

About sixteen years ago I wanted Dianthus Atkinsoni and, fortunately, my then foreman, Mr. Cecil Davies, was able to help me in the matter. He told me that some years before, when he was foreman at Mr. Wood's nursery in Yorkshire, he had discovered there in a remote corner of the nursery a single plant of D. Atkinsoni; an ancient specimen with an almost woody trunk as thick as one's thumb. Mr. Davies always held that this wonderful old specimen was the last remaining one in cultivation. But however this may have been—and it is a pleasing and romantic idea—he took special pains to propagate it, and raised a small stock.

I wrote for a plant, which duly arrived at Stevenage and was reverently worshipped and propagated here. We showed specimens in London once or twice, in the old pre-war days, and the hybrid never failed to make a sensation and become hopelessly oversold. But I always jealously kept one plant back. In 1918 I found I still had a plant, old, and woody, and by no means sprightly. I took it to my own garden and there regaled it with a post-war diet of cow dung. The effect was almost magical. It sent up several strong flower stems, which were removed directly the flowers opened, and then came a splendid crop of "grass." These growths I removed "with heels," when still quite small and young, many of them not an inch long, as fast as they appeared, and had them struck in a cold frame. By the autumn we had one hundred and fifty healthy young pot plants, all from that last remaining veteran.

All this gave me the idea how best to grow Dianthus Atkinsoni. When you plant it, bury a lump of pure cow dung just under the roots. This acts both as a sponge to retain moisture, and as a stimulant.

Dianthus Atkinsoni carries broad, branching heads of rather large flowers on erect, wiry stems from 9 inches to 15 inches tall. Each flower is well over an inch across, single, with slightly fringed edges, and of the most dazzling carmine scarlet imaginable, with a central zone of almost flame red. So dazzling is the colour that one must look steadily into the flowers to distinguish the central flaming zone. At a casual glance it looks all one tone of brilliance.

The plant is perfectly hardy and perennial, yet it is so free flowering that it looks always as though it must exhaust and kill itself. Yet the old woody stock remains, and as the plant is absolutely sterile and never sets seed, it survives. I have seen seed of Dianthus Atkinsoni offered in a catalogue. It was supposed to have come from a very famous garden!

It is to be hoped that this brilliant old hybrid will never die out in English gardens. So long as cows remain to us—and a love of good plants—there is no reason why it should. Motors have made stable manure scarce, but so long as we continue to produce milk in our good old-fashioned way there should always be enough cow dung—at any rate for Dianthus Atkinsoni! *Clarence Elliott, Stevenage.*

TREES AND SHRUBS.

CLADRASTIS SINENSIS, HEMSLEY.

Since this interesting Cladrastis, the Chinese Yellow Wood, was first introduced from Western Hupeh by Mr. E. H. Wilson when collecting on behalf of Messrs. Veitch, in 1901, lovers of new and rare trees have watched its development with more than usual interest. In the first place, the foliage attracts attention, but chief interest centres in the flowers (Fig. 27), which appear during late June and July in Western Hupeh and Western Szechuan.

Mr. Wilson records the Chinese Yellow Wood as a common tree in the moist woods between 4,000 feet and 8,000 feet altitude; most of the wild trees are of medium size, up to about 50 feet, but specimens of larger dimensions also occur. It is a deciduous tree, and in habit suggests Sophora japonica, being wide-spreading and quite one of the latest trees to commence new growth in spring.

The pinnate leaves consist of nine to fifteen leaflets, alternate, 1½ inch to 3 inches long and ¾ inch to 1 inch wide, dark green and smooth above, glaucous beneath. The flowers are fragrant, blush white, ½-inch long, with a dull golden mark at the base of the standard petal, and they are freely borne in erect terminal panicles from 7 inches to 8 inches high and 5 to 6 inches wide.

When originally discovered by Mr. E. A. Pratt in 1890 in Szechuan, Cladrastis sinensis was thought to provide another example of two species of trees belonging to the same genus being represented by solitary examples in America and Asia—in the New World by C. tinctoria, and the Old World by C. sinensis. More recently, however, two further species have been described, C. Wilsonii, Takeda, and C. shikokiana, Makino.

The fact that a small standard tree at Kew is flowering when less than 12 feet high suggests that the Chinese Yellow Wood will be a better flowering tree than C. tinctoria. *A. O.*

FIG. 27.—CLADRASTIS SINENSIS: R.H.S. AWARD OF MERIT, JULY 24 (SEE P. 63).

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REPORT ON THE CONDITION OF THE OUT-DOOR FRUIT CROPS.

[FROM OUR OWN CORRESPONDENTS.]

THE WORDS "AVERAGE," "OVER," OR "UNDER," AS THE CASE MAY BE, INDICATE THE AMOUNT OF THE CROP; AND "GOOD," "VERY GOOD," OR "BAD," DENOTE THE QUALITY.

FULLER COMMENTS WILL BE GIVEN IN THE FOLLOWING NUMBERS. SEE ALSO LEADING ARTICLE ON PAGE 65

COUNTY.	APPLES	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
SCOTLAND										
Scotland, N.										
MORAYSHIRE	Under; bad	Under; bad	Under; bad	Under; bad	....	....	Under; bad	Average; good	....	John Macpherson, 4, Hawthorn Road, Elgin.
	Under	Under	Under	Under	....	....	Under	Average	....	James Jamieson, Easter Elchies, Craigellachie.
ROSS-SHIRE	Under; good	Under; bad	Under; good	Under; good	....	....	Average; good	Under; good	....	William L. Minty, Ardross Castle Gardens, Alness.
SUTHERLAND	Under; bad	Average; good	Under; good	Average; good	....	....	Average; good	Over; good	....	W. F. Game, Dunrobin Gardens Dunrobin, Golspie.
Scotland, E.										
ABERDEENSHIRE	Under	Under	Under	Under	....	....	Under	Average	....	Simon Campbell, Fyvie Castle Gardens, Fyvie.
	Under; bad	Under; bad	Under; good	Under; good	....	....	Under; good	Over; good	....	James Grant, Rothienormau Gardens.
	Under; bad	Under	Under	Under	Average	....	Under	Average; good	....	John McKinnon, Haddo House Gardens.
BANFFSHIRE	Under	Under	Under; bad	Under; bad	....	....	Under	Average	....	George Edwards, Ballindalloch Castle Gardens.
CLACKMANNANSHIRE	Under	Average	Under	Average	Under	Under	Over; very good	Average	Under	Alexr. Kirk, Consulting Gardener. Paton St., Alloa.
EAST LOTHIAN	Under	Under	Under; good	Under	Under	Under; very good	Average; very good	Average; good	....	R. P. Brotherston, Tyninghame Gardens, Prestonkirk.
INVERNESS-SHIRE	Under; good	Under; bad	Average; good	Average; good	Average; good	....	Over; very good	Average; good	....	E. Dredge, Achnacarry Cas Gardens, Spean Bridge.
FIFESHIRE	Under	Under	Under	Average	Under	Under	Average	Average	....	Chas. Simpson, Wemyss Castle Gardens, East Wemyss.
	Under	Under	Under	Average; good	Under; good	Under; good	Average; good	Over; good	....	D. McLean, Raith Gardens, Kirkcaldy.
	Under	Under	Average; good	Average	....	....	Over; very good	Average; very good	....	David Milne, Balbirnie Gardens, Markinch.
FORFARSHIRE	Average	Under	Average	Average	....	....	Average; good	Over; very good	....	Donald McInnes, Glamis Castle Gardens, Forfarshire.
	Under; good	Under; bad	Under; good	Under; good	....	Under; bad	Average; good	Over; good	....	Robert Bell, Kinnaird Castle Gardens, Brechin.
	Average; good	Under; good	Under; bad	Average; very good	....	....	Under; good	Over; very good	....	David Boyle, Tay Park Gardens, Broughty Ferry.
	Under	Under	Under; good	Average	....	....	Over; very good	Average; good	....	J. B. Peffers, Panmure House Gardens, Carnoustie.
KINCARDINESHIRE ..	Under	Under	Under; bad	Average	Average	....	Average	Over	....	William Thomson, Urie House Gardens, Stonehaven.
MIDLOTHIAN	Under	Under	Under	Average	....	....	Average	Average	....	William Crighton, Morton Hall Gardens, Liberton.
PEEBLESSHIRE	Under; good	Under; bad	Under; good	Average; good	....	....	Under; good	Average; good	....	John Finnie, Stobo Castle Gardens, Stobo.
	Under; good	Under; bad	Average; good	Average; good	....	....	Over; good	Over; very good	....	Alexander Black, Kirna Gardens, Walkerburn
PERTHSHIRE	Under; good	Under; bad	Under; bad	Under; good	....	....	Average; good	Average; good	....	James Chisholm, Meikleour House Gardens, Meikleour.
	Under; bad	Under; bad	Under; bad	Average; good	....	Under; bad	Over; good	Average; very good	....	Thomas Lunt, Keir Gardens, Dunblane.
	Under	Under	Under	Average	Average	Under	Average	Average	....	Chas. Crighton, Jordanstone Gardens, Meigle.
	Under; good	Under; bad	Under; bad	Average; bad	Average; good	....	Average; very good	Average; good	....	Malcolm Macnaughton, Scone Palace Gardens.
	Under; good	Under; good	Under; good	Under; bad	Under; good	Under; bad	Average; very good	Average; good	....	James McGregor, Rossie Priory Gardens, Inchture.
Scotland, W.										
ARGYLLSHIRE	Under	Under	Average	Under	....	....	Average	Average	....	Henry Scott, Torloisk Gardens, by Aros, Isle of Mull.
	Under; bad	Under; bad	Under	Average	Under	....	Under	Under; bad	....	D. S. Melville, Poltalloch Gardens, Kilmartin.
AYRSHIRE.....	Average; good	Under; bad	Under very good	Average; good	Over; very good	Under; good	Average; very good	Average; very good	Average; good	D. Buchanan, Bargany Gardens, Dailly.
BUTESHIRE	Under; bad	Under; bad	Under; bad	Under; bad	....	....	Average; good	Average; good	....	John J. Davidson, Ardencraig Gardens, Rothesay.
DUMBARTONSHIRE ..	Under; good	Under; good	Under	Average; good	Average; good	....	Average; good	Average; good	....	John Brown, Cairndhu Gardens, Helensburgh.
DUMFRIESSHIRE	Under	Under; bad	Under	Under	....	....	Over; good	Over; good	....	James McDonald, Dryfeholme Gardens, Lockerbie.

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CONDITION OF THE FRUIT CROPS—(*continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
ENGLAND:										
England, N.E.										
DURHAM	....	. ..	....	....	Under	....	Average	Average	....	Edward Tindale, Ravensworth Gardens, Gateshead.
	Average; good	Under; bad	Average; very good	Over; very good	Under; good	....	Over; very good	Over; good	....	J. A. Woods, Beamish Park Gardens, Beamish, S.O.
NORTHUMBERLAND	Under; good	Under; good	Under; good	Under; good	....	Under; good	Average; very good	Average; very good	....	William McCombie, Newton Hall Gardens, Stocksfield-on-Tyne.
	Under; bad	Under; bad	Under; bad	....	....	....	Average; good	Average; good	Under	James Winder, Howden Dene Gardens, Corbridge-on-Tyne.
YORKSHIRE	Under; good	Under; good	Under; bad	Under; good	....	Under; good	Under; good	Average; good	Under; bad	Jas. E. Hathaway, Baldersby Park Gardens, Thirsk.
	Under; good	Under; fair	Under	Average	....	....	Average; good	Average; good	. ..	J. G. Wilson, Newmillerdam P.O., Wakefield.
England, E.										
CAMBRIDGESHIRE	Average; good	Under; good	Under; bad	Under; bad	Average; good	Average; good	Average; good	Average; good	....	Arthur Sewell, 32, Barton Road, Ely.
	Under; bad	Under; bad	Under; good	Average; good	....	....	Average; good	Over; good	....	T. Spooner, "Whitecroft," Meldreth, Royston, Cambridge.
ESSEX	Under; good	Under	Under; good	Under; good	Average; good	Under; good	Over; very good	Average; good	Under	Arthur Bullock, Copped Hall Gardens, Epping.
	Average; good	Under	Average; good	Under	Average; good	Under; good	Over; very good	Under; bad	Under	Charles A. Heath, Gt. Hallingbury Place, Bishops Stortford.
	Under; bad	Under; bad	Under; bad	Average; good	Average; good	Average; very good	Average; good	Average; good	Under; bad	Edwin Gulle, Shortgrove, Newport.
	Average; good	Under; good	Under; bad	Under; good	Under; good	Under; good	Average; bad	Average; good	Under; bad	C. Wakely, County Gardens, Chelmsford.
HUNTINGDONSHIRE	Average	Under	Under	Under	Under	Under	Average	Under	Under	James Hewitt, Castle Gardens, Kimbolton.
	Average	Under	Under	Under; bad	Average	Under	Average	Over; very good	Under	A. V. Coombe, Ramsey Abbey Gardens.
LINCOLNSHIRE	Under	Under	Under	Under	Under	Under	Average; good	Average	Under	Thomas Cox, Hainton Hall Gardens.
	Average	Under	Under	Under	Over	Under	Under	Average	Under	F. J. Foster, Grimsthorpe Castle Gardens, Bourne.
	Under	Under	Under	Average	Average	Under	Average	Average	....	J. F. Vinden, Harlaxton Manor Gardens, Grantham.
NORFOLK	Under	Under; bad	Under	Under	Average; good	. ..	Average; good	Average; good	....	H. Naylor, The Pleasaunce Gardens, Overstrand.
	Under; good	Under; good	Under; good	Average; good	Average; good	Under; good	Average; good	Under; good	Under	C. G. Nichols, The Manor House Gardens, Gt. Ormesby, Gt. Yarmouth.
	Under	Under; good	Under; good	Under	....	Under; good	Average; very good	Average; good	Under; bad	J. E. Fitt, Earlham Hall Gardens, Norwich.
	Under; good	Under; bad	Under; bad	Average; good	Under; good	Over; very good	Average; good	Average; good	Under; bad	David McIntosh, Euston Hall Gardens, Thetford.
	Average; good	Under	Under	Under	Under	Under	Average; good	Average	Under	Isaiah Johnson, Catton House Gardens, Norwich.
SUFFOLK	Under; bad	Under; good	Under; good	Under; good	Average; good	Under; good	Average; bad	Average; very good	Under	A. E. Turner, Orwell Park Gardens, Ipswich.
	Under; good	Under; good	Under; good	Average; very good	Average; good	Under; bad	Average; very good	Average; good	....	Arthur E. Sales, Flixton Hall Gardens, Bungay.
	Under; bad	Under; bad	Under; bad	Under; bad	....	....	Under; bad	Under; bad	....	E. G. Creek, County Education Office, Shire Hall, Bury St. Edmunds.
	Under; bad	Under; bad	Under; good	Under; bad	....	Under; good	Under; bad	Under; good	....	H. Coster, Ickworth Gardens, Bury St. Edmunds.
Midland Counties.										
BEDFORDSHIRE	Over; very good	Under	Under	Under	Average; good	Under	Average; very good	Average; very good	Under	W. G. Warner, Chicksands Priory Gardens, Shefford.
	Average; good	Under; bad	Under; bad	Average; good	....	....	Average; good	Over; good	Under; bad	Chas. Turner, Ampthill Park Gardens, Ampthill.

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CONDITION OF THE FRUIT CROPS—(*continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
BUCKS	Under; bad	Under	Under; bad	Under	....	Under; bad	Under; bad	Under; bad	Average	W. Hedley Warren, Aston Clinton Gardens, Aylesbury.
	Under; bad	Under	Under	Under; bad	Under: bad	Under	Average	Under; bad	Under	James Wood, Hedsor Park Gardens, Bourne End.
	Under; bad	Under; bad	Under; bad	Under; bad	Under	....	Average; good	Average; good	Under	William Brooks, Abbey Gardens, Great Missenden.
	Under	Under; bad	Under; bad	Under	Under	Under	Under	Average	Under	Philip Mann, Education Sub. Office, Aylesbury.
	Average; good	Under; good	Under	Under; good	Average; good	Average; good	Over; good	Under; bad	Under	F. Reid, Dropmore Gardens, Maidenhead.
	Average; very good	Under; bad	Under; bad	Under; bad	Under; very good	Under; bad	Average; very good	Average; very good	Under; bad	Wm. Turnham, Greenlands Gardens, Henley-on-Thames.
	Under; good	Under; bad	Under; bad	Under; bad	....	....	Average; good	Average; good	....	G. F. Johnson, Waddesdon Gardens, nr. Aylesbury.
CHESHIRE	Under	Under	Under	Under	Under	Under	Under	Under; good	Under	T. A. Summerfield, Alderley Park Gardens, Chelford.
	Under; bad	Under; bad	Average; good	....	....	....	Over; good	Average; good	....	Alfred N. Jones, Marbury Hall Gardens, Northwich.
	Under	Under	Under	Under	Under	Under	Average	Average	Average	Philip Bolt, Manor House Gardens, Middlewich.
	Average; good	Under; bad	Under; bad	Under; good	....	....	Average; good	Average; good	....	Jas. B. Allan, Tirley Garth Gardens, Tarporley.
	Under; bad	Under; bad	Under; bad	Under	Under; bad	Under; bad	Under	Average	Under	Jas. Atkinson, Torkington Lodge Gardens, Hazel Grove, nr. Stockport.
	Under; bad	Under; bad	Under; bad	Average	....	Under	verage; good	Average	Under	N. F. Barnes, Eaton Gardens, Chester.
DERBYSHIRE	Under	Under	Under	....	....	....	Under; bad	Under	Under	E. Wilson, Hardwick Hall Gardens, Chesterfield.
	Under	Under	Under	Under	Under	Under	Average; bad	Average; good	....	J. Tully, Osmaston Manor Gardens, Ashbourne.
HERTFORDSHIRE	Average; very good	Under	Under; bad	Under; bad	....	....	Average; very good	Average; very good	....	James A. Paice, Aldenham Vicarage Gardens, Watford.
	Under; good	Under	Under	Average; bad	Under; good	Under	Under; good	Average; good	Under	G. H. Hill, Caldecote Gardens, Bushey Heath, nr. Watford.
	Average	Under	Under	Average	Average	Average	Over	Under	Under	Edwin Beckett, Aldenham House Gardens, Elstree.
	Over; good	Under	Under; good	Average; good	Average; good	Under; bad	Over; very good	Average; good	Under; good	T. Pateman The Node Gardens, Welwyn.
	Over; very good	Under; good	Under; good	Under; good	Average; good	Under; good	Over; good	Over; very good	Under	A. J. Hartless, King's Walden Bury Gardens, Hitchin.
LEICESTERSHIRE	Under; bad	Under; bad	Under; bad	Under; bad	Under: bad	Under	Average; good	Under; bad	....	W. Coe, Prestwold Hall Gardens, Loughborough.
	Under	Under	Under	Under	Under	Under	Average	Average	Under	F. Iobotson, Rolleston Hall Gardens, Billesdon.
	Under; good	Under; bad	Under; bad	Average; very good	Average; very good	Under; good	Under; bad	Average; good	Under	A. H. Campin, Whetstone Pastures Gardens, Leicester.
	.....	....	.....	.....	.....	.....	Under; bad	Under; bad	.....	Wm. Paterson, Swithland Hall Gardens, Loughborough.
NORTHAMPTONSHIRE	Under; bad	Under; bad	Under; bad	Average; good	....	....	Average; good	Average; good	Under; bad	Alfred Child, Catesby House Gardens, Daventry.
	Under; bad	Under; bad	Under; bad	Under; bad	Under; good	Under; bad	Under; good	Under; good	Under; bad	U. W. Gallop, Lilford Gardens, nr. Peterborough.
	Under; bad	Under	Under	Average; good	Under	Average; good	Average; good	Average	Under; bad	Arthur R. Searle, Castle Ashby Gardens, Northampton.
NOTTINGHAMSHIRE	Under; good	Under	Under; good	Average; good	Under; bad	Under	Average	Average; good	Under	William Rae Scott, Bunny Park Gardens, Bunny.
	Under; bad	Under	Under; bad	Average	Average	....	Average	Average	Under	S. Barker, Clumber Gardens, Worksop.
	Under	Under	Under	Average	Average	Under	Average; good	Average good	Under	H. T. Wilson, Kirklington Hall Gardens Southwell
OXFORDSHIRE	Under; good	Under; bad	Under; bad	Under; good	Under very good	Under; bad	Average; very good	Average; good	....	T. W. Whiting, Shotover Park Gardens, Wheatley.
	Under	Under; bad	Under; bad	Under	Under; bad	Under	Average	Under; bad	Under	Ben Campbell, Cornbury Park Gardens, Charlbury.
	Over; good	....	Under	Under	Under	....	Over; very good	Over; very good	....	John A. Hall, Shiplake Court Gardens, Henley-on-Thames.
	Under; good	Under; bad	Under; bad	Under; good	Under; good	Under; bad	Over; good	Over; good	Under; good	Victor R. S. Gammon, Eynsham Hall Gardens, Witney

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CONDITION OF THE FRUIT CROPS—(*continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
STAFFORDSHIRE ..	Under; bad	Under; bad	Under; bad	Average; good	....	....	Average; good	Average; good	Under; bad	J. W. Miskin, Woodseat Gardens, Rocester.
	Under; good	Under; bad	Under; bad	Average; good	....	Under; bad	Average; good	Average; good	Under; bad	E. Bannerman, Blithfield Gardens, Rugeley.
	Under	Under	Under	Average	Under	Under	Average	Average	Average	Edwin Thomas Gilman, Hillside, Rugeley.
	Under; bad	Under; bad	Under; bad	Average; bad	Average; good	....	Over; good	Average; good	....	T. G. Cheney, Westmere Gardens, Shenstone, nr. Lichfield.
WARWICK.....	Under	Under	Under	Under	Under	....	Under	Average; good	Under	Burton Gaiger, Wellesbourne House Gardens, Warwick.
	Under: good	Under	Under; bad	Under: good	Under; bad	Under; good	Average; good	Over; bad	Under; good	H. Dunkin, 86, Emscote Road, Warwick.
	Under; bad	Under	Under; bad	Under; bad	Under; bad	Under; bad	Average; bad	Average; good	Under	N. W. Priaulx, Allesley Hall Gardens, Allesley, nr. Coventry.
	Under; good	Under; good	Under; bad	Average; good	Under; good	Under	Under; good	Under; bad	Under.	W. Harmon, Newnham Paddox Gardens, nr. Rugby.
	Under; bad	Under; bad	Under; bad	Under; bad	Under; bad	Under; bad	Average; bad	Average; bad	Under; bad	Chas. Harding, Ragley Gardens, Alcester.
	Under	Under; bad	Under; bad	Under; bad	Under; bad	Under	Under	Under; good	Under; bad	H. F. Smale, Warwick Castle Gardens, Warwick
England, S.										
BERKSHIRE	Average	Under	Under	Under	Under	Under	Average	Average	Under	A. B. Wadds, Englefield Gardens, Reading.
	Average; good	Under; good	Under; bad	Average; good	Under; bad	Under; good	Average; very good	Average; good	Under; bad	Henry Butcher, Wyld Court Gardens, Hampstead Norris
	Under; good	Under; bad	Under; good	Average	Average	....	Average	Average; good	Under	J. Minty, Oakley Court Gardens, Windsor.
	Average; good	Under; bad	Under; bad	Under; bad	Average; good	Average good	Average good	Average; good	Under; bad	Geoffrey Cooper, Ranworth Malvern Road, Furze Platt Maidenhead.
	Average	Under	Under	Under	Under	Under	Average	Average	Under	J. Howard, Benham Park, Gardens, Newbury.
	Average	Under	Under; bad	Under	Average	Under	Average; good	Very good	Under	Thomas Wilson, Castle Gardens, Wallingford.
DORSETSHIRE	Under; bad	Under; bad	Under; bad	Under	Under	Under	Average; good	Average; good	Under	Thos. Denny, Down House Gardens, Blandford.
	Average; good	Under; bad	Under; bad	Under; bad	Under	....	Average; good	Average; good	Under	W. E. Axford, St. Giles Gardens, Salisbury.
HAMPSHIRE	Average; good	Under	Under	Under	Under; good	....	Over; very good	Over; very good	Under	George Ellwood, Swanmore Park Gardens, Bishops Waltham.
KENT	Under	Under	Under	Under	....	....	Average	Average good	Under.	Geo. Lockyer, Mereworth Gardens, Maidstone.
	Average good	Under; bad	Under; bad	Average; very good	Under; good	Under; good	Average good	Average; good	Average;	James Mayne, 32, Wigtown Road Eltham.
	Under; good	Under; bad	Under; bad	Average; good	Under	Under	Over; good	Over; good	Under	H. E. Kemp, Holmewood Gardens, Tunbridge Wells.
	Average; good	Under	Under	Average	Under	Under	Average	Over; good	Under	Edward A. Bunyard, Allington, Maidstone.
	Under; bad	Under; bad	Under; bad	Under; good	Average; good	....	Average	Average; good	Under; bad	J. D. Colledge, Cobham Hall Gardens, Cobham.
	Under	Under	Under	Under	.....	.....	Average	Average	Average	Wm. Lewis, 1, Sunny View, Staplehurst
	Over; bad	Under	Under	Average	Average	....	Average	Average	Under	J. George Woodward, Barham Court Gardens, Maidstone.
	Over	Under	Average	....	....	.....	Over	Average	.....	Charles E. Shea, The Elms, Foots Cray.
	Under	Under	Under	Average	Average	Under	Average	Under	....	J. T. Shann, Betteshanger Park Gardens, Eastry, Deal.
	Under	Under	Under	Under; good	Under	Under	Average; good	Average; good	Under	J. G. Weston, 30, North Street Ashford.
MIDDLESEX	Average	Under	Under	Under	Average; good	Under	Under	Average; good	Under	H. Markham, Wrotham Park Gardens, Barnet.
	Average; good	Under	Under; bad	Under	....	Under	Under	Average; good	....	G. H. Head, Fulwell Park Gardens, Twickenham.
SURREY	Average	Under	Under	Under	Under	Under	Average	Under	....	James Lock, Oatlands Lodge Gardens, Weybridge.
	Under; bad	Under	Under; good	Under; bad	Average; good	Under	Average; good	Under; bad	Under	F. Jordan, Ford Manor Gardens, Lingfield.
	Average; good	Under	Under	Under	Average; good	....	Average; good	Under; bad	....	Alan N. Rawes, R.H.S. Gardens, Wisley, Ripley.
	Average; bad	Under; bad	Under; bad	Average; good	Under; bad	....	Over; good	Under; bad	....	T. Smith, Coombe Court Gardens, Kingston-on-Thames.
	Under; good	Under; bad	Under; bad	Under; bad	....	....	Average; good	Over very good	Under; bad	H. Prince, Polesden Lacey Gardens, Dorking.
SUSSEX	Average; good	Under	Under	....	Average	....	Under	Average; good	Under	H. Cook, Glynde Place Gardens, Lewes.
	Under; bad	Under	Under; good	Average; bad	....	....	Average; good	Average; good	Under	E. M. Bear, Magham Down, Hailsham.

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CONDITION OF THE FRUIT CROPS—(*continued.*)

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS	SMALL FRUITS.	STRAWBERRIES.	NUTS	NAME AND ADDRESS.
SUSSEX (Continued)	Average	Under	Average	Under	Under	....	Average	Average	Under	Leon Squibbs, Stonehurst Gardens, Ardingly.
	Average; good	Under; bad	Under	Under; bad	Average	Under	Average	Average; good	Under	Arthur Wilson, Eridge Castle Gardens, Tunbridge Wells.
	Under	Under	Under	Average	Average	....	Over	Under	....	Ernest Markham, Gravetye Manor Gardens, East Grinstead.
	Under	Under	Under	Under	Average	Under	Average	Average	....	W. H. Smith, West Dean Park Gardens, Chichester.
	Average	....	Average	Under	....	....	Average	Under	Under	Edwin Neal, Tilgate Gardens, Crawley.
WILTSHIRE	Under	Under	Under	Under; good	Average; good	....	Over; very good	Average; good	Under	C. E. Barter, Longleat Gardens, Warminster.
	Under; good	Under	Under	Average	Under	Under	Over; good	Average; good	Under	H. H. Mills, Fonthill House Gardens, Tisbury.
	Average; good	Under	Under	Under	Under; good	....	Average; good	Average; good	Under	J. Yandell, Manor Gardens Ramsbury.
England, N.W.										
CUMBERLAND	Under; good	Under; bad	Under; bad	Under; good	Under; bad	Under; bad	Average; good	Average; good	....	James Tait, Justicetown, Gardens, Carlisle.
	Under; bad	Under; bad	Under; bad	Average; good	....	Under; bad	Average; good	Over; good	....	J. Service, Holme Hill Gardens, Dalston.
LANCASHIRE	Under	Under	Under	Under	Average	....	Under	Under	Under	W. B. Upjohn, Hall Gardens, Worsley, Manchester.
WESTMORLAND	Under	Under; bad	Under; bad	Under; bad	....	....	Over; good	Average; good	....	W. A. Miller, Underley Gardens Kirkby Lonsdale.
	Under; bad	Under; bad	Average	Average	Under	....	Average	Average	....	James Jeffrey, Lowther Castle Gardens, Penrith.
England, S.W.										
CORNWALL	Under; bad	Under, bad	Under; bad	Average; good	Under; good	....	Over; good	Under; good	....	Harry Williams, Tolvean Gardens Redruth.
DEVONSHIRE	Under; good	Under; good	Under; bad	Average; good	Average; good	Under; bad	Over; good	Average; bad	Under	E. E. Bristow, Castle Hill Gardens, Tilleigh, South Molton.
	Under	Under	Under	Under	Under	....	Average	Average; good	....	Gilbert Sleep, Hartland Abbey Gardens, Hartland.
	Under	Under	Under	Under	Under	Under	Average	Average	Under	P. C. M. Veitch, Royal Nurseries, Exeter.
SOMERSET	Under; good	Under; bad	Average; good	Under; bad	Average; good	Under; bad	Over; very good	Average; good	Under	James Glasheen, Hestercombe Gardens, Taunton.
	Under; bad	Under; bad	Under; bad	Under; bad	Under; bad	Under; bad	Average; good	Over; good	Under	Grigor Roy, Halswell Park Gardens, Bridgwater.
GLOUCESTERSHIRE	Under	Under	Under	Under	Average	Under	Over; good	Average; very good	....	Frank J. Clark, Westonbirt Gardens, Tetbury.
	Under	Under	Under	Under	Under	....	Average	Average	....	Wm. J. Jefferies, Cirencester.
	Under	Under	Under	Under	Average	....	Average	Average	Under	John Banting, Tortworth Gardens, Falfield,
	Under; good	Under; good	Under; good	Under; good	Under; good	Under	Average; good	Under; good	Under	G. H. Hollingworth, Shire Hall, Gloucester.
HEREFORDSHIRE	Under	Under; bad	Under; bad	Average; good	Under; bad	Under; bad	Average; good	Average; good	Under; bad	F. Roberts, Stoke Edith Park Gardens, Hereford.
	Under	Under	Under	....	....	....	Average	Under	....	Dr. H. E. Durham, Dunelm.
	Under	Under	Under	Under	....	....	Average; good	Average; good	Under	Thomas Spencer, Goodrich Court Gardens, Ross.
SHROPSHIRE	Under; very good	Under; good	Average; good	Over; good	Under; bad	Average; very good	Over, very good	Average; good	Under	Roger F. Jones, Oteley Hall Gardens, Ellesmere.
	Under; good	Under; bad	Under; good	Under; good	Under	Under	Average; good	Under; good	Under	E. F. Hazelton, Yeaton Peveley Gardens, Bomere Heath.
WORCESTERSHIRE	Average; good	Under; bad	Under; bad	Under; good	Under; bad	Under; good	Average; good	Under; bad	Under; good	William Crump, Oakridge, Malvern Link.
	Under	Under	Average	Under	....	....	Average	Under	Under	Ernest Avery, Finstall Park Gardens, Bromsgrove.
	Average; good	Under; good	Under; good	Under; bad	Average; good	Under; bad	Under; good	Average; good	Under	Geo. A. Emmett, Hillcrest Gardens, Evesham.
	Under; good	Under; good	Under; good	Over; good	Under; bad	Under; good	Average; good	Average; good	Under; bad	G. E. Roden, Overbury Court, Tewkesbury.
	Under; bad	Under; bad	Under; bad	Under; bad	....	Under	Average; good	Under; bad	Under	C. A. Bayford, Davenham Gardens, Malvern.
	Under; bad	Under; bad	Under; bad	Under; bad	....	Under; bad	Average; good	Under; good	Under	James Udale, 7, Ombersley Road, Droitwich.
WALES.										
CARDIGANSHIRE	Under; good	Under	Under	Under	Under	....	Average; good	Average; good	....	W. Phillips, Derry Ormond Gardens, Llangybi.
	Under; good	Under; good	Under; good	Average; good	....	Under; bad	Average; very good	Average; good	Under	D. H. Dunn, Hafod, Devil's Bridge.
CARNARVONSHIRE	Average; good	Average; good	Average; good	Under; bad	Under; bad	....	Average; good	Average; bad	....	J. S. Higgins, Glynllivon Gardens, Llanwnda.
DENBIGHSHIRE	Under; good	Under	Under	Average; good	Under	Under	Average; very good	Average; very good	Under	R. H. Crockford, Horsley Hall Gardens, Gresford, nr. Wrexham
	Under; bad	Under; bad	Under	Under	....	Under	Average	Average; good	....	J. A. Jones, Chirk Castle Gardens, Chirk.

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CONDITION OF THE FRUIT CROPS—(*continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
DENBIGHSHIRE (Continued.)	Under	Under	Average	Average	Under	Under	Over; good	Under; good	....	F. C. Puddle, Bodnant, Gardens, Talycafn.
IRELAND:										
IRELAND, N.										
KILKENNY	Under; good	Under; bad	Under; good	Under; bad	Average	Average	Over; very good	Over; good	Under; bad	T. E. Tomalin, Bessborough Gardens, Piltown.
	Under; good	Under; good	Under; good	Under; good	....	Under; bad	Over; good	Over; good	....	Henry Hall, Shankill Castle Gardens, Whitehall.
MEATH	Under; bad	Under; bad	Under	....	Average; good	Average; good	Under; bad	Under; bad	....	Michael McKeown, Julianstown, Drogheda.
TYRONE	Under; bad	Under	Under; bad	Under	....	....	Average	Average	....	Fred. W. Walker, Sion House Gardens, Sion Mills.
CAVAN	Under	Under	Under	Under	Average	....	Average	Average	Under	Edward Rutherford, Farnham Gardens.
WESTMEATH	Under; good	Under; bad	Under; good	Average; good	Under; bad	Under; bad	Average; very good	Average; good	Under	Wm. Allan, Pakenham Hall Gardens, Castlepollard.
IRELAND, N.E.										
DOWN	Under; good	Average; good	Average; good	Average; good	....	Average; good	Average; good	Average; good	....	T. W. Bolas, Mount Stewart Gardens, Newtownards.
IRELAND, S.										
CORK	Average; good	Under; good	Under; bad	....	....	....	Average; bad	Under; bad	....	J. Dearnaby, 17, St. Patrick's Terrace, Magazine Road.
KILDARE	Under	Under	Under	Under	Under	Average	Average	Average	Under	Alexander Black, Carton Gardens, Maynooth.
CHANNEL ISLANDS:										
JERSEY	Over; good	Under; good	Under; bad	Under; good	Under; bad	Under; bad	Over; very good	Under; good	....	Jas. Harper, Springfield Nursery, St. Heliers.
	Average; good	Under; good	Under	Under; good	Under	Under	Average; good	Under; good	....	Thomas Sharman, Imperial Nursery, St. Mark's Road, St. Heliers.
ISLE OF MAN:										
DOUGLAS	Under	Average: good	Under	....	....	....	Average	Under	....	James Inglis, Peel Road Nursery.

SUMMARIES OF THE HARDY FRUIT CROPS

SCOTLAND.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records ..	33	33	33	33	13	9	33	33	2
Average	3	2	5	19	6	—	17	22	1
Over	—	—	—	—	1	—	7	9	—
Under	30	31	28	14	6	9	9	2	1

ENGLAND.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records ..	132	130	132	126	100	85	133	132	96
Average	35	—	10	39	39	7	89	85	5
Over	6	—	—	3	1	1	24	14	—
Under	91	130	122	84	60	77	20	32	91

WALES.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records ..	6	6	6	6	4	4	6	6	2
Average	1	1	2	3	—	—	5	5	—
Over	—	—	—	—	—	—	1	—	—
Under	5	5	4	3	4	4	—	1	2

IRELAND.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records ..	9	9	9	7	5	6	9	9	4
Average	1	1	1	2	3	4	6	5	—
Over	—	—	—	—	—	—	2	2	—
Under	8	8	8	5	2	2	1	2	4

CHANNEL ISLANDS.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records ..	2	2	2	2	2	2	2	2	—
Average	1	—	—	—	—	—	1	—	—
Over	1	—	—	—	—	—	1	—	—
Under	—	2	2	2	2	2	—	2	—

ISLE OF MAN.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records ..	1	1	1	—	—	—	1	1	—
Average	—	1	—	—	—	—	1	—	—
Over	—	—	—	—	—	—	—	—	—
Under	1	—	1	—	—	—	—	1	—

GRAND SUMMARY, 1923.

	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records ..	183	181	183	174	124	106	184	183	104
Average	41	5	18	63	48	11	119	118	6
Over	7	—	—	3	2	1	35	25	—
Under	135	176	165	108	74	94	30	40	98

SUMMARY OF 1922 FOR COMPARISON.

	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records ..	183	183	183	169	122	96	183	182	110
Average	87	88	61	99	72	43	114	64	48
Over	52	69	94	36	18	18	54	30	47
Under	44	26	28	34	32	35	15	88	15

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HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Lindley Up to Date.—It is good to see *Novice* urging on an up-to-date version of Lindley's *Theory and Practice of Horticulture*. It is now some years since I approached a certain person with the suggestion that the work should be brought into harmony with modern knowledge, but the recipient of my letter replied that though he had thought of it himself, he found he took too small a size in shoes for the purpose. I hope that perhaps he may now find that his measurement was erroneous Really, such a work should now be done by a number of authors, under a strict Editor who has many blue pencils and engaging smiles. I would rather, however, that the plan of the work should be retained. Perhaps by now *A. N.* may have found Monilia on his Plums and his Broad Beans may have plumped up. Dry air, low temperature and lack of rain seem to account here for the determining of many of our woes when coupled with the lack of ripening rays last "summer." Yesterday I was looking at some old Pear trees hardly less and probably more than 150 years old; they had canker, scab, Pear sucker and caterpillar attack, and yet seemed full of vigour; hard by were younglings, perhaps of twenty years or so, dying and dead from no evident cause. *H. E. D.*

Iris Kaempferi and Other "Difficult" Plants—I wonder if any of your correspondents can tell me how to grow Iris Kaempferi. It is no good Mr. W. Auton, of Pyrford Court, telling me, as he does in *The Gardeners' Chronicle* of July 21 (p. 38), that he grows the plants in deep, rich, moist soil: I dare say he does, but I tried that way years ago and I believe I have tried them in every possible way, in sun and shade, in damp and dry places, in limy soil and lime-free soil, in clay, in sand, in tubs sunk in water in summer and lifted out in winter, and in beds which may be irrigated in summer, but all to no purpose. The leaves always turn yellow, the plants dwindle, and I never get a flower. Another plant which absolutely refuses to grow here is Spiraea palmata, though I have tried it in almost as many ways as Iris Kaempferi, and it occurs to me these plants must require similar soil, because I was at a garden some ten miles from here last week where both plants were growing luxuriantly in apparently the same kind of soil as ours; and so were Roses, which are by no means satisfactory here. Another plant which has always defeated me is the pink Daphne Mezereon, although the white variety is quite happy, as are a great many other Daphnes. The pink one grows perfectly well in my kitchen garden, which is about a quarter of a mile from the house, and although I have brought soil from there to the rock garden and tried to grow it therein, I have not succeeded. I have, of course, grown it from seed, as well as from young, purchased plants which I have tried planting at different times of the year. The result is always the same. Another flower I am very fond of is the Phlox. Anyone who is asked what a Phlox wants would say plenty of manure and plenty of moisture, but this is not enough here, and I feel sure something is lacking in my soil which all the above plants require, and I should very much like to know what that something is. Another quite ordinary plant which dies out here is Lychnis Viscaria splendens, though I have not perhaps taken the same trouble with this as with the other plants mentioned. I may say that I grow a very large collection of herbaceous and alpine plants, as well as a large collection of shrubs, and most things do quite well here. It may be suggested I should have my soil analysed, but this I have already had done, to ascertain the lime content. One sample contained .69 and another .33 lime, but there are all kinds of soil here from clay to limestone brash or oolite, and nothing I have used so far will grow any of the above-named plants satisfactorily. Can anyone help me? *M. F., Stow-on-the-Wold.*

SOCIETIES.

NATIONAL CARNATION AND PICOTEE.

The second show of this old-established society, which was held in conjunction with the R.H.S. fortnightly meeting of July 24 was, like that of a fortnight previous, a small affair. We assume that the various classes were of the same intention as before, but there was no schedule issued, and the exhibitors' cards bore no information other than the number of the class and the names of the exhibitor.

First-Class Certificates.

Ivan Lowe.—A very attractive yellow-ground, fancy, border variety. The ground colour is shaded with buff and the flower is heavily marked with dull crimson (Fig. 28). Shown by Messrs. Lowe and Gibson.

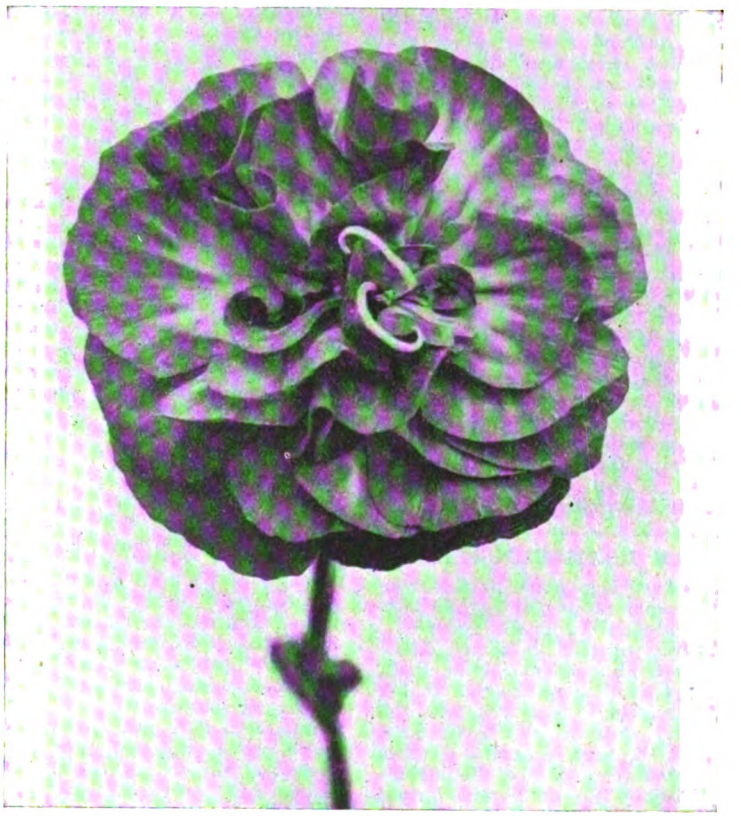

FIG. 28.—CARNATION IVAN LOW: NATIONAL CARNATION AND PICOTEE SOCIETY'S FIRST CLASS CERTIFICATE, JULY 24.

Mrs. Edmund Charrington.—This is a chaste and beautiful white-ground fancy, of more than average size and great substance. It might be described as a paler Jessie Murray and, as in that good sort, the white ground is very clear and clean. It is freely marked with pale lilac. Shown by Messrs. Lowe and Gibson.

Exhibition Flowers.

The only collection was arranged by Messrs. Lowe and Gibson, and, in addition to their two new Carnations, included an especially fine vase of Eclipse, which was the premier Picotee. Of the Carnations Jessie Murray, Surrey Clove, Daffodil, Fair Ellen and Maisie Lowe were of great merit.

Miss E. Shiffner won a number of first prizes with splendid blooms of such Carnations as Gordon Douglas, Lord Kitchener and Red Clove, and in Togo had the premier heavy-edged, yellow-ground Picotee. In what were apparently the colour classes, Miss Shiffner had magnificent vases of Opalesce, deep rose; Mrs. W. R. Smith, blush; Mrs. J. Marshall, crimson; Purity, white; and Border Yellow, which was a premier bloom, while Mrs. A. Brotherston was her best fancy, and also the premier Clove. Other deliciously scented Clove sorts were Dora, as shown by Mr. E. Charrington, and Purple Clove and Rose Clove, shown by Mr. S. Williams.

Mr. E. Charrington won first prizes with superb blooms such as Grey Douglas, Glamour and Veldt Fire Carnations, and in Eclipse he had the premier Picotee of his section.

The Edmund Charrington Cup was awarded to Mr. H. A. Knapton.

SAFFRON WALDEN FLOWER SHOW.

Established in 1819 (104 years ago), the records of the Saffron Walden Horticultural Society show that it has held many notable summer exhibitions, which have ranked among the best in the Eastern Counties. The Society, however, fell from its high estate some 26 years ago, owing partly to a succession of wet show days and partly to the popular taste at that time requiring something more than a horticultural exhibition to satisfy it, with the result that, so far as can be recollected, there had been no summer flower show at Saffron Walden since 1897.

The revival of the Horticultural Society and its annual show has been a project near to the heart of the present Mayor of the borough (Mr. D. Miller) for some long time past, and he is to be congratulated on seeing the Society resuscitated and the Flower Show re-established during his mayoralty, and that on a scale which promises to again place it in the front rank. The Mayor enlisted the co-operation and active support of all the nurserymen and head gardeners and many of the leading amateurs in the town and district, and, with an energetic working committee, the show, held in the grounds of Farmadine, on Thursday, July 26, was quite a success.

The season has been one of the worst on record in this district for garden produce, with the result that the entries in some of the classes were not strong, but this was more than made up for by the fine quality of the complimentary and trade exhibits. One of outstanding merit was a magnificent group of

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280 dozen blooms of Carnations shown by Mr. C. G. Engelmann. The group was equal to that exhibited by Mr. Engelmann at Chelsea a few weeks ago, when he won the R.H.S. gold medal. The group contained the latest novelties and was awarded the Society's gold medal. Messrs. J. Vert and Sons, also of Saffron Walden, had a very fine group of Campanulas, Cannas, Clematis, Coleus, Palms, and Ferns, but the feature of their display was their very fine display of pot fruit trees, 50 feet by 12 feet, which also was awarded the Society's gold medal. The same firm had a miniature rock garden and an exhibit of Comet Tomatos.

Running the whole length of one side of a large marquee was a magnificent complimentary group of double Begonias, Orchids, Larkspurs, Cannas, Palms, and Ferns from the conservatories of Miss Gibson, of Hill House, tastefully set up by Mr. G. Barker, her head gardener. It was greatly admired, and was awarded the Society's gold medal.

To attract trade displays from outside the town, the Society offered two prizes of £10 and £5 for the best exhibits of flowers, and some first-class blooms were shown. The first prize was won by Messrs. D. Prior and Son, Colchester, with a display of 22 stands of Roses, including the new Ideal, Alice Amos, Diana, and Vera Prior; and the second prize by Mr. W. Wells, jun., Merstham, with a superb collection of herbaceous cut flowers.

In the competitive classes Mr. W. H. Scott, a local amateur, won the first prize and the silver challenge cup, presented by Mr. C. Engelmann, with a choice exhibit of 20 varieties of cut Roses; and Sir Hy. Babington Smith was awarded the first prize and the silver challenge cup, presented by Messrs. Vert and Sons, for a superb collection of vegetables.

Another notable exhibit which obtained a premier award was a decorated table of eight dishes of choice ripe fruit shown by Mr. W. Foot Mitchell, M.P., of Quendon Hall (gardener, Mr. G. Middleton).

BECKENHAM HORTICULTURAL.

Arrangements have been made by the members of the Beckenham Society to pay visits to various places of interest during this summer.

On July 19 a visit was paid to Messrs. James Carter and Co.'s establishment at Raynes Park, about 40 members availing themselves of the opportunity of inspecting the warehouses and grounds. The party were met by Mr. Gardner, who, on behalf of the firm, extended a warm welcome to the members of the Beckenham Horticultural Society. The party was formed up into three sections and taken through the sections as follows:—Order Department, Seed-selecting, Packeting, Packing and Despatch Departments. Packet-making, printing, seed cleaning and selecting by machine and hand, and many wonderful and interesting things were seen, and, had time permitted, many more were to have been inspected before tea—generously provided by the firm. Tea over, the trial grounds were next inspected, but owing to the fall of much-needed rain, this part was hurried over, but the company paid special attention to several new introductions, including Carter's Dwarf Early Giant Pea.

Mr. Piper, chairman of the committee, on behalf of the above Society, then asked Mr. Gardner to thank the firm for its very kind invitation and warm welcome.

Obituary.

Nicholas German.—Mr. German, of Cardiff, was a fine old gardener, who left his mark on the past generation. Always an enthusiast in his profession, he excelled as a cultivator, but it is chiefly as an exhibitor of groups of ornamental plants that he will be best remembered. In the days when plants formed the chief attraction at York, Derby, Leicester, and many other centres, Mr. German exhibited on quite original lines, and in place of the massive groups then in vogue, he made artistic displays which were an education and delight. Mr. German had also a genius for friendship, and those who knew him intimately esteemed the privilege of his acquaintance. To the many young men who passed through his hands, he was generous in advice, and always delighted in their success in life. He came to Llandough Castle, near Cardiff, in 1900, as gardener to E. H. Ebsworth, Esq., and reconstructed the old place with great taste and skill. He had reached his 73rd year, and his remains were laid to rest a few days ago in the presence of those who knew him well, and who now mourn his loss.

LAW NOTE.

A RATE OF EXCHANGE PROBLEM.

A case which came on for trial in the High Court a short time ago raised an interesting problem in connection with foreign rates of exchange, which should be noted by those readers who buy or sell goods abroad.

As action was brought by a foreigner who had sold goods to an English firm. The buyers failed to pay, and, as their defence to the proceedings failed, judgment was given in the plaintiff's favour for an amount representing £313 in English money. Thereupon a further dispute arose between the opposing parties. The debt had to be paid in German marks, and, owing to the fluctuations in the rate of exchange, it became a matter of importance as to the date on which the rate of exchange should be taken. On the one side, Counsel contended that the correct date would be the date when the purchase money first became due, while, on the other side, it was contended that the proper date to take would be the date when judgment was given directing the precise amount to be paid

After reserving judgment, the learned judge pointed out that it would be very inconvenient if it were necessary to take the date of the judgment as being the date on which the rate of exchange ought to be calculated. In that event there would be a different rule prevailing according to whether the claim were one for damages or were for a liquidated amount, as in the case of a debt. Furthermore, if the date to be taken was the date of the judgment, there would be a considerable incentive for the party in whose favour the continually falling rate of exchange would operate to delay the case for so long as possible, while, if the business of the courts became congested, the effect might be to cause great injustice. On various grounds, therefore, the judge held that the rate of exchange must be calculated as on the date when the debt first became payable, and no on the date when judgment was given. *H. M. V.*

INQUIRY.

I have frequently noted this season in old pastures, where no extra inducement has been given them, the appearance of white, red and yellow Clover. I should like to know whether this is general, and how it is accounted for. Did the great drought of 1921 have anything to do with it, and by sterilising the land, or setting up the necessary chemical activity in the soil, make conditions more suitable for these leguminous plants? If such is the reason, how may the Clover be maintained? *J. E.*

ANSWERS TO CORRESPONDENTS.

Apple Twig Mildewed: *M. L.* The blight on your Apple tree is caused by Apple mildew, which has no connection whatever with American blight, the one being a fungus disease and the other an insect pest. Certain varieties are more susceptible to mildew than others. Spray the trees in early spring, before the buds burst, with Bordeaux mixture or lime sulphur, at winter strength, and when the fungus makes its appearance spray with a mixture of soft soap and ammonium polysulphide. Badly diseased shoots should be cut back beyond the limit of attack.

Asters and Pansies Diseased: *G. P.* The disease attacking your Asters and Pansies is the one commonly known by the name of "damping off." It is due to the presence of a fungus, Pythium debaryanum. Use fresh or sterilised soil and keep the surface as dry as possible without harming the roots.

Carnations Failing: *F. H.* If you will send specimens, we will endeavour to discover what is the cause of the trouble.

Gardener's Holiday: *A. H. O'L.* Unless an annual holiday was arranged for in the agreement you cannot demand a vacation, consequently, unless your employer is considerate, you are at a disadvantage. Possibly if you could arrange for someone to do what is necessary in your absence a holiday might be arranged.

Malmaison Carnations: *C.* Some error in cultivation has caused your Malmaison Carnations to go blind. The discoloration of the points of the buds may be caused by green fly, which was not checked in time. We should have no hesitation in layering from these plants; afford plenty of air on all favourable occasions, keep the plants clean, and let the winter temperature range from 43° to 48°, according to the outside conditions. Keep the plants moderately dry at the roots in winter and you will then have no difficulty in flowering them.

Muscat of Alexandria Grapes Shanking: *Puzzled.* The only fault to find with your vine border is that you probably made it too deep and too rich; a depth of 2 feet 9 inches is ample. Possibly neglect in watering, stopping the laterals, etc., during the war resulted in the roots descending deeply for moisture. Many and varied are the causes of shanking, including over-cropping, attacks of red spider, dryness at the roots, borders of excessively rich materials, various checks, and the roots descending into cold subsoils. Avoid these evils so far as possible, and you will not be troubled with shanking. In your case the roots appear to be at fault, and the only remedy that can be adopted is to take the vines up carefully, back to the first section, clear the drainage and renew the border, introducing a greater proportion of porous materials than before. After replanting the roots use horse droppings, in preference to decayed manure of a close texture, for mulching, to allow the air to pass through freely; also allow a few more laterals to grow after the Grapes commence to colour.

Name of Fruit: *G. F. H.* Not recognised.

Names of Plants: *W. H. D.* 1, Sedum hispanicum; 2, S. album; 3, S. spurium; 4, S. altissimum; 5 S. Anacampseros; 6, S. reflexum; 7, Saxifraga Stansfieldii; 8, S. canaliculata; 9, Veronica orientalis; 10, Sempervivum tectorum; 11, Polygonum amplexicaule; 12, Sempervivum, sp., probably S. Funckii. *F. K.* 1, Phlomis fruticosa (yellow flower); 2, Sisyrinchium striatum. *J. B. S.* 1, Anaphalis margaritacea; 2, Borago laxiflora; 3, Potentilla fruticosa; 4, Pyrus species; 5, Gaultheria Shallon. *J. T. S.* 1, Podophyllum Emodi; 2, Gaultheria Shallon; 3, Photinia serrulata; 4, missing; 5, Coronilla cappadocica; 6, Santolina Chamaecyparissus; 7, Anaphalis nubigenia; 8, Veronica Armstrongii; 9, Trillium grandiflorum; 10, Aubrietia deltoidea variegata; 11, Veronica, sp. *J. C.* Chara gracilis.

Ox Eye Daisy Fasciated: *W.N.* The specimen received showed a peculiar type of fasciation, but one not at all uncommon among rapidly growing hardy perennials. It is generally assumed that fasciation is due to the adhesion of two or more buds at a very early stage of their development, and before the growth is produced above ground; the stems eventually merge into each other and become flattened, and often produce badly shaped flowers.

Communications Received.—A. H.—A. O.—R. S.—F. J. C.—J. E. W.—H. M.—A. C. B.—J. O. B.—J. T. B.—W. J.—G. N.

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THE
Gardeners' Chronicle

No. 1911.—*SATURDAY, AUGUST* 11, 1923.

CONTENTS.

Books, notices of—
Poplars 86
Canadian plant import regulations, new ... 80
Clover, Bokhara ... 85
Devon, notes from south 84
Dyer, Sir William Thiselton- 79
Fruit crops, remarks on the condition of the 89
Fruit garden, the hardy 90
Fruit garden, the market 90
"Gardeners' Chronicle" seventy-five years ago 81
Gentians, the ornate ... 85
"Horticulture" ... 80
Indoor plants—
Mimulus glutinosus... 84
Senecio glastifolius ... 84
Irises—
Iris florentina ... 81
Kinnoull Hill, Perth ... 80
Lachenalias 91
Oxalis nummularifolia 91
Orchid notes and gleanings—
Miltonia Endresii ... 84
New hybrid Orchids 84
Phalaenopsis Lindenii 84
Parks and open spaces, public 79
Plant note—
A white Mimulus ... 85
Plants new or noteworthy—
Spiraea trichocarpa... 87
Plums, stocks for ... 79
Potato trials at East Craigs 80
Red spider and Pear mite on wall Pear trees 91
Roses at Bagatelle, new 86
Salvador, notes on the cultivated plants of the republic of ... 88
Scottish Horticultural Society, bequest to the 79
Slade, Mr. J. B. ... 80
Societies—
Birmingham Horticultural 91
General Bulb Growers of Haarlem ... 94
Manchester and North of England Orchid 94
Royal Horticultural 93
Scottish National Sweet Pea, Rose and Carnation ... 92
Sheffield 93
Strawberries, red plant in 88
Trees and shrubs—
Castanopsis chrysophylla 89
Ceanothus Gloire de Versailles 89
Chimonanthus fragrans in fruit ... 89
Eccentric growth of Stachyurus chinensis 89
Fabiana imbricata ... 89
Genista aetnensis ... 89
Week's work, the ... 82
Wisley, notes from ... 83

ILLUSTRATIONS.

Iris florentina 81
Rose Sunstar 85
Slade, Mr. J. B., portrait of 80
Spiraea trichocarpa 87
Stachyurus chinensis, eccentric growth of 89
Wahlenbergia vincaeflora, a pot specimen of 83

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.0°.

Actual Temperature:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, August 8, 10 a.m.: Bar., 30.2; temp., 81°. Weather—bright.

Stocks for Plums. Information of a useful kind, supplementing that already obtained in this country by Mr. Hatton at the East Malling Fruit Station (see *Journal of Pomology*, II, No. 4, September, 1911), is published* by Prof. U. P. Hedrick on stocks most suitable for Plums. In the American trials which have been in progress during the past ten years, the stocks submitted to comparative tests are Prunus americana (American stock); the hybrid between P. cerasifera and P. munsoniana, known as Marianna stock; the Myrobalan (P. cerasifera); St. Julien, P. insititia; the Peach, P. persica; and the Domestica stock (P. domestica). In addition the varieties of Plum included in the experiment were also grown on their own roots. Each of the stocks used has certain valuable qualities, though none of them may perhaps be regarded as the ideal stock for general use. None appears to give what is so much wanted, at all events by gardeners, a dwarfing stock. P. americana is hardy, vigorous, and resistant to diseases. It is also easily budded. In nursery practice the P. americana stocks in America are raised from pits (seed) and hence it is not surprising that this stock shows a wide range of variation. Upwards of two hundred varieties are known, and there will therefore be a lot of work to do when the time comes for determining which are the best and most suitable for special purposes. P. americana would appear to be a valuable stock for cold climates; but it has the great fault of suckering badly. The hybrid Marianna stock forms naturally a large tree and is resistant to pests. Its use as a stock is due to the readiness with which it may be reproduced vegetatively by cuttings, its free union with cultivated Plums grafted or budded on it, vigorous growth and its lack of the serious defect of suckering. The Myrobalan stock, used extensively in this country, and certainly the commonest in Plum orchards in N. America, is a big tree, easily budded. It is also cheap. As many growers of Plums in this country know, it suckers badly, and it is stated that when used as a stock the trees are short-lived and slow in coming into bearing. It is raised from seed which is generally collected in Italy and sent to France. In former days French growers used to raise the stock from cuttings and thus obtained a more uniform stock than that which can be expected from seed. It would be interesting to know why this practice has been abandoned and whether it might not be resumed with advantage to the orchardist. The St. Julien stock forms naturally a tree not unlike the common Damson and, like the Myrobalan, is largely—but not entirely—grown from seeds. French fruit raisers insist, however, that it serves the purpose of stock best when raised by vegetative propagation, e.g., from suckers or layers. Many Plum growers regard St. Julien as the best Plum stock, vigorous, hardy, long-lived, suckering but little and adapted to various soils. Its only defect is apparently that it will not do in cold climates. Nurserymen, on the other hand, are apt to prefer Myrobalan because the seedlings of the latter are more easily obtained and take the bud better. St. Julien is said to be less resistant to fungous attack and to make less vigorous growth than some others. Peach stocks raised from seed of wild plants are sometimes favoured by American Plum growers, especially for Japanese Plums. The scion is root-budded on the Peach. Prunus domestica stocks, of which several varieties are used in Europe, are not employed in America. The Plums used as scions included five varieties of P. domestica, viz., Bradshaw, Grand Duke, Italian Prune, Lombard and Reine Claude; two derivatives of P. insititia, viz., Shropshire and Drap d'Or; three Japanese Plums, varieties of P. salicina, viz., Abundance, Burbank and Chabot; two cultivated forms of P. munsoniana and one (de Soto) of P. americana. The results indicate that the five varieties of European Plums, Bradshaw, Grand Duke and the others named above, yield fruit much the best when grown on Myrobalan stocks and also grow best on this stock. These varieties fruit next best on their own roots and less well, in descending order, on Peach, Marianna, St. Julien and P. americana. Two of the Japanese Plums, Chabot and Burbank, also fruit best on Myrobalan stock, but the third, Abundance, does worse on it than on any other stock used—the stock apparently imparting too great vigour to the tree. It is therefore interesting to observe that Abundance fruits best when grown budded on Peach. The chief conclusions reached are that Myrobalan is the best stock for general purposes, and that St. Julien is second best.

* *Bulletin of the New York Agricultural Experiment Station*, Geneva, New York, January, 1923.

Shrewsbury Floral Fête.—The great annual exhibition of the Shropshire Horticultural Society will be held in the Quarry Park, Shrewsbury, on Wednesday and Thursday next, August 15 and 16. The cash prizes offered amount to over £1,200, and of this sum £115 is offered in cash prizes for rock gardens. In addition, numerous gold and silver medals, silver cups and bowls will be competed for, including a special extra prize of a silver cup offered by the President, Lord Berwick, for competition in the class for a collection of herbaceous plants and flowers. Everything points to a very successful exhibition. The Secretary is Mr. W. G. Brazier, The Square, Shrewsbury.

Public Parks and Open Spaces.—The leading citizens of Huntley recently formed a syndicate for the purpose of purchasing Castle Huntley Park and other grounds, from the Duke of Richmond and Gordon, for use as a public park for the town of Huntley. We understand that the amount required for the purchase of the land has been subscribed.—The Davie Public Park presented to the communities of Blairgowrie and Rattray by the late Mr. William Davie and his sister, the late Mrs. Nicoll, was opened to the public on the 26th ult., by Mr. W. Macpherson. The higher slopes of the park have been terraced and numerous seats have been placed thereon from which a magnificent view may be obtained over a wide expanse of the Valley of Strathmore. On the lower and level areas putting greens, tennis courts, a cricket pitch, and a football ground have been laid out.

Bequest to The Scottish Horticultural Society.—The late Dr. George Dickson, of Merchiston Park, Edinburgh, provided in his will for a sum of £150 to be paid from the residue of his estate to the Scottish Horticultural Society to provide a prize annually at the Edinburgh Exhibition, to be awarded to the competitor producing and exhibiting the heaviest bunch of home-grown Grapes. He made the conditions that this award should be known as the "James Dickson Prize" in memory of his late father, that the bunch of Grapes securing the award must be the product of a single eye, and that only gardeners in private establishments should be allowed to compete.

Sir William Thiselton-Dyer.—The celebration of his eightieth birthday by Sir William Thiselton-Dyer, an occasion which gave us pleasure to reproduce a recent portrait of this eminent botanist, has prompted his botanical friends in all parts of Great Britain and Ireland to express their congratulations and appreciation in the following letter:—

Dear Sir William,—The occasion of your eightieth birthday affords us the opportunity of which we gladly avail ourselves, not only of offering you our congratulations upon having attained so venerable an age, but also of assuring you of our continued regard and esteem. In doing so we who sign this letter do but acknowledge our indebtedness to you for the inspiration and guidance which we, both as teachers and researchers, have derived directly or indirectly from your own early work as a professor of botany. We regard that work, and more especially the courses of practical instruction conducted by you at South Kensington in the years 1875 and 1876, as having inaugurated the renaissance of the study of the structure and functions of plants which had been so brilliantly carried on by British botanists in earlier times. It must, we feel sure, afford you great and justifiable satisfaction to contemplate the marvellous development of such studies in this country during the years that have passed since you quickened them into new life. The professional career on which you had embarked so brilliantly was unfortunately, as it may have seemed at the time, brought to a close by your appointment to the assistant directorship of Kew in 1875 and your subsequent appointment as director ten years later. The work that you were enabled to carry out at Kew has been of such national importance, that, however much we may regret the loss of the stimulating influence you would undoubtedly have exerted as a professor, we all realise the great and lasting services you have rendered to botany, not only from the purely scientific point of view, but

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also in relation to the development and encouragement of botanical enterprise throughout the British Empire. Another notable result of the interest you inspired was the successful launching of the *Annals of Botany*, which has come to be one of the leading botanical periodicals of the world. We do not forget that it was your enthusiasm that turned the scale when the question of "to be or not to be" hung in the balance. The *Annals* is a lasting monument to your courage and prescience. It would need a lengthy document were we to attempt to set out in detail the value of your many efforts for the promotion of our science, but in conclusion we feel we must refer to the noble work you did in saving the old Chelsea Physic Garden from destruction. Thanks to you, London has now a botanic garden where students and teachers can study the structure and functions of plants and pursue those studies which you did so much to promote. With our very kind regards and good wishes, believe us to be, dear Sir William, Yours very truly, D. H. Scott, S. H. Vines, F. O. Bower, Balfour, H. T. Brown, D. Prain, F. Darwin, H. H. Dixon, A. C. Seward, J. B. Farmer, F. Keeble, A. B. Rendle, A. Shipley, H. Wager, F. F. Blackman, V. H. Blackman, F. W. Oliver, A. G. Tansley, F. E. Weiss, A. W. Hill, and all the leading botanists in Great Britain and Ireland.

Potato Trials at East Craigs.—On the 1st inst. a large number of Potato growers and Potato merchants visited the Plant Registration Station at East Craigs, Corstorphine, Edinburgh, to inspect the trails conducted there by the Scottish Board of Agriculture. Sir Robert Greig, Chairman of the Board, stated that the largest collection of varieties of Potatos to be found in Great Britain, and possibly the largest to be found in the world, was the one at East Craigs. About ten acres of land are devoted to Potato trials, and there are about seventeen hundred plots wherein seven hundred varieties of Potatos are cultivated for registration purposes. The plots are divided into three types, i.e. (1), plots of a standard variety to check variation and soil conditions; (2) control plots of standard varieties for comparison with new varieties in terms of maturity and yield; and (3) new varieties. The latter include about one hundred quite new sorts, including many from the Meigle district of Perthshire, a number of which are already known to be immune to Wart Disease. All the new varieties have been classified, and the subjects of Leaf Curl and Mosaic Disease are being worked out at East Craigs, but the tests for Wart Disease are carried out at the Board of Agriculture's grounds at Philipstoun.

Kinnoull Hill, Perth.—Kinnoull Hill, a notable feature of the landscape on the east of the River Tay, rises to a height of about 780 feet and commands magnificent views of the valley of the Tay and the distant hills. For many years the public have had access to the hill, and before the war it was a popular resort of the citizens of the town of Perth. During the war it was denuded of its trees, which were converted into timber, and since then the popularity of Kinnoull Hill has declined. Now, however, there is a possibility that its former beauty may be restored in due time, as Lord Dewar has offered to purchase the hill and present it to his native town of Perth. In a letter addressed to the Lord Provost, Lt.-Col. the Hon. John Dewar, Lord Dewar stated that he was in agreement with the Lord Provost's suggestion that as Kinnoull Hill was a historic site it should be preserved for all time as a playground for the people of Perth. Further, as the estate was for sale, he would consider it a privilege to be allowed to purchase Kinnoull Hill and present it to his native town and at the same time endow it to the extent necessary to restore and maintain its beauty. By special resolution the Perth Town Council accepted the generous offer and tendered the thanks of the town to Lord Dewar for his splendid gift.

Mr. J. B. Slade.—For fifty years Mr. J. B. Slade has been associated with the firm of Messrs. Protheroe and Morris, and for the greater part of that period has especially identified himself with the horticultural activities of his firm. As an auctioneer, whether at Cheapside or at a nursery sale, or at the sale of a private collection of Orchids, Mr. Slade is well known in the horticultural world. He possesses "the saving grace of humour" in abundant measure and has the happy knack of quickly getting on good terms with any audience of potential buyers. The value of nursery and market gardening businesses, of nursery stock, bulbs and other horticultural matters he has disposed of by a tap of his hammer must amount to a very large sum indeed. In celebration of his business jubilee Mr. Slade entertained his partners and members of the staff of Messrs. Protheroe and Morris to dinner on the 30th ult. at the Hotel Russell. In response to the toast of his health Mr. Slade referred to many interesting incidents in his business life, and to this account Mr. H. G. Morris added many humorous reminiscences of his association with Mr. Slade in the earlier days of

MR. J. B. SLADE.

their connection. Mr. Slade was presented with a souvenir of the occasion, and in returning thanks for it referred to the happy relations existing between members of the staff and the principals, and observed that eight of the senior members of the staff had rendered an aggregate of two hundred and seventy-seven years' service to the firm. Mr. Slade takes a keen interest in local affairs, and was a member of the Leyton Urban District Council for upwards of twenty years. He is also a member of the Essex County Council, a position he has held for twenty-six years.

New Canadian Plant Import Regulations.—The Ministry of Agriculture and Fisheries desires to give notice that new regulations have been issued by the Canadian Government, governing the entry of nursery stock and plants into the Dominion. The regulations, which will come into force on the 1st of September, may be summarised as follows, so far as concerns produce from England and Wales:—The term "plant" or "plants" includes all members of the vegetable kingdom and any plant or product of a plant. The term "nursery stock" includes all plants for ornamental purposes or propagation. Seeds and seed Potatos are not included. All shipments of nursery stock imported into Canada from this country must be accompanied by a certificate of inspection and a permit must be obtained by the importer. An official certificate must accompany the invoice and a copy of this certificate must be attached to each container. These certificates must be issued and signed by an authorised official and must state that the nursery stock covered by the certificate has been duly examined by the official and has been found apparently free from any pest or disease. Each container must also be clearly marked with the name and address of the consignor and of the consignee, the port of entry and also a declaration showing the quantity, kind and value of the nursery stock contained therein. Nursery stock will only be admitted through the following ports:—Niagara Falls, Ontario; St. John, New Brunswick; Montreal, Quebec, and Vancouver, British Columbia. Nursery stock will also be liable to inspection at the port of entry, and if found to be infected with any pest or disease, to protective treatment or destruction. The importation of nursery stock into Canada through the mails is prohibited. The importation of Potatos is prohibited, as also it is of the following species of the genus Pinus and the horticultural varieties, namely: White Pine (Pinus Strobus, L.); Western White Pine (Pinus monticola, Dougl.); Sugar Pine (Pinus Lambertiana, Dougl.); Stone or Cembrian Pine (Pinus Cembra, L.) and all other five-leaved species of the genus Pinus; all species and varieties of Currants and Gooseberries (Ribes and Grossularia) but not including the fruits of the latter; European Buckthorn (Rhamnus cathartica, L.) and Common or Rust Barberry (Berberis vulgaris, L.) and their hybrids and horticultural varieties; all species and varieties of Berberis and Odostemon (Mahonia) susceptible to Crown Rust of Oats and Black-stem rust of Wheat respectively, including B. amurensis, Rupr.; B. canadensis, Pursh.; B. Lycium, Royle; B. sibirica, Pall.; B. aristata, D.C., B. ilicifolia, Forst.; B. nepalensis, Spreng. and O. Aquifolium, Rydb., and all species and varieties of the genera Pseudotsuga, Tsuga and Larix. The Ministry is prepared to arrange for the necessary examination and certification of consignments on payment of a fee at the rate of two guineas per day for each inspector. The minimum fee charged will be one guinea.

Sandy Show.—The Jubilee exhibition of the enterprising Sandy Horticultural Society will be held on August 30 in the beautiful park of Sandye Place, kindly lent by Mrs. Graves. On this occasion there will be an extended programme, additional prizes will be offered, and the attractions will be more numerous than usual.

"Horticulture."—Those of our readers who receive the American horticultural papers will be familiar with the little journal issued under this title as a trade paper. In future it will be published by the Massachusetts Horticultural Society as a general horticultural magazine. It will be issued twice a month, as in the past, and will retain the old title. Mr. Farrington has been the manager of the paper for the past four years, and this gentleman has been appointed secretary of the Massachusetts Horticultural Society in succession to Mr. W. P. Rich, who has resigned his position after twenty-one years of continuous service. *Horticulture* was established by the late Mr. W. J. Stewart in 1904, and has a circulation throughout the United States. In the current issue of *Horticulture* it is stated "The day has now come, we feel, when the paper can be made to serve a bigger field and broader interests. Although catering largely for advanced amateur gardeners, it will keep closely in touch with the Arnold Arboretum and all sources of new material, so that it will be of continued interest to all florists and nurserymen." Mr. Rich, the late secretary, will continue in the service of the Society as assistant in the library.

Trial of Rock Roses and Tulip Species at Wisley.—The Royal Horticultural Society, bearing in mind the difficulty of exhibiting Rock Roses (Helianthemums and Cistuses) and the number of promising new seedlings that

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have been recently raised, will carry out a trial of these plants at Wisley during the coming year. Three plants of each variety for trial should be in time to reach the Director, R.H.S. Gardens, Wisley, Ripley, Surrey (Horsley Station, Southern Railway), by the end of October, 1923. The Royal Horticultural Society also desires to compare the merits of wild species of Tulip as garden plants, and would be grateful if those having bulbs available would send examples (say six) of each to Wisley by the middle of October, 1923.

Appointments for the Ensuing Week.—Monday, August 13: United Horticultural Benefit and Provident Society's meeting. Tuesday, August 14: Clay Cross Horticultural Society's show; Dublin Flower show (two days). Wednesday, August 15: Shropshire Horticultural Society's show (two days); Keymer, Clayton and Hassocks Flower show; Banff Flower show. Friday, August 17: Perth Flower show (two days); Fort William Flower show; Rothesay Flower show; Eastbourne Horticultural Society's meeting. Saturday, August 18: London and North Western Railway Horticultural Society's show at Belle Vue Gardens; Burnley and District Horticultural Society's show; Fossoway Flower show; Colne Horticultural Society's show; Alyth Flower show; Maybole Flower show; Blackwood Flower show; Carnwath Flower show; Burntisland Flower show; Coupar-Angus Flower show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Tacsonia pinnatistipula.* This beautiful plant was introduced from Peru in 1826. As a handsome conservatory and summer climber for the flower garden it is deserving of universal cultivation; it grows rapidly and flowers freely. For flower garden decoration the plants should be grown in pots at least a year before they are required for planting out of doors, as by this means they become strong, and being well established there is greater certainty of an abundant production of blossoms in the open air. It does best on a conservatory wall; but if that is wanting, a site possessing a south aspect, somewhat screened on the north-east, should be selected; the main branches should be trained over arches or along trellis work, the lateral shoots on which the flowers are produced being induced to hang in graceful festoonings. Plant in turfy loam, peat, leaf-mould, and sand in about equal proportions, taking care that thorough drainage is secured. Give liquid manure waterings during the parching heat, as well as the showery growing periods of summer, and this beautiful climber will grow and bloom luxuriantly throughout the summer and autumnal months. There is a very fine specimen of this Tacsonia in the Camellia-house at Chatsworth. This house is span-roofed; one plant is planted against the back wall in a border one foot wide, three feet deep, and extending the length of the house. The plant is composed of eight principal stems, the largest of which is only three and a quarter inches in circumference, and yet it clothes 322 superficial feet of back wall, besides extending 288 lineal feet of rafter, the laterals hanging from the latter from one foot to six feet. On the 6th ult. I counted 480 flowers upon this plant. Under liberal culture this climber is disposed, like other Passion flowers, to run too much to wood; to obviate this, frequent pruning and thinning of the lateral growths is indispensable; and being liable to attacks of red spider in dry weather, frequent syringings are also necessary out of doors as well as in the conservatory. *George Taylor, Chatsworth.* "*Gard. Chron.*," *August* 5, 1848.

Publications Received.—*Outline of Genetics.* By Merle C. Coulter. Price $1.60 post free; *The Story of the Maize Plant.* By Paul Weatherwax. Price $1.85 post free. Both published by the University of Chicago Press, 5750, Ellis Avenue, Chicago, Illinois.—*International Review of the Science and Practice of Agriculture.* No. 2, International Institute of Agriculture, Rome.

IRISES.

IRIS FLORENTINA.

WHICH is the Orris Root? This question is often asked by those interested in garden Irises, and the answer is that the principal supply of Orris Root is obtained from the old favourite Iris florentina—the early-flowering sweetly-scented Florentine Iris. This Iris is seen in most English gardens, and although very common, it is at the same time most beautiful and effective. The flowers are white or nearly so, and incidentally they are often used for church decoration. No Iris could be more amenable to general cultivation, and it is very free flowering. As a border plant it is all that could be desired, coming into bloom when the Tulips are with us, or indeed Darwin Tulips may be planted with it with most telling effect. If plants of Iris florentina are planted out now and the Tulips at a later date, some capital garden effects may be obtained next May.

I should be interested to hear if Orris Root is grown commercially in this country. There seems to be no reason why it should not be. I have noticed that the peasants in France and Belgium occasionally grow Irises on the roofs of thatched cottages. This I have seen in the little villages around St. Omer and Ypres. In a recent work on Irises it is recorded that in the North of France, sometimes the ridge of the thatched cottage is given a coating of clay the whole width of the roof, and Irises are planted in the clay. Is this but an imitation of a similar practice in China and Japan?

At one time powdered Orris Root was used to beautify the complexion. Possibly it is still used for the purpose, and certainly is much used in perfumery and for sachet powders, tooth and hair powders, and other scented, dry preparations.

Doubtless most readers are familiar with the origin of the roof gardens of Irises in China and Japan, but the following story from Mrs. Fraser's book of *Japanese Tales* is worth quoting:—

"Once there was a great famine in the land, and it was forbidden to plant anything in the ground that could not be used for food. The frivolous Irises only supply the powder with which the women whiten their faces, but, their little ladyships could not be cheated out of that. Must we look like frights as well as die of hunger? So every woman had a tiny plantation of Irises on the roof of her house, where they are growing to this day."

It should be explained that the Iris thus grown by the Japanese ladies is I. tectorum (so named from *tectum*, meaning the roof of a house), this Iris being used for the same feminine purposes as the Florentine Iris.

It is said that Irises on the roof are a means of strengthening the thatch, and there is an ancient superstition that Irises on the roof are efficacious in the prevention of disease, and that Sempervivum tectorum is a preventative against a building being struck by lightning! These are Eastern and Western superstitions respectively.

FIG. 29—IRIS FLORENTINA.

The propagation of Orris Root is quite simple. The rhizomes are taken from the ground in late summer, cleaned, scraped and washed, then cut into pieces and placed in the sun to dry. When fresh, the rhizomes have an earthy odour, but in drying they acquire the familiar and pleasant odour of Violets, which is fully developed after about three years. In France I have noticed that the pieces of dried root are sometimes thrown on the fire to give out a pleasant odour in halls and dwelling rooms. *Herbert Cowley.*

[Regarding Orris Root, Mr. W. R. Dykes, in *The Genus Iris*, states: "This product of the Iris is apparently derived in Tuscany from I. germanica and pallida. These species are known to the peasantry under the common name of Giaggiolo. The rhizomes are dug up in August, and are then trimmed, peeled, and dried in the sun and sold to dealers, who export them from Leghorn and Trieste. The pieces have a flattened, shrivelled appearance, and bear on the under surface a number of small, roundish scars where the roots have been removed. *Eds.*]

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The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Treatment of Miltonias after Potting.—As the period after potting is one of the most critical in a plant's existence, some care is necessary to prevent it suffering. Put the newly potted Miltonias together in a house where a cool intermediate temperature is maintained, on a stage affording full exposure to the light, but shaded from strong sunshine. The supply of water to the roots during the early stages of growth is of great importance, as if too much or too little is given them the result is the same. By keeping the compost slightly on the dry side the roots will be induced to run through it readily, and at a later period water may be given in larger quantities, thereby encouraging large and strong growths. On bright days slight sprayings overhead will be most beneficial. The late-flowering varieties will need attention at a later period, but as they succeed in similar material and under precisely the same conditions, they require attention accordingly.

Cypripedium.—Plants of Cypripedium that were potted early in the year have filled their pots with roots, and as growth is most active during the present time every attention is necessary to see that they do not suffer through want of water. The recent hot weather has been to their benefit, especially where suitable conditions of atmospheric humidity have been maintained. The greater number of these Orchids revel in a warm, humid atmosphere, and spraying may be done two or three times daily, provided the plants are shaded from the sun. Spraying Cypripediums with clear water is of the greatest benefit in maintaining them in a thoroughly robust condition, also in keeping down thrips and other insect pests. Weak growing varieties, or divided plants that have not made satisfactory progress, should be placed together in a part of the house where they may have special attention and enjoy plenty of light. If any plant fails to thrive in one position in the particular house, it is advisable to remove it to another place, for it will generally be found that there is some place where these sickly plants recover more quickly than in any other. It may be a special shelf, or some damp position, and often a shift from one end of the house to the other will be the means of starting the plant into growth again.

HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Raspberries.—Remove old fruiting canes as soon as possible to admit air and light to the new canes which are retained. The latter should receive every encouragement to become well ripened.

American Blackberries.—These promise an exceptionally good crop. Following the other bush fruits they come in at a very useful time. Loganberries are also most useful both for dessert and cooking, and make very good jam.

Strawberries.—New plantations of Strawberries should be made on prepared ground. After the removal of the necessary number of rooted runners the older beds should be carefully hoed and cleaned. Labels, if of wood, should be renewed. In a selection of varieties of Strawberries it is better to confine attention to about four good sorts, useful for succession. A heavy cropper for jam-making should be considered. The variety International has done well with us this season, producing enormous fruits, but it is not to everyone's taste.

Apples.—It is to be hoped that the falling of Apples will cease. After a very heavy set, with fruits hanging in great clusters, the trees have experienced a severe natural thinning. This, as already suggested, may be due to sudden extremes of temperature. The trees should be watered and stimulants given to their roots, where necessary, and the ground well tilled by hoeing.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Mignonette.—Well-grown plants of Mignonette always attract attention, and they are very useful for greenhouse decoration, but considerable care and skill are required to produce really good examples. Seeds should be sown now and again some time during September. The best results are usually obtained by sowing the seeds in the pots in which the plants are to flower, as Mignonette does not transplant very readily. The pots should be clean and well drained. The potting compost should consist of good, rich loam, with little or no leaf soil added. To keep the whole porous, old mortar rubble may be used instead of sand, as lime in some form is very essential for the successful cultivation of Mignonette. The compost should be pressed very firmly. While 48 sized pots are large enough to grow good useful examples in, if larger specimens are required the plants may, in due course, have a shift into six-inch pots. The seed pots should be stood in a cold frame and kept shaded until germination takes place, when the seedlings should be thinned out to three or four in a pot. A few may be grown one plant in a pot, training them up as small standards. Watering should be very carefully done until the pots are well filled with roots, while plenty of air should be given at all times. During the winter the plants should have a light, airy position in a cool greenhouse. As regards variety, a good selection of Machet is as good as any for cultivation in pots.

Achimenes.—As the earlier batches pass out of flower, they should be stood in cold frames to complete their growth, gradually withholding water as they die down. When thoroughly dry, they may be stored in their pots for the winter in a warm, dry house or shed; or the tubers may be turned out of their pots and stored in boxes in dry sand. Achimenes suffer very much from attacks of white fly; the later batches, if attacked, should be fumigated with sodium cyanide, using ¼ oz. per 1,000 cubic feet, or, if preferred, one of the approved proprietary remedies may be used.

Humea elegans.—Seed of this elegant greenhouse plant should be sown now in a cool greenhouse. This plant is generally regarded as somewhat difficult to grow successfully; this is no doubt true in its later stages of growth, when very careful watering is essential. Given proper treatment, no difficulty should be experienced in its younger stages, the chief essentials being careful watering and perfectly cool, airy conditions at all times.

Cyclamen.—Seed should now be sown to provide plants for next year. The soil in the seed pots or pans should be watered some hours previously to sowing. Arrange the seeds about half an inch apart; as they are generally very irregular in germinating, this allows of the more forward plants being removed without unduly disturbing the others. Stand the seed pots in a house with an intermediate temperature, cover them with a piece of glass and afford shade until germination takes place, when the more forward seedlings should be pricked off into pans or boxes, and when they are large enough potted off singly into thumb-pots.

Muehlenbeckia platyclada.—This is a very useful and elegant green-foliaged plant. It is easily propagated at any time by means of cuttings. Useful specimens may be grown in 48-sized pots.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Runner Beans.—The crop is somewhat later with us than usual, but the plants are now growing well and abundantly supplied with water. Runner Beans revel in plenty of sunlight, providing the roots are kept moist. They are much benefited by a light mulching of long, strawy litter, which allows the air to reach the roots. Mulching with heavy, close material is a frequent cause of the flowers dropping, and should be avoided. Give the plants a good spraying overhead every afternoon, as this will keep them fresh and prevent red spider making its appearance. Pick the pods so soon as they are ready, for if allowed to hang too long they become coarse and impoverish the plants.

Tomatos.—Remove all side shoots, and tie the plants securely to the trellises or sticks. The older leaves may be shortened a little to allow the sun to reach the fruit. Afford the plants plenty of water, and feed the roots occasionally with diluted liquid manure or some approved fertiliser. Plants intended for winter fruiting must be considered; sow a few seeds in light, well-drained soil, and when germination takes place stand the seedlings close to the glass to keep them sturdy. Grow the plants in a cool house or frame for the time being. For winter fruiting, a small, span-roofed house, well heated, is desirable, and should be given up entirely to Tomatos.

Spring Cabbage.—The principal sowing of this vegetable should be made early in August, and there is no better place in which to raise seedlings than a skeleton frame; failing this, sow on a border that is not too hot and dry. In either case, draw wide drills with the hoe, and thoroughly water the soil with a rosed can. Sow thinly, and cover the seeds lightly with fine soil; water the soil a second time when the surface has been raked finely. Shade the bed with thick tiffany or two or three thicknesses of old fish-netting. As soon as the young plants appear remove the covering and keep them well watered; also keep them clean by hand weeding. Harbinger and Flower of Spring are two of the best varieties to sow.

Carrots.—Small Carrots are always appreciated, and where there are frames vacant they may be utilised for sowing seeds in shallow drills about 6 inches apart. Sow the seeds thinly so that there may be little need for thinning. So soon as the young seedlings appear stir the soil between them to promote quick and healthy growth.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Cucumbers.—Seeds should be sown forthwith for the production of plants for winter supplies; keep the plants close up to the glass after germination, and never allow them to become dry or rootbound, otherwise red spider may infest them, and greatly affect their growth. The fermenting material for making up the hot-bed should be prepared and transferred to the house when ready. The soil should be of a light, fibrous character, with some wood ash and bone-meal added. Feeding may be resorted to when the plants commence bearing fruits. Plants recently put out in beds should have their growths frequently stopped and regulated, while sturdiness should be induced by the application of top-dressings as the roots push through the soil, liquid manure being afforded when the plants come into bearing. Plants already in bearing should not be overcropped at this season; free-bearing varieties often produce very many more fruits than they can properly develop, therefore thinning should be carried out early to reduce the strain on the plants. Fire-heat may be necessary during dull weather in order to maintain a temperature of 75° to 80° by day, and 70° by night. Syringe the plants freely, and if black aphis appears, fumigate the house lightly and often until it disappears.

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Plums.—In localities where the outdoor crop is good, it will not be so necessary to retard the later varieties of Plums under glass, as would be the case if the outdoor crop were scanty. Keep the shoots closely pinched in; leading growths inclining to grossness should be stopped. Some varieties with thin skins will crack if there is an excess of atmospheric moisture when the fruits are ripening; a sudden rise of temperature with a moisture-laden atmosphere will cause the fruits to crack wholesale. During hot weather the watering of trees in pots will need close attention, and on no account should the roots lack moisture. Stimulants should be freely supplied to trees on which the fruits are swelling; after ripening commences feeding should be reduced to a minimum. Trees in borders will benefit from a mulching of half-rotted cow manure; this saves watering and tends to keep the borders moist and cool.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Antirrhinum.—Seeds of Antirrhinums sown now will produce plants that will bloom considerably earlier than those raised from a sowing made early in the New Year, for the simple reason that August-sown plants will be about five months older, a fact which no amount of forcing in the New Year will make up for. Sow the seeds out of doors on a well-drained site, and directly the plants are strong enough transplant them on a warm border, where, in many localities, Antirrhinums will remain practically unhurt throughout the winter. In some instances the tops will be disfigured or injured, but this will not permanently harm the plants. Where, however, experience has shown the district to be too uncongenial for wintering the plants, the seedlings should be pricked out in a cold frame, over which the lights may be placed when necessary. The great enemy of the Antirrhinum in winter is damp at the roots; therefore, the place chosen for wintering the plants should be well drained and the soil rather light, as once the roots begin to rot the plants never recover, and though they may linger on and make an effort to bloom, they suddenly collapse in so doing. The spring sowing will supplement these plants, thus prolonging the season of flowering. A sprinkling of old mortar-rubble over the ground before the seedlings are dibbled out will help to promote healthiness of growth and check decay.

Gum Cistuses.—For beautifying an odd angle or corner of a building where it is warm and dry no better subject than Cistus ladaniferus can be found. It will revel in any such dry conditions while most other plants would only languish. True, the flowers are rather fugitive, but they are so freely produced and so pretty, particularly the blotched form, that few summer flowering shrubs can vie with it for effect.

Lavender.—If the flower spikes are wanted in a dry state they are better gathered before all the blossoms are fully open, to ensure longer preservation. Bushes from which the spikes are not gathered for indoor use should, when the flowers are quite over, have the dead stems cut away. Cuttings may be put in if fresh plants are wanted, or larger growths may be layered. Lavender bushes are often grown to form rows or hedges, and I have seen such cut over with shears—a practice, in my opinion, that spoils the character of the plant. To preserve the latter encourage upward growth and secure this to adequate support.

Armeria cephalotes.—The long flower stems, each crowned with a big head of bloom, make the Giant Thrift a useful border plant, yet it is much less commonly seen than the pale and deep rose forms of Armeria vulgaris that brighten many a garden pathway. In damp winters the cushions of the former have a tendency to decay in the centre, especially if they are rather big. A partial remedy is to divide the plants frequently, and this should be done soon after flowering, so that the plants may be established before bad weather sets in.

NOTES FROM WISLEY.

A pond in the gardens has many attractions. It is capable of being planted much in the same way as a flower bed, with the exception that in the case of a bed or border we like to see it full of plants, while water completely covered with leaves is undesirable. The round ponds at Wisley are nearly covered with the foliage of Nymphaeas and other aquatics, but the sight of four hundred blooms open in one small pond is ample compensation. These include Nymphaea Gladstoniana, N. James Brydon, N. Marliacea carnea and N. chromatella. The little yellow Villarsia nymphaeoides, and the fragrant Bog Bean (Menyanthes trifoliata) have also been flowering. On the banks are Japanese Iris which are provided with a feathery background of Spiraea Aruncus.

There is still much of interest to be found on the rock garden. Towards the top are some good plants of Lavatera Olbia, reflecting the sunlight from their glossy, pink petals and silken-haired stems and leaves. Another shrub in flower is Olearia nummularifolia, with rather fleshy, evergreen leaves. This is a most compact plant, and has a neat appearance throughout the year.

Among the sub-shrubs, the yellow heads of Helichrysum diosmifolium (rosmarinifolium) are conspicuous and remarkable for their distinct odour of curry. Another similar Composite is the white-flowered Santolina pinnata, with Yarrow-like foliage.

In the moraine some species of Wahlenbergia have been flowering, such as W. dalmatica, whose flowering stems press closely to the ground and terminate in an upright cluster of blue bells. The stems of W. vincaeflora are erect, and bear pretty flowers which justify the specific name (Fig. 30). Campanula Tommasiniana, also in bloom here, is a compact and bushy plant.

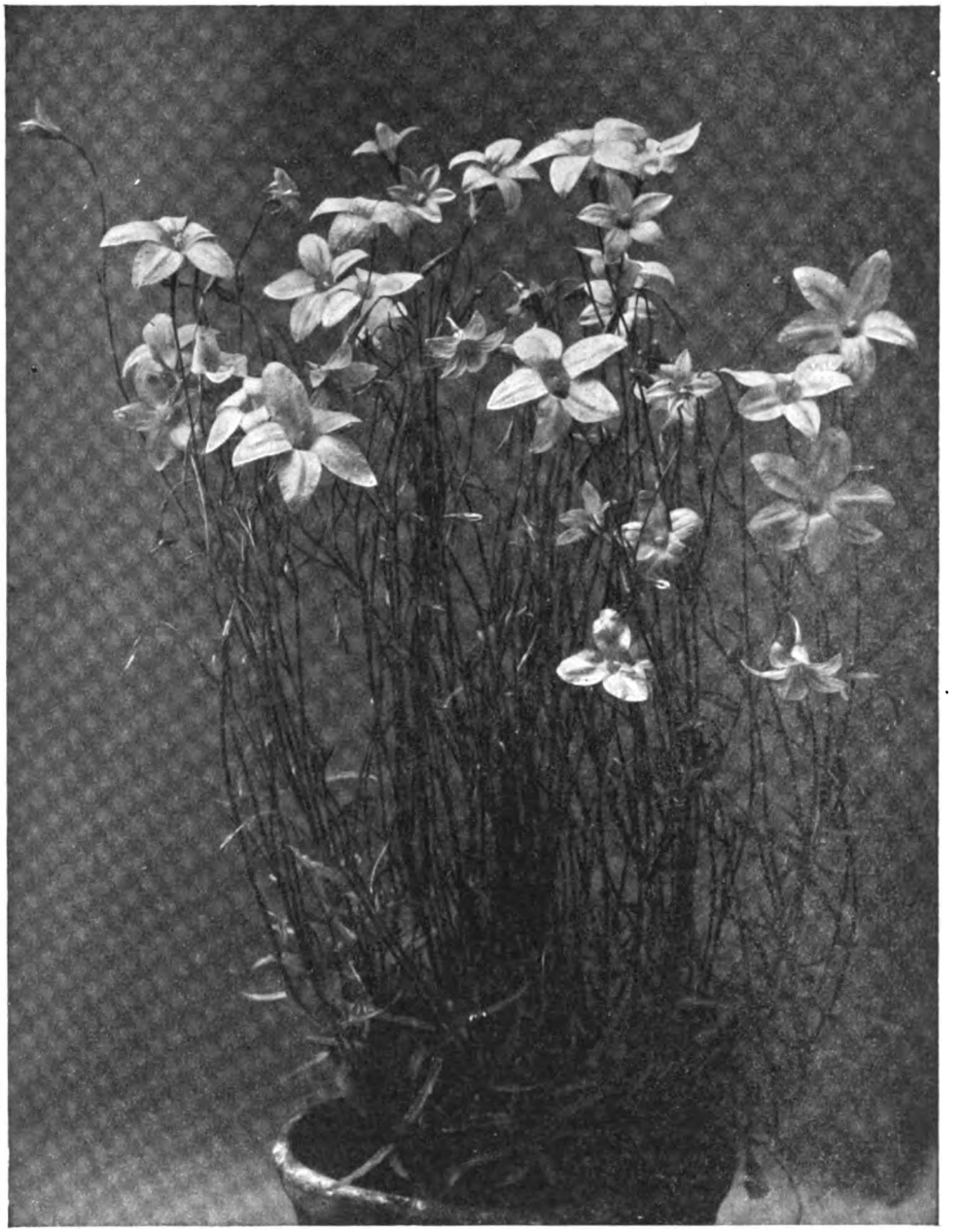

FIG. 30.—WAHLENBERGIA VINCAEFLORA GROWN AS A POT PLANT.

A large number of Sedums are flowering at the present time. One of the most striking is S. oreganum, with crimson stems and leaves, and yellow flowers. A most peculiar habit is shown by the pale, yellow-flowered S. pruinatum, which produces lengths of bare stem terminating in a tuft of leaves. An allied species is S. amplexicaule, which is just over, and at the present stage appears to be quite dead. In the spring, however, new growth of a fine pale green shade is made.

Many Ferns flourish among the rocks, such

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as our native Blechnum spicant. A good plant of Adiantum pedatum is to be seen near the bog; the young growth is at first pink, turning to brown, at which stage the pairs of pinnae resemble the wings of small moths. When fully expanded the fronds are light green.

The recently introduced Hemerocallis nana (Forrest) has flowered, and is setting seed. This plant is barely a foot high, and bears Apricot-coloured flowers with a brown exterior. A new Cremanthodium species has also been successfully flowered, and is to be seen at the top of the rock garden.

The trial of Sweet Peas (red varieties) is making a good show, and has just been judged. *J. E. G. White.*

NOTES FROM A SOUTH DEVON GARDEN.

PELARGONIUM ROLLISON'S UNIQUE.

This, I think, is quite the handsomest of all the hybrids that are sometimes found in collections of the genus. It is of somewhat loose and straggling habit, and when grown in a pot requires a few supports, but I can imagine that it would be a very suitable plant for a well-lighted greenhouse pillar. Here I have it against the south wall of my house, where, in this climate, it seems to be perfectly hardy, and its fine trusses of deep rose-pink flowers attract considerable attention from early in April onwards. It is in full flower now with about forty trusses, and seems likely to continue in bloom throughout the summer. The trusses, which consist of eight or nine flowers, about two inches across, remind one strongly of the Pelargoniums now very rarely seen, which many years ago were the great ornament of every conservatory during late spring or early summer.

The foliage is quite ample, and strongly scented; the leaves, three or five-lobed or more, are three to five inches in diameter. The flower buds are conspicuously hairy, and all the young parts of the plant are more or less so. This plant is very remarkable in sometimes producing trusses of flowers of a paler and quite different colour. I have seen them many times, but I have now waited two years without a single example on this plant, so that their production must be capricious. With pot cultivation the variation may perhaps more frequently appear. It may perhaps have suggested the name Unique, but in any case this is a fine plant to commemorate the once famous firm of Tooting nurserymen, now almost forgotten.

Another hybrid Pelargonium, named Clorinda, and raised in comparatively recent years by the late Dr. Bonavia, I have planted in the same position, where it appears to be equally hardy, but is not nearly so good as an ornamental plant.

CINERARIA BEAUTY OF CAMBRIDGE.

Many years ago I made a number of hybrids and crosses of Cineraria, and this hybrid of C. Heritieri, pollenated by the garden Cineraria, seemed to prove itself the most popular. Without a name it cared for itself as a window plant in the neighbourhood of Cambridge, and was afterwards used as an ornamental plant for the conservatory of the Botanic Garden there. It is slightly shrubby in habit, and the ray florets are pure white, tipped with violet. The colour of the male parent is perfectly clear, and this suggests that an interesting and very ornamental series might be raised by using C. Heritieri as the female parent. There are great opportunities in the rich series of colours that may be used for the male parent. The reverse cross could be no less prolific of result. I am interested to find that Cineraria Beauty of Cambridge is hardy in front of my house, here in Torquay. Flowering all through the spring it has been very beautiful, and it is in flower now.

OXALIS FLORIBUNDA.

Some plants, though well known, are never fully appreciated until seen, perhaps by chance, under special conditions, and certainly I never knew the value of this Oxalis until early this summer, when I found it flowering as a pot plant. It was standing on a low wall, fully lighted on all sides, and formed a dense ball of innumerable pink flowers. I have known a good many very ornamental species of Oxalis, and the majority of those of greater rarity, but none finer than this. For many years I have grown it planted at the foot of a wall where it is perfectly hardy, its rhizomatous stems making a dense mass. There is a white variety.

THE RUNNER BEAN.

It is generally known, I dare say, that the Runner Bean is a perennial. Except in favoured parts of the country it soon dies in winter; here I had it in boxes last year, to make a screen, and now it is growing up again, in one case quite strongly. Except in this one case seedlings, I believe, would be stronger, but it would be interesting to know if it ever has been or could be grown a second year to produce a crop. I can remember no report upon this point. *R. Irwin Lynch, V.M.H., Torquay.*

ORCHID NOTES AND GLEANINGS.

MILTONIA ENDRESII.

Miltonia Endresii, one of the most beautiful of Miltonias, comes between M. Roezlii and M. vexillaria, its habit being nearer to that of the latter, while the form and texture of the flower are nearer to those of M. Roezlii. It was first discovered by Warscewicz on the Cordillera of Veragua, at 4,500-6,000 feet elevation, about 1849. Wallis rediscovered it twenty-two years later, but no living plants came to Europe until Endres collected it in Central America for Messrs. Jas. Veitch and Sons, in 1873. The first consignment contained only one live plant, but later a small lot came in good condition, one of which flowered at Chelsea in 1875 and secured a special certificate at the Royal Horticultural Society on February 16 that year. The species has always been rare, and little was seen of it until on March 10, 1898, H. H. Bolton, Esq., Height Side, Newchurch, showed it at the Manchester Orchid Society's spring meeting, and, again, from the same locality, Mr. J. Birchenall, of Alderley Edge, gained an Award of Merit for it at Manchester on March 2, 1911.

The late Sir Trevor Lawrence and Mr. H. T. Pitt had each two or three plants, sent by the late Richard Pfari from Costa Rica with good specimens of Epidendrum Endresii. Mr. Pitt still has the Epidendrum growing vigorously. It would be interesting to know whether he or any other grower has saved this pretty Miltonia from being lost to gardens by neglecting to seed it and raise true seedlings, which are always safer than imported plants. The flowers, produced as in M. vexillaria, are about three inches across, pure white, with a light purple blotch at the base of each segment, the crest of the lip having three short ridges on a yellow ground. It is especially desirable not only on account of its beauty, but for the use it would be in producing a new section by crossing. *J. O'Brien.*

PHALAENOPSIS LINDENI.

This Phalaenopsis is best known in this country by the description of the collector, Loher, in *Journal des Orchidees*, VI., p. 103 (see *Gard. Chron.*, July 13, 1895, p. 36), who found it in the Philippines and recorded it in 1895 as a new species. The description states that it resembles P. Schilleriana in the marbling of the leaves, which, however, are narrower than in that species. The flowers more nearly resemble those of P. rosea, but are twice their size. It is highly probable that it is a form of Phalaenopsis Veitchiana, recorded as a natural hybrid of P. Schilleriana and P. rosea, and for which Messrs. Jas. Veitch and Sons, Chelsea, obtained a First-class Certificate from the Royal Horticultural Society, March 15, 1876. The record of P. Venus (Lindeni × rosea) made in Japan will doubtless cause discussion as to the standing of P. Lindeni, and this note may help. In any case the Japanese hybrid will be interesting. The only plant of P. Lindeni flowered in this country was shown by Messrs. Charlesworth and Co. at a meeting of the R.H.S. on June 25, 1908 (see *Gard. Chron.*, June 27, 1908, p. 422). *J. O'B.*

INDOOR PLANTS.

MIMULUS GLUTINOSUS.

This is a very old greenhouse plant, but one seldom seen at the present day. The type is a shrubby plant with small, pleasing yellow flowers. There are, however, two varieties, viz., Sunbeam and coccineus, both of which are superior as garden plants to the type. The variety Sunbeam has larger, orange-yellow flowers, while the variety coccineus has smaller, bright crimson flowers. They are all easily propagated by means of cuttings, which, if inserted now, will make good plants next year.

SENECIO GLASTIFOLIUS.

This South African Senecio, with its rosy purple flowers, is very useful for conservatory decoration during late spring and early summer; for this purpose it should be propagated by means of cuttings inserted during the present month. This Senecio may also be raised from seeds sown early in the year. *J. C.*

NEW HYBRID ORCHIDS.

(*Continued from June 16, 1923, page 334.*)

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Santiago del Estero	B.-C. Digbyano-Mendelii × C. Hardyana	Dr. Lacroze
Brasso-Laelio-Cattleya Marian	B.-C. Marguerite Fournier × L.-C. Canhamiana	Stuart Low.
Cattleya Gladiator	Gladys × Dowiana aurea	McBean.
Cattleya Nerissa	Schröderae × Tityus	Charlesworth.
Laelio-Cattleya Biddy	C. Iris × L.-C. Wellsiana	C. J. Lucas, Esq.
Laelio-Cattleya Lamart	L. Latona × L.-C. Martinetii	H. T. Pitt, Esq.
Laelio-Cattleya Murillo	L.-C. Rubens × C. Empress Frederick	Cowan.
Laelio-Cattleya Princeps	L.-C. Ville de Bruxelles × C. Mendelii	Armstrong and Brown.
Miltonia Vespertilio	vexillaria Leopold II × Sanderae	Sanders [1922.]
Miltonia Vespertilio var. Mrs. B. Peck	vexillaria × Sanderae	Mansell and Hatcher.
Miltonia William Pitt	Isabel Sander × Bleuana Reine Elisabeth	H. T. Pitt, Esq.
Odontioda Eclipse	Oda. Madeline × Odm. Alexandrina	P. Ralli, Esq.
Odontioda Iris	Oda. Brewii × Odm. Dusky Monarch	Charlesworth.
Odontioda J. Eversfield	Cochlioda miniata × Odm. Prince Albert	Lady Aberconway.
Odontioda Verulam	Oda. Madeline × Odm. majesticum	Sanders.
Odontioda Vesuvius	Oda. Cooksoniae × Odm. Aglaon	S. Gratrix, Esq
Odontoglossum Adelaide	Kolfeae × Lindenii	Cowan.
Odontoglossum Amabilicity	amabile × Felicity	Charlesworth.
Odontoglossum Ernest Bristow	Lambardeanum × Uro-Skinneri	Armstrong and Brown
Odontoglossum Goldcrest	parentage unrecorded	Armstrong and Brown.
Odontoglossum Nanon	Nathaniel × Promerens	Cowan.
Odontoglossum Purple Gem	percultum × President Poincare	McBean.
Odontoglossum Sterlina	Lady Veitch × Lambeauianum	H. T. Pitt, Esq.
Odontoglossum Regium	Lilian × St. James	Charlesworth.
Odontonia David Sander	Odm. Rio Tinto × M. Warscewiczii	Sanders.
Odontonia Gratrixiae	Odontonia Magali Sander × Odm. Rio Tinto	Mrs. Gratrix.
Odontonia Stelpae	M. Bleuana × O. Harwoodii	Charlesworth.
Phalaenopsis Venus	Lindeni × rosea	A. Misumi, Tokyo.
Sophro-Laelio-Cattleya Delice	S.-L.-C. Hon. Barbara Wilson × C. Trianae	Stuart Low.
Vuylstekeara Nysa	M. Bleuana × Oda. Royal Gem	Charlesworth.
Vuylstekeara Zena	M. Hyeana × Oda. Joan	Charlesworth.
Wilsonara tigrina	Oncidium tigrinum × Oda. Charlesworthii	Sir J. Rutherford.

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THE ORNATE GENTIANS.

I have heard from so many quarters of failures with those two glorious autumn-flowering Gentians, G. sino-ornata and G. Farreri, that I think it worth making known what I believe to be an almost infallible way of growing them. For a long time I have had very varying success with them, and many times I lost both strong open ground plants and large stocks of pot specimens. This year I have had most encouraging and continued success with both species.

During the past year I made up a bed of loam, which I obtained from a district in which Heather and Rhododendron flourish naturally, and with this loam I mixed equal parts of peat, and leaf mould. I planted both G. sino-ornata and G. Farreri in this bed, and they are now flourishing splendidly, having made great, fat, strong plants, full of vigorous shoots, and already covered with buds. I have struck many hundreds of cuttings of both G. Farreri and G. sino-ornata, this season, and have had them all potted in a mixture of equal parts of leaf mould and peat. Nothing could be more satisfactory than their health and growth. I give this hint for what it is worth to those who have failed hitherto with this plant.

Perhaps the word "infallible" is a strong one to use, but I have been so encouraged by the success of the peat and leaf mould treatment that I think it worth recommending to any who have failed to grow these two Gentians in the natural soil of their gardens.

In some places these species flourish without any special preparation or fussing, and the odd thing is that although I firmly believe in peat, I have heard of G. Farreri growing freely in a garden of almost pure chalk. G. Farreri is flowering unusually early this year. I have just heard from a friend near Sheffield, who has splendid clumps in his garden, that his plants are already in bloom. Last year it flowered in October and November.

The two species under notice are undoubtedly the two finest of the section. G. Farreri has great trumpets of clear, Cambridge blue, white throated, and striped outside with dull sapphire, amethyst, and old ivory: and G. sino-ornata has flowers almost the brilliant sapphire of those of the lovely G. acaulis with which most readers are familiar.

Gentiana Lawrencii, like a smaller Farreri, is very rare, and most difficult to keep, whilst G. Veitchiorum is almost equally rare, smaller and shorter in the bell than any of the others, and a deep Oxford blue.

Gentiana hexaphylla ("from the high Alps up the Szechwan-Kansu march of Tibet") has, to me, always been rather a mystery plant. I had never been able to obtain it, nor even seen it, but a few days ago I saw it—for the first time—on the rock garden at Kew. And very disappointed I was. It is a very poor relation of G. sino-ornata and the others, as the flowers are much smaller, and of a not very clear, watery blue. *Clarence Elliott.*

PLANT NOTE.

A WHITE MIMULUS.

One of the loveliest plants that has flowered with me this year is a pure white variety of Mimulus Lewisii. Mimulus Lewisii (syn. M. roseus) is a North American species, which I have grown on and off for a good many years, and a very pretty plant it is, with its clumps of many, twelve-inch stems, and heads of large rose-coloured, monkey flowers. The white variety came to me this spring from a garden in the far West of Ireland, and it has been in flower now for several weeks.

It is an exact counterpart of the ordinary M. Lewisii, but with blossoms of a clear, pure, shining white, and really a most lovely thing. I have found it easy to increase from cuttings, and already the young plants, struck this summer, are flowering freely. *Clarence Elliott.*

BOKHARA CLOVER.

"An unprecedented wonder crop, which contains the secret of England's independence of foreign meat supplies, and may change the course of Britain's economic history."—"Will yield ten times the bulk of ordinary clover, and, ton for ton, its feeding value is many times greater."—"Is called American Sweet Clover, or Bokhara Clover (Melilotus alba); it is like Lucerne, but has a white bloom resembling white Heather."—"It brings to the sweet English countryside a new perfume, rare, rich, and tonicky, not unlike the finer brands of Eau de Cologne."—"Bokhara Clover as a perfume would win every woman's heart."

The foregoing selection of a few of the most salient points in a front-page article in one of the London daily papers warns us that the "big-Gooseberry" season has arrived; for if the facts stated above can be substantiated, the millennium, as it affects the agricultural industry, is very near at hand.

A friend who is a Clover-seed expert of many years' standing has recently inspected the growing crop referred to, and states that so far as the crop is concerned the description of abnormal height—8 feet—is quite correct.

It is, however, very doubtful whether cattle will take kindly to this Clover, even if it be grown on a rich soil, while if grown on poor, hungry land, such as is described in the article referred to, it is certain that the long, stalky, wiry, indigestible plant cannot possibly be good for cattle. Even if the taste and smell were attractive, the wiry stalks would need to be thoroughly crushed before the crop could be masticated by sheep or cows. If cut for hay when about the same height as Lucerne, it might be a little more digestible, but the crop would be comparatively light. So far as perfume is concerned, it is quite pleasant both in plant and seed.

There is nothing new about the plant; for more than half a century it has been grown in America, France, Germany and other European countries. In Germany especially it is grown extensively for bees. If allowed to run wild, it spreads very rapidly and is a very attractive plant in hedgerows or by the wayside. Bee-keepers should always have a plot of it in their gardens, but farmers, unless their land will not grow anything better, will be well advised to let it alone.

If a forage plant possessing the hardiness of the Bokhara Clover, the free and attractive growth of the Egyptian Berseem, and the wealth of nutritious foliage and the persistence of Lucerne could be discovered or developed, a solid boon would be conferred on agriculture from which all mankind would benefit. *S. B. D.*

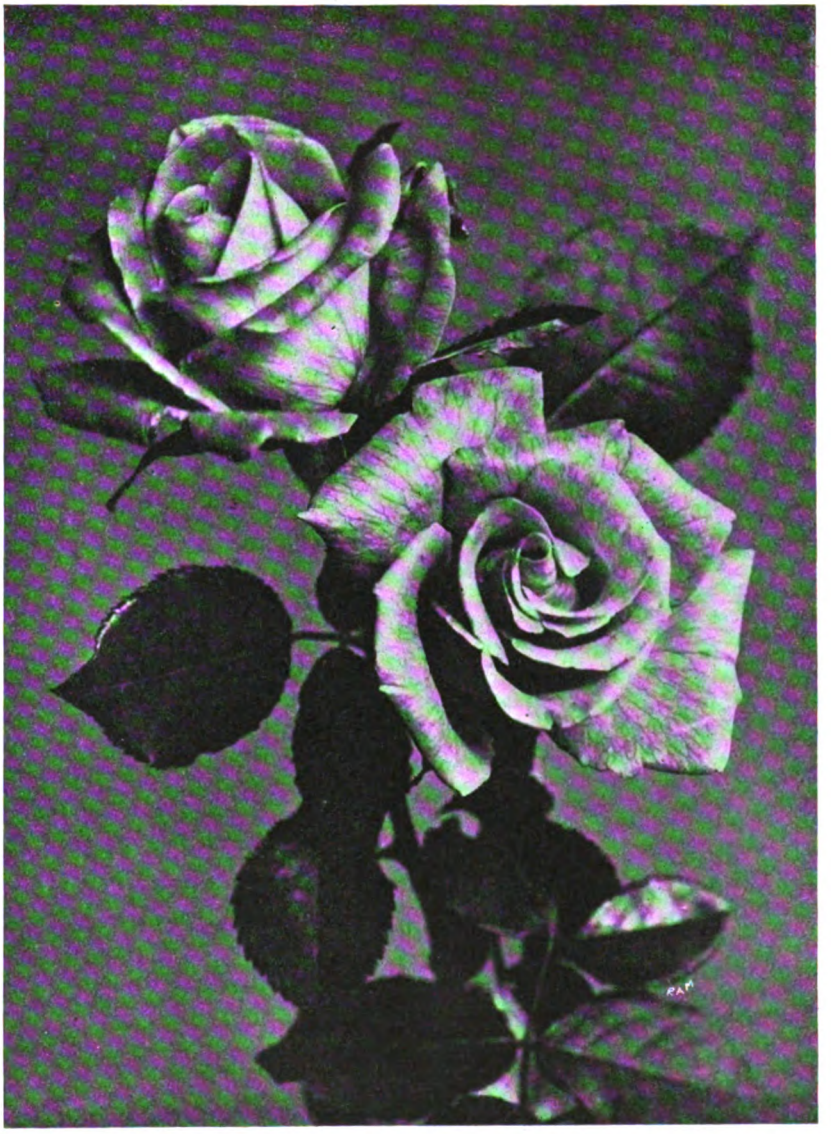

FIG. 31.—ROSE SUNSTAR: AWARDED A GOLD MEDAL AT THE INTERNATIONAL ROSE TRIALS AT BAGATELLE. (SEE PAGE 86.)

Grease-Banding Trials at the R.H.S. Gardens.—The Royal Horticultural Society will carry out a trial of materials for grease-banding in its experimental gardens at Wisley during the coming season. Materials for the trial are invited, and should reach the Director, R.H.S. Gardens, Wisley, Ripley, Surrey, on or before September 15, 1923.

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EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C.2.

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters, and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

POPLARS AND THEIR CULTIVATION.

THE *Bulletin* on "Poplars"* just issued by the Forestry Commission is certainly the best account of the genus from the point of view of the cultivator that has yet appeared. The main advantage claimed for the cultivation of Poplars is the production of timber of large dimensions in a comparatively short period of years. A considerable number of hybrids have originated amongst Poplars from time to time, and some of these are used for economic planting on account of their remarkably vigorous growth. It is doubtful, however, whether any kind of Poplar can be profitably grown in large plantations, except under conditions rarely met with. It is true that on good alluvial land, unsuitable for other species, on account of excessive moisture in the soil, Poplars planted in large masses will produce timber in quantity.

Generally speaking, however, Poplars, which are typical light-demanding trees, yield, when planted in close formation, a small volume of timber per acre, much less than the yield per acre of trees like the Sitka Spruce and Japanese Larch, which do well in moist soils. Nevertheless, there are many situations where Poplars may be usefully employed. Road-side cultivation of Poplars, so common in France, is ideal, provided the trees be widely spaced and gradually pruned. Poplars also thrive along water courses or on the margins of fields, and are peculiarly well adapted for low-lying grassy ground, subject to spring and autumn frosts, rendering the cultivation of Conifers like Spruce inadvisable. Poplars are often employed in filling up small pieces of ground which would otherwise remain derelict, and they have been successful in reclaiming the pit mounds in the Black Country. Poplars also grow on peaty soils and on stiff clays, where other species make poor growth.

The *Bulletin* is divided into four chapters, the first of which, due to Prof. A. Henry, deals with the botanical description of the various Poplars, which are of especial interest to the forester and cultivator. This part is illustrated with two plates, showing clearly the distinctive characters of the twigs and leaves of the twelve important species and hybrids. The reader's attention may be directed to the article by the same author, which deals more fully with the origin of the valuable hybrid Black Poplars, in *Gardeners' Chronicle*, July, 1914, pages 1, 46, 66. (See also a further article in *Trans. R. Scott. Arboricultural Soc.* xxx, p. 14-27, 1916). Both these articles have illustrations, reproduced from photographs, showing the habit of the different hybrid Poplars.

Mr. W. H. Guillebaud, of the Forestry Commission, who specially investigated the growth of Poplars in the north of France, is responsible for Chapter II., which deals with the silviculture of the genus in full detail, under the headings, choice of species, propagation, planting, mixture with other species, thinning, pruning, rate of growth, yield, and rotation. Mr. Guillebaud gives good reasons for recommending as the best Poplar for ordinary conditions the so-called Black Italian Poplar (Populus serotina); but has a good word also for P. regenerata, which has made extraordinary rapid growth in plantations at Culford. He considers it well worth a more extensive trial on the better classes of soil in Southern England. P. trichocarpa, the balsam Poplar of British Columbia and Oregon, is extremely hardy and thrives in upland valleys in the Cotswolds and in Peeblesshire. Reference is also made to the extensive plantations of the common Aspen (P. tremula), recently made in Argyleshire by Messrs. Bryant and May, with the object of obtaining timber for the manufacture of matches. This enterprise will be followed with much interest, but it is doubtful if the cultivation of Aspen would ever pay the ordinary landowner.

Mr. Guillebaud's lengthy description of the methods of propagating and planting Poplars is well worth study by foresters. His remarks on pruning and thinning are based on French experience. With regard to the rate of growth and yield of the different kinds of Poplars in England, very little information is available; but notes are given of several plantations, of which we give one extract. At Brocklesby in Lincolnshire, on clay loam in a low-lying and very wet situation, a plot of Black Italian Poplar, aged 34 years, averaged 98 trees and 2,390 cubic feet (quarter-girth under bark) per acre, the average height of the trees being 84 feet and the average girth 4 feet. Although thinnings had been made from time to time, the trees were still much too dense to allow of rapid growth in girth. This plot shows the very moderate volume per acre (70 cubic feet annually) and small diameter attained in a regular plantation by Black Italian Poplar.

Dr. J. W. Munro, entomologist to the Forestry Commission, deals very fully in Chapter III. with the insects which are injurious to Poplars. His account is excellently illustrated, and the remedial measures suggested are of a practical nature. The fungous and bacterial diseases are discussed by Mr. W. E. Hiley, of Oxford.

The concluding chapter, by Mr W. H Dallimore, of Kew, on the characters and uses of Poplar timber, is very well done, and contains information of great value to the forester. Poplar wood is one of the least inflammable of home-grown timbers, and can be used in building where great strength is unnecessary; but in a close atmosphere it is liable to dry rot. Poplar wood may be used for many purposes, notably for box-boards, packing cases, flooring boards, ply-wood, bottoms of carts and trucks, tubs, dry cooperage, fence posts and rails (creosoted), matches and match boxes, wood-wool, paper pulp, strawberry baskets, brake blocks, turnery, and glass polishing.

Most of the Poplar wood used by our large manufacturers is imported; and Mr. Dallimore lays stress on the difficulty experienced in obtaining a regular supply of home-grown timber of good quality. He gives advice to foresters as to marketing separately the various kinds of Poplars. Aspen is one of the useful species, being the wood most suitable for making matches, match boxes, baskets, and wood-wool, but only the best quality timber can be used. Most of the Aspen wood used in this country is imported from northern Russia; and it would be impossible to grow it commercially in Britain, where the tree grows slowly and attains only a small size. Grey Poplar is more promising to grow, as its wood is almost as valuable as that of Aspen, entering into wheelwright's work, coach-building, floor boards, box wood, furniture and carving. Clean and moderately slow-grown wood of Grey Poplar has also been found suitable for the match industry. It is evident that Grey Poplar is one of the species that should be cultivated by us on a large scale, if possible. It will succeed as a standard over coppice on clay soils, and may be planted by the sides of roads. P. trichocarpa has been found suitable for pit-props, and thinnings of this species might be profitably used for this purpose. The ordinary hybrid Black Poplars yield wood excellent for cutting into veneer for plywood or as a base for fancy cabinet woods.

In conclusion, the Forestry Commission may be congratulated on the issue of this *Bulletin*, which deserves to be widely read by landowners and foresters. *A. H.*

* *Poplars: Forestry Commission Bulletin, No* 5. H.M. Stationery Office, 1923. Price 1s. 6d. net.

NEW ROSES AT BAGATELLE.

THE International Jury appointed to make awards to the new Roses planted in the Bagatelle Gardens, Paris, met in June. The members were largely selected from leading Rose growers in France, England, Ireland, Holland, Luxembourg and the United States of America. M. Cherioux, Chief Counsel of Paris, President of the third Committee of the Conseil Municipal (Avenues and Parks), was appointed President, and Mr. Alex. Dickson Vice-President of the Jury.

The Rose trees presented very superior growth to that of the previous years, and did great credit to the management. No doubt the renewing of the soil in the beds in which the trees of the 1923 varieties were planted was largely responsible for this satisfactory condition of the plants, most of which were in excellent growth, while blooms were fairly abundant. Only a few of the varieties under trial were not yet in bloom, and these were planted late in April, but the growth was good, and no doubt satisfactory flowers will be produced later. The growth of the bushes planted in the autumn of 1921, and spring of 1922, showed a very great improvement over the growth of the previous year, and reflected great credit on M. Forrestier and his staff. Personally, I was very glad to observe the great improvement effected, which now admits of a more satisfactory trial.

Gold Medals and Certificates are awarded after two years' inspection. One Gold Medal and a Certificate is given to the best French productions, and similar awards to those other than of French origin.

In the 1922 class, there were 42 varieties under trial. After an exhaustive examination, nine points out of a possible ten were given to the Pernetiana Rose, President Cherioux, and a similar number to the Hybrid Wichuraiana variety, Albertine. Both varieties were put to a vote, when a majority of the Jury was in favour of President Cherioux, so that M. Pernet Ducher again won the Gold Medal for the best Rose of French origin. This variety is of excellent growth and foliage, the flowers are full, of good form and carried on stiff foot stalks; colour, saffron-yellow, suffused with apricot and salmon.

A First-Class Certificate was awarded to Albertine, sent by Messrs. Barbier, Orleans; this is a valuable addition to the Hybrid Wichuraiana class, and one that will be welcomed; the growth is exceedingly vigorous and free flowering, with large glossy foliage; the flower bud is dark vermilion, and the open flower is coppery chamois inside the petal, with a reverse of bright salmon, turning to coppery pink; a quite distinct colour.

A Certificate was also awarded to M. Pernet Ducher, for Mrs. Beckwith (Pernetiana), a good grower of Buttercup-yellow colour.

The Gold Medal for a Rose other than of French origin was awarded to Messrs. Alex. Dickson and Sons, for their Sunstar (see Fig. 31, p. 85), which was in fairly good condition. A First-Class Certificate was awarded to Mr. W. Ferguson for Souv. de R. B. Ferguson, and a similar award was made to Messrs. Alex. Dickson and Sons for their Rose, Hawlmark Crimson. As these three varieties have been splendidly exhibited at British Rose shows, they are already well known to most readers. Sunstar received the Gold Medal and Souv. de R. B. Ferguson and Hawlmark Crimson each gained the Certificate of Merit from the National Rose Society.

The only other varieties of 1922 under review that attracted my attention were Amélie de Bethune (Pernet Ducher), a seedling from Mme. Edouard Herriot, which is very promising;

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and General Smuts, from Mr. Van Rossem. The latter is a Hybrid Tea of excellent habit, free flowering character and cherry-red colour. Marcelle Mignot, a Hybrid Tea (Sauvagoet), is free flowering and has fairly full flowers of deep golden-yellow colour.

Among the forty-eight varieties under trial for the first time, several were interesting, including promising novelties from M. Chambard. In his set of four kinds, Madame Malleriss (Hybrid Tea) scored highest, gaining eight out of a total of ten points; the growth and habit were excellent, the variety is very free growing and free flowering, the blooms being full, with a colouring somewhat like that of General MacArthur. Odette Foussier (Hybrid Tea) was also awarded eight points, and this I was much impressed with. The colour is like that of Madame Ravary, the blooms are large, well formed and freely produced, and the growth good, with glossy foliage. Madame Emile Mayen (Hybrid Tea) was given seven points; it is lemon-yellow, moderately full, growth and habit good; foliage glossy. The fourth variety was under number 8712. It is a good grower with nice foliage, the flower is full and long pointed; shape and style of Clarice Goodacre. This also received seven points. The Rose to receive the highest points was Angele Pernet from M. Pernet Ducher; it scored nine points and is no doubt a variety of distinction, resembling, I thought, Mrs. C. V. Haworth, in colour and shape; the growth is erect, with excellent habit and foliage.

Among Roses other than of French origin, only three varieties scored over six points, John Russel (Hybrid Tea), from Messrs. Dobbie and Co., gaining eight points. This is a free growing and free blooming variety of a crimson colour, reminding one of medium-sized blooms of H. V. Machin, but it is a more vigorous grower.

America, from The E. G. Hill Co., was good in growth and form, but the colour was not equal to that seen under glass; possibly the dry and cold weather was accountable for this. Seven points were given.

Eldorado (Hybrid Tea), from Messrs. Howard and Smith, was given seven points; this is a yellow variety, but the bloom did not impress me. There are several of similar colour much superior, but with more favourable weather it may improve.

Quite a number of varieties planted late in the season were not in bloom, and amongst them Rheims, Blanche Messigny, Betty Uprichard, and Capt. Kilbee Stuart had made good growth and were carrying very good buds, which no doubt would develop good blooms later. Rheims I had the pleasure of seeing at Orleans, when visiting Messrs. Barbier. This I consider a very good Rose, useful alike for exhibition and garden purposes; the growth and foliage are good, and it is very free flowering; the outer petals are pale yellow with deep saffron centre. *Nela.*

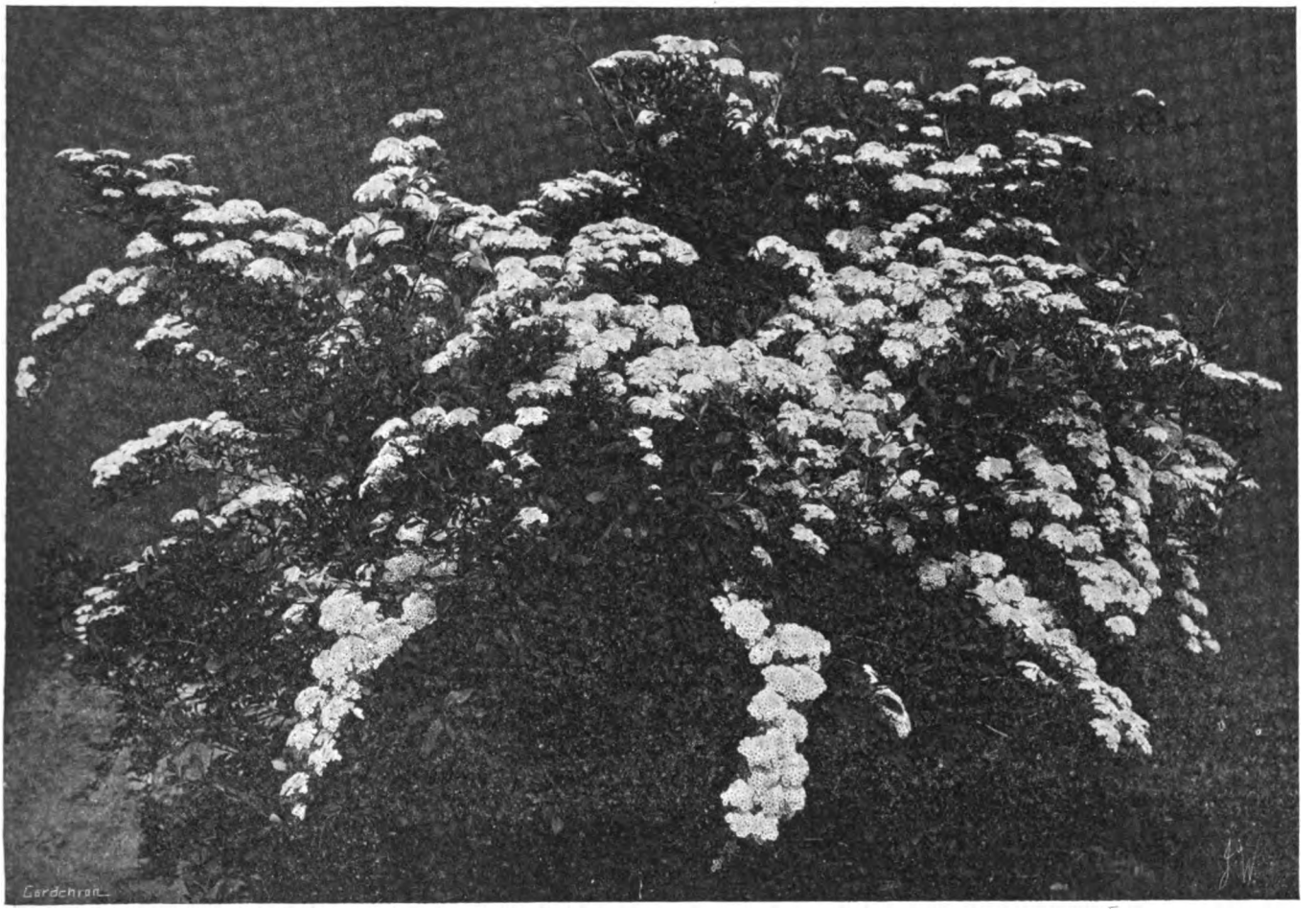

FIG. 32.—SPIRAEA TRICHOCARPA.

PLANTS NEW OR NOTEWORTHY.

SPIRAEA TRICHOCARPA.*

This new Spiraea is a first-rate shrub—in fact, one of the best of a useful if overcrowded genus of hardy, woody plants. It is a native of northern Korea, where it is a spreading bush about a yard high, but under cultivation it promises to grow to double this height. The shoots are angular, with prominent winter buds, rigid and arching, forming a compact bush. A few hairs are present on the flower-stalks and carpels, otherwise the plant is glabrous. The short-petioled leaves are grass-green above, pale below, oblanceolate to elliptic-lanceolate, from 1½ to 2½ inches long and from ½ to 1 inch wide, often broadest above the middle, narrowed to the base, with a few short teeth at and near the apex. The flowers are white, scentless, flat, above ¼ inch across, with emarginate, suborbicular petals; they are borne in rounded or dome-shape, 3 to 5 inches broad, corymbose clusters at the ends of short lateral leafy shoots. The inflorescence is compound, and each component corymb is bracteate. In many respects the plant resembles, but is superior to, the Japanese S. nipponica (better known as S. bracteata), which grows to a larger size, has differently shaped leaves and normally a simple, not a compound, inflorescence.

This new Spiraea was discovered by T. Uchiyama in 1902, and subsequently named by Dr. Nakai. It is not uncommon in northern Korea, and especially on the Diamond Mountains, where it grows alongside streams and on cliffs. It was on these mountains that I found it in the autumn of 1917, and sent seeds to the Arnold Arboretum. A good stock was raised, and this year plants have blossomed freely and shown the garden value of this acquisition. The plant has proved perfectly hardy in Massachusetts, and is as floriferous as any member of the genus. It is in full beauty of blossom when the flowers of S. Henryi are passing and before those of S. Veitchii open.

There are really too many Spiraeas in cultivation, and for garden purposes the genus needs a thorough weeding. Recent plant introduction work in the Orient has added not a few species that have no particular claims as ornamental plants, but as compensation has given us some that are really superior to any other species. The hybrid S. van Houttei is not surpassed by any Spiraea, and in eastern North America is a favourite hedge plant. It flowers early, and is followed by S. Henryi. These two, with the new S. trichocarpa and the late-flowering S. Veitchii, are, in my opinion, the finest of the true Spiraeas with white flowers. *E. H. Wilson, Arnold Arboretum, Harvard University.*

* Nakai in *Jour. Coll. Sci. Tokyo*, XXVI., art. 1, 173 (1909).

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NOTES ON THE CULTIVATED PLANTS OF THE REPUBLIC OF SALVADOR.

From the middle of December, 1921, until early June, 1922, I was engaged in an investigation of the botanical features of certain portions of Central America, and spent the greater part of the time in the Republic of Salvador, with about a month in Guatemala. I have thought that it might be of interest to readers of the *Gard. Chron.* if I enumerated briefly some of the more interesting plants observed, especially those cultivated for ornament or for food.

Salvador, the smallest in area of the Central American States, has been less known botanically than any other portion of Central America, partly, no doubt, on account of its comparative inaccessibility, since it is the only one of the five Republics which does not possess an Atlantic seaboard. Because of its small extent and the fact that it lies wholly upon the Pacific watershed, its flora is not so diversified as that of the neighbouring countries. As a result of recent explorations by Dr. Salvador Calderón, of the Salvadorean Department of Agriculture, and myself, approximately 2,000 species are now known from the country, only about half as many as have been found in Costa Rica, where, however, a great deal more collecting has been done. Another factor tending to limit the number of species is the scant rainfall, the average being only about 70 inches per year, which is certainly not a large amount for a tropical country. There are two well-defined seasons, dry and wet, the latter lasting from the first of May until the end of October. During the dry season, which occupies the rest of the year, no rain whatever falls, as a rule, and consequently much of the vegetation withers quickly, some of the trees shed their leaves, and it is impossible to grow the ordinary food crops except where there is an exceptional amount of moisture, principally as supplied by irrigation.

The chief agricultural product, at least for export, is Coffee, which is grown nearly everywhere above 1,000 feet, the plantations often extending to the tops of the highest volcanoes (8,000 feet). Excepting Haiti, Salvador is the most densely populated country in the western hemisphere, and on this account there is to be found little unused land in those regions that are adapted to agriculture.

Besides Coffee, the principal crops are Maize, Rice (the upland variety), and Beans, the last chiefly of the small black variety cultivated throughout Mexico and Central America, as well as in the south-western United States. Beans and the peculiar Maize bread of the region serve as the principal food staple for all classes of people. Tobacco is cultivated extensively, likewise Sugar-cane, and some sugar is exported. Before the introduction of Coffee, Indigo was the principal export, and it is still produced in small amounts. Small quantities of rubber (Castilla gummifera) are gathered. Unique among the native products is the so-called "Peruvian" Balsam, practically the whole supply of which is collected in a limited portion of the coastal range, known as the Balsam Coast. The Balsam, the product of a Leguminous tree, Toluifera Pereirae, is used chiefly in pharmacy, and is obtained by tapping the trees, which are very tall and graceful and contain the balsam in all their parts.

Salvador has an exceptionally large number of species of trees, many of which are of special interest; and some of them seem to be of limited distribution in Central America. Such is the Tambor tree, Omphalea oleifera, described by Hemsley 40 years ago, but not collected again, apparently, until the past year. Although now known only from Salvador, it probably extends into Guatemala. Its seeds are edible, either when green or after maturity, and they yield an oil of good quality, which is used in cookery, like olive oil, and for illumination and for the manufacture of soap. Another tree of restricted distribution is Jacaratia mexicana, a relative of the Papaw, known previously only from Southern Mexico. It bears pendent fruits about a foot long and sharply 5-angled, which are edible when cooked.

Most characteristic of Salvadorean plants are the wild Figs or Amates (numerous species of Ficus), which the people term their "National Tree." They are handsome trees with widely spreading crowns of dense foliage, and in the dooryard of every country home there is almost certain to be found one of them, under whose cool shade the inhabitants carry on the greater part of their domestic activities. Scarcely less numerous are the Ceibas (Ceiba pentandra), which are the largest trees of the region, and often of enormous height and spread, with corpulent trunks supported by heavy buttresses.

One of the most remarkable of the native trees is the Palo Mulato (Triplaris americana), belonging to the Polygonaceae, a family in which ordinarily we do not expect to find trees or, indeed, showy plants of any kind. The Palo Mulato is abundant in many parts of Salvador and is often planted for shade about the fincas. It is a large tree which supplies good wood, and when in flower is a handsome object. Some individuals are pistillate and others staminate; only the former are showy, their flowers being produced in ample, panicled racemes of various shades of purplish red. Standing upon some eminence overlooking one of the interior valleys, it is possible to descry the trees at a long distance, and their abundance is so great that sometimes they lend colour to the whole landscape.

The trees forming the most imposing displays of colour are three species of Tabebuia, that are widely dispersed in Salvador. Two of these, T. chrysantha and T. Donnell-Smithii, have yellow flowers and exhibit vivid displays of colour, although as a matter of fact they are almost too gaudy to be beautiful. The other, T. pentaphylla, is one of the most attractive trees that I have ever seen. Its one fault is that the blossoms are produced when the tree is devoid of leaves, but the flowers are borne in such profusion that the absence of leaves is scarcely noticeable. In form the flowers are like those of the Catalpa, and in colour they simulate exactly the Japanese Cherries, ranging from nearly white to deep rose-pink. A large grove of the trees, exhibiting all shades of colour, or even a single individual, is a sight long to be remembered. The tree is easily grown from seeds and is highly esteemed locally for shade and for street planting.

Another native tree that furnishes a memorable colour display is the Madre de Cacao ("Cacao-mother," so named because of the fact that even among the pre-Columbian inhabitants it was recognised as being the best shade of Cacao), Gliricidia sepium, a Leguminous species closely resembling some of the locusts (Robinia), of which it is a near relative. It is probably the most common tree of Salvador, and forms almost pure stands of great extent at low and middle elevations. The pale pink blossoms drape the trees with a graceful mantle of colour, but to the writer the tree is not nearly so attractive as the pink Tabebuia.

Other common native trees are Erythrina rubrinervia, whose vivid scarlet blossoms are cooked and eaten like string beans, which they resemble in flavour; Yucca elephantipes, whose stately panicles of creamy white flowers also are utilised in the same prosaic manner; the giant Ear-tree, Enterolobium cyclocarpum, which in size equals the Ceibas, and bears curious, ear-shaped pods; Cassia grandis, which in spring is almost hidden under its profusion of pink blossoms, the tree at a short distance reminding one of an Apple tree; Schizolobium excelsum, a striking Leguminous tree, with masses of fragrant, yellow flowers, much frequented by bees; Andira jamaicensis, abundant nearly everywhere, with dark green, lustrous foliage, and covered in spring with dense panicles of violet-purple blossoms; Bombax ellipticum, one of the Silk-cotton trees, with clumsy pink or white flowers; and Calophyllum Rekoi, which is much planted for shade and makes a superior tree for avenues because of the neat and well-kept appearance of its foliage.

Aside from the growing of vegetables, horticulture is a matter which receives little systematic attention in Central America, yet everywhere there is a wealth of flowers and ornamental plants. The aboriginal natives of Mexico and Central America were noted for their love of flowers and were probably more marked in this respect than any other people of an equal state of culture. This trait seems to have been transmitted to their descendants, for poor indeed is the Salvadorean home that does not boast at least a few carefully tended plants. The ordinary type of house found in the towns is conveniently arranged for the growing of flowers. The houses are of the Spanish style, of a single story, built about a commodious central court, which is nearly always attractively planted with herbaceous plants, vines, and shrubbery, with frequently a fountain and a few Orange trees, with parrots chattering upon their perches, and birds singing in their cages. These courts or patios are a mass of colour the year long, and in the broad corridors which surround them there is always cool shade, with hammocks swung between the posts, where it is pleasant to rest during the heat of the day.

In all the towns there are public parks, and usually these are tastefully planted with Palms, especially the Royal Palm (Roystonea regia), and other trees, shrubs and flower beds. About the country dwellings there are dense groves of trees, mostly fruit-bearing, with a wide variety of shrubs. Some of the country estates possess extensive and carefully tended gardens, stocked with rare exotic plants. Such is the "finca" at Puerta de la Laguna, the property of a German family, which has assembled a large collection of unusual economic and ornamental plants from all parts of the tropics. Here are to be seen many fine Palms choice varieties of fruit trees, a glasshouse for the propagation of tender foliage plants, and unusual ornamental trees, such as Amherstia nobilis, Jacaranda filicifolia, the Cannonball tree (Couroupita guianensis), and a host of others. *Paul C. Standley, Assistant Curator, Plant Division, U.S.A. National Museum, Washington.*

(To be continued.)

RED PLANT IN STRAWBERRIES.

In his letter published in the *Gard. Chron.* of July 21, Mr. Johns appears to claim priority in the discovery of eelworm as the cause of "red plant" in Strawberries. He states that at Long Ashton one of us definitely ruled out eelworm as a causative factor.

We wish to say in reply that in the first place there was every justification at that time in refusing to accept the Tylenchus theory as, although several observers had found "eelworm" in "red plants," parasitic forms of any kind had not been seen with sufficient frequency or in numbers justifying the assigning of the cause of "red plant" to them. We emphasise Tylenchus, as Mr. Johns in his article in the *Gard. Chron.* for May 29, 1920, entitled "Silver Leaf in Plums" (!) implies that this was the genus concerned. Further study of the pathogenic potentialities and of the life history of Aphelenchus fragariae, Ritz. Bos., will possibly reveal the reasons for the fluctuation in eelworm population in infected plants, and the minimum number required to produce either "red plant" or "cauliflower."

A vague pronouncement that "eelworm" is the cause of "red plant" does not justify a claim for priority. We would like to point out to Mr. Johns that there are many species and even genera of eelworms. Free-living saprophytic forms may be found in decaying leaf bases of healthy plants, and because eelworms have been found it does not follow, in the absence of further evidence, that they are capable of initiating pathological conditions.

We are unaware of any work published by Mr. Johns in which he identifies Aphelenchus fragariae as the pathogenic organism concerned in "red plant." If, however, such work exists we regret having overlooked it, and would be glad if he would give the reference to the scientific journal in which it appeared. Mr. Johns appears to have overlooked the main point of our announcement, which is the correlation of "red plant" with "cauliflower" disease. *E. Ballard and C. L. Peren.*

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TREES AND SHRUBS.

CEANOTHUS GLOIRE DE VERSAILLES.

In my opinion this is the finest of all the Ceanothuses, and although it is usually recommended as a wall shrub it will do equally well grown in a border or bed devoted to shrubs. It should not be planted in an exposed position as it is not quite hardy in a cold district. As it flowers on the current year's growth pruning is best done in March, cutting the shoots back to three eyes from the base. The strong, sturdy growths which then develop will produce their pale blue flowers during July and August all along the top half of the shoots and well above the foliage. To obtain the best effect from this shrub, several specimens should be planted in a bed on the lawn. Any old or dead wood should be cut away at pruning time, and if a little well-rotted manure is dug into the soil when pruning is finished, this will greatly help towards a fine display of bloom.

FABIANA IMBRICATA.

Although this shrub is not hardy in all parts of the country, an endeavour should be made to grow it in most gardens, as it is one of the most beautiful summer-flowering shrubs we have. It will grow six feet or eight feet high, is evergreen, and not unlike a tall, white-flowered Heath. The foliage is deep green, and the tubular, waxy flowers are clustered round the long shoots from top to bottom. Fabiana imbricata should be planted in a sheltered position, and deeply worked, rich soil, so that it will develop long, healthy growths, which, when in full bloom, make such a delightful feature. In the event of hard frosts occurring, it would be wise to protect the plants with old mats or Bracken Fern, especially when they are small, but any little trouble taken in this respect will be repaid. *R. W. T., Market Harborough.*

GENISTA AETNENSIS.

During July, when comparatively few hardy shrubs are in flower, the Mount Etna Broom is very welcome in the shrubbery borders and pleasure grounds. It forms a tall bush 12 to 20 feet or even more in height, the main stems erect, the young branchlets pendulous, teeming with small, Pea-like, golden-yellow blossoms during July.

Seeds provide a ready means of increase, and in view of some difficulty in transplanting, it is preferable to cultivate the young plants in pots until they are large enough for their permanent positions. In common with other members of the Broom family, the subject of this note thrives in sunny positions and poor soils. In the first few years of growth some pruning is desirable to form a bushy foundation, although if planted in a shrubbery the tall, "leggy" growths may be an advantage if there are other shrubs beneath.

CASTANOPSIS CHRYSOPHYLLA.

This interesting evergreen tree—the Golden-leaved Chestnut of the Oregon and California—is carrying an unusually heavy crop of fruits this summer. These resemble clusters of small Sweet Chestnuts, comprising burs, surrounded with spines, enclosing the edible nuts which germinate freely and provide a means of increase.

Though recorded as being first introduced in 1844, the Golden-leaved Chestnut has not been planted freely in Britain. In California trees exceeding 100 feet are on record. With us, at first, Castanopsis chrysophylla forms a shrubby bush, but, with attention to the leading shoot, and some thinning of the branches, it becomes in time an attractive tree. The popular name refers to the colour of the under-side of the leaves. The present abundant fruiting may be traced to the hot summer of 1921, for the flowers of 1922 produced the fruits which are maturing at the present time. *A. O., Kew.*

CHIMONANTHUS FRAGRANS IN FRUIT.

Two fine plants of the deliciously fragrant, winter-flowering Chimonanthus fragrans are fruiting freely in these gardens. Planted about fifteen years ago in light, sandy soil at the foot of a south wall, they have made good specimens, each plant covering an area of about ten square feet. They flowered exceptionally well last year, and owing to the mildness of the winter the plants remained in full beauty from December to February, when it appeared that most of the flowers had set fruit. In the pruning which followed the greater proportion of the fruits were, of course, removed, but those remaining at the base of the shoots were sufficient to produce a large crop of pods, which are well developed and now reaching maturity. *W. Auton, Pyrford Court Gardens, Woking.*

ECCENTRIC GROWTH OF STACHYURUS CHINENSIS.

I enclose a photograph of a very curiously-deformed specimen of Stachyurus chinensis growing here, which you may consider worthy of reproduction (Fig. 33). The whole of the looped part is flattened, and being of a bright red-brown colour, presents more the appearance of a bit of painted iron hurdle than of a living plant. I am too ignorant to be able to explain what has caused this eccentric growth, and perhaps one of your more learned readers may

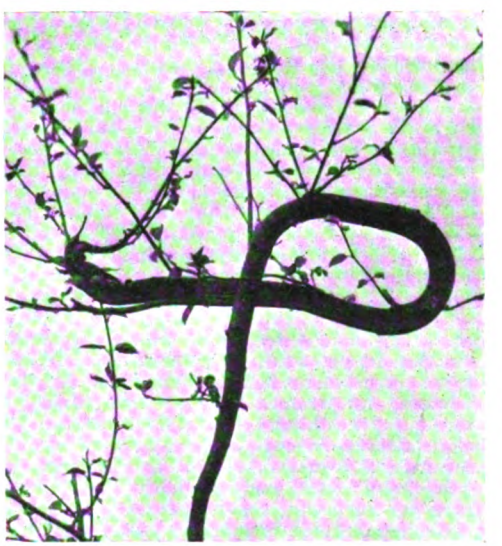

FIG. 33.—ECCENTRIC GROWTH OF STACHYURUS CHINENSIS.

be kindly disposed to throw light on the matter.

I have several other specimens of this plant, of quite normal growth, one a very large and shapely bush about five feet high by six feet across, which I bought some twenty years ago from the Yokohama Nursery Co. under the synonym of S. praecox.

The eccentric plant was raised from seed (No. 192) collected by Mr. Wilson in 1907 in the ravines of Western Hupeh, north and south of Ichang, China. In the spring of 1922 my Stachyurus flowered very freely, and when covered with yellow, hanging racemes, produced a very good effect.

I should not be disposed to insure the life of the plant whose partial portrait is here presented, and even should its life be prolonged it is more suited to a chamber of horrors than a flower garden. *Vicary Gibbs, Aldenham.*

P.S.—The plant referred to above died quite suddenly about a fortnight ago, even sooner than I had anticipated, and I have lodged it with the Natural History Museum in South Kensington, where it may be seen by those interested in curiosities of growth.

Although there are to be seen at the Museum many instances of fasciation in herbaceous plants, there are none of such malformation in woody subjects, except the one recently sent by me. It is generally recognised that fasciation is produced by an injury to the plant stem, but whether the injury is due to insects or some other cause has not been certainly determined. *V. G.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante, pp. 71-76.)

SCOTLAND, N.

Ross-shire.—The fruit crops in this district are very light when compared with the abundant crops in 1922. This is, no doubt, largely attributable to exhaustion from last year's efforts; but the climatic conditions which obtained throughout the spring months had a most detrimental effect. Part of March was very fine, but April, May and June were cold and wet months, with the wind almost continuously in the north. Frost occurred on twenty nights in April, when 8° and 9° were registered; May was little better, having eighteen nights with frost ranging from 4° to 5°. Frost appeared on six nights in June; 26° Fahr. being registered so late as the 15th of the month. These causes, no doubt, contributed largely to the shortage of this year's crops. Apples are comparatively a light crop. Pears are conspicuous by their absence. Plums, which promised well when in flower, have set only half a crop. Small fruits are fairly good, particularly Gooseberries, Currants and Raspberries. Strawberries are under the average, and Cherries very much so. The past winter was so very open and mild that some Pear trees were attempting to flower as early as December last. Ardross is 450 feet above sea level, and is situated in latitude 57°, 45″, longitude 4°, 21″ W. The soil is somewhat heavy, clayey loam, over a clayey marl or pan almost impervious to water. Regarding insects, aphides have been troublesome on plum trees, while Psylla pyri and P. mali, the Pear and Apple chermes, have, in some instances, had to be dislodged by summer washes. *William L. Minty, Ardross Castle Gardens, Alness.*

Sutherlandshire.—Generally speaking, the fruit crops this year are very light in quantity throughout Sutherlandshire. Owing to the cold, wet, and sunless season of 1922, the wood did not ripen, and this, coupled with a cold and wet April and May this year, provided conditions inimical to the Apple, Plum and Cherry crops. Currants, both red and black, and also Raspberries, show average crops. Strawberries promise to be an exceptionally heavy crop. At Dunrobin we have about a quarter of an acre of Elton Pine Strawberry, and the plants were just passing out of flower on July 5. The soil is of a sandy nature, with a subsoil of pure sand. *W. F. Game, Dunrobin Gardens, Golspie.*

SCOTLAND, E.

Aberdeenshire.—All fruits, except Strawberries, carry very light crops, and these are about three weeks later than usual. Two years ago the season was so good and the fruit buds ripened so well that last year there was a superabundance of most kinds of fruits, and I consider the consequent exhaustion to be the principal cause of the shortage this year. *James Grant, Rothienorman Gardens, Aberdeen.*

Banffshire.—Stone fruits are a failure in this district, as the months of May and June were so cold and wet that the blossom was completely spoiled. We had 5° of frost on June 15. Strawberries and Raspberries are the only fruits yielding an average crop in this district. *George Edwards, Ballindalloch Castle Gardens.*

East Lothian.—Plums were the only kind of the large fruits that blossomed well, but only one tree has a fair crop. There is a fair sprinkling of Apricots, which promise better than any other kind of fruit. Of Pears and Apples there are scarcely any. With the exception of Gooseberries small fruits are fairly good, Raspberries, perhaps, excepted. Strawberries, if given rain, will turn out well; I have never seen them look better. I should add that Brown Turkey Fig trees are carrying a good crop. The season has been remarkable for the paucity of flower on trees and for lateness generally. *R. P. Brotherston, Tyninghame Gardens, Prestonkirk.*

Forfarshire.—Fruit prospects are very moderate in this district, with the exception of Apples and Plums, which have poor crops. Apples did not blossom well, and the Plum blossom suffered as a result of late frosts, which

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were very prevalent at their time of blooming. Raspberries carry an exceptional crop, also Red Currants, but Black Currants cropped moderately; Strawberries are of good quality. Insects pests are less numerous this year, and Gooseberry mildew is very slight; the bushes here were dusted heavily with fresh lime just after flowering, and this seems to have been a very effective preventive of mildew. Our soil is of medium texture, and inclined to be cold. *J. B. Peffers, Panmure Gardens, Carnoustie.*

Kincardineshire.—In this district the weather during the end of April and all through May was very dull and cold, and therefore distinctly detrimental to the setting of Apple and Pear blossom. Plums are a complete failure, which I think is the result of the very heavy crops carried last year. Strawberries are more promising than they have been here for several years past. Red Currants are looking very well; Black Currants set a fine crop, but the cold northerly winds at the end of May reduced the crop almost by one half. Raspberries look very promising, but none of the above-mentioned small fruits are near ripe at the time of writing (July 20), and will be almost three weeks later than usual. *William Thomson, Ury Gardens, Stonehaven.*

Perthshire.—Apple, Plum and Pear crops are, with few exceptions, a failure here. Currants, Gooseberries, Strawberries and Raspberries are carrying full average crops, and, though late, give promise of ripening well. Cherries, on the other hand, are an average crop, but of poor quality. Plums flowered profusely, but owing to the cold, frosty wind prevailing at the time, failed to set satisfactorily. Apple blossom was weak, and in some cases did not develop properly, with the result that only the most robust varieties set a few fruits. Insect pests have been troublesome, green fly being most persistent on Plum trees against walls, but the trees are now making satisfactory growth. *Malcolm Macnaughton, Scone Palace Gardens, Perth.*

——The fruit crops will be poor in Scotland this year. Owing to the cold, sunless, dry, summer of 1922, and the cold, dry north winds experienced from February of this year to the middle of June, all fruits are from three to four weeks late, therefore it is too early (mid-July) to write of the quality. As we had no "late summer" last year, the Apples and Plums which make such a great show in the early summer, were flavourless in the autumn. *Chas. Crighton, Jordanstone House Gardens, Meigle.*

——Peach and Plum trees have suffered from cold winds, and blister is prevalent. Peach and Apricot crops are very poor. Raspberries are promising well, but young canes are short, owing to the lack of rain. *James McGregor, Rossie Priory Gardens, Inchture.*

SCOTLAND, W.

Ayrshire.—This is a disappointing season, following a good show of blossom. Plum and Pear trees dropped their fruits badly owing to a continuation of very cold winds in May and well into June. Apples, in sheltered positions, carry a fair crop, especially James Grieve, Worcester Pearmain, and Lord Grosvenor. *D. Buchanan, Bargany Gardens, Dailly.*

Buteshire.—As a consequence of the wet season of 1922, and the extraordinary cold weather early this year, fruit crops generally in this district are very poor; indeed, with the exception of Gooseberries, Currants and Strawberries they are quite a failure here. The weather up to the end of June was the worst I ever remember for gardening; everything is quite a month behind its usual time. Our land is heavy loam on marl. *John J. Davidson, Ardencraig Gardens, Rothesay.*

Dumbartonshire.—Crops of small fruits are very good, with the exception of Currants, which are rather under the average. Apples and Pears, while good, are not plentiful. Plums carry a very poor crop. *John Brown, Cairndhu Gardens, Helensburgh.*

Dumfriesshire.—Black and Red Currants, Gooseberries and Strawberries have crops over the average. Raspberries are poor. Apples carry a very small crop, and Pears are no better. All crops are very late. Our soil is sandy loam over gravel, and needs a considerable amount of manure. Potatos are yielding a fair crop, and the tubers are of good quality, but two weeks late as compared with most years. Other vegetables are good, but Cauliflowers are small. *James Macdonald, Dryfeholme Gardens, Lockerbie.*

(*To be continued.*)

HARDY FRUIT GARDEN.

OBSERVATIONS ON SOFT AND STONE FRUITS.

During the past few years, and especially during the war, it was impossible to exercise a proper control in the selection of many fruit trees, with the result that in some cases stocks of specified varieties have not been at all true and have contained a very large proportion of rogues.

Raspberries.

The above remarks apply especially to some of the older varieties of Raspberries, but there is no confusion as yet amongst the newer varieties, such as Lloyd George, Pyne's Royal or Red Cross. Amongst varieties of considerable merit might be included the following, namely: (1) Lloyd George, which was found as a wild seedling in a wood in Dorsetshire, and was introduced by Mr. J. J. Kettle, of Corfe Mullen. This variety, growing in my garden at Effingham in a heavy loam overlying yellow clay, bears fruit until the leaves fall in the autumn. The individual fruits are very large and hang well. This variety also does equally well on sandy soil at Dorking, where the new canes this season are already quite 5 feet in height; (2) Pyne's Royal, which was raised by Mr. Pyne, of Topsham, and introduced in 1913; (3) Devon; (4) Antwerp Black; (5) Bath's Perfection, which is generally considered to be identical with Laxton's Abundance; (6) Baumforth's Seedling; (7) Norwich Wonder; (8) Semper Fidelis: this variety is very popular amongst jam makers, as the jam manufactured from it is invariably of a good colour, and is remarkable for its clearness; (9) Superlative: this variety, when true, is still excellent in every respect, but in certain soils it has deteriorated considerably in recent years, and the growth does not appear to be so strong as it was. It is, however, one of those varieties which very often do exceedingly well when planted on a clay or heavy loam soil; (10) Red Cross: this variety does better on light and poor soils than on heavy loams, and in the summer of 1921 was found to be fairly resistant to drought.

The autumn-fruiting varieties are not sufficiently well known, and this is a pity, as what could be more highly esteemed than a dish of ripe raspberries in late September or early October? The canes should be cut down to the ground each spring, as the autumn-fruiting varieties bear on the growths of the current year. Hailsham is a fine variety of this type.

Strawberries.

In the case of the Strawberry it has been found that the anthers come to maturity later than the stigmas. Experiments have been carried out with a view to ascertaining whether insect fertilisation is absolutely essential, and, where the plants have been covered over with fine muslin with a view to excluding all insects, it has nevertheless been found that the plants cropped quite heavily. Large numbers of new varieties have been raised during recent years, but, for general garden purposes, the two best varieties still in commerce are Royal Sovereign and Sir Joseph Paxton. Laxton's new Strawberry, The Duke, is well spoken of by those who are growing it, and readers should certainly try a small bed of this variety. It was highly recommended by the R.H.S. after the trials of Strawberries which were carried out during 1920-21 at the Wisley Gardens. The berries are large, of a bright scarlet colour, and they ripen a few days before those of Royal Sovereign. It is a variety which should do very well on light soils as well as on richer loams.

Gooseberries.

In the case of the Gooseberry self-pollination seldom takes place. This is due to the fact that the flowers in nearly all varieties hang down in a perpendicular manner, and, when they open, the anthers at once dehisce and commence to shed their pollen. When this occurs, it will be found in most varieties that the styles are still growing, and that the stigmas are not sufficiently advanced for successful pollination to take place. Luckily, however, a very large number of insects visit these flowers, and, as a rule, the Gooseberry is, therefore, fairly regular in its cropping. Possibly the best varieties would be Lancashire Lad (early picking), Warrington (for preserving), Whinham's Industry (for bottling), and Lancer and Whitesmith (dessert).

Red Currants.

In the case of the Red Currant, the stigmas and stamens generally mature at the same time as the flower opens, and, although self-pollination is the exception rather than the rule, heavy crops generally result owing to the fact that the flowers are visited by a large number of insects. The best varieties for garden cultivation include:—

(1) Raby Castle: this sort bears trusses of bright red fruit, and is late in ripening; (2) Scotch: this variety is largely grown for market on account of its bright colour and early ripening. It is equally good for the small garden (3) Versailles: a mid-season variety; (4) Fay's Prolific: this is a very valuable early Currant; (5) La Constante; (6) Perfection (Laxton).

The last two varieties are late croppers.

Plums.

It will be found that the anthers and the stigmas of Plums mature about the same time. The inner stamens are at a lower level than the stigmas; but the outer ones are, as a rule, the same height as the stigmas. Most varieties of Plums flower about the same time, and remain in bloom from fourteen to twenty-four days, with the result that successful cross-pollination generally takes place when any distinct varieties are planted fairly closely together. It has been found, however, by various observers that the Coe varieties of Plums will not cross with Jefferson; neither will President cross with Late Orange. Large numbers of varieties are entirely self-sterile, and amongst those classified under this heading are the following:—Coe's Golden Drop, Grand Duke, Jefferson, Kirke's Blue, Late Orange, Late Transparent Gage, Pond's Seedling, Transparent Gage, Washington, and Comte d'Althan's Gage. Varieties which are partly self-fertile include Rivers' Early Prolific, President, Stint and Prince Engelbert, while self-fertile varieties are Monarch, Denniston's Superb, The Czar, Victoria and Pershore. *Enthusiast.*

(*To be concluded.*)

MARKET FRUIT GARDEN.

July opened with a spell of ideal summer weather, but this was effectually broken by the great storm of the 9th. During the five or six hours of the storm the rainfall amounted to 2.44 in., which greatly exceeds any fall I have previously measured in twenty-four hours. Beyond hammering down the soil and splashing mud on to bush fruits, no harm was done. After the storm the weather remained unsettled and showery, bringing the total rainfall for the month up to 3.63 in., which is much above the average for July. As many other districts were suffering from drought, I may perhaps be considered lucky. Certainly the warmth and moisture produced rapid growth, so that fruit trees which looked very sickly at the end of June greatly improved in appearance. But the fruit did not swell as might have been expected, probably owing to cool nights. Apples still look like being small, especially the early varieties. The growth of weeds and grass on the headlands was tremendous, and much of the work of the month consisted in dealing with them.

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BUSH FRUITS.

The only crop marketed during July was Black Currants. These did not yield well, owing to the prevalence of reversion, to which reference was made last month (see p. 24). When marking the reverted bushes to be grubbed, I found that the situation was worse than I expected. Five or six acres are too badly affected to be worth tinkering with, and must be grubbed entirely. Here I shall plant Gooseberries and Red Currants. I shall be glad to have Gooseberries again, as they bring in a return early in the season. Their culture was given up when American mildew was so virulent. This disease is now less serious, and can be controlled to some extent. I am advised, however, that it is not wise to plant any varieties but those which are fairly resistant to mildew. Careless is largely grown for market for this reason, but this is a weak grower, so I am not much drawn to it. In my private garden Whitesmith never suffers from mildew, though other varieties are sometimes affected. I should be glad to know if this is the common experience of growers, or if any other varieties can be recommended as resistant.

As for Red Currants, I have never grown these for market, as they used to be so cheap; but in recent years they have sold fairly well. If they yield as well in the field as they do in my garden, they should pay almost as well as Black Currants, as they are more regular in bearing and cheaper to pick. The varieties thought of are Skinner's Early, which is much grown in Kent, and Laxton's Perfection.

KILLING INSECT EGGS.

Growers naturally long for a wash that could be sprayed on to the trees during the winter to kill all insect eggs, and so avoid trouble from pests during the growing season. Last winter a new wash of Continental origin was rather freely tried by growers, and favourable reports of the results of its use have been published. In some cases trees treated with it are said to have been quite free from insects this season. Aphis eggs in particular are said to have been killed, being found unhatched on the trees in early summer. As these claims go even beyond those made by the makers of the wash, there can be no harm in warning growers not to place too much confidence in them. They are made in good faith, but it is so easy to be mistaken in fruit-growing. Exactly the same claims have been made before, notably for lime-sulphur. Who still believes that winter spraying with lime-sulphur prevents aphis attacks by killing the eggs? The finding of unhatched eggs is no proof, for a large proportion of these eggs are always infertile. There is only too good reason to fear that we shall never find a wash strong enough to act on the shell of an aphis egg without killing the tree.

FERTILISERS.

August is the month for applying fertilisers with the object of feeding the fruit buds for the next year's crop. I shall do little of it this season, if any, not because I have lost faith in it, but because most of the trees are making so much growth that I dare not give any more manure at present. Moreover, they are carrying a light crop, so that they should bloom well next year in any case. I have yet to prove definitely the value of this early autumn feeding, but there are cases where it appears to have overcome the biennial bearing habit to a considerable extent. The fact that crops are light this year does not discourage me. In spite of heavy crops last year, there was plenty of bloom this season, and much of it set. A large proportion of the fruit has been lost since through bad weather, insect pests, and fungous diseases, and not through lack of nourishment.

With regard to manures used last winter and spring, wool shoddy has again made its mark, and meat meal has proved itself to be a splendid manure for bush fruits. Nitrate of soda, applied to trees in grass in January, has forced growth on trees which had made none for years, notably some Lane's Prince Albert, which appeared to be permanently dwarfed.

THE MARKETING SYSTEM.

All growers should read the Interim Report of the Departmental Committee on Distribution and Prices of Fruit and Vegetables, because it gives the most complete account of our complicated marketing system that has ever been published. It is to be hoped, also, that they will accept the suggestion of the committee and press for legislation requiring commission salesmen to act under licence, to be issued only under certain conditions respecting commission charges and business methods. The straightforward and reliable salesmen would no doubt welcome this as much as the growers, because it would put some check on the discreditable practices of the "black sheep" of the industry. These practices are exposed in the report. They include the averaging of prices, which may please the bad packer but robs the grower who packs honestly and well of his just reward. Worse than this is the habit of some salesmen, when the market is rising, of selling the produce to themselves and holding it for a rise. These and other tricks would become more risky if the salesman acted under a licence. *Market Grower.*

HOME CORRESPONDENCE.

Lachenalias.—*T. D. T.* (p. 60) seems to be unaware of the height of the best modern varieties when he writes that their flowers "resemble pendulous bells set round a stout stalk, which is some six to eight inches high." I herewith give the heights of some I grow, taken from my 1920 book, *e.g.*, Rosemary, 12 inches; Pegu, 12 inches; Siam, 9 inches; Japan, 10 inches; Africa, 12 inches; Thibet, 10½ inches; Riga, 9 inches; and Monte Carlo, 9 inches. In 1921, which was about my best year, I had plenty of spikes 15 inches high, and a few so much as 17½ inches. *T. D. T.* also states, "the colour *is* generally of a greenish-yellow shade." If he had written *was*, it would have been nearer the mark. I can produce any number of varieties in which there is no trace of green in the yellow. As a matter of fact, I like the green as a welcome contrast to the yellow, and I never could bring myself to try to do away with it like Sir Frederick Moore did, when he grew them at Glasnevin, and laid the foundation for the present-day varieties. Tipperary, in the cold frame here, was a revelation to me, when it bloomed in March this year; Greenland and Cork are two more of the "greeny" varieties. As a contrast there are Siam and Africa, wholly yellow and orange. The advice to put from four to six bulbs in a six inch pot is very different from my own practice. We never use pots if we can help it—always pans of different sizes. In a six-inch pan we put seven or eight first-size bulbs. With only four, the effect would be anything but happy. I quite agree with your correspondent about growing Lachenalias in windows. One of the most effective pans I ever saw was grown entirely in a farm-house window. *Joseph. Jacob.*

Olearia nummularifolia.—In my note on the Daisy Bushes (p. 57), I did this species injustice by stating it was not flowering this season. At the time of writing it had not begun to flower; but now—July 30—it is well out. It never flowers so profusely as several other species; in spite of which it happens to be the only species whereof I have found self-sown seedlings. *Herbert Maxwell, Monreith.*

Red Spider and Pear Mite on Wall Pear Trees.—I wonder if other growers have had the same experience as I have with red spider and Pear mite on wall Pear trees? For years I tried to exterminate these pests, but with very little success; once or twice I almost defoliated a tree in endeavouring to get rid of the Pear mite. The eradication of red spider was also fairly hopeless in a dry season, but now, since using arsenate of lead in the spray, the Pear trees are practically clear of both pests. The spray consisted of soft soap, Quassia and arsenate of lead. *J. D. Colledge, Cobham Hall Gardens, Cobham, Kent.*

SOCIETIES.

BIRMINGHAM HORTICULTURAL.

THE quality of the exhibits at this Society's recent annual show held in the Victoria Park, Handsworth, was well up to the average, and the number of entries appeared to be in excess of those of previous years. Although the season has been so very trying for garden produce, Roses and Carnations were shown in splendid condition, and hardy herbaceous flowers were well represented. Of indoor plants the group of Hippeastrums from J. A. KENRICK, Esq., Edgbaston, was a great cultural achievement.

GROUPS AND PLANTS.

Messrs. J. CYPHER AND SONS, Cheltenham; Sir George H. KENRICK, Whetstone, Edgbaston (gr. Mr. J. V. Macdonald), and Mr. W. R. MANNING, Dudley, were the contestants in the chief class, which was for a group of miscellaneous plants in or out of flower, arranged on a space of 16 feet by 12 feet. The awards were made in the order named. All three exhibitors worked on very much the same lines, each group being spanned by the very familiar rustic arch, with a graceful Palm to mark the highest point, and surrounded by a variety of choice subjects.

Messrs. CYPHER'S group was the best arranged and contained a greater variety of flowering plants than the others, these being, principally, Orchids, Ixoras, Clerodendrons, Liliums, Francoas and tall, graceful specimens of Humea elegans.

The best oval-shaped group of one kind of flowering plants exhibited on a ground space of 7 feet by 5 feet, came from J. A. KENRICK, Esq., Berrow Court, Edgbaston (gr. Mr. A. Cryer), who had a splendid lot of large-flowered substantial-petalled Hippeastrums; 2nd, Messrs. J. CYPHER AND SONS, with Clerodendrons.

Mr. E. J. KEELING, Small Heath, had the winning exhibit of six Coleus, and T. BARLOW, Esq., Handsworth (gr. Mr. J. Davis), beat the last-named exhibitor in a class for six Fuchsias, with large, pyramidal-shaped, profusely-flowered specimens

CUT FLOWERS.

There were twelve very fine dinner table exhibits, each 8 feet by 4 feet, decorated with flowers. 1st, W. J. GRESSON, Esq., Stoke Severn, Worcester (gr. Mr. T. Parry), last year's winner, whose flowers included Gloriosa, Masdevallias, Calceolaria Clibrani, Francoas, Humea elegans and sprays of Selaginella; 2nd, Sir GEORGE H. KENRICK (gr. Mr. J. V. Macdonald), who relied upon Javanese Rhododendrons, Gloriosas and Selaginella; 3rd, Mrs. E. REEVE, Balsall Heath, who used Roses, Francoa sprays, and Asparagus.

In the table decoration class reserved for ladies, Mrs. A. E. ANDERSON, Shirley, took the lead with Roses, Francoa and Selaginella; 2nd, Miss D. HOLDER, Erdington, who had Sweet Peas and very pale pink Carnations.

The best of seven epergnes of flowers also came from Mrs. ANDERSON; 2nd, Mrs. WREN, Harborne.

ROSES.

The principal class in this section was for a collection of flowers arranged on a space of 20 feet by 5 feet, for which a silver challenge bowl, value twenty guineas, presented by Mr. Pat Collins, M.P., and accompanied by £15 in cash, was offered as first prize. This award was well won by Messrs. GUNN AND SONS, Olton, whose bold masses of blooms included such varieties as Flame of Fire, Ariel, Ethel James, Lady Pirrie, Padre, Emma Wright and Sunstar. At intervals the group was relieved by tall pillars of Mrs. Henry Morse, Queen Alexandra, Independence Day, etc.; 2nd, Mr. JOHN MATTOCK, Oxford, whose well set-up exhibit lacked something of variety and quality; 3rd, Messrs. JOHN JEFFERIES AND SON, Cirencester.

The best dozen bunches of distinct garden Roses came from Messrs. S. MCGREDY AND SONS, Portadown, whose vases of Vesuvius, Golden Emblem, Miss Willmott, Isobel and Queen Alexandra were much admired; 2nd, Mr. JOHN MATTOCK; 3rd, Messrs. JOHN JEFFERIES AND SON.

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Mr. John Mattock excelled in the class for a bowl of Roses, Mrs. E. Reeve, Balsall Heath, being second prize winner. Mr. Henry Drew, Longworth, won first prizes for (1) 24 Roses, distinct, and (2) 18 Roses, distinct. His best blooms were of Mrs. G. Marriott, Mrs. John Laing, George Dickson, Avoca, Snow Queen and H. V. Machin. Mr. John Mattock was placed second in each class.

The judges experienced much difficulty in finding the difference between two excellent exhibits of a dozen Tea Roses, in not fewer than six varieties, staged by Mrs. Henry Balfour, Headington (gr. Mr. A. E. Hewlett), and Mr. Henry Drew respectively; the 1st prize was awarded to Mrs. Balfour, whose flowers of Comtesse de Nadaillac, Mrs. Campbell Hall and Maman Cochet were exquisitely beautiful; 2nd, Mr. Drew, whose best blooms were of Mme. Constant Soupert, Mrs. Foley Hobbs and Mrs. Campbell Hall.

Competition in the five classes reserved for Carnations was very satisfactory, there being four excellent entries for 12 selfs, dissimilar, in which Messrs. Lowe and Gibson, Crawley Down, Sussex, excelled with particularly good blooms of Zulu, Glamour, Veldfire, Bookham White, Miss Rose Josephs, Elaine, Bookham Rose, D. R. Crawford, Yvonne Thomas, Peach Blossom, Gordon Douglas and Salmonea; 2nd, The Crompton Nurseries, King's Norton, whose specimens of Elaine and Bookham White were of outstanding merit; 3rd, Mr. H. Woolman, Shirley.

The best twelve yellow-ground, fancy, Carnations were also exhibited by Messrs. Lowe and Gibson, who set up remarkably good blooms of Pasquin, Centurion, Linkman, Sheila Gibson, Enid Lowe and Lieut. Shackleton; 2nd, The Crompton Nurseries, who had Frank Woodward in splendid condition.

The best of four exhibits in a class for a dozen Fancy Carnations came from The Crompton Nurseries, whose examples of Captain, Melton, Firefly and Joseph Reeves were uncommonly good; 2nd, Mr. P. Smith. The Crompton Nurseries again led in a class for twelve white-ground Picotees, with rather small but nicely developed flowers, and in the next class, for twelve yellow-ground Picotees, they were the only exhibitors, but were deservedly awarded first prize.

Messrs. E. W. King and Co., Coggeshall, had the best display of Sweet Peas covering a table space of 20 feet by 4 feet. The flowers were arranged in baskets, vases and pans, relieved with Selaginella, and made a very imposing exhibit; 2nd, W. E. Warden, Esq., Earlswood (gr. Mr. H. Hodson).

The Silver Cup and £3 offered as first prize for twenty-four bunches of Sweet Peas in not fewer than twelve varieties was won by Mrs. Russell, Barton Court, Canterbury (gr. Mr. C. H. Rundle).

Of the four exhibits in the class for hardy border flowers Mr. Maurice Prichard, Christchurch, was placed first with a bright display in which Coreopsis, Kniphofias, Astilbe rivularis, Platycodon pallidum and Poterium obtusum were the pick of a good lot; 2nd, The Chalk Hill Nurseries, Reading; 3rd, Messrs. Thos. B. Grove and Sons, Sutton Coldfield.

The winning exhibit of a dozen trusses of Zonal Pelargoniums was staged by The Chalk Hill Nurseries, and Mr. H. J. Milner, Handsworth, showed the best 12 vases of Violas. The Crompton Nurseries were the only exhibitors in the class for a display of Violas.

Messrs. Gunn and Sons, Olton, won the Silver Cup offered for a display of hardy border flowers. They showed large masses of Phloxes, Delphiniums, Lupins, Galegas and Gladiolus; 2nd, Mr. M. Prichard, whose examples of Kniphofias and Hemerocallis were particularly good; 3rd, Chalk Hill Nurseries.

Fruit and Vegetables.

Fruit was not extensively shown. The most successful exhibitors were Mr. J. Jones (Black Currants), Mr. W. J. Gresson (Red Currants), Mr. H. Watson Smith (Gooseberries), Mr. T. C. V. Garlick (Strawberries), and Mr. F. Barlow (Loganberries).

Amateurs' Exhibits.

The most attractive display of cut flowers was exhibited by G. Marriott, Esq., Carlton, Notts (gr. W. Lamb), who was awarded first prize; 2nd, H. Watson Smith, Esq., Stourbridge (gr. Mr. H. Davis); 3rd, E. J. Keeling, Esq., Small Heath. Of the five exhibits of 18 Roses, distinct, Captain W. Jarratt Thorpe, Hucclecote, Gloucester (gr. Mr. T. Bircher), was placed first with an even lot of good quality blooms; 2nd, Mrs. H. Balfour. C. B. Worsey, Esq., Edgbaston (gr. Mr. A. Davis), led in a class for 12 Roses, distinct, followed by Mrs. Constance E. Whitcombe, Bewdley, and Captain W. Jarratt Thorpe, who were placed second and third respectively. The last-named exhibitor excelled in the smaller class for 6 Roses, distinct; 2nd, Mrs. H. Balfour; 3rd, C. B. Worsey, Esq. F. Bayliss, Esq., Walsall (gr. Mr. J. C. White), showed the best lot of 12 Border Carnations, and Miss Russell won first prize for 12 varieties of Sweet Peas.

First prizes were awarded to J. A. Kenrick, Esq., for (1) a group of plants, (2) three Ferns, and (3) 12 Streptocarpus; B. Goodman, Esq. (gr. Mr. A. Edney), for Gloxinias; F. Barlow, Esq., Handsworth (gr. Mr. J. Davis), for Begonias; E. J. Keeling, Esq., Small Heath, for a collection of Ferns; Sir George H. Kenrick, for (1) 6 table plants and (2) 12 flowering plants; and W. J. Gresson, Esq., for vegetables.

Non-Competitive.

The *Silver Cup* offered for the best trade exhibit in the show was won by Mr. C. Engelmann, Saffron Walden, for a wonderful display of Carnations.

Large Gold Medal.—To Messrs. Bakers, Wolverhampton, for a model terraced garden and a border planted with hardy flowers; to Messrs. S. McGredy and Son, Portadown, for Roses; to Messrs. E. Webb and Sons, Stourbridge, for flowers, fruit and vegetables; and to Messrs. Lowe and Gibson, Crawley Down, for Carnations and Gladioli.

Gold Medal.—To Messrs. Hewitt and Co., Solihull, for Delphiniums; to Messrs. R. D. Proctor and Sons, Chesterfield, for Roses; to Mr. C. H. Herbert, Acocks Green, for Pinks; to Messrs. W. H. Simpson and Sons, Birmingham, for Antirrhinums and Delphiniums; to Mr. H. N. Ellison, West Bromwich, for Cacti; to Mr. C. Vickers, Leicester, for bouquets; and to Mr. W. Wells, Merstham, for hardy flowers.

Silver-Gilt Medal.—To Miss S. S. Thompson, Handsworth, for Cacti; and to Messrs. G. Stark and Son, Great Ryburgh, for Campanulas and Poppies.

Silver Medal.—To Mr. H. Woolman, Shirley, for Zonal Pelargoniums and Begonias; to Messrs. W. Hopwood and Sons, Cheltenham, for hardy flowers and Petunias; to Chalk Hill Nurseries, Reading, for hardy flowers; to The Crompton Nurseries, King's Norton, for Pinks; and to Mr. A. Shepherd, Hollywood, for hardy flowers.

SCOTTISH NATIONAL SWEET PEA, ROSE AND CARNATION.

The fourth annual exhibition of this Society opened in the St. Andrew's Halls, Glasgow, on Wednesday, July 25, and continued during the following day. These halls are admirably suited for such exhibitions, and Mr. John Smellie, Helensburgh, the indefatigable secretary, took full advantage of the facilities offered him. Lady Mackenzie, of Edinbarnet, gracefully performed the opening ceremony, and likewise presented the leading prizes to the winners. The entries were somewhat similar in number to those of last year, the figures being:—Sweet Peas, 263; Roses, 135; border Carnations, 27; and decorative classes, 82. The entries came from all over Scotland, and the North of Ireland, too, was capitally represented. Unfortunately, the untoward weather experienced in April, May, and well into June told somewhat against the successful production of what may be termed exhibition flowers, but withal it was a capital display, and reflected the greatest possible credit on all concerned. In the Sweet Pea classes, four were confined to nurserymen, and some particularly fine examples were staged, the premier awards going to Mr. William Rae, Ayr; Mr. John Smellie, Helensburgh; and Messrs. Torrance and Hopkins, Busby, for flowers of outstanding excellence. The finest flowers were seen, however, in the open classes. The display was very good, and that prominent and well-known exhibitor, Viscountess Cowdray, Dunecht House, Aberdeenshire (gr. Mr. William Smith), worthily gained the Burpee Cup presented by Messrs. A. Burpee and Co., Philadelphia, for the best twelve vases, distinct varieties; the gold medal for the best twenty-four varieties, distinct; and prizes for the best white variety, the best lavender, the best Picotee-edged Sweet Pea, the best vase of Sweet Peas in the show, and for the best vases of a 1922 or 1923 variety. The entry which gained the Burpee Cup was easily the finest in the Sweet Pea section. The other leaders worthy of mention in the professional classes included Mr. John Smellie, Helensburgh, and Mr. James Paul, Killearn.

In the Decorative classes, the Invertrossachs Silver Cup for the best decorated dinner table (3 ft. by 4 ft.), presented by Lady Wilson, Callander, was won by Mrs. John Russell, Newton Mearns, with an entry showing exquisite taste and delicacy in arrangement. Mrs. Marshall, Thornton Hall, and Mr. George Reid, Dundee, made very worthy runners-up. Miss Margaret Smilie, Cardonald, had a fine entry for the best bowl of Sweet Peas.

The exhibits in the Rose section made a very fine display, and those securing the premier awards worthily earned their honours. Of all the classes in the show, the unfavourable season seemed to have had the least effect on the Roses. The freshness and fine colours of the exhibits were remarkably good, and the staging was of a high order. The leading honour in this section—the Dickson Cup—was finely won by G. H. Macneal, Esq., Kirn (gr. Mr. D. Murchison). The winning exhibit was comprised of Colleen, Augustus Hartmann, Gorgeous, Pharisäer, Margaret D. Hamill, Marcelle, Edgar Burnett, Mrs. G. Marriott, Mrs. H. Stevens, Madame Melanie Soupert, Faber Konigen, Lieutenant Chaure, Frau Karl Druschki, Mrs. Fred Searle, Golden Emblem, Mrs. G. Norwood, Joseph Hill, Caroline Testout, Mrs. Henry Morse, Clarice Goodacre, Captain Hayward, Mrs. McKellar, Mrs. R. D. McClure, and Madame Jules Bouche.

Mr. James Kerr, Stewarton, led among the amateurs, gaining Messrs. Smith's cup for the third time, and it now becomes his own property. Mr. Kerr's entry was a particularly fine one, his bloom of the Mrs. Henry Bowles being adjudged the best bloom in the gardeners' and amateurs' sections. Messrs. Thomas Smith and Sons, Stranraer, with a reputation of some fifty years behind them, won premier place for twenty-four blooms, distinct varieties, open to Scotland. Irish growers were well to the fore in the competitions open to all. Messrs. A. Dickson and Sons, Belfast, and Messrs. Samuel McGredy and Son, Portadown, had very meritorious displays, the latter being awarded a gold medal (special prize) for a group of new Roses, some of the varieties contained in it winning for the grower the medal of the National Rose Society. Messrs. A. Dickson and Sons had also some outstanding victories to their credit, which included a special prize for the best bloom shown in the nursery classes, the variety being Captain Kilbee Stuart. In the competition for the best twelve Roses, for which Lady Gardiner, Old Ballikinrain, Balfron, gave a valuable Rose bowl, the premier award was won by Mr. William Smith, Dunecht House, Aberdeenshire, with a particularly fine entry. Mr. Murchison, Kirn, and Mr. J. G. Williamson, Giffnock, Glasgow, were also prominent prize-winners.

The display of Border Carnations was not extensive, but for quality it was most commendable. Messrs. Torrance and Hopkins,

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Rusby, led for twelve vases Carnations or Picotees, with a meritorious entry, and Mr. H. Woolman, Birmingham, made a good second, and also led for six vases, distinct varieties. In the classes open to all, a fine record was put up by Mr. Alex. McMillan, Old Cumnock, Glasgow, quite a young man, who carried off the Irvine Valley Cup for six vases; the medal presented by Mr. James Smith, Darvel, to competitor gaining most points; and the Lowe and Gibson medal for the best single vase of Carnations in the amateur classes. It was a really fine performance, and worthily earned for Mr. McMillan many congratulations.

An outstanding feature in the Carnation section was a fine display of the blooms forwarded by Mr. D. Walker, Kilmarnock. There were over 200 flowers. Mr. James Beats, Binrock, Dundee, secured several premier honours, and Mr. George Reid, Dundee. Mr. William Holmes, Helensburgh, and Mr. Thomas Smart were other prize-winners

It has been stated recently that the nursery trade is dying out in Scotland, and the paucity of trade displays at this show, compared with former years, would lead one to think there is something in the assertion. Messrs. Austin and McAaslin, Cathcart, Glasgow, had a remarkably good display of Roses, and Messrs. Dobbie and Co. had a meritorious exhibit of Roses and Sweet Peas which was greatly admired.

SHEFFIELD.

The Horticultural Show held in conjunction with the Great Yorkshire Agricultural Show held at Sheffield on July 25 and two following days far eclipsed the splendid display held at Hull last year. Liberal prizes were offered, and there was a good response. The exhibits were staged in an admirable manner in two large tents, and the general effect was brilliant. The chief features of the show in the competitive classes were the miscellaneous groups of plants, Roses, Carnations, Sweet Peas and the collections of hardy perennials and cut flowers which were again magnificent. These and the trade displays reached a very high level of excellence.

In the class for a group of miscellaneous plants two outstanding exhibits were staged, and they were the finest we have seen this year. Four groups of hardy perennial plants and cut flowers were arranged down all one side of a tent, and the quality, colour and general effect of these groups were wonderful. Overcrowding was the only fault, but this was nothing like so pronounced as on many previous occasions. The prize-winning Sweet Peas were of fine quality, but, generally speaking, the other groups were not up to the average, the flowers being rather short in the stem, although Roses and Carnations could not have been better.

Trade exhibits were splendid, notably those of Messrs. Sutton and Sons, who had a collection of flowers, fruits and vegetables; Messrs. Alex. Dickson and Sons, Newtownards, who staged a wonderful exhibit of Roses; Messrs. Allwood Bros., Haywards Heath, who showed Carnations; and Messrs. W. Artindale and Son, Sheffield, who had a large and finely-arranged display of plants and cut flowers. Another notable feature in the show was Messrs. Fisher, Son and Sibray's collection of rare stove and green house plants. This firm also arranged other fine exhibits in front of the President's and other offices.

Appended are the chief awards :—

Group of Miscellaneous Plants : 1st, Messrs. Cypher and Sons, Cheltenham; 2nd, Mr. W. A. Holmes, Chesterfield. Collection of cut Carnations : 1st, Mr. C. Engelmann, Saffron Walden. Hardy perennial plants and cut blooms : 1st, Messrs. Harkness and Sons, Bedale; 2nd, W. Artindale and Son, Sheffield; 3rd, Geo. Longstor and Sons, Malton; 4th, G. Gibson and Co., Bedale. Collection of Sweet Peas : 1st, Messrs. Th. Bolton and Son, Halstead; 2nd, Mr. T. Wadsworth, Bishop Wilton, York. Eighteen distinct varieties of Sweet Peas : 1st, Mr. T. Wadsworth; 2nd, Mr. J. Leckentry, Haxby. Collection of Tuberous Begonias : 1st, Messrs. Blackmore and Langdon, Bath. Collection of cut Roses : 1st, Mr. A. J. Allan, Norwich; 2nd, Mr. T. Robinson, Nottingham.

Non-competitive Exhibits.

Large Gold Medal.—Messrs. Sutton and Sons, Messrs. Allwood Bros., Messrs. Alex. Dickson and Sons, and Messrs. W. Artindale and Son.

Gold Medal.—Messrs. Fisher, Son and Sibray, Messrs. J. Backhouse and Son, Messrs. Herd Bros., Penrith, Messrs. J. Forbes and Son, Hawick, Messrs. J. Douglas, Bookham, Messrs. Alex. Dickson and Son (Sweet Peas), Messrs. Little and Ballantyne, Messrs. Brooke, Bray and Co., Sheffield (floral designs).

Silver Medal.—Messrs. Ellinson and Son, Birmingham, and Messrs. Jarman and Co., Stroud.

ROYAL LANCASHIRE SHOW.

August 2-6.—The Horticultural Section of the Royal Lancashire Show was held at Liverpool on August 2, 3, 4, and 6. All the exhibits were staged in one large tent, on an admirable site, and reached a high standard of excellence.

The competitive classes were well filled, and many trade exhibits had to be declined for lack of space. Everything was done for the convenience of the exhibitors and the comfort of the very large number of visitors. Groups of miscellaneous plants, Roses, Carnations, Sweet Peas, and decorated dinner tables were excellent. The display of hardy perennial plants and cut flowers were excellent, and the exhibits were arranged with great taste. Messrs. Bees, Ltd., Liverpool, had an abundance of well-grown blooms, with several novelties, which made their exhibit a distinctive feature.

The following are the chief awards in the competitive classes:—For a group of miscellaneous plants, first, Messrs. J. Cypher and Sons; second, Mr. Holmes. A collection of Orchids, first, Mr. J. Macartney; for six Orchids, first, Messrs. J. Cypher and Sons. Dinner-table decorations, open and trade excluded, first and second in both classes respectively, Mrs. John Nixon and Miss Newsham. Collection of Sweet Peas, on a space measuring 20 ft. by 5 ft., first, Messrs. R. Bolton and Son; second, Mr. F. Bond; for eighteen varieties and twelve varieties of Sweet Peas respectively, trade excluded, W. D. Ingham was first in each class; Mr. T. Wadworth was second for eighteen varieties, and Mr. W. Clayton second for twelve. Mr. A. Bolton was awarded the first prize for twelve varieties of Sweet Peas in the open class, whilst in the other class for twelve varieties Messrs. R. Bolton and Sons were first and Mr. W. D. Ingham second. Mr. C. Engelmann won the first prize of £15 for Carnations. Messrs. A. J. and C. Allen, Norwich, won the first prize for a collection of Roses; second, Mr. Thomas Robinson, Nottingham. Messrs. Bees, Ltd., won the first prize of £30 offered for a collection of hardy perennial plants and cut flowers; second, Messrs. G. Gibson and Co.; third, Messrs. Harkness and Co. Mr. W. Robinson was the chief prize-winner in the vegetable classes. Many admirable collections of vegetables were staged, both in the society's classes and those set apart for trade growers.

Traders' Exhibits.

Trade exhibits were excellent, notably those of Messrs. Sutton and Sons, who had the best exhibit of flowers, fruits, and vegetables in the show and the best we have seen this firm stage this year at any provincial show. They were awarded the only Large Gold Medal, together with a cultural certificate.

Messrs. Dickson and Robinson, Messrs. Allwood Bros., Messrs. Blackmore and Langdon, Messrs. Alex. Dickson (Roses), and Messrs. Herd Bros. were all awarded Gold Medals for splendid exhibits. Silver Medals were awarded to Messrs. Bees, Ltd., Messrs. J. Forbes and Son, Messrs. Alex. Dickson (Sweet Peas), Messrs. Ellison and Son for Ferns, and to Miss Worth for Cacti.

ROYAL HORTICULTURAL.

August 8.—The holiday spirit was abroad on this date, and the few people who visited the Royal Horticultural Hall did not appear to be keenly interested in the exhibits. Only one display of Orchids was forthcoming, and there was none of fruits. Gladioli were plentifully exhibited, and other subjects of note were Phloxes, Roses, Carnations and hardy flowers. Exhibits were comparatively few in number, but of good quality, and there was plenty of room to move about among them.

Orchid Committee.

Present : The Hon. H. D. McLaren (in the chair) and Messrs. J. O'Brien (hon. Secretary), Gurney Wilson (Assistant Secretary), C. J. Lucas, H. T. Pitt, Fred. K. Sander, J. T. Barker, W. H. White and Chas. H. Curtis.

The only exhibit was a selection of hybrids shown by Messrs. Cowan and Co., Southgate, for which a vote of thanks was given. Two specimens of their Brasso-Laelio-Cattleya Muriel (B.-C. Madame Chas. Maron × L.-C. Feronia) bore large flowers of model shape, the colour being light rose-pink with a pale yellow disc; Brasso-Cattleya Rosita (B.-C. Ilene × C. Dowiana aurea) was well shown, and the collection also included the yellow-petalled Cattleya Diana (Sibyl × Dowiana), C. Thebes (Adula × Dowiana) and the finely coloured Laelio-Cattleya J. Ansaldo (Lustre × Hildegarde).

Floral Committee.

Present : Messrs. H. B. May (in the chair), D. B. Crane, W. P. Thomson, W. B. Gingell, C. R. Fielder, J. B. Riding, G. Reuthe, G. W. Leak, H. J. Jones, J. Jennings, W. G. Baker, T. Hay, W. J. Bean, E. A. Bowles, Gerald Loder, H. D. McLaren, H. V. Warrender, C. Elliott, Jas. Hudson, Reginald Cory, H. R. Darlington and C. Williams.

Award of Merit.

Campanula Hallii.—Lovers of dwarf Campanulas suitable for the rock garden cannot fail to be delighted with this dainty little plant, which is the result of crossing C. pusilla alba with C. muralis, the latter being the seed parent. The little specimens shown in small pots were only five weeks old, and propagated from the small stoloniferous growths, which are freely produced, many of these young plants already showing them. The plant, even when in flower, is barely three inches high; the leaves are bright-green, roundish cordate, the uppermost having rather deeply toothed margins; the erect bells, borne freely, are porcelain white. Altogether a charming Campanula. Shown by Mr. A. J. Hall, Harrogate.

Cultural Commendation.

To Mr. W. F. Horne, Woodside, for plants of a white Oleander, beautifully flowered. The specimens were in 48 sized pots.

Other Novelties.

Buddleia nanhoensis with branched inflorescences suggesting a poor B. variabilis was shown by Mr. Clarence Elliott; we are informed that this species is dwarf, rarely rising above 4 ft., and very free flowering, consequently, it may be planted where B. variabilis and B. Veitchii would prove far too robust. Calceolaria Glasgow Beauty, shown by Lord Lambourne, is a shrubby, cool greenhouse plant, carrying heads of orange-yellow, red spotted flowers; the colouring is very fine. Miss Homfray showed spikes of the dainty Anomatheca cruenta.

Groups.

Although it was a small show, there was a sufficiency of interesting groups to make the visit well worth while. In the centre of the hall Mr. H. J. Jones had a large oval group of herbaceous Phloxes he grows and shows so well. These were in shallow baskets arranged on the floor and lightened by graceful plants of Cocos Wedelliana. Of the many varieties of Phlox, the chief were Etna, Evelyn, Le Mahdi, Miss A. Ellis, Madame H. V. Hoboken, Rosine, and Frau Ant Buchner (Gold Medal).

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A goodly variety of Phlox was included in an attractive collection of herbaceous plants exhibited by Mr. M. Prichard, who also staged some very good Kniphofias, Montbretias, and spikes of the somewhat uncommon white variety of Agapanthus umbellatus (Silver Flora Medal).

General border flowers were also shown by Mr. W. Wells, Junr., who had a fascinating stand of Scabiosa caucasica varieties (Silver Banksian Medal).

A long row of double-flowered Hollyhocks was contributed by Mr. F. G. Wood, and chief among them was the beautiful pink variety, Palling Belle (Bronze Banksian Medal).

Mr. H. Marcham, a fresh exhibitor at the hall, staged a quantity of Scabiosa Azure Fairy, which is a pretty decorative flower of mauve colour (Silver Banksian Medal).

Various herbaceous Phlox, Hollyhocks, Heleniums, Monarda didyma and Viclas were well shown by Messrs. Carter Page and Co. (Silver Flora Medal).

Just inside the entrance Mr. Amos Perry had a large collection of herbaceous flowers. Lythrum dalcana was particularly well flowered. Lilium tigrinum plenum and Yucca filamentosa were shown in quantiay, as also were sprays of white Lavender and the silvery foliage of Artemisia pontica (Silver Banksian Medal)

Besides an interesting collection of Gladiolus and Phlox, with general border flowers, Messrs. J. Cheal and Sons had a fine vase of Galtonia (Hyacinthus) candicans. In another part Messrs. Cheal and Sons set up a large collection of Dahlias which, besides being attractive in themselves, served as a reminder that the annual show of the National Dahlia Society is nearly due. Good, typical flowers of all types were staged in the stall. Pompons and Cactus varieties were very attractive (Silver-Gilt Banksian Medal).

Gladiolus were freely shown, and it was the elegant Primulinus hybrids that predominated. Major Churcher, Lindfield, had several of his excellent seedlings. Nydia, a beautifully hooded flower of deep rosy pink flushing, and Ostranto, of golden shading, with crimson lines on the lower segments, were superb (Silver Flora Medal).

Messrs. R. H. Bath, Ltd., had large vases of such valuable sorts as Hespera, Niobe, Souvenir, Lyser and Arlon (Silver-Gilt Banksian Medal).

Mr. Alfred Edwards filled a corner space with Primulinus hybrids (Silver Flora Medal).

Messrs. Lowe and Gibson showed a number of their seedlings, of which Salmon Beauty Altair and Pansy, of the Primulinus type, and Montezuma, Red Fire and Incontestable were the very best (Silver Flora Medal).

The larger-flowered sorts predominated in the collection arranged by Messrs. Kelway Bros., and these included J. E. W. Tracey, Eteocles, Superb, Orby, Corri, Golden Dawn and Nonpareil (Silver-Gilt Flora Medal).

Roses were better than might have been expected in view of the hot and dry weather. Messrs. Alex. Dickson and Sons staged excellent cases of Betty Uprichard, Lady Inchiquin, Sunstar, Frances Gaunt, Isobel and Richard West. The last named is a new H.T. of medium, rounded shape and pale yellow colour, shaded with apricot in the centre (Silver-Gilt Flora Medal). Such single-flowered sorts as Pax, Mermaid, Isobel and Vanity predominated in the collection of the Rev. J. H. Pemberton (Silver Flora Medal).

Carnations were displayed in quantity by Messrs. Allwood Bros. and Mr. C. Engelmann. The former had splendid vases of Sussex Crimson, Chintz, Wivelsfield Apricot and Wivelsfield Claret, and also arranged a great variety of Dianthus Allwoodii (Silver-Gilt Banksian Medal). Chief amongst Mr. Engelmann's varieties were Coquette, Circe, Topsy, Laddie and Tarzan (Silver Banksian Medal). Mr. J. Klinkert displayed well-trained topiary specimens (Bronze Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. J. Cheal (in the chair), Geo. F. Tinley, H. S. Rivers, S. B. Dicks, G. Reynolds, W. G. Lobjoit, W. F. Giles, E. Neal, W. Bates, W. H. Divers, E. A. Bunyard, H. Markham and A. N. Rawes.

No exhibit was forthcoming in the competition for the Bunyard Medals offered for Peaches and Nectarines, and no other exhibit of importance was shown in this section.

Trials at Wisley.

The following awards have been made by the Royal Horticultural Society to the undermentioned subjects after trial at Wisley.

Autumn Sown Lettuce.

First-Class Certificates.

Winter Giant, sent by Messrs. R. Veitch and Son; *Stanstead Park* (large form), sent by Messrs. Nutting and Sons, Ltd.; *Brittany Winter White*, sent by Messrs. Barr and Sons; *White Madeira*, sent by Messrs. Barr and Sons.

Awards of Merit.

Hammersmith Hardy Green, sent by Mr. Cullen and Messrs. Watkins and Simpson, *Hardy Hammersmith*, sent by Messrs. Dobbie and Co.; *All the Year Round*, sent by Mr. Simpson, Messrs. Watkins and Simpson, Messrs. A. Dickson and Sons, Messrs. Toogood and Son, Messrs. Dobbie and Co., and Messrs. Nutting and Sons, Ltd.; *Density Cos*, sent by Messrs. Nutting and Sons, Ltd.; *Winter Density*, sent by Messrs. R. Veitch and Son and Messrs. Watkins and Simpson; *Gem Cos*, sent by Messrs. Harrison and Sons; *Goldring's Bath Cos.*, sent by Messrs. Toogood and Son.

Highly Commended.

Early French Frame, sent by Messrs. Watkins and Simpson; Hercules (syn. Webb's Wonderful), sent by Messrs. Dobbie and Co.; Grand Admiral, sent by Messrs. R. Veitch and Son; Schofield's Hardy Winter, sent by Messrs. Barr and Sons; Winter Brown, sent by Messrs. Barr and Sons; Reliance, sent by Messrs. Barr and Sons and Messrs. Watkins and Simpson.

Commended.

Trocadero, sent by Messrs. Watkins and Simpson, Messrs. Barr and Sons and Messrs. R. Veitch and Son.

Cucumbers.

First-Class Certificates.

Aviator, sent by Messrs. Barr and Sons; *Royal Osborne*, sent by Messrs. Barr and Sons.

Awards of Merit.

Pride of the Market, Covent Garden, Frogmore Prolific and *Lord Roberts*, all sent by Messrs. Barr and Sons.

Highly Commended.

Prolific, sent by Messrs. Dickson, Brown and Tait; Bounteous, sent by Messrs. Dickson and Robinson; Everyday, sent by Messrs. Barr and Sons.

Carrots for Frame Cultivation.

Awards of Merit.

Early Frame, sent by Messrs. Barr and Sons; *Early Parisian Forcing*, sent by Messrs. Barr and Sons; *Amsterdam Forcing*, sent by Messrs. Zwaan and de Wiljes and Mr. van der Veld; *Long Forcing*, sent by Messrs. J. Carter and Co.

Highly Commended

Guerande, sent by Messrs. R. Veitch and Son; Early Horn Improved, sent by Messrs. J. Carter and Co.; Primo, sent by Messrs. Watkins and Simpson and Messrs. Barr and Sons.

Salpiglossis (Under Glass).

Awards of Merit.

Superbissima aurea, sent by Messrs. Barr and Sons; *Yellow*, sent by Mr. A. Dawkins; *Yellow edged White*, sent by Mr. Simpson; *Chamois*, sent by Messrs. Barr and Sons; *Chamois rose carmine centre*, sent by Mr. Simpson; *Velvety Red Gloxinia-flowered*, sent by Mr. Simpson; *superbissima Light Blue*, sent by Mr. A. Dawkins; *Violet d'Iris*, sent by Mr. Simpson; *Purple and Gold*, sent by Messrs. Toogood and Son; *Dwarf Large Flowered Mixed*, sent by Mr. Simpson.

Highly Commended.

Superbissima Yellow, sent by Mr. A. Dawkins; superbissima Chamois, sent by Mr. A. Dawkins; Superbissima Dark Scarlet, sent by Mr. A. Dawkins; Lilac-veined Yellow, sent by Messrs. Barr and Sons; Purple-violet and Yellow, sent by Messrs. Barr and Sons; Purple, sent by Mr. A. Dawkins; Black, sent by Messrs. Barr and Sons.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Thursday, July 19th.—Committee present: A. Hanmer, Esq. (in the chair), Messrs. R. Ashworth, W. Beesley, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, A. T. Cussons, A. G. Ellwood, J. Evans, W. Giles, J. Howes, D. Losh Thorpe, D. McLeod, J. Lupton, D. F. T. Paul, F. K. Sander, E. W. Thompson, J. Whitham, and H. Arthur (secretary).

First-class Certificates.

Odontonia Malby var. Decora (*M. Bleuana* × *Odm. percultum*), a beautiful flower, spotted purple, the large white lip having markings at the base; *Vuylstekeara insignis var. picta*, a distinct variety, the sepals and petals being deep maroon with white edges, and the large white lip shaded light maroon. From P. Smith, Esq.

Cypripedium Godefroyae splendidissimum, a richly coloured variety, the large flower being of excellent shape. From S. Gratrix, Esq.

Odontioda Verulam (*Odta. Madeline* × *Odm. majesticum*), a very fine and richly coloured variety. From Messrs. Sanders.

Awards of Merit.

Odontoglossum Zenith (*parentage unknown*); *Odm. Doreen var. Blue Bird*; and *Cypripedium Godefroyae amabile*. From S. Gratrix, Esq.

Odontoglossum Alcimeda superba (*Jasper* × *Ossulstonii*); *Odontioda Colingc var. Prince of Orange* (*Odta. coronation* × *Odm. c. Lucianii*). From A. Hanmer.

Odontoglossum Schlieperianum citrinum and *Promenaea stapelioides superba*. From P. Smith, Esq.

Odontoglossum Princess Patricia (*Dora* × *crispum*). From Mrs. Gratrix.

Miltonia Bleuana, Rutherford's variety. From Col. Sir J. Rutherford, Bart.

Groups.

S. Gratrix, Esq., West Point (gr., Mr. J. Howes) staged a group to which a Silver-gilt medal was awarded.

Mrs. Bruce and Miss Wrigley, Bury (gr., Mr. A. Burns) were awarded a large Silver medal for a group in variety.

GENERAL BULB GROWERS OF HAARLEM (HOLLAND).

The different floral committees of the above Society made the following awards during the session June 25 to July 15.

First-Class Certificate.

Iris hispanica Leviathan.—A dark golden yellow variety.

Awards of Merit.

Delphinium Johan.—The flower is indigo-blue, with a mauve centre and white eye.

Delphinium Lady Astor.—A soft rosy-mauve, self-coloured variety; the spike is small and compact.

Delphinium Mrs. Willy van Egmond.—The semi-double flowers are turquoise-blue, shaded pink; the eye is white.

Iris hispanica Bianca.—This is a nearly white variety, with a violet shade and a small yellow blotch.

Iris hispanica Blue Giant.—The standards of this variety are purple, the falls lavender-blue, small and round, with a yellow blotch.

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Papaver orientale Wilhelmina Regina.—A very large flower of salmon-pink colour.

Ranunculus asiaticus superbissimus Mahony (French Ranunculus).—This variety has large, dark brownish-red flowers on long stems.

NEW HORTICULTURAL INVENTIONS.

Latest Patent Applications.

18,197.—Hanff, E. Spades, scoops, etc. July 14th.

18,116.—Starr, F. E. Lawn-mowing machines. July 12th.

18,050.—Worship, V. T. Garden barrows. June 12th.

17,207.—Aitkens, G. Hoes. July 3rd.

17,117.—Crandall, L. W. Handles for digging implements, etc. July 2nd.

17,610.—Hunter, C. M. Means for holding seeds, plants, etc., for forcing etc. July 6th.

17,235.—Jones, J. H. Garden rollers, etc. July 3rd.

16,651.—Souls, W. Spade, fork, etc., handles. June 27th.

Specifications Published Last Month.

199,867.—Ross, J. Smith. Protection of seeds and crops from the attacks of insects and birds.

199,955.—Bailey, J. J. Wall brackets or like protection-supporting and plant-training devices for horticultural purposes.

199,976.—Rolph, H. M. Plant-markers.

184,794.—Gastl, L. Potato diggers.

200,013.—Mitchell, J. N. Grain or seed separating apparatus.

199,551.—Waldron, P. B. Hand-rake.

199,096.—Cassels, Sen., T. Horticultural watering and spraying apparatus.

Abstract Published last Month.

New Plant Label.—Mr. C. E. West, of 11, Norfolk Road, Higham Hill, London, has recently obtained a Patent No. 198,081 for a plant label made of celluloid formed with a pair of U-shaped slots through which a stem or support is threaded, the material within the U being depressed to assist in gripping the stem, which is preferably corrugated. Both slots are turned in the same direction and the material depressed on opposite sides of the label. In a modification, the slots are turned in opposite directions and the material depressed on the same side. The stem is bent round a branch or otherwise secured. Further modification shows two pairs of slots formed in the label and the stem formed of a bent strip, one end passing through each pair of slots.

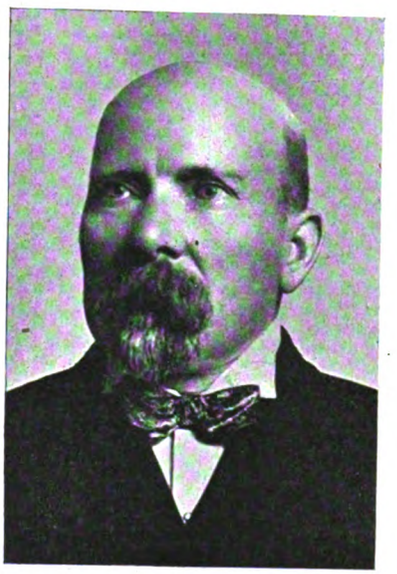
Messrs. Rayner and Co. will obtain printed copies of the published specifications and abstract only, and forward on post free for the price of 1s. 6d. each.

This list is specially compiled for the *Gardeners' Chronicle* by Messrs. Rayner and Co., Registered Patent Agents, of 5, Chancery Lane, London, from whom all information relating to Patents, Trade Marks and Designs can be obtained gratuitously.

Obituary.

George Caselton.—The many friends of Mr. George Caselton, who for a number of years was in charge of the gardens and pleasure grounds attached to the Crystal Palace, Sydenham, will regret to learn of his death, which occurred on Tuesday, the 31st ult. Mr. Caselton succeeded the late Mr. G. Head as Superintendent of the Crystal Palace Gardens, and it was unfortunate that during the latter part of his office the gardens were allowed to lapse from their former high state of efficiency, although through no fault of Mr. Caselton, as the income of that large establishment was insufficient for its proper upkeep. What he did, however, showed him to be a capable craftsman, and he took the greatest interest in the numerous horticultural exhibitions which at that time were held at Sydenham, being ever ready to lend his valuable aid in making these events successful. His genial and pleasing manner won for him a host of friends in the horticultural world, and although in later years he had lived in retirement, the news of his death will be learned with sorrow by horticulturists in all parts of the country. The esteem in which Mr. Caselton was held was evinced in the raising for him of a sum of money to assist him during his long period of ill-health and incapacitation. He was a member of the Executive Committee of the National Chrysanthemum Society and for a long number of years Mr. Caselton served as a member of the Committee of the Royal Gardeners' Orphan Fund, and in connection with the discharge of his duties on the Management Committee of that Fund, as well as in any other movement with which he was associated, he always displayed great zeal and sound judgment, and his loss will be deeply mourned.

S. Mortimer.—It is with very great regret we record the death of Mr. S. Mortimer, of Swiss Nursery, Farnham, Surrey. Mr. Mortimer, who died on the 22nd ult., had attained a ripe old age, but the news of his death came as a surprise to his many friends, for



THE LATE MR. S. MORTIMER.

only recently he was in fairly good health, although he was missed at the R.H.S. meetings, which he had in former years attended so frequently, generally with exhibits of Cucumbers, Tomatos and other vegetables, of which he raised numerous outstanding varieties. Some fifteen or twenty years ago Mr. Mortimer showed extensively, and especially Dahlias, the chief prizes for show Dahlias being generally won by him at the exhibitions of the National Dahlia Society. This clever raiser also introduced several fine Melons and Carnations, and he had a particularly fine strain of winter-flowering Stocks. Several of his novelties received awards from the R.H.S. Fruit and Vegetable Committee, of which he was at one time a member, and those who remember his exhibits will recollect that the produce he staged was always of the highest quality, pointing to his ability as a first-class cultivator. One of his greatest successes was the raising of Tomato Winter Beauty, which was a favourite with cultivators for many years.

ANSWERS TO CORRESPONDENTS.

Cleaning Marble and Stone Statues: *U.* Caustic soda will destroy vegetable matter on stone, wood or marble. A week solution would probably suffice on smooth marble, but if a strong one is used the operation should be performed quickly and the solution washed off afterwards. Rub the statue well with a stiff hand-brush, and when the green matter is thoroughly loosened wash or sponge the statue with warm, soapy water. Stone statuary could be treated with quite a strong solution of caustic soda and well scrubbed with a hard or stiff brush after the stone has been thoroughly wetted for some time. It would be advisable to wear a pair of old leather gloves while doing this work, to save the hands, for caustic soda very quickly corrodes the skin and causes grievous sores. In some cases marble may be cleaned with strong, warm, soapy water. Much depends upon how long the marble statues have been allowed to stand without cleaning; cleaning should be done at least once a year, or twice if the statues are continually exposed. Most acids will attack marble and spoil the polish, so it would be best not to use them.

Clover in Tennis Court: *N. A. P.* Nitrogenous fertilisers will encourage the growth of grass and discourage that of Clover, but you should endeavour to remove as many of the Clover roots as possible by means of a spud.

Correction.—Messrs. H. Beckett and Barnes' address (see p. 48) should be Upton St. Leonards, Glos.

Epimedium Leaves Perforated: *J. S.* The cutting of Epimedium leaves represents the work of a leaf-cutting bee. These insects form nests in any suitable hole, and line the hole with a casing of cut leaves. The method of the bee is first to limit the length of the hole to its requirements by a plug of cut foliage. It then cuts further pieces of foliage of an oval shape, with which it forms a hollow tube lining the original tube. Finally, it cuts a circular piece of leaf, which it uses as a cap to seal the tube. Its eggs are laid inside, together with suitable food for the future larvae.

Names of Plants: *O.* Sedum acre. *W. T. W.* 1, Rosa elegantula; 2, R. spinosisima var.; 3, Corydalis lutea; 4, Sedum acre; 5, Buxus sempervirens; 6, Mimulus (Diplacus) glutinosus; 7, Helxine Solierolii; 8 and 9, Ferns too scrappy and undeveloped to identify. *G. H.* We cannot undertake to name florists' flowers.—*S. C. B.* A varietal or hybrid form of Orchid maculata. *A. W.* A Stapelia. Species not recognised; send when in flower.—*A. H. B.* Ceanothus dentatus.—*Middleton.* Crinum pedunculatum.—*L. S. A.* 1, Erysimum orientale; 2, Epilobium angustifolium.—*C. T.* Rhododendron Wilsonii.—*J. R. K.* 1, Acer pictum; 2 Quercus Turneri: 3, Syringa Emodi; 4, Quercus acuta; 5 and 8, Thuya plicata; 6, Cupressus Lawsoniana var.; 7, C. nootkatensis; 9, Cephalotaxus drupacea.

Nectarine Fruits Splitting: *Anxious.* The cause of the splitting of the Nectarine fruits may probably be found in the failure of the wood to ripen last autumn. It may possibly also be due in some measure to lack of moisture in the soil about the roots last autumn and, judging from the undeveloped kernels, we believe your soil is lacking in lime.

Peach Early Rivers with Split Stones: *J. E. R.* Peach Early Rivers is one of the worst varieties we know to crack at the stone, and although a large and good Peach, it has been discarded in many gardens, as the stones split badly, even in dry seasons. To obviate this trouble so far as possible, fertilise the flowers with pollen from other varieties of early Peaches or Nectarines.

Peach Leaves Perforated: *S. H.* The circular perforations in the Peach leaves are ample evidence of an attack of the shot-hole fungus, Cercospora circumscissa. We refer you to our answer to *W. A. C.*, on p. 14, June 7, 1923.

Phloxes Failing: *J. R. and Correspondent.* Your Phloxes appear to be suffering from an attack of eelworm. Plant fresh and perfectly healthy stock on a new piece of ground. Burn all diseased plants and dis-

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infect the soil on the old site with Naphthalene or similar disinfectant.

Phloxes and Violas Failing: *E. B.* The Phlox plants appear to be affected with eelworm, and this pest may also be responsible for the failure with Violas.

Pine Weevil: *B. S. B.* The only means of dealing with forest land where young trees are being injured by Pine Weevil is to lay trap logs at frequent intervals, which must be examined at least once a day, and the weevils collected. Sections of young stems or branches of Scots Pine, 1½ to 2 feet long, and 2 to 3 inches thick, with the bark intact, are very suitable for use as traps. The larval stage is passed in old stumps and roots, and little can be done to clear the pests from land that is filled with infested stumps. It is, however, possible to do a great deal by trapping mature insects, as stated above, for they feed on young plants, and readily take to trap logs. A bulletin on the subject may be obtained for a few pence from the Secretary, Forestry Commission, 22, Grosvenor Gardens, London, S.W.1.

Plumbago Unhealthy: *P. L. A.* The plant is infested with green fly and attacked by mildew. The aphis may be destroyed by a nicotine insecticide, but mildew is rather more difficult to deal with. You might try dusting the plant with black sulphur, which is not so unsightly to use as the yellow flowers of sulphur.

Prevention of Dry Rot of Timber: *W. P.* and *B.* The walls that are infested with dry rot fungus should be scraped, and then thoroughly washed with a 25 per cent. solution of carbolic acid or corrosive sublimate, the washing being repeated as soon as the walls are dry after the first washing. Means should also be taken for the permanent admission of air to the walls that appear to be permanently damp. If the walls are without a damp course, they should be underpinned, and a damp course added.

Strawberry Runners from Barren Plants: *F. K.* You will be running considerable risk if you propagate Strawberries from plants which have not flowered, as plants which are barren one season usually continue to remain so.

Sweet Pea Legends: *M. C.* So far as we are aware, there are no legends attaching to the Sweet Pea, as in the case of the Rose, Forget-me-Not and other popular flowers.

Sweet Peas Unhealthy: *G. P. and Son.* The unhealthy condition of your Sweet Peas is due to cold weather following high cultivation. As the weather has improved the plants will probably grow out of the trouble.

Tomatos Failing to Set: *W. G. R.* The appearance of the specimen suggests that too free use has been made of some nitrogenous fertiliser, with the consequence that the plants have been more inclined to make growth rather than fruit. At the same time the atmosphere of the house has evidently been much too moist, with the result that fertilisation has been very imperfect. Use less forcing manures and firmer soil, and provide a buoyant atmosphere.

Vine Leaves Discoloured: *D. S.* The discoloration of the foliage is no doubt due to the scorching action of the sun. There was no fungus present in the foliage.

Woodlice: *E. B.* Provided no plants are likely to be damaged thereby, you may exterminate woodlice by pouring boiling water into their haunts. A good trap for woodlice consists of two pieces of dirty board placed one on the other, the dirt providing just sufficient room to enable the woodlice to crawl in between. Such traps should be examined frequently and the pests destroyed.

Communications Received.—W. H. G. (Thanks for 2/- for R.G.O.F. Box)—U.—D. T.—G. B. B.—A. W.—(Thanks for 1/- for R.G.O.F. Box.)—A. B. H.—T. W.—A. J. D.—J. E. L.—R. P.—J H. W.—W. H. K.—T. T.—F. A. S.—J. B. D.

MARKETS.

COVENT GARDEN, Tuesday, August 7, 1923.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples—		
Tasmanian, and N.Zealand		
—Sturmer	18 0	20 0
English—		
—B. of Bath, ½ sieve	4 0	6 0
—Gladstone, ½ sieve	4 0	6 0
—Lord Suffield	3 6	5 0
—Grenadier, ½ sieve	2 0	3 0
—Early Julyam ½ sieve	1 9	2 6
Bananas singles	16 0	25 0
—doubles	20 0	25 0
Cherries—		
—August Hearts, strike	12 6	14 0
Currants—		
—English Black, per lb.	0 10	1 0
—Red, peck	3 0	6 0
Figs—		
—Special	8 0	12 0
—Best	4 0	6 0
Gooseberries—		
—Cooking ½ sieves	4 0	5 0
—Cousins Seedling	9 0	10 6
—Sulphur large per lb.	0 6	1 3
Grapes—		
—Alicante	1 3	2 6
—Belgian	1 3	1 6
—Cannon Hall	3 0	6 0
—Hamburgh	1 3	3 0
—English Muscat	2 6	6 0
Grape Fruit—		
—Jamaica	30 0	35 0
Lemons—		
—Murcia, case	16 0	22 0
—Messina, case	14 0	16 0
Melons, English and Guernsey, each	2 6	7 6
—Cantaloupe ea.	4 0	10 0
—Nectarine, doz.	6 0	18 0
Oranges—		
—South African Navels	20 0	22 0
—Seedless	20 0	22 0
Peaches —English, doz.	6 0	24 0
Plums—		
—English, Early Rivers, ½ sieve	8 0	10 0
—French, half	4 0	6 0
—Spanish,	4 0	6 0
—Spanish Greengages, ½ sieve	3 0	10 0

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Beans, outdoor—		
—Scarlets, ½ sieve	5 0	7 0
—French Beans	0 4	0 6
Beets—		
—New, doz. bun.	3 0	4 0
Cabbage, doz.	1 6	2 6
Carrots, new— doz. bunches	2 6	8 0
Cauliflowers, doz.	2 6	4 0
Cucumber, Flat	16 0	22 0
Green Artichokes, dozen	2 0	3 0
Lettuce, dozen—		
—Round	1 0	1 6
—Cos	1 0	2 0
Marrows, doz.	1 6	2 6
Mint, doz.	2 0	3 0
Mushrooms, lb.	1 6	2 6
Onions—		
—Egyptian	7 0	8 0
—Valencian, case	9 0	10 0
Peas—		
—Blue, bushel, ½ bag	4 0	6 0
Pines, case	20 0	45 0
Potatos	6 0	9 0
Radishes, doz.	1 0	1 6
Spinach, bushel	3 0	3 6
New Turnips, doz. bunches	3 0	12 0
Tomatos—		
—English		
—Pink and White	9 6	10 6
—White	7 0	8 6
—Blue	7 0	8 6
—Guernsey	8 0	9 0

Remarks.—The demand generally has been fairly good during the holiday week, the fine weather no doubt stimulating the consumption of fruit. Moderate supplies of English Apples have been marketed, and a firm inquiry rules for sizeable samples of Beauty of Bath and Gladstone, as well as for large cooking varieties. A large proportion of the Apples, however, are on the small side. A few Sturmer Pippins are still on offer, but stocks are low. English Plums are in better supply, but the low values of French and Spanish arrivals adversely affect prices. Choice fruits, such as Grapes, Peaches, Nectarines, Figs and Melons, are in moderate request, and prices are lower. A few late Cherries are still arriving and selling at comparatively high figures. Mushrooms are more plentiful, with outdoor supplies available. Except for a few good Peas, vegetables are not in very great demand. New Potatos meet a steady demand.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz.	10 0	18 0
—elegans	10 0	12 0
Aralia Sieboldii	10 0	12 0
Araucarias	30 0	48 0
Asparagus plumosus	12 0	15 0
—Sprengeri	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Cacti, per tray, 12's, 15's	5 0	7 0
Crotons, per doz.	30 0	42 0
Cyrtomium	10 0	15 0
Hydrangeas —paniculata, ea.	3 6	4 6
white & pink, 48's, doz.	15 0	24 0
Lilium, longiflorum, each	3 6	4 0
Lilium —speciosum album, each	3 6	4 0
—speciosum, rubrum, each	3 0	3 6
Marguerites, per doz.	12 0	18 0
Mignonette	10 0	15 0
Nephrolepis, in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	24 0	30 0
—60's	15 0	18 0
—Cocos	24 0	36 0
Pelargonium	18 0	24 0
Pteris, in variety	12 0	21 0
—large 60's	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's	3 6	4 0
Verbenas, Miss Wilmott, 48's, per doz.	10 0	12 0
Viscaria	12 0	15 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum, decorum, doz. bun.	12 0	15 0
—cuneatum, per doz. bun.	8 0	10 0
Asparagus, plumosus, per bun. long trails, 6's	4 0	5 0
med. sprays	2 6	3 6
short „	1 0	1 6
—Sprengeri, per bun. long sprays	2 6	3 0
med. „	1 3	1 6
short „	0 9	1 0
Carnations per doz. blooms	2 6	4 0
Croton leaves, var., per bun.	2 6	4 0
Gardenias, 12's, per box	4 0	5 0
18's, per box	5 0	6 0
Gladiolus, The Bride, per doz. bun.	12 0	15 0
Fern, French per doz. bun.	1 0	1 3
Forget-me-not per doz. bun.	4 0	6 0
Heather, white per doz. bun.	4 0	10 0
Lavender per doz. bun.	9 0	18 0
Lilium speciosum long per doz.	6 0	7 0
short „ „	7 0	— —
Lily of the Valley, per doz. bun.	18 0	24 0
Orchids, per doz. —Cattleyas	18 0	30 0
—Cypripediums		
Pelargonium, per doz. bunch, double scarlet	—	— 6 0
Roses, per doz. blooms—		
—Melody	2 6	3 0
—Ophelia	3 6	7 6
—Richmond	2 0	4 0
Smilax, per doz. trails	6 0	7 0
Stephanotis, per 72 pips	3 0	4 0
Stock, per doz. bun. mauve	9 0	9 0
—white per doz. bun	8 0	12 0
Sweet Peas, per doz. bun.	4 0	8 0
Sweet Sultan, white, per doz. bun.	4 0	8 0
—mauve, per doz. bun.	4 0	8 0
—yellow, per doz. bun.	5 0	6 0
Violas, per doz bun.	1 6	2 0

Remarks.—Business was more brisk in this department during the latter part of last week. At the time of closing on Saturday morning last only very little of the commoner flowers were unsold, all the best subjects being cleared very early. With the exception of Lilium longiflorum there appeared to be no shortage of any particular flower, and better quality blooms of this Lily advanced in price, reaching towards the week-end 8s. and 9s. per bunch. There is a lower demand for this Lily this morning, and prices are again on the down grade. Large-flowered Gladioli from home growers begin to show signs of finishing. Small consignments of blooms are arriving from Holland, including a few of The Bride variety. Chrysanthemums are beginning to make their appearance, there being small consignments of disbudded blooms of Sanctity, which are fairly good. A few spray bunches of bronze varieties are also offered, but at present these are very medium in quality. There are no other new flowers to record, and steady conditions are likely to prevail for the next few days. The general supplies of Carnations are somewhat affected by the hot weather. Roses are in a trifle better condition, and supplies have not been so heavy during the past week.

GARDENING APPOINTMENTS.

Mr. Albert. T. Smith, late of Messrs. Clibrans, Altrincham, and Messrs. J. Piper & Sons, London and Langley, Landscape Departments, as Gardener to J. Gemmell, Esq., Harescombe, Northwood, Middlesex.

Mr. N. A. Primrose, for the past five years Gardener to the late Mr. W. E. Green and Captain St. John Headley at Devonshire House, Strawberry Vale, Twickenham, as Gardener to Spencer Brett, Esq., The Hollies, Boxmoor, Hertfordshire.

Mr. E. G. Langford, for the past three years Gardener to Mrs. Mabee Wood, Walmer Place, Deal, as Gardener to R. P. Doxford, Esq., Silverlands, Boarshead, Sussex.

Mr W. C. Foote, for the past four-and-a-half years Gardener to E. A. Chettle, Esq., Brockenber Lodge, Sunningdale, Berkshire, as Gardener to the same gentleman at Alderbrook Park, Cranleigh, Surrey.

Mr. J. Shelton, for nearly twenty years Gardener at the Wildernesse Gardens, Sevenoaks, Kent, has recently taken charge of the gardens at Wakefield Lodge, Stony Stratford, Buckinghamshire, under the same employer, Lord Hillingdon. (Thanks for 2s. 6d. for R.G.O.F. Box.—Eds).

Mr. H. W. Stenning, previously Gardener at Gunton Park, Kew, and Compton Place, as Gardener to the Rt. Hon. Viscount Ebrington, at Ebrington Hall, Campden, Gloucestershire.

Mr. S. A. Cheffins, for over nine years Gardener to Col Stapylton, Myton Hall, Helperby, Yorkshire, and previously ten years with the late Rt. Hon. G. Noel, Catmose, Oakham, Rutland, as Gardener to B. Dawson, Esq., Nun Appleton Hall, Bolton Percy, Yorkshire. (Thanks for 2s. 6d. for R.G.O.F. Box.—Eds.)

SCHEDULES RECEIVED.

British Carnation Society.—Twenty-eighth exhibition, to be held in the Winter Gardens, Harrogate, on August 22, 23 and 24.—Secretary, Mr. P. F. Bunyard, 57, Kidderminster Road, Croydon, S.E.

Leagrave, Limbury and District Horticultural Society.—Twenty-fourth exhibition, to be held at The Park, Leagrave, on August 6.—Secretary, Mr. F. Hudson, High Street, Leagrave.

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THE

Gardeners' Chronicle

No. 1912.—SATURDAY, AUGUST 18, 1923.

CONTENTS.

Alpine garden, the—
Euphorbia polychrome 99
Avondale Forestry Station, the 104
Books, notices of—
An Elementary Text-book of Australian Forest Botany ... 99
Canada To-day ... 97
The Physiology of the Ascent of Sap 99
Bulb garden, the—
Fragrant Tulips ... 99
Carnations, British-grown, at a South African show ... 98
Currants, Black ... 106
Dahlias, new 98
Flower shows... ... 97
Fent Rose Show ... 98
Fruit and vegetable crops in the Netherlands 97
Fruit crops, remarks on the condition of the 106
Fruit culture, economic 106
"Gardeners' Chronicle" seventy-five years ago 98
Government subsidy for commercial lorries 97
Hardy flower border—
Erigerons 99
Violas 99
Imperial Fruit Show, 1923 97
Irving, Mr. W. G. ... 98
Kingcups 103
Orchid notes and gleanings—
Laelio-Cattleya Nanon 103
Lindley Medal for Mr. Farnes ... 103
Odontoglossum Purple Emperor Pitt's var. 103
Obituary—
Braun, Siegfried ... 109
Findlay-Hamilton, Mrs. 109
Wyllie, Mr. George... 109
Plants new or noteworthy—
Rhododendron Fraseri 103
Roses and Carnations at Harrogate ... 97
Saffrons, the Meadow 105
Salvador, notes on the cultivated plants of the republic of ... 101
Societies—
Shropshire Horticultural 107
Trees and shrubs—
Lonicera Delavayi... 104
U.S.A. and the plant Quarantine Order 97
Vegetable garden—
Cauliflowers ... 105
Leeks 105
Ward's, Mr. Kingdon, seventh expedition in Asia ... 102
Week's work, the ... 100
Worms, habits of Indian 104

ILLUSTRATIONS.

Amate tree, the, in a San Salvador street 101
Campanula Hallii 99
Colchicum speciosum, the white variety of 105
Gompa La, the 102
Irving, Mr. W. G., portrait of 98
Palms, avenue of young Royal, in a San Salvador Park 100
Rhododendron Fraseri 103

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 61.1°.

Actual Temperature:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, August 15, 10 a.m.: Bar., 30.2; temp., 59°. Weather—Raining.

Flower Shows. It is a matter of regret that the flower show, once the most popular function of the village year, is a fête whose observance for the time being is becoming more honoured in the breach than the observance. Whilst the large shows of Chelsea and York and Shrewsbury flourish, the local flower show is becoming rare. For the intermission it is not easy to account. There never was a time when interest in and knowledge of horticulture was more widely diffused than it is at present. Young people—albeit not the very young—are apt, no doubt, to be impatient when flowers and gardens are made the subject of conversation and to be still more so when visitors prefer to inspect the gardens rather than the tennis courts. But it is probable that this was always so, for youth demands very active pleasures and those of contemplation are premature. Among the old, however, the regret at the omission of the flower show is very real. They have a soft place in their hearts for flowers and the connoisseur's eye for successful cultivation, and they miss the annual review of achievement which used to serve to encourage them in their own efforts and to console them for their failures. Among the many means of improving horticulture, it is probable that the flower show stands first. It provides the young gardener with a standard of comparison and teaches all of us who pride ourselves on our skill as cultivators a measure of modesty which is most becoming. When the show is held in the big place of the countryside, the visitors have, or should have, many object lessons in the successful and thrifty management of the garden. They may see, for instance, how to train fruit trees—a form of art which, alas, is becoming rare, and having seen good examples they may discover that even the small garden may supply—if good varieties are grown well—plenty of fruit to the household. In the ideal flower show there should, of course, be competitions. If held at the right time of the year nothing would be more instructive than a budding competition. Stocks of fruit trees are now fairly cheap and plentiful and from our own observation in small gardens, budding is an art which, like scything and pruning, tends to disappear. Other countries are becoming very much alive to the value of disseminating horticultural knowledge in rural districts. The horticultural societies of Ontario have a membership of over 40,000 and are active in encouraging the formation of local societies. Similar work has, of course, been done in this country by the Royal Horticultural Society, to which not a few local horticultural societies are affiliated; but we think that in view of the importance of the flower show as a means of fostering horticulture the R.H.S. might devote special attention to means whereby this typically English institution might be restored to its once flourishing condition. In many districts at all events it only requires a little initiative to revive the annual show. There would doubtless have to be some additional attractions; but why not? The entertainment tax is a serious hindrance to the revival. People recognise the injustice of a tax on their disinterested enterprise. If there is no band and no side show the tax is remitted; but if, as we hold, it is desirable to re-establish flower shows, encouragement and not discouragement must be given. It should be easy to devise a formula whereby *bona fide* flower shows, even though they need side-shows to attract the countryside, may be absolved from paying the tax.

Imperial Fruit Show, 1923.—We understand that the prospects for the Imperial Fruit Show at Manchester this year point to the exhibition being the most successful of the series. Firms connected with every branch of fruit growing and distribution will be represented by exhibits, and the collective displays should prove very valuable object lessons in methods of production and distribution. The Ministry of Agriculture is arranging to give a special demonstration in Apple grading and packing in boxes, using the Cutler machine. In connection with this demonstration a packing competition will be held to test the skill of expert packers from all parts of the country. The total value of the prizes and guarantee fund is approximately £4,550, and the Committee hopes to raise the amount to £5,000 within the next few weeks. Amongst the recent donations to the prize fund are three silver challenge cups of the value of fifteen guineas each from Messrs. J. and H. Goodwin, Ltd.; a self-recording barometer from Messrs. Muirhead and Maxwell; special prizes to the value of £100 from the Associated Newspapers, Ltd.; and cash prizes of £14, £25 and £10 from Messrs. W. J. Craven and Co., Messrs. Simons and Co., Glasgow, and Messrs. Glover, Hill and Co. respectively.

Roses and Carnations at Harrogate.—We learn from Mr. P. F Bunyard, Hon. Secretary of the British Carnation Society, that the space available for the combined exhibition of the North of England and British Carnation Societies at Harrogate on August 22, 23 and 24, is fully booked up, and the Winter Gardens and adjacent ground will be filled completely with exhibits. Conferences will be held daily. Mr. E. F. Hawes will speak on "The Decorative Value of the Carnation in the Garden. the Greenhouse, and the Home." Mr. C. H. Taudevin will open a discussion on "The Cultivation of the Carnation," and Rev. J. H. Pemberton will give an address on "New Roses."

Fruit and Vegetable Crops in the Netherlands.—Returns furnished to the Ministry of Agriculture from official Dutch sources show that many of the fruit and vegetable crops in Holland are much below the average. As with us, Pears are a very poor crop, but Apples are fairly good, and Plums even better. Taking sixty-seven as an average crop in each instance, the yields of Apples, 49, Pears, 30, and Plums, 52, are all below the normal. Grapes under glass are slightly above the average. Autumn-sown and transplanted Onions, 62, spring-sown Onions, 56, Tomatos, 52, and main crop Potatos, 55, are all slightly below normal yields. The amount of land devoted to main crop Potatos in Holland is estimated at 329,653 acres as against 412,172 acres last year.

Government Subsidy for Commercial Lorries.—The War Office has offered a subsidy of £40 a year to all purchasers of approved vehicles or chassis of British manufacture who enrol under the scheme which entitles the War Department to purchase such vehicles in a national emergency at a price fixed by agreement at the date of enrolment, which will extend up to two years, and in exceptional cases to three years. The lorries must be of 30 cwt. and fitted with giant pneumatic tyres. Full particulars may be obtained of the Secretary of the War Office, Imperial House, Tothill Street, London, S.W.1.

Canada of To-day.—In bygone years, numbers of Irish labourers used to come to England to assist in harvest operations; to-day British labour goes to Canada to assist in the ingathering of an abundant Wheat crop. This is a reminder of the vast wealth, patent and potential, which the great Dominion holds and which is being steadily developed. In *Canada To-day*,* prospective emigrants will find a standard reference book of general information about Canada, and a perusal of this book cannot fail to prove interesting to all concerned with agriculture, forestry, and allied businesses. To educationalists and to sportsmen this useful publication makes a strong appeal, while to the student of finance the information on taxation, banking, real estate, and the export and import trade of Canada is of special importance. All the important phases of Canadian life and work are dealt with in an interesting fashion, and over two hundred illustrations serve to elucidate the text and excite the envy of those who love grand scenery and the wide, open spaces of the world.

U.S.A. and the Plant Quarantine Order.—The way in which the American Quarantine restrictions adversely affect European horticultural traders has been set forth in these columns on various occasions. Hitherto the restricting order has been imposed ostensibly for the purpose of excluding from the United States such pests as might be imported with the plants, but many European traders have considered the action of the American Federal Horticultural Board as prohibitive rather than protective, and they will find further ground for that belief in a statement made at the annual convention of the American Association of Nurserymen, on behalf of Dr. C. L. Marlatt, Chairman of the Board. It appears that Dr. Marlatt was not present at the convention to give his anticipated address on the "Solution of Nurserymen's Problems," but Mr. Chase read Dr. Marlatt's report regarding Rose stocks, and we quote from the *Florists' Exchange*, of July 7: "You can now," said Mr. Chase, "import the Manetti and other Rose stocks, but the Federal Horticultural Board has in mind placing a quarantine on these and everything they consider that this country can produce. The question is, whether

* *Canada To-day.* Published annually by the Canada Newspaper Co., Ltd., 110, St Martin's Lane, W.C.2.

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or not in the opinion of nurserymen the time has arrived to consider putting Rose stocks on the excluded list. The F.H.B. has been advised by Rose growers and others, practically from all sections of the country, that it is possible for home production to meet all the Rose stock needs, but it would like to have the A.A.N. Committee make inquiry through the nursery and florist channels and advise of the conclusion reached. Mr. Chase thought the larger Rose growers would be able to make some statement as to whether or not we could produce in America all the Roses needed, and Mr. Perkins said he was on the Advisory Committee, and at the time this letter came in from Dr. Marlatt, it made up a list which was representative of the Rose growing industry throughout the country. Out of the forty-eight names in the list, twenty-five advised shutting out further importations. The difficulty experienced by the Advisory Committee in handling a proposition of this kind is that which the Legislative Committee has always been up against, namely, divided opinion among the membership as to what is best. He asked that some definite decision be reached at this meeting, as Dr. Marlatt would like the views of the association. It will necessarily take some time for the country to get in shape, and for nurserymen to supply themselves with necessary requirements to start production of this kind, but California and practically all of the Pacific Coast States have been successful in growing Manetti stocks, and that seems to be the only one stock about which there is any contention. Some florists have stated that the California, Washington and Oregon Manetti is not suitable for their purposes, that they have not been able to get them grown in sizes suitable for their purposes; personally he thinks that with a little experience and time this stock could be produced just as good as, if not better than, anything that comes in from the other side. Dr. Marlatt had discussed this and also other matters pertaining to further exclusions, and said the Board's policy was going to be to give the trade two or three years' notice before anything was done. He believes that if the trade were given that much time in which to get ready to propagate Rose stocks, there would be a good supply, ample to take care of the demand at the expiration of the time of importation."

Trial of Pinks and Allied Plants at Wisley.—The Royal Horticultural Society will carry out a trial of varieties of Pinks and allied plants for cultivation outdoors in their gardens at Wisley during the coming year. Three plants of each should be sent in time to reach the Director, R.H.S. Gardens, Wisley, Ripley, Surrey, on or before September 30.

Forst Rose Show.—The Rose show held at Forst, Lausitz (Germany), last month (see *Gard. Chron.*, June 23, p. 354) was only partially successful, in that the enormous rates charged by the railways for freight prevented many growers who would otherwise have competed from doing so. Apart, therefore, from the Roses already permanently on view, to the number of some 30,000, in the Wehrinsel Park, where the show was held, there were very few exhibits. Nothing, however, could have exceeded the enthusiasm shown by the population of Forst and the neighbouring towns, who came in their thousands to see and admire. The organisation was excellent, the weather perfect, everyone in high good humour—and as those exhibitors who did make a sacrifice to bring a display, showed Roses of the highest quality, perhaps the absence of quantity was not of very great importance.

Condition of the Crops.—The Monthly Report published by the Ministry of Agriculture shows that the total area under crops and grass is 25,941,000 acres, comprising 11,182,000 acres of arable land and 14,759,000 acres of permanent grass, showing a reduction of 85,000 acres on last year's figures. The total area of Potatos, 467,000 acres, is 94,000 acres less than in 1922. There has been a reduction of Potato planting in all parts of the country, consequent on the poor financial results of last year's prolific crop, but this year's area is still larger than in any year before the war. The area returned as under Turnips and Swedes is 861,000 acres, this being 40,000 acres more than in 1922. The area of Mangolds, however, 403,000 acres, shows a decline of 20,000 acres, but with the exception of 1922 is the largest since 1915. The area of Beans at 234,000 acres and of Peas at 141,000 acres show substantial reductions of 50,000 acres and 32,000 acres respectively on last year's figures. The area of Beans is the smallest during the last twenty years, excepting that of 1917, while apart from the war period the area of Peas is also the lowest on record.

Mr. W. G. Irving.—The position of superintendent of Covent Garden Market is a very important one in the horticultural world, and one that has been occupied in past years by men who became widely known for their organising ability and wide knowledge of the vast trade in fruits, flowers and vegetables carried on each day in this great London market. Mr. Assbee served as superintendent for about a score of years, and was succeeded by Mr. Frost, who retired recently after occupying the position

MR. WILLIAM G. IRVING.

for fifteen years, and he is now succeeded by Mr. William G. Irving. Mr. Irving is a Lancashire man, and after his school days at Aintree, he entered the mercantile marine, in which he served for three years. Later he acquired a knowledge of building and estate management and in July, 1918, he came from Liverpool to London to manage the Covent Garden estate, then just taken over from the Duke of Bedford. He was at the same time appointed Assistant Secretary of the newly formed Covent Garden Estate Company, and this position he will still retain. During the past five years Mr. Irving has gained intimate and personal knowledge of market methods, market business, and market men, and this knowledge places him in an especially favourable position to carry out his new duties as Market Superintendent. He has abundant energy, and is easily approachable on all matters concerning the market, therefore there is every promise that he will quickly gain the respect and regard of all who do business in Covent Garden, and that complete success will attend him in his new office.

New Dahlias.—The Joint Committee composed of selected members of the Royal Horticultural Society's Floral Committee and the National Dahlia Society, will hold its first meeting this season at the Royal Horticultural Hall, at 11 a.m., on Tuesday, August 21, for the purpose of considering the merits of any new Dahlias submitted, and choosing those worthy of trial in the R.H.S. Gardens at Wisley. Mr. H. B. May will, as usual, be Chairman of the Committee, and the R.H.S. nominees are Mr. R. Cory, Mr. D. B. Crane, Mr. H. J. Jones, Mr. J. B. Riding, and Mr. A. Turner, while the National Dahlia Society has nominated Mr. J. Cheal, Mr. J. Emberson, Mr. A. E. Vasey, Mr. J. T. West and Mr. A. C. Bartlett.

British-Grown Carnations at a South African Flower Show.—Amongst the exhibits of the Durban and Coast Horticultural Society's show held in July last were some excellent Carnation blooms exhibited by Messrs. Allwood Bros., of Wivelsfield Nurseries, Haywards Heath, and Mr. C. Engelmann, Saffron Walden. Messrs. Allwood Bros. exhibited fifty and Mr. Engelmann forty varieties. The flowers were frozen in blocks of ice and transported in a cold chamber on one of the boats of the Union Castle Company. According to the *Natal Mercury*, the flowers arrived in excellent condition, and while the Natal blooms were said to be equal and even better in point of size, they could not compare with the British grown flowers in colour. Natal is apparently suited to the cultivation of Carnations, for no fewer than 2,600 blooms were staged.

Legacy to a Gardener.—The late Mr. Robert Whitworth, of Halifax, Yorkshire, who died on April 27 last, bequeathed the sum of £100 to his gardener, Mr. James Clifton, if still in his service.

Appointments for the Ensuing Week.—Tuesday, August 21: Royal Horticultural Society's Committees meet. Wednesday, August 22: Christleton Fruit and Flower Society's show; British Carnation Society's show in conjunction with the North of England Horticultural Society's show at Harrogate (three days); Biggar flower show. Thursday, August 23: Royal Horticultural Society of Aberdeen show (three days); Manchester and North of England Orchid Society's meeting; Dunoon flower show; Peebles flower show; Kilcreggan, Cove, and Roseneath flower show. Friday, August 24: Dunfermline Horticultural Society's show (two days); Blairgowrie flower show (two days); Forfar flower show (two days); Inverness flower show. Saturday, August 25: Hawick Horticultural Society's show; Craigbank flower show; Langholm Horticultural Society's show; Kirkcudbright flower show; Bo'ness and Carriden flower show; Bridge-of-Weir flower show; Dumbarton flower show; Inverkip and Wemyss Bay flower show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Dahlias.* We are now rapidly advancing in the Dahlia season, and the amateurs' attention must be specially directed to this splendid autumnal flower. As seedlings advance for blooming, it will be advisable to disbud, so as to get the blossoms as fine as possible for exhibition, recollecting that the weakest plants usually produce the best flowers. Many contrivances are in use for protection against sun, wind, rain and vermin, which all at certain periods act detrimentally. After all the endeavours to entrap earwigs in the immediate locality of the plants, still, as these pestiferous insects "fly," their visits can never be effectually guarded against, unless the blooms are bagged. We use those made of very fine point net lace; this allows the flower all the air possible, and at the same time effectually excludes the insect before alluded to. Haythorn's hexagon netting will be found a good thing for the purpose, though perhaps it should be of his smallest mesh. It must cover the flower, and be fastened round the stalk, the bloom must then be protected by a cap with a spring at the back, which adjusts it at any given height, as figured in the *Chronicle* of 1847. The continued rain has precluded the necessity of watering, but it will be advisable to mulch the surface of the soil with very rotten manure, and to pay strict attention to the lateral shoots of the plants being properly secured. *Gard. Chron.*, August 12, 1848.

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NOTICES OF BOOKS.

Australian Forest Botany.

It is strange that no suitable text-book on forest botany for the use of students and foresters in this country has yet been published. The present work* by Mr. C. T. White, Government botanist of Queensland, admirably supplies the want for Australia; and a similar book adapted to British conditions is urgently needed.

Vol. I. of Mr. White's text-book, which is now before me, deals with morphology, anatomy, and physiology; while a second volume is promised, in which the systematic botany of Australian woody plants and the ecology of the forests of the island continent will be fully treated. In this volume, 105 illustrations are given, the examples being chosen from native trees and shrubs. The technical terms used by botanists are clearly explained.

The part on morphology comprises seven chapters, in which root, stem, leaf, inflorescence, flower, fruit, accessory organs (such as indumentum, glands, foveolae, domatia, prickles, thorns, etc.), and difference in habit are described. Interesting information is incidentally given; thus, in the chapter on seed, the various kinds of germination are discriminated, the examples selected being Palm, Araucaria Cunninghamii and A. Bidwillii (illustrating two different modes in the same genus), Eucalyptus and Peach. It is noted concerning the Eucalypti, which produce seeds abundantly, that two distinct kinds are invariably found in the same capsule, some smaller, brighter, and usually more numerous than the others. These are abortive or imperfect, while the other sort, the heavier and darker seeds, are fertile; but no explanation of this phenomenon is offered. The remarkable stages in the development of Leopard Wood, Flindersia maculosa, are depicted in three illustrations. This tree commences as a shrubby mass of tangled, thorny branches, but, when 4 or 5 feet high, a shoot is produced, which grows up into a small tree, with a smooth stem, all the lower spiny branches having been gradually shed, the crown above bearing only unarmed, leafy branches.

The part on anatomy follows customary lines; but special attention is paid to the structure of the stem and leaf, annual rings, medullary rays, heart-wood, knots, formation of bark, and healing of wounds. The physiology part is an elementary account of the nutritive and reproductive functions of trees. A full index concludes this useful text-book. *A. Henry.*

The Physiology of the Ascent of Sap.

One of the many puzzles most of us must be content to leave alone is the method of the ascent of sap in tall trees—to say nothing of the smaller plants. Theories innumerable have been put forward from time to time, but none of them satisfy everyone. The latest book on the subject is by Sir Jagadis Bose,† who attacks the subject on the lines he has specially made his own. The book is illustrated with a wealth of detailed diagrams, and will afford most interesting reading to all who *think* as they work among plants. Some of the author's conclusions are:—(1) That the xylem (wood-vessel system) is not essential for conduction; (2) that neither transpiration nor root-pressure is essential; and (3) that there are channels other than the xylem for the ascent of sap. Experiments with poisons and anaesthetics prove to the author that "it is the pulsatory activity of living cells which maintains the ascent of sap in the plant." Later on the conclusion is reached that "the pulsatory activity of the cortex propels the sap." It is likely that the book will be criticised as well as appreciated, but the latter is the more graceful act towards so painstaking and interesting a work. *W. C. S.*

* *An Elementary Text-book of Australian Forest Botany.* By C. T. White. Vol. I, pp. 223 (1922). Sydney: John Spence.

† *The Physiology of the Ascent of Sap,* by Sir Jagadis Bose, D.Sc., F.R.S., etc. Pp. 277 + 95 illustrations. Longmans, Green. 16s.

HARDY FLOWER BORDER.

VIOLAS.

When liberally treated, Violas occupy a foremost place among bedding plants. Being of easy culture and hardy, they need less attention than many other subjects. To increase the stock of plants, instead of taking off rootless pieces and striking them in frames, I much prefer to take cuttings later on, when they have quite a ring of tiny roots at the base, and plant them either in frames or on a well-prepared border surfaced with sand. Kept well watered in dry weather, such portions quickly form plenty of young roots and grow into useful plants for putting out in April.

Violas require good soil, containing a fair proportion of thoroughly decayed manure; they also need ample moisture at the roots during warm, dry weather. Those who have not tried the method of allowing the plants to remain and flower for a second year should do so. I have a variety named Sweetness, brought here from Scotland, that makes a splendid show in the second year, and is far more beautiful than in the first season. To encourage the production of plenty of young shoots for propagation, some of the old plants should be cut over and top-dressed with light soil, into which the young roots at the base will quickly penetrate. *H. Markham.*

ERIGERONS.

The taller Erigerons, including the forms of E. speciosum, are splendid plants for the hardy herbaceous border, as they continue in bloom through the whole of the summer and often into November. One of the best of the named varieties is Quakeress; it is most effective for planting in beds or borders and good for supplying cut blooms. The plant has a vigorous constitution and a good habit, whilst the delicate, pale, lavender-blue flowers are produced with freedom from July to September.

Erigeron Violet Bedder has a very dense, bushy habit and flowers resembling those of the Amellus type of Aster; the blooms are coloured rich violet-blue and are of a very large size. This variety also is splendid for grouping in beds or for a position in the herbaceous border. Erigeron Amos Perry is a variety of somewhat prostrate habit, but great freedom of flowering, the flowers, which are of large size, being of a soft blue colour and produced in great abundance all through the summer until destroyed by frost. The variety B. Ladhams produces masses of orange-pink flowers during July and August. This also is a very showy plant and grows about two feet tall. E. intermedium is another excellent plant for the flower garden; it forms dense tufts of foliage from which arise numerous branching heads of soft lavender-blue flowers on stems some two and a half feet tall. This plant is in bloom from July to October.

The taller Erigerons provide splendid material for use as cut blooms in indoor decorations. *L.*

THE BULB GARDEN.

FRAGRANT TULIPS.

As the season for ordering bulbs is at hand, lovers of sweetly scented flowers should not overlook the Tulips. There may be several other varieties with which I am not acquainted, but the following three are very good, for, in addition to their delicious perfume they are excellent for bedding and other purposes.

La Merveille is a characteristic Tulip and very sweet; the flowers are of terra-cotta colour and produce a pleasing effect in groups and also when lightly arranged in vases. Gesneriana lutea grows rather taller than La Merveille, and its flowers are bright yellow, sweetly perfumed and most useful for cutting. Ellen Willmott, soft, creamy yellow, is also a very useful Tulip, apart from its sweetness.

For room decoration the flowers are best cut before they are fully open; in fact, I usually cut them when the flowers are just at the point of opening. There are numerous Tulips with charming colours, but few possess fragrance. *H. Markham.*

FIG. 34.—CAMPANULA HALLII: R.H.S AWARD OF MERIT, AUGUST 8. SHOWN BY MR. A. J. HALL (SEE P. 93).

THE ALPINE GARDEN.

EUPHORBIA POLYCHROME.

The season of this Euphorbia is over, yet it is worth while to mention it for the sake of those who seek after distinct hardy flowers to bloom in May and June. I saw it in perfection in one of the best private collections of hardy plants in the United Kingdom. It was unusually good there, and formed fine bushes about a foot high, freely covered with good yellow blooms of the characteristic form of the Euphorbias.

E. polychrome is hardy, and easily cultivated in ordinary soil in the border or rock garden. *S. A.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Cattleyas, and Allied Plants.—The continued bright summer weather has suited this family of Orchids. Plants that are growing freely or developing their new pseudo-bulbs should be watered freely, provided the compost is in a sweet and healthy condition. As the growths mature on those varieties that take their rest between the time of making pseudo-bulbs and flowering, gradually reduce the water supply, taking care that they have sufficient to thoroughly develop their new pseudo-bulbs. All the members of this family that have recently flowered and are in need of new rooting material should be repotted whenever there are signs of fresh root action. Each species, and its hybrids for the most part, has a proper season for this operation, and at the present time Cattleya Warscewiczii (gigas) is perhaps the best illustration; having recently gone out of flower, it will be observed that new roots are pushing in quantity from the base of the newly-made pseudo-bulbs, and any plants that are in need of repotting should be attended to before these new roots attain any considerable length. These remarks also apply to plants which have completed their growth without producing flowers. At one time a difficulty was experienced in flowering this plant satisfactorily, which was, to my mind, attributable in the first place to repotting the plants in the spring, and the drastic withholding of water during the autumn and winter. The treatment now followed is more rational, and the plants produce flowers freely and of a much finer quality. The whole of the plants of this species will be better for being placed in a slightly cooler and drier position than they have occupied in the warm Cattleya house, exposing them to more air and sunlight, and they should only receive water when they become dry.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Bulbs for Naturalising.—Foremost place for this purpose must be given to the members of the Daffodil family, and their planting may be done successfully until mid-October—but the earlier these bulbs are planted the greater the chance of success. To obviate formality of appearance in grouping, merely throw the bulbs about the space to be occupied by them, planting them where they fall. Should the ground be of a sloping nature some intentional placing of bulbs will be necessary, otherwise they may roll too closely together, even when scattered about in a free-and-easy manner. Observe the rule to plant much deeper in light ground than in heavy soil—a rough guide being 3 inches deep in the latter kind of ground, and 5 inches or 6 inches in the lighter land. Other kinds of bulbs to be recommended for planting under trees and among shrubberies are:—Winter Aconite, Bluebell, Crocus, Snowdrop, Ornithogalum (Star of Bethlehem), Leucojum, Snowflake, Scilla and Trillium.

Lilium candidum.—Where this Lily is not doing well, the clumps may be taken up and replanted directly the flower-stems have died down. Do not plant the bulbs deeply, especially if the soil is on the heavy side, and bed each bulb in sand unless the natural texture is light and porous. Poor land should be first enriched with old manure, which should not be allowed to come in immediate contact with the bulbs. Fresh plantings of new bulbs may be made now. Where this Lily flowers satisfactorily it is wise not to disturb the bulbs.

Abelia rupestris.—The pendulous, blush-coloured blossoms of this choice shrubby plant are now expanded, and will remain pretty awhile. Excepting in the warmest localities this shrub needs the protection of a wall, light soil to grow in, and in severe winters a slight top protection. Another way to manage it in cold districts is to grow the plant in large pots through the dangerous period in a cold house, and then plunge the pot in a border out-of-doors for the rest of the year. The plant does not need much pruning; what is necessary should be done after flowering is over. Plants may be propagated from cuttings inserted now.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Apples and Pears.—With good cultivation extra fine fruits are produced from pot trees, but the latter require more attention than those planted out. There is, of course, the advantage of being able to move them, if required, to any suitable position, where they will receive plenty of light and air, without which the fruits will fail to finish with high colour and good flavour. Some early Apples require gathering a few days before use, others may be eaten direct from the tree; Lady Sudeley, a fine early variety, belongs to the latter class. Most of the early Pears should be gathered before they become quite ripe, or they will be mealy or poor in flavour. Many of the French varieties are large in size and good in colour when grown under glass, and to extend the season some trees may be stood outdoors in a sheltered position to finish ripening. It is advisable to cover these with small-meshed netting to ward off birds; Tits are very troublesome, and it requires a small-meshed net to keep them out. Any necessary stopping and pinching should be attended to. As the trees are relieved of the strain of ripening their fruits they will only require sufficient feeding to assist in plumping up their buds. It must be remembered that the soil in pots containing a large number of roots soon dries out, and frequent inspection of pot trees for watering is necessary.

Wasps.—These are becoming troublesome, and unless means are taken to protect choice fruits much mischief will result from their depredations. By covering the ventilators with wasp-proof, hexagon netting they may be effectually excluded from vineries, etc. The serious objection to this method is that during a spell of hot weather the current of air is considerably curtailed, and consequently temperatures rise to a higher point than is good for the welfare of the vines, etc. Many growers "bag" their choice fruits. Various methods are used for trapping and destroying wasps, but the most effectual method is to destroy the nest, which may readily be done by using cyanide of potassium. By soaking a small piece of cotton wool in liquid cyanide of potassium, and inserting it in the entrance of the nest the wasps will be killed, and in the course of a few hours the nest may be dug out and destroyed.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Large Onions.—These will require a good deal of attention this month if fine bulbs are desired. Examine the bulbs carefully, remove all loose skin, and support any plant inclined to fall over. This will not take long, it greatly adds to the appearance of the bed, and facilitates hoeing and watering. Dust the bed with old soot during showery weather. Thorough soakings of water will be necessary if dry weather continues; work the hoe freely between the rows to aerate the soil, and prevent it cracking.

Endive.—Make a liberal sowing of seeds of this useful winter salad during the early part of the month, preferably on a south border. Water the drills before sowing, and afterwards rake the surface down to a fine tilth. Thin the seedlings to 1 foot apart as soon as they are large enough to handle, and hoe frequently between the rows.

Lettuces.—Ample supplies of water should be given to Lettuces, and young plants from recent sowings should be thinned as soon as large enough to handle, afterwards drawing a little soil up to the stems. A good breadth may now be sown on ground recently occupied by early Potatos; the plants will prove very useful during the autumn.

FIG. 35.—AVENUE OF YOUNG ROYAL PALMS (OREODOXA (ROYSTONEA) REGIA) IN A SAN SALVADOR PARK (SEE P. 101).

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Aristea corymbosa (syn. Kitsenia corymbosa).—This beautiful blue-flowered plant is rather unique, as it is really a hard-wooded member of the Irideae. It has always—and with good reason—been regarded as a difficult plant to propagate. During August is a good time to insert cuttings, the best material for the purpose being obtained from the base of the plant, where the short shoots, with their fan-like arrangement of leaves, are usually thickly clustered. They should be carefully detached by means of a sharp knife, retaining a small portion of the woody base. The cuttings should be dibbled in, not too deeply, into pots of sandy peat, standing the pots under bell glasses in a cool greenhouse. If the cuttings are carefully prepared and looked after, a proportion of them should be rooted by the following spring. When rooted they should be transferred singly to small pots filled with fine, sandy peat. As the plants become larger and are potted on the compost should be used in a rougher condition. Well-drained pots, and care in watering, are necessary at all times to grow this plant successfully, which will succeed quite well in an ordinary greenhouse.

Richardia africana.—Plants of the Arum Lily that have been rested in pots should now be shaken out and repotted, using a very rich compost, mixed with well decayed cow-manure, as

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the plants are gross feeders. Where required for furnishing the benches, they are best potted singly into 6-inch or 7-inch pots. Where large specimens are required, three or four strong plants should be placed in 10-inch or 12-inch pots. After potting them the plants may be placed in cold frames, watering them carefully until they have made some top growth, and plenty of new roots. When in full growth they will take almost unlimited supplies of water and need liberal feeding. Plants that have been planted out for the summer should be lifted—during the beginning of September—and placed in suitable-sized pots.

Pelargoniums.—Those of the show and regal varieties that have been stood out-of-doors should now be cut back, using the shoots as cuttings if it is desired to increase the stock. The required number of old plants should be stood in cold frames, and when they have started into growth turned out, and sufficient of the old soil shaken away to allow of them being repotted into the same sized pots. During the winter they should be grown in a light position close to the roof-glass in any airy greenhouse.

HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Gooseberry Mildew.—Of the two forms of Gooseberry mildew prevalent in this country, the one known as American Gooseberry mildew is the more difficult to deal with. All shoots affected by it should be tipped and burnt, and the bushes sprayed with sulphide of potassium; a strength of 1 oz. of the sulphide to 3 gallons of water is usually recommended, but this may safely be increased to 1½ oz. as growth ripens. In carrying out experiments some years ago I reversed the quantities generally given, using 3 oz. to 1 gallon of water, with no ill results. Yet within a few miles bushes were denuded of leaves, by an ordinary application of sulphide of potassium. This fungicide will soon destroy the ordinary Gooseberry mildew at this season of the year.

Strawberry Beds.—The planting of new Strawberry beds should be done as ground becomes available; land previously prepared for Strawberries may be bearing a catch crop of vegetables at the present time. The plants should be placed at least 2 feet 6 inches between the rows and 2 feet asunder in the rows. It is a good plan to plant at 1 foot apart in the rows, with the object of securing a few good-sized berries the following season, and then to cut out the alternate plants with a hoe, thus allowing the usual space for the remainder, which will make big stools in their second year. Keep established beds well tilled and watered. Spraying will keep down the disease that sometimes affects the foliage. When removing nets from plantations, the size and condition of each net should be noted on a label, and attached to it

NOTES ON THE CULTIVATED PLANTS OF THE REPUBLIC OF SALVADOR.

(*Continued from p.* 88.)

The illustrations 35 and 36 (p. 100 and 101) show examples of the Royal Palm used as an avenue in a public park, and the Amate Tree in a street of San Salvador.

Especially worthy of mention is the home of Mr. Federico Klein, the most enthusiastic and progressive horticulturist in Salvador. Although only a small portion of his time can be devoted to gardening, he grows large quantities of flowers for his own entertainment and for the markets of the Capital. In his grounds are more than 800 Rose bushes of many varieties, besides selected Dahlias, Gladioli, Chrysanthemums, and other plants, all of which thrive under the intelligent treatment given them. He also has a good orchard of fruit trees of improved sorts.

It is an agreeable diversion to visit the markets of the larger towns and observe the quantities of flowers that are offered for sale. Most of those that supply the markets of San Salvador are grown upon the upper slopes of the volcano which overhangs the Capital. Early in the morning files of women stream into the city, carrying upon their heads wide, saucer-shaped baskets filled with vegetables, fruits, and other produce, and not a few of them bring baskets of flowers—white Lilies (Lilium longiflorum), Roses, bunches of fragrant Violets, and dozens of other kinds. In few places do Roses thrive so well as in Salvador, and although often they receive little care, the bushes are loaded with well-formed blossoms throughout the year. The prices they bring in the markets seem ridiculous in comparison with those of scarcely superior hothouse flowers in northern countries.

Many of the familiar garden plants of temperate regions are cultivated in Salvador, such as the Orange Day Lily (Hemerocallis fulva), Cockscomb (Celosia cristata), Bachelors'-Buttons (Gomphrena globosa), Four-o'-clocks (Mirabilis Jalapa), Carnations, Pinks (Dianthus chinensis), the California Poppy (Eschscholzia californica), the common Poppy (Papaver somniferum), Sweet Alyssum, at least one Spiraea (S. cantoniensis

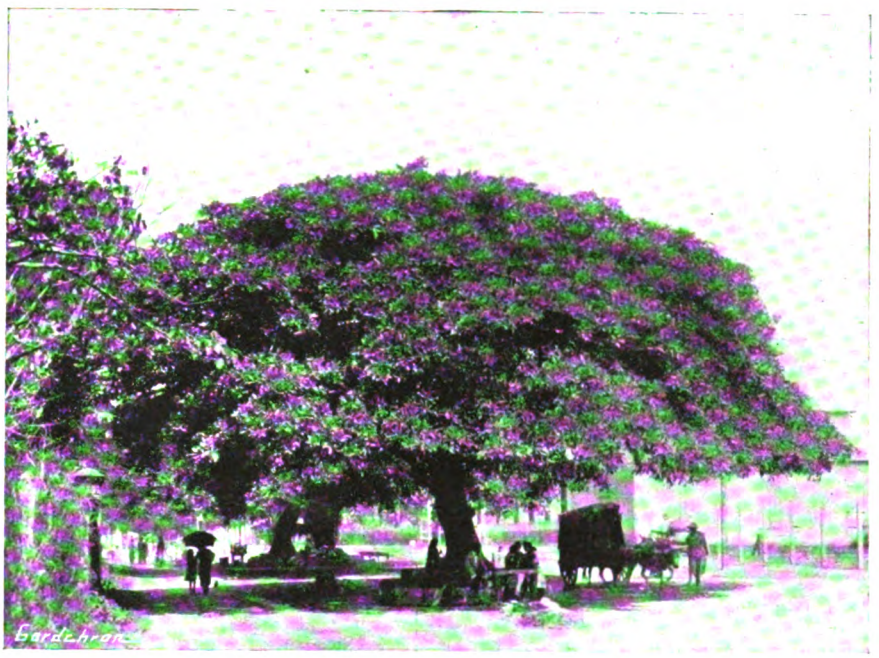

FIG. 36.—THE AMATE TREE (FICUS SP.) IN A SAN SALVADOR STREET.

var. lanceolata), Lupins (Lupinus hirsutus), Sweet Peas, Pelargoniums in variety, Touch-Me-Nots and Impatiens Sultani, Hibiscus syriacus, Pansies, Phlox Drummondii, Heliotrope, Verbenas, Coleus, Petunias, Cosmos and Scabiosa atropurpurea.

It may be noted here that two of these plants, Gomphrena globosa and Mirabilis Jalapa, are supposed to be natives of tropical America, yet I do not believe they have ever really been found wild. They must have been in cultivation for many centuries, but even so one wonders what has become of the wild forms from which they sprang. There are numerous other tropical American plants of which the same statements may be made.

Many of the cosmopolitan tropical plants are grown here, of course, among which may be mentioned: Zebrina pendula, in gardens and also wild along streams in the mountains; Asparagus plumosus and A. Sprengeri; Cordyline terminalis, including the form with purple foliage; Sanseviera guineensis, which is planted in hedges and readily becomes naturalised; Tritonia crocosmaeflora; Aristolochia grandiflora, frequent as a wild plant, and certain to attract notice because of its giant but ugly flowers; Antigonon guatemalense, a native vine with masses of pink flowers, quite as handsome as the better-known A. leptopus, with which it is easily confused; Iresine Herbstii, probably a derivative of that common weed, I. celosioides; Bougainvillea glabra, perhaps the favourite ornamental vine of tropical America; Sedum mexicanum, a pretty little plant with yellow flowers, probably imported from the Old World although it has not yet been identified with any species of that region, and is known only in gardens in Mexico and Central America; Hydrangea opuloides; Philadelphus inodorus and P. mexicanus; Caesalpinia pulcherrima, the most frequent ornamental shrub about dwellings in Mexico and Central America; Clitoria ternatea, a herbaceous vine with attractive large, blue flowers; Phaseolus Caracalla; Acalypha hispida, with pendant, red, ament-like flower spikes, and A. wilkesiana, the latter frequently planted for its coloured foliage, which is rather effective at distance; Codiaeum variegatum var. pictum; the well-known Poinsettia (Euphorbia pulcherrima, most gorgeous of tropical American shrubs, known locally as Flor de Pascua or Christmas-flower, because it is at its best about Christmas time; Euphorbia neriifolia, a spiny Old World species, planted for hedges; Jatropha podagrica, with bright red flowers and a curious bulb-like root half-exposed above the soil; Pedilanthus tithymaloides, which is often grown in hedges; Abutilon striatum, another supposedly Central American plant which is probably not known in the wild state; Hibiscus schizopetalus and H. rosa-sinensis, the latter in many varieties; Henna (Lawsonia inermis); Myrtle (Myrtus communis), Plumbago capensis; Jasminum grandiflorum and J. Sambac; Beaumontia grandiflora, a strikingly beautiful vine with large, pure white flowers that resemble those of the Daturas; Oleanders; Stephanotis floribunda; Clerodendron Thomsonae; Holmskioldia sanguinea; Datura candida; Solanum seaforthianum and S. Wendlandii, handsome vines with violet blossoms; Pandorea jasminoides, a slender Australian vine with white and purple flowers; Pyrostegia venusta, a creeper with orange-red flowers which is even more showy than the Bougainvillea and is one of the most popular ornamental plants throughout Mexico and Central American; Tecoma capensis, another showy vine of the same family; a Ruellia with purple blossoms; Sanchezia nobilis; Thunbergia erecta, a shy-blooming shrub, and T. laurifolia, an exceptionally handsome vine, its foliage almost hidden beneath masses of violet-purple flowers; Gardenia jasminoides; Ixora coccinea and I. finlayana; Mussaenda pubescens; and the Japanese Honeysuckle, Lonicera japonica. *Paul C. Standley, Assistant Curator, Plant Division, U.S.A. National Museum, Washington.*

(*To be continued.*)

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. 19.—The Salween River.

IT proved no easy matter to engage porters to go to the Taron, and quite impossible to engage an interpreter. The latter would have been of no use unless he went with me all the way to Hkamti Long—a month's march; and then he could not get back to the Salween for six months! No wonder the only available interpreter was reluctant. The season was well advanced—hence the difficulty with the porters also; but the weather had set in for a really fine spell, and after a good deal of talk, seven porters were engaged to accompany me for ten days, at one pound sterling a head. In order to economise food and transport still further—for there was no saying what difficulties might be encountered when the Taron was reached—my cook Lao Li returned to the Mekong; his job now was to escort my mules down to Ta-li and hand my kit over to friends, who would forward it to Burma.

On October 19, therefore, we set out once again, seven porters and myself, without cook, servant, or interpreter; but I was not going to let a detail like that interfere with my reaching the Taron, at this, the third attempt. The difficulties could be coped with as they arose; for the time being, with three of the Lutzu porters more or less conversant with Chinese, and willing to help me, I was content.

It was a lovely day. We dropped down the steep hillside to the stream a thousand feet below, through a tangle of grass and shrubs. Cornus capitata, a small tree, is common hereabouts, and its Strawberry-like fruits were almost ripe. The natives eat them, but, in my opinion, they are very insipid. There is a small bush Rhododendron, which grows on the sunny slopes hereabouts—R. sinovirgatum. It is common in the Salween valley itself on open banks where Pines and shrub growth flourish—not in the sheltered gullies choked with jungle. Sometimes it is no more than an undershrub, being very like R. racemosum in appearance, which, indeed, is a closely allied species. I have never seen R. sinovirgatum in flower; but it must have been prolific this year, for the plants were covered with healthy fruit. Seed was collected.

We lunched at a hut in the valley, and then started to climb the last spur separating us from the Salween river itself. From the top we had another glimpse of the Gompa La (see Fig. 37), its head muffled in cloud. The descent to the Salween is atrociously steep. The sunny slopes are scantily clothed with Pine, Alder and Oak, springing up from a sea of coarse grass, Bracken and semi-herbaceous plants — Compositae, Labiatae, Hedychium, Anemone, etc.; I have referred to it before. It is astonishing the amount of territory west of the Mekong which is covered with this formation. Once the eastern Irrawaddy is crossed, however, the Indo-Malayan jungle swamps everything.

The Salween valley here has eight months' rain in the year, and four months' fine weather—not all at once though. In the dry weather the atmosphere is still saturated, and heavy dews take the place of rain. Consequently, tree growth is the dominant feature. It is quite impossible to say what the rainfall is, but, no doubt, it is in the neighbourhood of 80 or 90 inches, to judge by the vegetation in the ravines.

On October 19 we crossed the Salween, and marched along the right bank to Tra-mu-tang. There were bushes of Rhododendron decorum, and whole thickets of R. sinovirgatum on the Pine-clad slopes. In the villages were thorny Quince trees and hedges, and Orange trees, though the fruit was not yet quite ripe.

FIG. 37.—THE GOMPA LA; SALWEEN-IRRAWADDY DIVIDE.

November is the month for Oranges, which, by the way, are green, but deliciously sweet and juicy for all that. Peach trees are common; but there is nothing else in the way of fruit.

Crossing the paddy terraces below the limestone escarpment of Tra-mu-tang next morning, we presently entered the Marble Gorge, and in a moment found ourselves in semi-tropical forest. There were Orchids on the trees and on the rocks, some of them in flower; the most striking was a species of Cirrhopetalum, its flowers arranged in the form of a wheel, the spokes being represented by the narrow, elongated labellums.

On the opposite side of the gorge, clinging to the sun-drenched cliff, were many small Palm trees, the first of the Indo-Malayan Palms; but I could not make out what they were.

It did not take us long to traverse the Marble Gorge, despite the fact that the path had been smashed to fragments during a terrific spate. In the summer the river had risen 40 feet here, and for weeks the gorge was impassable, though the path is high above the average water level. When at last the river dropped, there was no path left.

Just above the gorge a tremendous torrent comes booming down from the Irrawaddy divide, and hurls itself over a barricade of boulders into the Salween; it is the glacier torrent from the Gompa La, and up it lies the path to India.

We began by climbing a very steep, grassy slope, which in places was carpeted with a tiny creeping Fig, bearing very sweet, berry-like fruits. I found one, and enjoyed it; but the natives had already been over the plants and eaten most of them. The plant at first sight looks more like a Gaultheria, or some such thing, than a Fig.

After ascending some hundreds of feet, we reached a small village, and halted for lunch. We had a wonderful view, looking right down on to the Marble Gorge from here, half in sunlight and half in shadow.

We now continued the ascent, following a very narrow path buried in high grass. A small flowered Torenia grew by the patches of cultivation, the first of the genus, which is so prolific further west, in numbers, if not in species. A moment later we turned the shoulder, and entered a deep gorge.

We were now introduced to terrifying travel. The path—where there was a path—was a mere ledge along the face of the cliff, but it was complicated by being buried in the most luxuriant grass. What a place for the mules—if only one could have got them there! Once through the worst of the defile we came to masses of Luculia (presumably L. gratissima) in full bloom. The great, corymbose globes of pale pink flowers were most striking, and showed up splendidly against the dark green vegetation. The flowers, of course, are deliciously fragrant; unfortunately, they wilt very quickly after being plucked.

Crossing a deep ravine, where many forest trees grew, I came upon several ground Orchids, and then my whole attention was absorbed in the first tree Rhododendron; the pale coppery-red, glass-smooth trunk was unmistakable, though it was a long time before I could find any fruits.

It proved to be one of the Oxyphyllum series, of which I had found one species in 1921, in southern Yunnan. That, however, was a bush. This was a tree; and no mean tree either, growing 30 feet to 40 feet high, though slender, and not much branched. The loose truss, with only three or four flowers, is characteristic; but the character by which one can most readily recognise the group is the queer fruit, a long, slender curved capsule which opens by bulging in the middle, the valves separating from the central column midway between base and apex; so that the ripe capsule appears to be beaked. The seeds are few in each valve (KW. 5425).

The glabrous leaves and slim-pointed buds are also rather typical; but in the depths of the forest, where you cannot tell one tree from another, you could always distinguish this Rhododendron by the smooth, almost glossy, chestnut-purple stem, without a rag or a tatter of bark flying from it, and without a Fern or a sprig of moss even adhering to it.

Late in the afternoon we reached the last Lisu village, and halted for the night. On the morrow we would begin the serious ascent of the Salween-Irrawaddy divide. *F. Kingdon Ward.*

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17, July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, March 10, 24, April 7, 21, May 5, June 2, 23, July 7 and 21, 1923.

Imports of Shelled Walnuts.—It is not generally known that dried, shelled Walnuts are largely imported from China, where the trees are planted generally to furnish shade. The shipping season commences in September, and in the north of China most of the nuts are sent to Tientsin; they are exported either in the shell or shelled. Shelled nuts are transported to the shipping ports in thin wooden boxes, holding fifty to one hundred pounds each, but before final shipment they are graded in three sizes. As with most of the commodities exported from China, states the *Journal of the Royal Society of Arts*, the producers of Walnuts receive but little of the profits. At the beginning of the harvest season, the local dealer contracts with the farmers for the crop, and later sends it to Tientsin and other ports, where wholesale dealers take it over.

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KINGCUPS.

First of all, what is the Kingcup? At one time I would have thought this query to be superfluous, believing the plant to be Ranunculus repens. But there are not a few people who use the term to embrace a larger number of plants, and some confine it to the Marsh Marigold. The name may be old, but I have not found it among very old names, so that if it is old, it was not a common name. I think the beginning of the sixteenth century is the limit one must determine, though Gerarde states that the very similar "King Cob" was old in his time, and we have from him these variants, King Kob, King Knap and King Knop, and very probably one or other may be the original form, and not "Cup." On referring to Dr. Prior's *Popular Names of British Plants*, Cob is stated to be derived from Copp, a head; and Knop from Cnaep, a button, both from the bud and the double flower being like a button as worn by kings. King, it may be remarked, is put in the possessive case by Prior, without any apparent cause.

It is unfortunate that not a few definitions in this very learned book are spoiled by inaccuracies, and that happens in the present instance. Lyte defines a "Knoppe" thus: "After the flowers there come up rounde heads or buttons, more rougher than the Knoppes of water crowfoote." So that while it is correct to state that the word refers to buttons, it is clear that it is the many-seeded carpels, and neither buds nor flowers, to which the name applies. Gerarde provides a much better history of the word than Lyte. He refers it to one of two Ranunculi, or perhaps to both. One is Ranunculus repens, "Common Crowfoot," the other R. acris, "Right Crowfoot." But "right" here does not mean "true," but is simply the translation of the Latin *R. surrectis cauliculis*. It is to these two plants that Gerarde applies the names of King Kob, Gold Cups, Gold Knobs, Crowfoot and Butter floures. The assumption that King may be descriptive of the cob or button, seems rather far fetched, and is one of those names that may never give up its history. I find a curious use of "Kings" in Lawson's *Country Housewife's Garden*, in which, treating of Parsnips, it is noted "the Kings (that is in the middest) seed broadest and reddest," meaning that the finest seed is produced in the central part of the umbel. But I would not suggest that "King" in the instance under review predicates a superior kind of Crowfoot; though it may. Culpepper seems to refer King Knob to Ranunculus repens, which he states is the "yellowist flower he ever did see."

Let us now see what poets and others consider the plant to be, which may be gathered from the plants it is associated with. I will leave out Spenser and begin with Gay. "Fair is the Kingcup that in meadow blows. Fair is the daisie that beside her grows."

Cowper is equally clear where he tells of Children who "Gather the Kingcup in the yellow mead, And princk their hair with daisies." How convincing, too, is Sir Walter Scott, where he tells of Jeannie Deans, "thinking on the bonny spots of turf sae fu' o' gowans and yellow Kingcups among the craigs at St. Leonards." To mention Wordsworth is to call to mind involuntarily: "Pansies, Kingcups, Lilies, Daisies." No commentary is needed in any of these instances.

It may be news to some that the familiar Buttercup is comparatively a novel appellative. Butterflower, as we have seen, is old, and remained in current use for a long time, as appears from Gay's line: "Let weeds instead of Butterflowers appear," and it, and not Buttercup, is found in Johnson's *Dictionary*. "Butter" has given rise to some controversy; Dr. Prior, to quote again, derives the word from "bouton d'or," thinking that butter is a corruption of button, but were that the case the full designation could scarcely be "butter floure," unless there was originally a double form common, of which there is no record. From the play of children, the true conservators of traditionary customs, may we not obtain a hint? One may still observe a child putting the fully expanded flower of a Buttercup under the chin of a companion, in order to discover if he or she "loves butter." The children know that a faint yellow hue from the flower will be assumed by the skin, and this peculiarity of a shining greasy butteriness on the petals is probably the true origin of the name.

Then there are Bachelor's Buttons; Lyte mentions R. acris fl. pleno by that name, and five years earlier Tusser lists the flower. Gerarde, too, mentions it, having found a wild specimen. While in a chapter "Of double yellow and white Batchelor's Buttons" he describes and illustrates a double form of R. bulbosus, with secondary and tertiary flower heads proceeding from the primary head. A second is a double R. repens, discovered in Lancashire, and a third R. aconitifolius fl. pl., now known as Fair Maids of France, perhaps the flower of the nursery rhyme:—

"Mistress Mary, quite contrary, how does your garden grow,
With cockleshells and silver bells and Fairmaids all of a row."

These were all common well into last century, though they seem now to be but little grown.
R. P. Brotherston.

PLANTS NEW OR NOTEWORTHY.

RHODODENDRON FRASERI.

A plant of this beautiful and interesting hybrid Azalea (Fig. 38) has flowered freely in the Arnold Arboretum this spring for the third year in succession. Rhododendron Fraseri* is of Canadian origin, having been raised by Mr. G. Fraser, of Ucluelet, Vancouver Island, British Columbia, by crossing Rhododendron canadensis with R. japonicum. The young plants flowered for the first time in 1919, and the same year Mr. Fraser sent a living plant to the Arnold Arboretum. The flowers are a pleasing shade of light rose-lilac and slightly but pleasantly fragrant. The habit is good and the plant is very floriferous. It seems to be perfectly hardy and promises to be a very useful addition to the spring garden. *E. H. Wilson, Arnold Arboretum, Harvard University.*

* W. Watson in *Gard. Chron.*, ser. 3, LXVII., p. 225 (1920).

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM PURPLE EMPEROR PITT'S VARIETY.

A flower from the small plant of this model variety, which is excellent in size, shape and colour, shown by H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), in its fading condition discloses the fact that the deep violet maroon which spreads over the whole of the segments, except for the thin, silver-thread-like margin, is body-colour and not surface colour as in most hybrid Odontoglossums, which have invariably the colouring displayed on a whitish ground. The whole of the tissue in the flower of this form of O. Purple Emperor is of the same uniform dark colour, the reverse side of the segments being as dark as the front.

LAELIO-CATTLEYA NANON.

The first flower of the new Laelio-Cattleya Nanon from the raisers, Messrs. Cowan and Co., Southgate, while proving a very fine addition to the Laelio-Cattleyas, also gives an instructive lesson in hybridising with a preconceived purpose. It was obtained by crossing Laelio-Cattleya Ivanhoe (L.-C. eximia × C. Dowiana aurea) again with C. Dowiana aurea. The Veitchian L.-C. eximia of 1890 was obtained by crossing C. Warneri and L. purpurata, and, like most crosses with L. purpurata, had the defective narrow sepals of that species. The repeated crossing with C. Dowiana aurea and the influence of C. Warneri has resulted in a noble flower of the true, large-flowered Cattleya type. Although borne on a very small plant the bloom was nearly eight inches across. The sepals and petals are light rosy mauve, with a delicate silver veining; the median area of the broadly-expanded labellum, which is ruby-purple in front, is golden-yellow with closely arranged yellow lines from the base.

FIG. 38.—RHODODENDRON FRASERI

LINDLEY MEDAL FOR MR. FARNES.

In addition to the Gold Medal and Cain Cup awarded to Pantia Ralli, Esq., Ashtead Park, for his noble exhibit of Orchids at the Chelsea Show, which was adjudged to be the best exhibited by an amateur (see *Gard. Chron.*, June 2, p. 303), the Council have added a Silver Lindley Medal for Mr. Farnes, Mr. Pantia Ralli's highly successful Orchid grower, to mark their appreciation of the fine cultivation shown by the plants exhibited individually and collectively. The collection in Mr. Farnes' care compares favourably with the best in the country

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HABITS OF INDIAN WORMS.

With the exception of one or two very instructive allusions in Darwin's *Vegetable Mould*, hardly anything has appeared in English on the bionomics of worms in India. It is exactly 40 years since Beddard laid the foundations for their study on scientific lines, and during the interval a hundred pamphlets, papers, and volumes more or less directly connected with the subject have appeared in various European languages. Two Italian, three French, and three German zoologists have added their contributions, while in quite recent years half a dozen native students have been trained to observe and report on the structure and habits of Indian Oligochaets. The work has at last borne fruit, and the Secretary of State for India has authorised the publication of volumes on the Fauna of our great Dependency. From the latest of these, viz., the *Monograph on Oligochaeta* by Dr. Stephenson, we are able to cull some items of peculiar interest. There are about 350 species of worms at present known to occur in India, Ceylon, and Burmah, and, as many of these are found widely distributed throughout the East, their interest is not limited to any one region. Of these about 40 are minute water worms; of pot worms or Enchytraeids there are but five species, though in Great Britain they may be counted by the hundred; and of earthworms such as we find in this country about a dozen species occur. In round numbers there are 300 species of which we have no representatives in our fauna, though specimens may be found at Kew and elsewhere imported in soil with plants from Eastern lands.

Dr. Stephenson devotes four pages to "the few and scattered observations on the bionomics of Indian Oligochaeta," which he has made or discovered, arranged under three headings. These are seasonal variations, habitats, and commensalism, and are not without significance for the gardener and agriculturalist. The only observations on variations in the number of worms found at different seasons of the year are those made by a native student, Baini Prashad, on the Earthworms of Lahore. Curiously enough, those observations refer largely to worms such as we find in this country, which, in the somewhat severe winter of Lahore, can continue their operations when the exotic species are quiescent. A good many species are semi-aquatic. This habit is greatly to their advantage in such climates as we find in Asia. When they could hardly survive elsewhere, they can thrive in water and moist situations, "in the leaves of water-plants, under stones, or in mud by a tank, in the hollows of trees, in accumulations of dead leaves and in rain-water."

Just as we find species in this country which are partial to decaying trees, so a number of native species have been found in India in rotten wood. "A more curious habitat, however, is adopted by a number of worms—the bases or axils of the leaves of trees at some distance above the ground." One of these, for example, has been found at the base of the leaves of a tall Palm tree in the Museum compound at Calcutta, or, again, at the crown of a Palm tree, on which account it has been named Palmicola, recalling Dendrobaena, another familiar name for a genus of worms. Specimens of a Perionyx have been taken at a height of 10, 15, or even 20 feet, at the base of the leaves of the Screw-Pine and Plantain. In my forthcoming little work on British Earthworms will be found a plate illustrating the gymnastics of certain worms, which fits in with Dr. Stephenson's quotation (p. 35) respecting another species of Perionyx, which is "a very strong little worm; the name *saltans* referring to its power of leaping in the air when touched." Yet another form was found coiled up on leaves in the dense jungle, forming a compact gelatinous mass. When touched, the worms sprang to life, performing somersaults and other acrobatic feats.

It is chiefly among the fresh-water worms that we find in India and elsewhere illustrations of commensalism. In this country we are familiar with the association of the worm Chaetogaster with fresh-water snails. In India not only does this occur, but species are often found associated with sponges, "apparently feeding on the decaying organic matter of the sponge and assisting in their movements in releasing numerous gemmules. In so doing they undoubtedly assist in the dissemination of the species." In this country it is no unusual thing for certain species of pot-worms (Enchytraeids) to live in association with various earthworms, and other co-partnerships might be mentioned. The volume of upwards of 500 pages devoted to the Oligochaeta, or land and fresh-water worms of India, is a valuable aid to our knowledge of the fauna of the East. *Hilderic Friend, Solihull.*

THE AVONDALE FORESTRY STATION.

The *Journal* of the Department of Agriculture, Ireland, for May, 1923*, just published, contains an important article by Mr. A. C. Forbes, on the progress of the Forestry Station at Avondale, in Co. Wicklow. Here a large number of plots, mostly one acre in extent, were planted in 1905-1906, all the important species of forestry trees being represented. The manner in which the plots were laid out, and general details of the soil, climate, etc., at Avondale, have been published in the same *Journal* for October, 1913. Some idea of the results obtained may now be quoted, but the attention of all foresters and woodland owners is directed to the article itself, which is replete with information on the rate of growth, liability to frost, and other points of silvicultural interest. There are four illustrations, showing plots of Sitka Spruce, Japanese Larch, and European Larch, mixed with Chestnut.

Spring Frost.

The species most affected by spring frosts after April were Silver Fir, Spanish Chestnut, Ash, Oak, Sitka Spruce and Douglas Fir. Beech escaped serious injury in most years, although regarded as a sensitive species. Their effect upon the permanent development of the plants was worst in the case of Silver Fir, Douglas Fir and Ash.

Species rarely or never injured were Abies grandis. Abies Nordmanniana and the various Pines, while the hardy broad-leaved species, such as Birch, Alder, Poplar, Sycamore, Hornbeam, etc., were, as usual, immune.

Nurse Trees.

The general statement may be made that Larch has proved too fast growing for the majority of broad-leaved trees, and requires early attention in the way of thinning and side pruning when used with the majority of them. The same disadvantage has been found in the case of common Spruce, which grows almost as fast as Larch, but is not so easy to side prune and is difficult to thin satisfactorily. Scots Pine as a nurse tree has not proved satisfactory.

Broad-leaved Trees.

The broad-leaved genera to which most importance can be attached are Maples, Elms, Oaks, Beech, Hornbeam and Spanish Chestnut. Of the Maples, Sycamore and Norway Maple show little difference in height growth, both being from 16 to 22 feet in height. None of the American Maples have done particularly well, the summers being evidently too cold for their normal development. Amongst Elms the "Chichester" Elms have made the most vigorous growth, keeping pace with the Larch nurses, but are inclined to fork. English and Wych Elms have also made satisfactory growth, but the American Elm has not given good results. Beech and Hornbeam, planted pure, are growing into thick, healthy crops. In mixture with Spruce these species have been almost entirely suppressed. Mixed with Larch they now form a second storey, which will probably be able to survive with normal thinning of the taller species. Spanish Chestnut has not proved satisfactory, suffering from spring frost.

Of the various Oaks used, Quercus pannonica has given the best results as regards height growth, being now 15 to 20 feet. Of the common Oaks, both sessile and pedunculate have succeeded fairly well.

Of other broad-leaved species Ash is the only one which is worth mentioning. This species suffered badly from spring frost during the early period, but is now making vigorous growth in most places. In some respects the most vigorous broad-leaved tree has been Prunus serotina, planted on a very poor and dry gravel. Its branching habit does not recommend it for timber production, but for poor dry soil it will probably give better results when grown for shelter than most deciduous species.

Conifers.

The chief interest lies in the growth of a number of Conifers, which are better suited to the climate than broad-leaved trees. Seven species of Silver Fir were used in the original planting scheme, and the only absolute failure is the common European species, Abies pectinata. This was used as a nurse, but entirely failed in its object, being repeatedly cut back by spring frost, and large numbers were killed out altogether. The outstanding plot in this section is Abies grandis. This species has not shown the slightest injury from frost, insects or fungi. Of the trees originally planted on one acre, 612 still remain, and have reached a height of 30 to 40 feet. Leaving out two outside rows, which have received more light than the remainder, the 467 trees standing on the remaining three-quarters of an acre now show a volume of 1,167 cubic feet, or an average of 97 cubic feet per acre, per annum, since the date of planting. At a planting distance of eight feet they are fairly satisfactory as regards cleanness of stem and suppression of side branches. A species planted on a limited scale in 1915 was Abies Veitchii, and judging from its growth so far it appears likely to approach Abies grandis in health, although growing at a slower rate.

(*To be concluded.*)

* *Journal of the Department of Agriculture, Ireland.* Dublin Stationery Office, 1923. 1s. net. Obtainable from Mason and Son, Ltd., 40, Lower Sackville Street, Dublin.

TREES AND SHRUBS.

LONICERA DELAVAYI.

This Lonicera was at its best at Kew during the early days of August, and presented a very attractive and graceful display of flowers. Considering it has been under cultivation for a number of years it ought, long before now, to have become more commonly listed in nursery men's catalogues.

It belongs to the group with long twining growths, some of which made this year are a metre or so long, therefore it is of indefinite height, and would be useful to clothe rustic supports, pergolas, etc. The young growths are light green and furnished with fine hairs which seem to disappear after the first year. The leaves are in opposite pairs; ovate, oblong-lanceolate with cordate base, 4-8 c.m. long, 2-3 c.m. broad, on short petioles 3-4 m.m. long. They have a dull green upper surface with glaucous-grey indumentum beneath.

The flowers are borne in pairs on short, straight, wiry stems, 2 c.m. long, produced from the axils of leaves towards the ends of short and medium current season's growths; I have counted flowers from as many as ten pairs of leaves. The corolla tube is a little thicker than an ordinary knitting needle; 8 c.m. long, with lobes that curl backwards; the inside of the tube is coated with hairs. The stamens protrude well through the corolla tubes, and the style is even longer. Fruits I have not seen. The colour of the flowers is pale yellow, which deepens. The blooms have a sweet fragrance, which is not so strong as in L. japonica, but they have a more refined appearance than those of the latter species. *C. F. C.*

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THE MEADOW SAFFRONS.

Colchicums, or Meadow Saffrons, are frequently called in error "Autumn Crocuses," whereas they are distinct from the true Crocuses of autumn, and the flowers less refined. Yet they are worthy a place in the garden of hardy flowers, because of their beauty and value at a season when low-growing bulbous plants are scarce, and as helping to redeem the front of the border of perennial plants from some of the dulness caused by there being few hardy perennials of dwarf habit in bloom in late autumn. They are also desirable for growing in grass or in the wild garden, although they should not be planted in places to which cattle have access, for the leaves of Colchicum autumnale have been known to poison cattle which have browsed upon them, and probably the other species would have the same effect where such animals have access to the foliage, which develops in spring. The chalices and cups of some of the Meadow Saffrons are very beautiful, and, as the foliage seems immune to the attacks of rabbits, their utility is obvious in certain places frequented by these animals.

The Meadow Saffrons have pleasing flowers, supported on long tubes, and it is desirable to grow them through dwarf herbage, which not only preserves the blooms from being splashed through heavy rains, but it relieves the bareness of the flowers when on uncarpeted ground. The plants will grow in any soil, but have a preference for ground which is not too light and is fairly moist. They do well on light, dry soil, but they do not attain the large size of those grown in richer earth.

Our native Colchicum autumnale, which is often found in some English meadows, rendering these sometimes less valuable as pastures at certain seasons, is the smallest of the autumn-flowering species. It is one of those which have a special need for the support of a carpeter, as it has long slender tubes, and if not supported by low herbage, such as that of some of the Mossy Saxifrages, Arabises or Aubrietias, is frequently blown over by the wind or laid prostrate by heavy rains. In grass it is quite pleasing with its rosy-pink or purple flowers, with white tubes.

There are several varieties of this species, including a white one, C. a. album; a small claret-purple one, called atropurpureum, and a fine large variety sometimes called byzantinum, but generally named autumnale major in catalogues. It is a good rosy-purple flower of much charm.

In addition there are three at least with double flowers, and with strap-like segments arranged in rosette style. These are very pretty and useful plants, and last long in bloom. There is a scarce but lovely ivory-white one, C. a. album plenum, and two double varieties with coloured flowers. The typical C. a plenum has purplish flowers; and the second, C. a. roseum plenum, has fine, double, rose-purple blooms.

Colchicum Bornmuelleri.—This is one of the finest of the autumnal Meadow Saffrons, and has much larger flowers than any of the foregoing. It is also early, and its flowers begin to open whitish, and then gradually pass off to a fine lilac with a white centre.

Colchicum cilicicum.—I do not think that this species is specially needed seeing there are many others; but it may be described as a large-flowered, pinkish-purple species with a little chequering visible on the flowers. It is not common, and is quite a good species, though not of special interest to those who are desirous of having only a few of the best Colchicums.

Colchicum giganteum.—Much has been said in favour of this Meadow Saffron, but it is so near C. speciosum that both need not be grown. The main recommendation is that it is later than C. speciosum, and is therefore desirable for prolonging the Colchicum season. It has large dark-lilac or purple flowers of considerable size.

Colchicum speciosum.—In the forms of C. speciosum we have some of the indispensable Meadow Saffrons. The type itself and its varieties have all large blooms reminding one of a small single Tulip of good substance. The type has purple flowers with a white tube and a white centre. A splendid variety, C. s. rubrum, has the tubes purplish or purple-red, as well as the segments, and is a desirable plant. There is also a very fine form, with deep, ruby blooms and tubes, which is sometimes offered under various names. It is not plentiful, but is very desirable. The white variety, C. s. album (see Fig. 39) is a gem, with big, massive, ivory-white flowers of extreme charm, and the plant is a good doer.

Colchicum variegatum.—The last, I may mention, although there are a few others in cultivation, is Colchicum variegatum, with distinct purple chequering on a pinkish purple ground. It is very distinct, and should be grown in addition to some of the others. There is a deeper coloured variety, also chequered, which is often called C. variegatum atropurpureum or purpureum. I prefer the lighter-coloured one, as showing the chequering better on the lighter ground colouring.

All of these Meadow Saffrons are quite hardy, and may be flowered this autumn if secured at once, and planted by the first week in September. I have planted them as late as November, but August and the first week of September are the times I prefer. In good soil they may be planted at a depth of 3 or 4 inches; in light earth 5 or 6 inches deep, and in heavy clay 2 or 3 inches deep. In all cases the crown should be the depth stated below the level of the ground. These plants require to be lifted after a few years; if the clump is not flowering well, this operation being done as soon as the leaves become brown, when the corms may be lifted, divided, and replanted at once if convenient. *S. Arnott.*

FIG. 39.—THE WHITE VARIETY OF COLCHICUM SPECIOSUM.

VEGETABLE GARDEN.

LEEKS.

As the labour supply in many large gardens is somewhat short, the following cheap and quick method of growing a good breadth of Leeks may be of interest to growers. Presuming a crop of Broad Beans or Peas is almost over, pull up the plants, and, if possible, burn them on the site. Hoe the ground and clear the weeds from it. Mark out the land and begin at one side by drawing a shallow drill. With a light, hollow iron bar make holes 4 inches to 6 inches deep, and 9 inches apart in the drill; follow on with the Leeks, dropping one in each hole. Fill the hole with water and enough soil will settle about the roots to start the plant. Move the line again, and repeat the operation, keeping the rows 1 foot apart. In about three weeks from planting it will be necessary to use the flat hoe, and hoeing will serve the dual purpose of killing weeds and earthing up the growing Leeks. *G. W. Stacey.*

CAULIFLOWERS.

Of the varieties of Cauliflowers raised from seed sown in the autumn, Large Dwarf Erfurt (which followed Late Queen Broccoli) is one of the best sorts for wintering in frames, as its growth is dwarf and compact, and the heads well protected by the leaves. First of All is a little later, and closely resembles the former and Autumn Giant. In hot seasons this last is not very satisfactory, as many of the plants go blind.

Our spring-sown Cauliflowers were Express, which made very small heads; First-Crop, which gave small, compact heads; Magnum Bonum and All the Year Round, medium-sized heads of which we are now cutting; and Autumn Mammoth, with Autumn Giant to follow later. These were all planted on an east border, the soil of which was well prepared.

Where a supply of these vegetables is required through the summer, sowing a small quantity of seed of several varieties is better than making large sowings of one or two sorts, as it admits of a better chance of maintaining a succession. *A. B. Wadds.*

SPRING CABBAGES.

Interesting results may be gathered from the account of the trial of spring Cabbages undertaken at the Somerset Farm Institute at Cannington, near Bridgwater, under the auspices of the Somerset County Council. Sowings were made on two different dates and planting was also done on different dates. Apparently the best results were obtained from plants sown on July 31 and planted on September 22, 1922. Of this crop the best variety was Flower of Spring, for out of one hundred heads there were only four heads as waste. Late planting would appear to be unsuited to this variety, as forty out of the one hundred Cabbages planted on October 14 were not cut. Late sowing also seemed to be much against this variety, as the report states that ninety out of a hundred from a sowing made on August 21 were not used; similar results were shown with the varieties Offenheim, Ellam's Early, Emperor and Imperial, four of the most popular varieties grown. Mein's No. 1, also a good variety, does not show these extremes of variation, and if this feature is consistent, states the report, it may be a special recommendation to these varieties for field culture where conditions of cultivation are somewhat rougher.

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ECONOMIC FRUIT CULTURE.

I AGREE entirely with the article signed *G. H. H.*, on p. 44 in *Gard. Chron.*, July 21; where there is land available it certainly is far the best plan to plant fruit trees by themselves, and not in the general garden. Trained trees are valuable for the production of early or choice wall fruit, and have a value in small gardens, such as are usually attached to houses in towns, and in such positions provide the amateur gardener with an interesting occupation for his leisure hours, but this method of growing fruit does not pay commercially. I once read a series of articles in a leading commercial fruit journal describing an elaborate method of fixing posts and wires to which cordon fruit trees could be trained, and it was highly recommended as a commercial proposition despite the great cost of the supporting wires and stakes, and of the trees. I have no hesitation in saying that it would be a very bad commercial adventure. These trained, restricted trees require an enormous amount of labour in pruning, and it requires also a good deal of labour to keep down weeds. Such trees might give crops more quickly than bush trees, but would certainly not pay so well in the end.

I am very strongly of the opinion that where the land is good there is eventually no better method, from an economic point of view, of growing Apples, Pears, and other orchard fruits than in grass land. The trees should not be planted too thickly, but so far apart that when fully developed they all have an abundance of light and air, and plenty of room to take a vehicle amongst them for collecting the fruit, spraying, etc.

We all know what a nuisance it is to have to convey tree prunings out of an extensive orchard, but in America they get rid of this trouble by running an iron car through the orchard into which the prunings are thrown and burned, as the car moves along. When we grow trees in grass we get rid of the labour of constant cultivation, and such animals and birds as sheep, pigs, geese, and poultry, if allowed to run amongst the trees, manure the ground, and keep the grass short, saving a big labour bill, and giving extra profit too.

The trees should not be of a lesser height than half standards, and, where animals are allowed to enter, the trees will need protection for their stems when young. Geese are, perhaps, the best graziers for orchard purposes; but they must not be put amongst low-stemmed trees; about four geese to an acre is ample, and, perhaps, too much as a regular thing, as they need a lot of grass. The geese that I kept would eat nothing but grass, refusing to touch meal of any description, but any Apples within their reach were quickly gobbled up.

In countries abroad fruit trees are often planted on land too poor for tillage, and do very well on it; but certainly the trees will live longer and grow larger on good soil. Poor soil will be vastly enriched if animals run over it constantly; failing animals it is certainly an excellent plant to top-dress the grass with manure, and when the grass is cut to let it lie and rot. Orchards in grass have been condemned by hasty observers, whose ideas have been formed after seeing old orchards that were not pruned, sprayed, or manured for 100 years. I have seen such orchards, yet they gave good fruit sometimes. Orchards in grass are more beautiful than cultivated orchards, and may be quite as effective and more economical. I am informed that Alfalfa or Lucerne is grown in some of the orchards in Virginia, a country famed for its fine Apples.

As regards the shaping of the trees, an open head should be aimed at, but there should be no time wasted in endeavouring to make each branch a cordon, as many have advocated. An open-growing tree is the best for full fruit production, and its formation and care involve the minimum of labour. It is only by avoiding needless expense that the fruit grower can show a good balance-sheet, but he must not avoid necessary expense in spraying, etc. *W. J. Farmer, Ye Hire, Redruth.*

BLACK CURRANTS.

FERTILISATION AND TYPE GROUPS.

THE Black Currant is probably one of the most important fruit crops grown in this country; but owing to "reversion" and "big bud," many plantations have been grubbed up and destroyed.

As in the case of the Red Currant, it will be found that the stigmas and anthers are both mature at the same time, and the flowers are both self- and cross-fertile.

When a bee visits one of the flowers, it will be found that the anthers which have opened on the inner side are bound to be brought very close to the stigma by the movement of the insect, with the result that the pollen dust is shaken on to the stigma, as well as on to the bee's head.

Many experts are of the opinion that those varieties which crop most heavily owing to their flower formation are specially liable to big bud, whilst varieties which, under normal conditions, are more resistant to this pest, often possess a high percentage of flowers which require insect pollination. When making new plantations, therefore, those of the latter section should be planted in sheltered positions exposed to the full sunshine in order to encourage as much insect activity as possible.

Black Currants may be readily divided into red-bud, and white-bud types. Amongst the former, Boskoop Giant, the fruit of which seldom hangs at all well on the bushes, is very early in ripening. Seabrook's Black, Mammoth and Merveille de la Gironde are excellent sorts which come under the heading of French Black. In the case of these red-budded types it will be found that the bud scales are very closely wrapped together, and this may account partly for the immunity of these varieties to big bud. This is a very interesting and important point, and readers of this article should consider whether it can in any way be applied to their own plantation.

In the case of the white-bud types, such as Baldwin and Goliath, the scales are much more loosely wrapped together, and it is, therefore, easier for the mites to attack the buds. *Enthusiast.*

REVERSION.

THE Black Currant situation is very serious indeed. I have yet to see a plantation where reversion is not rampant, though the growers do not always recognise any but the most completely affected bushes. This makes it difficult to know where to go for fresh stock.

Whilst the scientific men who are investigating reversion are unable, so far, to suggest the cause, except that they believe it to be connected in some way with bud mite, it may seem futile for a mere grower to air his views. But it seems to me that a check of any kind brings on reversion. I find that bushes transplanted when three years old or over generally revert, and so do old bushes that are cut back severely. Of late years young rabbits have taken to nibbling off the green shoots of newly-planted bushes; and I notice that all these revert. It seems possible that any check may be the cause, no matter whether from bud mite, severe drought, hard pruning, or the disturbance of roots.

The soundest lot of young bushes I have are some that were planted out as yearlings in the winter of 1921, and made an extra good start during the following moist season. Even here there are a good many reverted bushes. These will be taken out and the spaces filled by inserting cuttings. I have an idea that it may be best to avoid the check of transplanting by striking the cuttings where they are to stand. Why should not Black Currants be grown almost as a hedge? Cuttings could be put in one foot apart in single lines, the plants cut back once, and then allowed to crop. Reverted specimens could then be pulled out without making a serious gap; and all wood that had fruited could be cut away every year, so that the rows would always consist entirely of new wood. The plan is worth trying if it has not been tried already. *Market Grower.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante, pp. 71-76.)

(*Continued from page* 90.)

ENGLAND, N.E.

DURHAM.—Caterpillars have again completely destroyed our Apple crop; all the blossom was consumed before it opened. Pear trees at one time looked fairly promising, though weak in the flower, and the wretched weather at the time of blossoming spoiled the flowers. There never was a worse season here for all kinds of pests; hundreds of trees in the woods are quite leafless. *Edward Tindale, Ravensworth Gardens, Gateshead.*

——The fruit crops are, generally, very good, with the exception of Pears. Undoubtedly the Plum crop would have been much over the average, but for late frosts and cold, north-easterly winds when the trees were in full blossom. Small fruits are exceptionally heavy crops and of very good quality. Strawberries were very late in ripening. Pears have never been a success in these gardens. Our soil is of a light sandy nature, with a sandy subsoil. *J. A. Woods, Beamish Park Gardens, Beamish, S.O.*

NORTHUMBERLAND.—We have the worst crops of Apples, Pears, Plums and Cherries that I have ever seen. What few fruits we have are in good condition. All fruit trees developed plenty of blossom and fruits set freely, promising good crops, but frost and cold east winds for nearly three weeks caused the fruit to turn quite yellow and drop. The soil in these gardens is rather heavy, but has no great depth, and overlies free stone, and fruit trees never do well for any length of time. *William McCombie, Newton Hall Gardens, Stocksfield-on-Tyne.*

——The fruit crops were ruined by the very cold spring, the cold weather continuing until the end of June. Pears and Plums are scarce; Apples are poor, with the exception of a few late-flowering varieties, which have fair crops. Black Currants and Gooseberries were satisfactory, and Strawberries promised well, but needed rain. The soil here is on the gravel and of fairly good quality. *James Winder, Howden Dene Gardens, Corbridge-on-Tyne.*

——The Apple, Pear and Plum crops are almost complete failures in this district. The trees blossomed well, but owing to late frosts and cold winds the fruits did not set well, and even on wall trees the crops are poor; Apricots are scarce, but Peaches are an average crop. Gooseberries, Black, Red and White Currants are all good, but Raspberries are not so fine as last year, owing to the cold winds and droughts. Strawberries were a record crop. The varieties grown are The Duke, Laxtonian, King George, Royal Sovereign, and Givon's Late Prolific. The Duke is a grand cropper, early and of good colour, but my experience of this variety is that it requires more room between the rows and plants owing to the strong growth. Two-year-old plants put two feet apart each way are touching. I intend to plant at two feet six inches each way this season to give the plants plenty of room. *W. E. Anderson, Close House Gardens, Wylam-on-Tyne.*

YORKSHIRE.—The fruit crops are, with the exception of Strawberries, Gooseberries and Red Currants, very poor. Cold winds and wet weather in early spring spoilt the blossom, and some trees on the windy side are shrivelled up as if scorched. Strawberries were a splendid crop. *Jas. E. Hathaway, Baldersby Park Gardens, Thirsk.*

ENGLAND, E.

CAMBRIDGESHIRE.—With the exception of Pears, all fruit trees were well laden with blossom, but late frosts and cold easterly winds caused much damage, Plums suffering especially. Strawberries promised well, but frost on the night of May 23 caused a great amount of damage in some districts close by, while others

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escaped. Raspberries also suffered on that occasion, and the drought has practically finished the fruits that were left. *Arthur Sewell, 32, Barton Road, Ely.*

Essex.—The fruit crops generally in this district are very disappointing. There are practically no Pears. Apples of certain varieties are a fair crop. Plums, with one or two exceptions, are also a failure. Fruit trees generally bore an abundance of bloom, but the flowers failed to set in many instances, and were later attacked by caterpillars, which, together with very cold winds, is probably a great factor in the shortage of the fruit crops. Strawberries, Gooseberries and Currants were all very good. *Arthur Bullock, Copped Hall Gardens, Epping.*

—The long-continued cold thinned the stone fruits severely. The check to growth encouraged attacks of aphis, particularly on Plum trees. Apples are now suffering seriously in the same way—a fact which is bound to lessen that crop. *C. Wakely, County Gardens, Chelmsford.*

Huntingdonshire.—The season is notable in this district as the worst in memory for attacks of aphis. Cold, sunless weather retarded growth, and in spite of continued spraying the aphis gained the upper hand. Many trees in Plum orchards are denuded of their leaves, and the fruits have dropped off or have failed to swell. Cherries, Apricots and Apples are badly infested, as are also field crops of Potatos, Peas and Celery. Choice Pears flowered shyly, and there will be a thin crop of these fruits. Raspberries and Currants suffered from dryness at the roots. Our total rainfall for the past three months is under 2½ inches. Eight degrees of frost were registered on May 23, and did much damage in exposed places. Strawberries on strong land have been remarkably good, and Gooseberries were a very heavy crop, except where the flowers were damaged by frost. The Fen soil is light, overlying peat, and the high land is a strong loam over a clay subsoil, with an occasional seam of gravel. *A. V. Coombe, Ramsey Abbey Gardens.*

Lincolnshire.—Most varieties of Plums have failed. Low temperature when the trees were in bloom prevented the fruits from setting freely, whilst cold nights, accompanied by bitter winds, caused many of the fruits to drop. The same is true of Cherries, which dropped wholesale at stoning time. Apples will be an average crop. Bramley's Seedling appears to be the outstanding variety. Green and black fly have been very prevalent. All crops are three weeks later than last year. *F. J. Foster, Grimsthorpe Gardens, Bourne.*

Norfolk.—The fruit trees were covered with blossom, but it was almost entirely destroyed by frost and north-easterly winds from the sea. It is the worst season we have experienced for fruit, and Pears more particularly, during the sixteen years I have had charge of these gardens. Insects have been exceptionally troublesome. *H. Naylor, The Pleasaunce Gardens, Overstrand.*

—The Pear crop is very poor as compared with late years. Bush trees are cropping very moderately. Wall Pear trees are bearing fairly well. Such sorts as Charles Ernest, Beurré Superfin, Beurré Rance and Williams' Bon Chrétien are carrying a few good fruits. Apples are far below the average in numbers. Canker and aphis have been very bad on Apple trees this season, no doubt owing to extreme variations of temperatures. Spraying proved of very little use, and the fruits of some varieties are dropping very badly. Cherries were below the average in yield, and these, too, were badly infected with Cherry aphis. Bush fruits were very good, all carrying an abundance of first-class fruit. The early fruits of Strawberries were very fine and of good flavour, but the later ones were not so good, owing to hot, dry weather. Plums are below the average as compared with last year's heavy crops. Our soil is very light and sandy, and moisture very soon dries out. *J. E. Fitt, Earlham Hall Gardens, Norwich.*

(To be continued.)

HOME CORRESPONDENCE.

Gardeners' Holidays.—I notice in the *Gardeners' Chronicle* for August 4, under Answers to Correspondence, that a gardener cannot claim a holiday unless his agreement allows it. In recent years it has come to be understood that domestic servants can claim a holiday of a week or a fortnight every year, and I think private gardeners are classed as domestic servants. I know that young men look for an annual holiday in addition to Good Friday, Christmas Day, and part of Bank Holidays. I should be glad to know what is usual. Of course gardeners would have their holidays when convenient, as they cannot always be spared. We can usually best make time for holidays in August and September. *S. H. G., Derbyshire.*

Unemployed Gardeners.—Apparently there are many gardeners who are out of employment, and I would direct their attention to some of the excellent emigration schemes of the Colonial Governments, especially Australia, which has schemes suitable for settlers, both with and without means. I am convinced that the gardener who has the prospect of eventually farming his own land in Australia will be far better off than he could ever hope to be even in a good post at home. There are frequently good openings for gardeners in their own profession in the United States. There are 670 people to the square mile in this country, whereas the United States has only 34, and some of our Colonies only from one to ten. It is obvious that these young countries can absorb our surplus population, and nearly all who emigrate make good land workers. *W. J. Farmer.*

Summer Frosts at Tichborne Park.—It may be interesting to your readers to know that on June 28th we registered 7° of frost here and 3° on July 2. On July 19, during the heat wave, we had 1° of frost; on July 28, 1°; on August 3 the temperature dropped to freezing point, and on August 4 there was 2° of frost, when Vegetable Marrows were severely cut and blackened. I wonder if any other reader in the south has such a record of frost following very hot days. Ours is a very low-lying garden abounding with streams. I have enclosed a Marrow leaf to show the effects of the frost on August 4. *C. Goodchild, Tichborne Park Gardens, near Alresford, Hampshire.*

Appearance of White Clover after Drought.—During the latter part of June and early July large areas of Chorley Wood Common were absolutely white with Clover bloom. There have been tiny scattered bits of White Clover in other years, but the quantity was negligible. Why the Clover should be in such large masses this season is a matter of some mystery. It may be that the abnormally dry season of 1921, when Chorley Wood Common was not only baked up but partly burnt over, may have had a great deal to do with the present wonderful growth of wild White Clover. *Geo. W. Stacey, Chorleywood Cedars Gardens, Herts.*

Pelargonium Rollison's Unique.—I was pleased to read Mr. Lynch's reference to this handsome old plant (see p. 84), and to know its value as an ornamental subject has not been wholly lost sight of. There is a danger in these times, when great improvements are being made amongst varieties, and introductions of new plants are common, of some really good old plants being lost to cultivation, and it is desirable that in some gardens—such as that at Aldenham, in the case of the scented Pelargonium—unique collections should be preserved. Regarding Mr. Irwin Lynch's reference to the value of Pelargonium Rollison's Unique, as a conservatory pillar plant, I well recollect that upwards of fifty years ago, in an old conservatory at Knole, Sevenoaks (which was chiefly filled with planted-out large specimens of old subjects, most of which, except in botanical gardens, are now seldom met with), a grand plant of this old Pelargonium clothed a large space on an end wall, and was a beautiful feature when in blossom. *Thos. Coomber, V.M.H., Broadstairs*

SOCIETIES.

SHROPSHIRE HORTICULTURAL.

August 15 and 16.—The annual horticultural exhibition and fête, arranged by the Shropshire Horticultural Society, was held on the above dates in the beautiful Quarry Park, Shrewsbury. The Quarry was looking at its best, the trees green and affording ample shade, the Dell bright with flowers and foliage, the Severn flowing easily along the lower frontage, and giving that cool effect which only water can produce. The weather on the opening day was gloriously fine, and as a result of the rain which fell the previous afternoon, the atmosphere was pleasant.

The exhibition was extensive, and in many respects well up to pre-war standards; for the most part it was housed in one great canvas-covered area, two other tents accommodating the vegetables and cottagers' exhibits respectively. The large group classes were splendid, and with the big exhibits of hardy flowers, Roses and Carnations provided a gorgeous display. The fruit classes showed some improvement upon other post-war shows, but the exhibits therein were not up to old-time quality.

The attendance on the opening day seemed to be as large as ever. The arrangements made by Mr. Brazier, the secretary, and his committee were excellent; judging commenced promptly at 9 a.m., and although 11.30 was the time arranged for the admission of subscribers they were admitted about twenty minutes earlier.

We suggest that for another season the Shrewsbury Society should make an endeavour to co-ordinate the exhibits with a view to an improvement in the general effect of the show.

Groups.

In the great class for a group of flowering and foliage plants arranged on a space of 300 sq feet, there were four competitors, and these, together, provided one of the great attractions of the show. The premier award of £45 was won by Mr. Jas. Cypher and Sons, Cheltenham, with a particularly beautiful and graceful exhibit. For once in a way the arched background was omitted, and in its place a grand Kentia was used, set amid orange-coloured Fuchsias. Humea elegans disposed in several parts of the group lent an airy gracefulness to the whole, and this light effect was assisted by long arching spikes of Francoa ramosa, Oncidium incurvum, Lilium speciosum and L. s. album lent pleasing colour while throughout the groundwork of the group, and in association with brilliant Codiaeums, Nandina domestica, and Rex Begonias, were beautiful Cattleyas, Epidendrums and Ixoras, and quaint Cypripediums; the whole effect was exquisite, and we have rarely seen a finer effort, even by the Cheltenham artists.

Mr. W. A. Holmes, Chesterfield, won second prize with an excellent group in which Liliums, Miltonias, Odontoglossums, Francoa and Clerodendron fallax were the chief flowering plants; 3rd, Sir G. H. Kenrick, Edgbaston (gr., Mr. J. L. Macdonald), with a pleasing display, in which Orchids were used freely.

There were also four competitors in the scarcely less attractive class for a group of foliage plants arranged for effect on an area of 250 square feet. Messrs. J. Cypher and Sons were again successful in securing the first prize, and they made good use of bright Codiaeums, Nandina domestica, Aralias, Phyllanthus, Palms, Dracaenas, Anthuriums, Rex Begonias, Fittonias, Hibiscus Cooperi and Asparagus. Second prize was won by Sir G. H. Kenrick; 3rd, Mr. W. A. Holmes.

These eight groups alone provided an exhibition worth travelling a long way to see.

Sir John Leigh's group of Codiaeums, Malmaison Carnations, Francoa ramosa and Odontoglossums was adjudged the best collection in the county class; 2nd, A. M. Barber, Esq., Wellington (gr. Mr. T. A. Bremmer); 3rd, Mr. H. Howells, Shrewsbury.

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Plants.

Messrs. J. Cypher and Sons led in the class for fifteen stove and greenhouse plants; their leading subjects were Pandanus Veitchii, Ixora Williamsii, I. Pilgrimii, Clerodendron Thomsonae, Acalypha hispida and Bougainvillea Sanderiana; 2nd, Sir John Leigh, Lillishall Hall (gr. Mr. T. Young); 3rd, Messrs. R. Manning, Dudley.

In local plant classes Mr. C. Hatton, Mr. H. Howells, Mr. H. Clifft, and Mr. T. Hammonds were the most successful competitors; Mr. Howells showed some good, trained, pyramidal Fuchsias.

Hardy Flowers.

The class provided for a collection of herbaceous plants, flowers and foliage arranged in a natural manner on a ground space of 250 square feet proved a great attraction, as no fewer than five competitors entered, and together produced a display of colour and floral beauty rarely seen before at any exhibition.

The first prize and the President's Cup were awarded to Messrs. Gunn and Sons, Olton, for a bold and well arranged exhibit in which the flowers were of fine quality, the arrangement as natural as could be expected under the circumstances, and the finish excellent. Prominent subjects were Kniphofia aloides, Gladioli in variety, Phloxes, Lilium Henryi, Alstroemerias, Thalictrum dipterocarpum, Hollyhocks, and Gaillardias.

Messrs. Bees, Ltd., Chester, were awarded the second prize for a group in which grand Hollyhocks provided an effective background, for Gladioli, Scabious, Astilbes, Lilium Sargentae, Phloxes, Heleniums, etc.; a fine display but lacking in marginal finish; 3rd, Messrs. Prichard and Sons, Christchurch; 4th, Messrs. Harkness and Son, Bedale.

In the class for eighteen bunches of hardy flowers Messrs. Bees won the first prize; 2nd, Messrs. M. Prichard and Sons; 3rd, Mr. A. S. Dunton; but this class was a weak one, and suffered by comparison with the larger one.

Messrs. Prichard and Sons, Christchurch, exhibited the finest lot of Lilies and other bulbous plants in flower and made up a most effective group with Lilium tigrinum, L. speciosum album, Crinum Powellii and C. P. album, Galtonia candicans and Montbretias in variety; 2nd, Messrs. Harkness and Sons.

Florists' Flowers.

Mr. C. Engelmann, Saffron Walden, won first prize in the class for perpetual Carnations displayed on a space 18 ft. by 4 ft. To the cash award was added a Silver Challenge Cup presented by the late Annabelle Lady Boughey, a former President of the Society. There were two competitors and each had a very sharply pitched, high exhibit—a veritable wall of flowers. Mr. Engelmann had a fine arrangement of grand blooms, some of his outstanding varieties being Circe, Renown, Laddie, Tarzan, Saffron, and White Pearl. Second prize was awarded to Mr. Chas. Wall, Bath, for a fine effort wherein the varieties Marion Wilson, Mrs. C. W. Ward, White Pearl, and Red Ensign were particularly effective.

In another class for a group of Carnations Mr. H. Woolman, Birmingham, gained the chief award.

Messrs. Blackmore and Langdon, Bath, were easily the first prize winners in the class for a group of Begonias, winning with a glorious display of grandly grown plants of superb varieties—Hilda Langdon, Chrystabel Spry, Lord Lambourne, Albatross, and Mrs. J. S. Brunton were a few especially fine varieties; 2nd, Mr. H. Woolman.

Messrs. R. Bolton and Son, Halstead, had the best display of Sweet Peas, and once again used their gilded baskets for the display of clean, handsome flowers of Picture, Wonderful, Matchless, Faerie Queen, Hebe, Glorious and R. F. Felton: 2nd, Mr. A. S. Dunton; 3rd, Mr. F. R. Minshall, Market Drayton; 4th, Mr. W. Scott, Styal, Cheshire.

Mrs. C. M. Weaver, Mold, led in the class for a dozen bunches of Sweet Peas, distinct varieties, with grand flowers of Tangerine, Elegance, Salmon Queen, Matchless, Picture, Edna May, Cecily, Royal Scot, King Manoel, George Shawyer, Charity and Austin Frederick; 2nd, Mr. A. Leigh, Tittensor; 3rd, A. Bradbury, Esq., Llandudno. Mr. S. Robinson, Kingston, was the most successful competitor in the class for six varieties.

The Silver Challenge Rose Bowl presented by W. G. Phillips, Esq., for the best collection of cut Roses arranged on a space 20 ft. by 4 ft. was won by Messrs. Gunn and Sons, Olton, with a grand display that attracted a great deal of attention. The general arrangement of tall pillars of bloom, arches and baskets and stands of flowers, was excellent, but the blooms were in some instances placed too closely together. Leading varieties in this brilliant exhibit were George Dickson, Golden Emblem, Los Angeles, Mdme. E. Herriot, Souv. de Claude Pernet, Ophelia, Gorgeous, Independence Day, Miss Willmott, and The Queen Alexandra. Second prize was awarded to Messrs. Bees, Ltd., who had a fine group in which Mdme. Butterfly, K. of K., Duchess of Wellington, and Ariel were conspicuous varieties; 3rd, Mr. A. S. Dunton.

Messrs. Gunn and Sons showed the best set of eighteen vases of Roses, and were also successful in the class for three baskets of Roses, with good blooms of Sunstar, Los Angeles, and Mrs. M. Morse.

Mr. H. Clarke, Taunton, showed a fine collection of Cactus, decorative, Pompon, Paeony-flowered and collerette Dahlias, and arranged them in pleasing fashion in association with sprays of the double Gypsophila paniculata and Humea elegans; he was awarded a first prize for his group; 2nd, Mr. H. Woolman, Shirley, Birmingham; 3rd, Messrs. W. Treseder, Ltd., Cardiff.

Floral Arrangements.

In the ladies' class for a table decoration of Roses only, Mrs. John Nixon, Alderley Edge, won first prize with brilliant flowers arranged in small dark brown wicker baskets; a very pleasing effort; 2nd, Mrs. Rope, Shrewsbury, with a bolder arrangement of Mdme. Butterfly; 3rd, Miss Newsham, Ormskirk.

In another class, Roses excluded, Mrs. Rope was awarded the chief prize for a pretty arrangement of Orchids, Gloriosas, and Francoa associated with Codiaeum and Caladium argyrites leaves; 2nd, Mrs. John Nixon; 3rd, Miss Newsham.

Mr. M. Stather, Cottingham, Hull, showed the best basket of flowers—a charming arrangement of Odontiodas, Oncidiums and Laelio-Cattleyas; 2nd, Mrs. J. Nixon. Miss Newsham had the best bowl of flowers—Independence Day Roses, finely displayed.

Mr. A. Adshead, Gatley, exhibited the best of two bridesmaid's and bride's bouquets; he used Orchids successfully, and in the bride's bouquet he associated Cypripedium callosum Sanderae with white Cattleyas and Lily of the Valley; 2nd, Mr. C. Vickers. Mr. Stather showed the best hand bouquet, a gorgeous design in Odontiodas and Cattleyas.

Rock Gardens.

Messrs. T. R. Hayes and Son, Keswick, won the chief honours for a rock and water garden, with a very natural design in which an effort had been made to create gay or striking effects. The little water-fall and streamlet, the grey, weathered stone and the colonies of Gentians, dwarf Campanulas, Heathers, St. Dabeoc's Heath, Junipers and Primulas all harmonised in the most natural fashion, and the whole was greatly admired for its quiet colouring and general restraint. Mr. P. Gardner, Ilkley, gained second prize; he introduced grassy slopes below the rock and contrived a bog garden with Astilbes.

Dessert Fruit.

Three competitors came forward in the class for a decorated table of choice fruits. Thirty dishes of fruit in not fewer than nine distinct kinds were required, and the first prize was the Shrewsbury Tradesmen's Cup and £25. This fine prize was won by the Duke of Newcastle, Worksop (gr. Mr. S. Barker), who led with 204 out of a possible 242 points. He exhibited Madresfield Court, Mrs. Pearson, Muscat of Alexandria and Muscat Hamburgh Grapes; Early Rivers, Pineapple, Pitmaston Orange (grand), and Humboldt Nectarines; Crimson Galande and Peregrine Peaches; Kirke's and Jefferson Plums; Brown Turkey and one other dish of Figs; Triomphe de Vienna and Dr. Jules Guyot Pears; James Grieve and Lady Sudeley Apples; and four fine Melons. Mr. Barker used Francoa ramosa and Baroness de Brienen Carnations as decoration.

The second prize was awarded to Sir John Leigh, who had excellent Sea Eagle Peaches, good Muscat of Alexandria and Chasselas Napoleon Grapes, and capital Plums; 182 points. The third prize was won by Mrs. T. S. Hall, Crickett St. Thomas (gr. Mr. G. F. Richardson), who had 161 points.

It is our opinion that the committee of the Shrewsbury Society would be well advised to give the decorated fruit table class its earnest consideration with a view to making it more attractive to competitors and visitors to the show. At present the thirty dishes of fruit are over-crowded and not less than 50 per cent. additional space should be allotted to each competitor. Exhibitors should pay more attention to careful and legible labelling and to further increase the educational value of the class the exhibits should be placed end to end, instead of side by side. This year, so soon as the protecting wires were put up, it was impossible to see the fruits on the inner sides of two of the tables. Placed end to end it would be possible for every visitor to see every fruit in every dish.

The class for a dozen dishes of dessert fruits brought out an excellent competition and some excellent fruits. J. Brennand, Esq., won the first prize, showing heavy bunches of Madresfield Court and Muscat of Alexandria Grapes, Fondante d'Automne Pears; Newton and Dryden Nectarines, Czar and Ouillin's Golden Gage Plums, Bigarreau Napoleon Cherries, Brown Turkey Figs, Stirling Castle Peaches, and Hero of Lockinge Melon; 2nd, Messrs. J. Webber and Sons, Minehead. Each of the collections was pleasingly decorated with flowers.

The best collection of nine dishes of fruit was shown by Col. Heywood Lonsdale, whose best examples were of Violette Hative Peaches, Clapp's Favourite Pears, and Melons; 2nd, Capt. W. W. Hayes, Harcourt (gr., Mr. T. Meadock).

Col. T. Dickin had the best dish of Peaches among eight competitors; J. Brennand, Esq., led for Nectarines, showing Dryden; unfortunately numerous exhibitors did not name their varieties. Col. Heywood Lonsdale, Sherington Hall (gr., Mr. J. Mills) showing the best Apricots; J. Brennand, Esq., the best Gages (Ouillin's Golden Gage); and the Duke of Newcastle the best Plums (Jefferson).

Great Grape Class.

Some of the excitement formerly attaching to the competition in the class for a dozen bunches of Grapes appears to have disappeared, nevertheless, there were four competitors on this occasion, and, on the whole, the Grapes were of fine quality. As usual the bunches were staged on separate stands, and floral decoration of the exhibits was allowed.

The first prize of £20 was won by the Duke of Newcastle, Clumber, who showed an even set of medium-sized bunches, and secured 78 out of a possible 118 points. We give the varieties, but as the bunches were not numbered on this occasion, it would serve no useful purpose to attempt to give possible and awarded points for the individual bunches. Moreover, on the pointing card, no maximum "possible" was over 10 points, whereas in the schedule 11 was suggested as a maximum for Muscat of Alexandria: 10 for all other Muscats and Black Hamburgh, and 9 for all other Grapes! The Clumber varieties were Mrs. Pearson (2 bunches), Madresfield Court (4), Muscat of Alexandria (4), and Black Hamburgh (2). Second prize was won by Messrs. J. Webber and Sons, who had 72 out of a possible 116 points; Black Hamburgh clusters of large size were shown by these exhibitors; 3rd, the Pwllycrochan Hotel Co., Colwyn Bay, with 68 out of a possible 116 points; the bunches were very shapely, but needed a little more time to colour properly;

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4th, J. Roger Corbett, Esq., Ynysymaengwyn (gr., Mr. J. Jones), with 67½ points out of a possible 118, his Black Hamburgh Grapes had very large berries.

Grapes.

The best four bunches of Grapes were medium sized, well coloured clusters of Black Hamburgh and Muscat of Alexandria, shown by the Earl of Coventry, Croome Court, Worcester (gr., Mr. W. H. Nelson); 2nd, Lt.-Col. H. C. Legh, Knutsford (gr. Mr. A. J. Cook), with large even bunches of Madresfield Court and Muscat of Alexandria; 3rd, J. Brennand, Esq., Baldersby Park, Thirsk (gr., Mr. J. Hathaway), with similar varieties.

The Earl of Coventry also showed the best pair of bunches of Black Hamburgh Grapes, with well-coloured berries; 2nd, the Duke of Newcastle; 3rd, Lady Mary Herbert, Styche (gr., Mr. John Birch); ten entries.

In the class for a pair of bunches of Madresfield Court, J. Brennand, Esq., led with very heavy bunches; 2nd, the Duke of Newcastle. The Earl of Coventry won first prize for a bunch of Black Hamburgh, in close competition; 2nd, the Duke of Newcastle. For any other black Grape the Duke of Newcastle led with Muscat Hamburgh.

Lt.-Col. Legh led in the class for two bunches of Muscat of Alexandria Grapes, with medium-sized but finely-coloured bunches; 2nd, the Earl of Coventry; 3rd, Col. Mellor, Abergele (gr., Mr. C. Price). For any other white Grape the awards were made in favour of Messrs. J. Webber and Sons, Minehead, and the Duke of Newcastle, for Buckland's Sweetwater and Mrs. Pearson respectively.

In the local classes Lady Mary Herbert gained first prize for Black Hamburgh Grapes, and Capt. Bibby, Sansaw (gr., Mr. J. Clark), for Muscat Grapes.

Vegetables.

Remembering the long spell of dry weather and the recent brilliant sunshine experienced in the south, it was a pleasure to find vegetables so finely and extensively shown at Shrewsbury.

The first prize offered by Messrs. Sydenham for nine kinds of vegetables was won by Mr. W. Robinson, Garstang; 2nd Mr. E. Millington, Hadnall. Mr. A. Watson, Stourbridge, led in Messrs. Webb's class for nine kinds, with Mr. W. J. Jones, Ammanford, second. Messrs. Carter and Co.'s premier prize was won by Mr. W. Taylor, who had a very fine collection. Mr. C. J. Gwyer, Titley, led in the class provided by Messrs. Clibrans, for nine kinds of vegetables. Mr. T. M. Jones, Llandilo, annexed the premier award in a class provided by Messrs. Dickson and Robinson; 2nd, Mr. D. Thomas, in a fine competition. The prizes offered by Messrs. Sutton and Sons were well contested, and the first and second awards were won by Viscount Hambledon, Henley-on-Thames, and Mr. W. J. Jones, respectively, each showing fine produce.

Viscount Hambledon was also successful in the open class for twelve kinds of vegetables with a fine display, in which Celery, Potatos, Tomatos, Parsnips, Onions, Cucumbers, Beet, Carrots, Leeks and Cauliflowers were especially good; 2nd, Mr. W. J. Jones, Ammanford. Col. Heywood led in the Shropshire County Class for nine kinds of vegetables.

There was excellent competition in the single-dish classes, and some splendid specimens of Onions, Parsnips, Turnips, Carrots and Potatos were staged.

Non-Competitive Exhibits.

The trade and other non-competitive exhibits were especially good on this occasion, and a special word of praise is due to the King's Acre Nurseries for their grand lot of fruit trees in pots; to Messrs. Dickson and Robinson for a brilliant exhibit of flowers and vegetables, and to Messrs. Bakers for their large rock and water garden.

The following are the medals awarded:

Large Gold Medal.—To the King's Acre Nurseries, Hereford, for fruit trees in pots; to Messrs. Dickson and Robinson, Manchester, for flowers and vegetables; to Mr. H. J. Jones, Lewisham, for Phloxes; to Messrs. Bakers, Wolverhampton, for rock and water garden; to Major A. Pam, Wormely Bury, Broxbourne (gr., Mr. F. Streeter), for a magnificent collection of vegetables, finely grown and finely displayed; and to Messrs. Webb and Sons, Stourbridge, for vegetables and flowers.

Gold Medal.—To Mr. Henry Eckford, Wem, for Sweet Peas; to Mr. H. N. Ellison, West Bromwich, for Ferns; to Messrs. Forbes, Hawick, for Phloxes and Pentstemons; to Messrs. Isaac House and Son, Bristol, for new Scabious; to Mr. W. Wells, junr., Merstham, for hardy flowers; to Mr. E. Murrell, Shrewsbury, for Roses; to Messrs. Herd Brothers, Penryn, for Sweet Peas; to Mr. E. J. Bayley, Shrewsbury, for Lilies and vegetables; to Messrs. Toogood and Sons, Southampton, for vegetables and flowers; to Messrs. J. Peed and Son, Norwood, for Hydrangeas and Streptocarpuses; to Messrs. Jarman and Co., Chard, for Dahlias, etc.; to Mr. R. Felton, Hanover Square, London, for charming floral designs; to Mr. C. Vickers, Leicester, for a fine display of floral art; to Messrs. Jas. Carter and Co., Raynes Park, for a fine lot of vegetables and flowers; and to Messrs. M. Prichard and Sons, for hardy flowers.

Silver Medal.—To Messrs. Blackmore and Langdon, Bath, for Delphiniums; to Mr. E. Parsons, Worcester, for fruits; to Messrs. Bowell and Skarratt, for Alpines; to Mrs. Thomson, Handsworth, for Cacti; to Messrs. Clarke, Taunton, for Larkspurs; to Messrs. Hewitt, Solihull, for Gladioli; to Messrs. E. F. Fairbairn Bros., Carlisle, for Phloxes and Dahlias; to Messrs. Knight and Son, Wolverhampton, for Roses; to Mr. R. Lawrie, Carnforth, for Begonias; to Messrs. Vert and Sons, Saffron Walden, for Hollyhocks; to Messrs. Stuart Low and Co., Enfield, for Orchids and Carnations; to Mr. Bunn, for Pelargoniums; to Messrs. Sanders, St. Albans, for Orchids; and to Messrs. H. Simpson and Sons, Birmingham, for Antirrhinums.

Obituary.

Mr. George Wyllie.—His many friends throughout Scotland and farther afield will learn with deep regret of the death of Mr. George Wyllie, J.P., which occurred at Inverness, whence he had retired in May, 1920. Born near Stonehaven, Kincardineshire, 80 years ago, Mr. Wyllie commenced his career as a forester at Cullen House, the chief Scottish seat of the Earls of Seafield, and he was also in the service of the Earl of Hopetown, and of Mr. Baird, of Strichen House, Aberdeenshire. But it was on the Ballogie estates, in the Dee Valley, Aberdeenshire, where Mr. Wyllie's life work was done. There for nearly half a century he served under three generations of proprietors, the Nicols of Ballogie. Forestry experts from distant parts have warmly acknowledged the sound ideas and fine progressive lines on which the forestry work was done at Ballogie. When he retired in May, 1920, Mr. Wyllie was made the recipient of handsome tokens of esteem from the tenantry, employees, servants and friends, and at the presentations, warm tributes were paid to the zealous and faithful services rendered by him, and to the fine consideration he had always shown to those around him. Mr. Wyllie was a Justice of the Peace for Aberdeenshire; he was predeceased by his wife, and retired to live in Inverness with his son, Mr. William R. Wyllie, of the Scottish Board of Agriculture. The funeral, which was largely attended, took place at Birse Churchyard, Ballogie, on Wednesday, August 8.

Siegfried Braun.—The death took place on July 14 of Siegfried Braun, the organising secretary of the Deutschen Gartenbau-Gesellschaft. He had held office in the Society for 26 years, and his whole interests were centred in it. His death was the result of his falling heavily from a ladder in the library belonging to the Society, in the horticultural training school in Berlin. He was found some hours afterwards, unconscious, by a postman who happened to enter the library, and was then past help. It is especially tragic that he should have died just at this time, as some negotiations with the State authorities, which would have had the effect of placing the Society on a sound financial basis, had just taken a favourable turn. Herr Braun was only fifty-eight years of age, and previous to his sad accident was in full health and vigour.

Mrs. Findlay-Hamilton.—By the death, on August 4, of Mrs. G. J. Findlay-Hamilton, wife of G. D. Findlay-Hamilton, Esq., of Carnell, Ayrshire, horticulture has lost one of its most devoted adherents. Mrs. Findlay-Hamilton was no mere amateur who left the care and oversight of her garden to others, but was herself the moving spirit of one of the prettiest and most interesting of the larger gardens of Ayrshire. She took a warm interest in all the phases of gardening, specially in rock plants and hardy border flowers. For the former she constructed a magnificent rock garden in perfect taste and admirably arranged for the welfare of a very fine collection of good plants, among which she delighted to work. It may be added that most of the stones were placed by Mrs. Findlay-Hamilton's own hands. She was a lady of great ability, and during the war, and at other times, devoted much time to philanthropic and other public work. Much sympathy is felt for Mr. Findlay-Hamilton, and for their only daughter, Mrs. Buchanan-Findlay. Their only son, Lieut. John E. Hamilton, was killed during the war at the age of 19.

ANSWERS TO CORRESPONDENTS.

Abutilon and Vine Leaves Damaged: *L. G. W.* The leaves of the Abutilon and also those of the vine show ample evidences of scorching and thrips; green fly and some scale were found on the vine leaves. More care in cleanliness and in the ventilation of the house is desirable.

Assessment of Rent Allowance for Income Tax: *J. W.* Your best course would be to report the matter to your employers, and ask them to take it up direct with the authorities on your behalf.

Asters Diseased: *J. H. W.* The rotting at the base of the Aster stems is due to the presence of a fungus (Phytopthora species), which produces a disease known as Black Neck or Wilt. Lift and burn all diseased plants, and spray the healthy ones with Bordeaux mixture.

Correction.—We are informed that the first prize in two classes for twelve varieties of Sweet Peas at the Royal Lancashire Show on August 2 were won by A. Bradbury, Esq., Bryn-Lupus, Llandudno (gr. Mr. H. G. Shaw), and not by Mr. A. Bolton, and Messrs. R. Bolton and Sons, as stated on page 93.

Excessive Growth on Fruit Trees: *D. S.* The absence of fruit has no doubt encouraged your tree to make more growth than usual; but if you carefully thin out a large number of the shoots, and summer prune the others, this should go far to induce fruitfulness for another year.

Flowers for Christmas: *A. S.* In addition to Chrysanthemums, you could cultivate Roman Hyacinths, the earliest flowering Daffodils, Paper White Narcissi, Lily-of-the-Valley, Carnations, Poinsettias, and Freesias.

Gooseberry Bushes Dying: *R. P.* Your Gooseberry bushes are suffering from a severe attack of the "die back" disease, caused by a species of Botrytis. The Ministry of Agriculture publishes an illustrated leaflet dealing with this disease, and a copy may be obtained, post free, on application to the Ministry, 5, Whitehall Place, S.W.

Melon Leaves Blotched: *G. B. B.* The blotching and yellowing of the Melon leaves are due to scorching, which is caused by failure to ventilate the house sufficiently early on bright days.

Names of Plants: *H. S.* The flowering plant is Escallonia macrantha and the shrub Tamarix gallica. *L. G. W.* Plant in flower, Asclepia curassavica; stove plant, possibly

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Eranthemum versicolor; send when in flower. *G. D., Antrim.* 1, Lilium sp.; 2, Campanula rapunculoides; 3, Sempervivum sp. cannot name without rosettes of leaves; 4, Lysimachia Nummularia; 5, Anaphalis margaritacea; 6, Veronica orientalis; 7, Sedum album; 8, Veronica Lyallii; 9, Helianthemum vulgare. var. cupreum; 10, Campanula garganica.

Rose Failing to Open: *Mrs. T.* We do not recognise the variety of Rose. The failure of the blooms to open is probably due to the earlier cold, sunless weather.

Snail Plant: *Feltham.* The plant commonly known as "Snails" is Medicago scutellata; the Snail Flower is Phaselous Caracalla. We do not know if the term Snail Plant is used for either of these plants in Australia.

Soil for Analysis: *S. H.* We do not undertake to analyse soil for our readers. Send to the R.H.S. Gardens, Wisley, Ripley, Surrey.

Tomato Fruits Diseased: *A. W.* The Tomato fruits were more or less covered with the grey mould of Botrytis cinerea, but we believe this is the result rather than the cause of the decaying portions. See that a drier atmosphere is maintained, and that little or no overhead watering is given. Also collect and burn all dead and decaying leaves and fruits.

Tomatos Failing to Swell: *J. E. L.* No disease could be found in the fruits or leaves, therefore we can only conclude that the failure of the fruits to swell properly is due to some cultural error, possibly to a severe check or the poor condition of the soil.

Violas Diseased: *W. H. K.* The Violas are suffering from a very bad attack of mildew caused in some measure by the extremely dry weather of the past weeks. Spraying with potassium sulphide would doubtless assist in checking the disease; but it would appear that the trouble has gone too far, and your best plan would be to propagate from clean, young stock.

Communications Received.— Stevo — Old Reader—A. B. H.—R. P. B.—C. G.—F. T. S.—G. S.—W. J. F.—G. W. S.—A. B. W.—T. C.—W. D.—M. S.

THE WEATHER.

THE WEATHER FOR JULY.

The mean direction of the wind at Southport in July is normally a point or two on the northerly side of west; but this season it was a point or so south of west, and also stronger than usual. The month was therefore more cloudy and humid than is customary, and considerably warmer. Very hot weather was restricted to a single day—the 6th—when the maximum thermometer registered 86.2°, and even 80° was not again reached; but every day from the 6th to the 14th was very warm, and a few days and several nights later also. The mean temperature of the complete month was 62.1°, or 2.8° above the fifty years' average. Nevertheless, only 161 hours of bright sunshine were experienced, implying a deficiency of no fewer than 44 hours. The total rainfall was almost exactly equal to the normal—3 inches—but at Birkdale nearly 3½ inches fell. The latter half of the month was principally stormy and unsettled, and on the 26th the wind attained gale force. Slight thunderstorms occurred on the 7th and 30th. *Joseph Baxendell, The Fernley Observatory, Southport.*

THE WEATHER IN SCOTLAND.

The mean temperature for July was fully one and a half degrees above the normal, but there were cold spells in the month, notably on the 26th. Rainfall was slightly deficient, being 2.53 inches for 15 days, of which nearly one-half fell on the last two days. On the whole the month was a dull one with an aggregate of 150.1 hours of sunshine; this gives a daily average of 4.84 hours and a percentage of 29; there were only three sunless days. The barometer, with a mean of 29.90 inches, varied from a highest of 30.26 inches on the 13th to a lowest of 29.26 inches on the 31st. With a mean maximum of 68°, and a mean minimum of 52°, the mean temperature works out at 60°, against a normal mean of 58.4°. The highest maximum was 81° on the 12th—a rather exceptional temperature—and the lowest minimum 47° on the 18th; there were 12 days on which the temperature reached or exceeded 70°. On the grass, the mean minimum was 49°, with a lowest of 43° on the 13th; there were no nights of ground frost. At 1 ft. deep the soil temperature rose from 57° to 63°, and fell again to 57°. We had thunderstorms during the month, one on the 7th and the other on the 30th, the latter being accompanied by exceptionally heavy rain. The prevailing winds were from the south and west. *John Davidson, Director of Studies, St. Andrews Provincial Committee, Training College Gardens, Mayfield, Dundee.*

MARKETS.

COVENT GARDEN, Tuesday, August 14, 1923.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate not only from day to day, but occasionally several times in one day.—Eds.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples—		
Tasmanian, and N.Zealand		
—Sturmer	18 0	21 0
English—		
—B. of Bath, ½ sieve	4 0	8 0
—Gladstone, ½ sieve	4 0	6 0
—Lord Derby ½ bushel	3 0	5 0
—Lord Suffield	3 6	5 0
—Grenadier, ½ sieve	2 0	4 6
—Early Julyan ½ sieve	1 9	2 6
—Quarrenden	5 0	8 0
Bananas singles	16 0	25 0
—doubles	20 0	22 0
Currants—		
—Red 6 lb. chips	2 0	3 0
Figs doz.	4 0	8 0
Grapes—		
—Alicante	1 3	2 0
—Belgian	1 3	1 6
—Cannon Hall	3 0	5 0
—Hamburgh	1 3	3 0
—English Muscat	2 6	5 0
Grape Fruit—		
—Jamaica	27 6	30 0
Lemons—		
—Murcia, case	18 0	25 0
—Messina, case	18 0	20 0
Melons, English and Guernsey, each	2 0	5 0
—Cantaloupe ea.	4 0	10 0
—Nectarine, doz.	6 0	24 0
Oranges—		
—South African Navels	16 0	22 0
—Seedling	16 0	22 0
Peaches —English, doz.	6 0	18 0
Pears —French boxes Williams 48's	5 6	6 0
,, crates	10 0	12 0
Plums—		
—English, Early Rivers, ½ sieve	8 0	10 0
—Czars	9 0	12 0
—Orleans	10 0	12 0
—French, half	6 0	10 0
—Spanish, Greengages, ½ sieve	8 0	14 0

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Beans, outdoor—		
—Scarlets, ½ sieve	5 0	6 0
—French Beans	0 4	0 6
Beets—		
—New, doz. bun.	3 0	4 0
Cabbage, doz.	1 6	2 0
Cauliflowers, doz.	3 0	4 0
Cucumber, Flat	16 0	22 0
Green Artichokes, dozen	2 0	3 0
Lettuce, dozen—		
—Round	1 3	2 0
—Cos	1 6	2 3
Marrows, doz.	2 0	3 0
Mint, doz.	2 0	3 0
Mushrooms, lb.	1 6	2 6
Onions—		
—Egyptian	7 0	8 0
—Valencian, case	9 0	10 0
Peas, bushel,	6 0	9 0
Pines, case	20 0	45 0
Potatos	4 6	9 0
Radishes, doz.	1 0	1 6
New Turnips, doz. bunches	3 0	5 0
Tomatos—		
—English		
—Pink and White	8 0	9 6
—White	6 0	7 6
—Blue	6 0	7 6
—Guernsey	8 0	8 6
—Dutch	7 6	8 6

Remarks.—Fairly brisk conditions have ruled during the past week, all sections of fruits clearing satisfactorily almost each day. English Apples of first-grade quality are in fair demand, and all available supplies have readily been taken up. A fair sprinkling of Czar Plums are selling at moderately good prices, considering the quantities of Spanish and French Plums and Greengages that are arriving. Plentiful supplies of French Pears are on offer and meeting a good demand. Choice fruits, such as Grapes, Peaches, Nectarines and Figs are quoted lower. Melons meet a slow trade. Both English and Dutch Tomatos are now more plentiful, and prices are accordingly at a lower level. Cucumbers meet a fairly steady trade. Supplies of Beans are rather short and below requirements. Green vegetables are in fair demand, but the Potato trade is quiet.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz.	10 0	18 0
—elegans	10 0	12 0
Aralia Sieboldii	10 0	12 0
Araucarias	30 0	48 0
Asparagus plumosus	12 0	15 0
—Sprengeri	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Cacti, per tray, 12's, 15's	5 0	7 0
Crotons, per doz.	30 0	42 0
Cyrtomium	10 0	15 0
Hydrangeas —paniculata, ea. white & pink, 48's, doz.	15 0	24 0
Lilium, longiflorum, each	3 6	4 0
Lilium —speciosum album, each	3 6	4 0
—speciosum, rubrum, each	3 0	3 6
Marguerites, per doz.	12 0	18 0
Mignonette	10 0	15 0
Nephrolepis, in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	24 0	30 0
—60's	15 0	18 0
—Cocos	24 0	36 0
Pelargonium	18 0	24 0
Pteris, in variety	12 0	21 0
—large 60's	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's	3 6	4 0
Verbenas, Miss Wilmott, 48's, per doz.	10 0	12 0
Viscaria	12 0	15 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum, decorum, doz. bun.	12 0	15 0
—cuneatum, per doz. bun.	8 0	10 0
Asparagus, plumosus, per bun.		
long trails, 6's	4 0	5 0
med. sprays	2 6	3 6
short ,,	1 0	1 6
—Sprengeri, per bun.		
long sprays	2 6	3 0
med. ,,	1 3	1 6
short ,,	0 9	1 0
Carnations per doz. blooms	1 3	3 0
Chrysanthemum, per doz blooms —white, ,,	3 0	6 0
—yellow ,,	5 0	7 0
—bronze ,,	—	—
,, spray per doz. bun.	8 0	10 0
Croton leaves, var., per bun.	2 6	4 0
Gardenias, 12's, per box	4 0	5 0
18's, per box	5 0	6 0
Gladiolus, The Bride, per doz. bun.	12 0	15 0
Fern, French per doz. bun.	1 0	1 3
Forget-me-not per doz. bun.	4 0	6 0
Heather, white per doz. bun.	4 0	10 0
Lavender per doz. bun.	9 0	15 0
Lilium speciosum long per doz.	4 0	4 6
short ,, ,,	4 0	5 0
Lily of the Valley, per doz. bun.	18 0	24 0
Orchids, per doz. —Cattleyas	18 0	30 0
—Cypripediums		
Pelargonium, per doz. bunch, double scarlet	—	6 6
Roses, per doz. blooms—		
—Melody	1 6	2 9
—Ophelia	1 6	2 0
Smilax, per doz. trails	4 0	5 0
Stephanotis, per 72 pips	3 0	3 0
Stock, per doz. bun. mauve	9 0	—
—white per doz. bun	8 0	12 0
Sweet Peas, per doz. bun.	3 6	4 0
Sweet Sultan, white, per doz. bun.	4 0	8 0
—mauve, per doz. bun.	4 0	8 0
—yellow, per doz. bun.	5 0	6 0
Violas, per doz bun.	1 6	2 0

Remarks.—In this department there appears to have been no shortage during the past week. A sudden drop in prices for Lilium longiflorum was greatly welcomed, and the flowers are now arriving in good condition. L. speciosum has hardened in price, owing to a short supply. Other subjects show little change from last week. Carnations and Roses are greatly affected by the hot weather, and only the best blooms of the former are suitable for another journey. Roses are arriving in large quantities, and the majority come in an open condition, and they are, therefore, practicably unsaleable. These are offered to the street vendors at a very low figure. Other choice subjects consist of Gardenias, Stephanotis, Lapagerias and Lily-of-the-Valley. Chrysanthemums are gradually increasing, Sanctity being the most popular sort at present. A few blooms of Countess (white) and Mercedes (yellow) are offered, but these are of only medium quality. A few branches of spray bronze flowers find a ready sale. Asters, although more plentiful, both white and coloured, remain firm in price; a few single varieties are now on sale. There is a glut of Statice sinuata, white Daisies, Gypsophila, Coreopsis and Gaillardias. Large-flowered Gladioli are fairly plentiful. A good supply of these blooms is being sent from Holland.

GARDENING APPOINTMENTS.

Mr. A. E. Yallop, for the past three years Foreman at Kingston Hall, Derby, and previously at the Royal Gardens, Sandringham, as Gardener to Captain Drury-Lowe, Locko Park, Spondon, Derby.

Mr. Alfred W. Phelps, for the past two and a half years Foreman to Sir Hugh Thomas, O.B.E., Castle Hall, Milford Haven, Pembroke, and previously at Norman Court, Salisbury, Duffryn, nr. Cardiff, and Frensham Hill, Surrey, as Gardener to W. H. Brady, Esq., Glan-y-Coed, Penmaenmawr, North Wales. (Thanks for 2s. for R.G.O.F. Box. Eds.)

Mr. James A Paice, for the past nine years Gardener to the Rev. Edgar Stogdon, M.A., Aldenham Vicarage, Watford, Hertfordshire, as Gardener to Charles E. Gabain, Esq., "Sunnyfields," Mill Hill, Middlesex.

Mr. B. H. Cole, for the past two and a half years Gardener to Lt.-Col. G. H. Siobart, D.S.O., Harperley Park, Co. Durham, as Gardener to the Right Hon. Lord Barnard, Raby Castle, Staindrop, Darlington. (Thanks for 2s. 6d. for R.G.O.F. Box.—Eds.)

Mr. F. W. Dale, for the past ten months Gardener to Mr. Graham, Barford House, Warwick, and previously for eight years Gardener to G. F. Moore, Esq., Chardwar, Bourton-on-the-Water, Gloucestershire, as Gardener to J. E. Hall, Esq., The Grange, Leamington Spa.

CATALOGUES RECEIVED.

Perry's Hardy Plant Farm, Enfield, Middlesex.—Irises.

T. C. Jones and Co., Ltd., 93, Wood Lane, W.12.—Garden tools.

Little and Ballantine, Ltd., Carlisle.—Bulbs, Roses, Fruit Trees, etc.

Dickson and Robinson, Cathedral Street, Manchester.—Bulbs; Forcing Plants, Roses, etc.

Wm. Cuthush and Son, Ltd., Barnet, Herts.—Bulbs and Forcing Plants.

Hillier and Sons, Winchester.—Shrubs, Plants and Roots; Fertilisers, etc.

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THE
Gardeners' Chronicle
No. 1913.—SATURDAY, AUGUST 25, 1923.

CONTENTS.

Agricultural Credits Act, 1923 112
Aphides, the plague of 121
Avondale Forestry Station, the 119
Barker, Mr. S. 112
Bean, the Runner ... 121
Books, notices of—
Dwarf and Slow-growing Conifers ... 115
Bulb garden, the—
A new hybrid Lily ... 113
Coconut husks, new use for 111
Flowers and fruit in season 111
Foremarke Challenge cup, the 111
Forest botany, a text-book of 121
Forest trees in the South of France 112
Fruit crops, remarks on the condition of the 120
Fruit garden, the hardy—
Pollination of Cherry, Apple and Pear blossom 120
"Gardeners' Chronicle" seventy-five years ago 113
Garden notes from S.W. Scotland 116
Gentians, the Ornate ... 121
Hardy flower border—
Dicentra spectabilis... 115
Herbs, the cultivation of medicinal 111
Imperial Fruit Show ... 112
Indoor plants 117
Irises—
What is the Orris root? 113
Nursery Stock, the display of, by railways 112
Orchid notes and gleanings—
Disas 118
Plants new or noteworthy—
Cereus Schelhasii ... 117
Potato trials at Ormskirk, 1923 111
Raspberries in Scotland 111
Salvador, notes on the cultivated plants of the republic of ... 118
Societies—
King's Walden Bury 123
Newport and District Gardeners'... ... 123
Northampton Municipal 123
Reading and District 122
Royal Caledonian ... 123
Royal Horticultural 121
Sweet Williams ... 116
Testing of vegetable seeds, the 112
Trees and shrubs—
Plagianthus Lyallii ... 119
Week's work, the ... 114

ILLUSTRATIONS.

Barker, Mr S., portrait of 112
Cereus Schelhasii 117
Lily White Knight 113
Plagianthus Lyallii, a fine bush of 119
Rose Joan Howarth 115

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 60.1°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, August 22, 10 a.m.: Bar., 29.9; temp., 65°. Weather—Bright.

The Ormskirk Potato Trials, 1923.

The public inspection of the trials of Potatos for immunity against wart disease took place on Thursday, August 16, at the Potato Testing Station at Ormskirk, where the National Institute of Botany is carrying on the work begun by the Ministry of Agriculture. A good number of interested people attended, although the attendance was less than in the earlier days of the trials. This is no doubt partly due to the fact that the immunity of certain varieties is now established; partly, also, because some of those whose faces were familiar at these meetings have other opportunities of seeing the varieties under trial, and partly because the Scottish Board of Agriculture has established somewhat similar tests near Edinburgh. The demonstration of the tests was undertaken by Mr. H. Bryan, the Superintendent of the Potato Trials, and it was followed by a lunch at which Sir Lawrence Weaver presided, and spoke. The tests themselves occupy 361 plots; in addition there are nearly 500 small plots of seedlings undergoing a preliminary test, and a collection of 105 varieties which serve as comparisons for the varieties under test, and are a living museum of commercial and historical varieties. This collection is of great assistance to the Inspectors of the Ministry, who have to be trained to recognise the characteristics of the commercial varieties before they can be entrusted with the important work of inspection with a view to the certification of seed Potatos as true to name. Near by a number of varieties entered in competition for the Gold Medal which is awarded by the Ormskirk Potato Society are being grown, and many of them look extremely well. It is not, however, to be forgotten that the chief reason—in fact the only reason—for these tests is to discover whether new or little known varieties resist attacks of wart disease; and chief interest centres around these. Of the varieties tested this year, after the elimination of old ones masquerading under new names (and, perhaps, British Queen, Up-to-Date and Arran Chief appear most often among these) a good many new seedlings are left. About 40 of these have been grown twice before at Ormskirk, and have had no wart, and another twenty-five or so came unscathed through the ordeal last year. It is too early yet to say whether they are again free, and too early to know whether many of the newcomers will escape, but a few of the last group show the trouble, which is late in making its appearance this year. One of these is extremely interesting, for, except that it is subject to wart disease, it is practically identical with Flourball. It is to be hoped that the owner of this stock will destroy it entirely forthwith, for it would be extremely difficult to eliminate from Flourball if once the stocks were mixed. Among the new varieties there are many which are extremely like one another, and while it is fairly easy to distinguish between most of the varieties in commerce, the tests now in progress give the lie to the frequent statement that there is always wide divergence in the progeny raised from any particular variety. In many cases only the most careful inspection reveals differences between sister seedlings and between the seedlings and the parent; and at times no difference whatever is discernible. This is true not in one race only, but in several. Raisers of new varieties should face the fact that immunity to wart disease is only one of many characters that make a desirable Potato. Only when they combine with this immunity, characters superior to those of existing immune varieties, are they worth consideration. If raisers fairly faced this fact there would be among the varieties under test fewer coloured deep-eyed, irregular, tubers of bad quality; fewer spindly, unhappy-looking stems; fewer varieties prone to make many instead of heavy tubers. There is room for new good varieties. But a new immune early must bulk as large as Epicure, it must be of as good shape as May Queen, and it must not be subject to winter rot. A second early variety must be at least as good as Great Scot. A late sort has to compete in quality with King Edward and in general amenability with Up-to-Date. There are good varieties immune to wart disease; there may be better; but they will not be attained by the retention of obviously poor sorts, or new ones too much like existing varieties, even though they be new seedlings; and there are many such among these trials. It may not be fair to judge of a variety from what one sees at Ormskirk, for the plants are not arranged or cultivated in such a way as to bring out the best the variety is capable of—that is not the object of the trials—but so far as one can see from them there are very few new varieties in immediate prospect which will go far. One cannot speak too highly of the care bestowed upon these trials by Mr. Bryan and Miss Whitehead, who arrange, record and watch over the plants with the greatest assiduity.

The Foremarke Challenge Cup.—The Foremarke Cup for twenty spikes of named Gladioli, in not fewer than ten varieties and not more than two spikes of any one variety, will be offered for award at the Royal Horticultural Society's meeting on September 4. The winner will be required to sign a guarantee that all the flowers exhibited were grown by himself. Entries must reach the Secretary, R.H.S., Vincent Square, London, S.W.1, not later than August 29, and the flowers must be arranged by 11 a.m. on September 4.

Flowers and Fruit in Season.—A flowering spray of Ficus ficifolia, from a plant only nine years old, but which has flowered on three occasions in the past five years, has been sent us by Mr. W. Honess, from Walhampton Gardens, Hampshire. The flowers are exceedingly handsome, the showy part being the scarlet filaments of the stamens which are arranged in a dense fringe around the edge of the cup-like flower. Not the least interesting feature of the flower is the operculum or lid which is entire on the unopened buds and in various stages of displacement on those that are opening, the anthers in some cases being partially exposed as though pushing the lid off. The leaves are exceedingly handsome and not unlike those of the India-rubber plant, but smaller, although the texture is, if anything, stouter. In some the mid-rib and petiole is rose-coloured. This beautiful Eucalyptus formed the subject of a supplementary illustration in *Gard. Chron.*, November 30, 1907, from a sketch by the late Mr. Worthington G. Smith.—Mr. Smith, Daisy Hill Nursery, Newry, sends us a trailing growth of Rubus pedatus, a charming little species, which appears to root readily along the stems and should therefore be a useful plant for the rock garden. Although it flowers somewhat freely, it very rarely fruits in Great Britain and Ireland, therefore the specimen sent, carrying one of its dainty, reddish, roundish fruits, was all the more interesting.

New Use for Coconut Husks.—We learn from the *Journal of the Royal Society of Arts* that a company in the Philippines has recently begun the manufacture of paper from the husks of Coconuts, of which it is estimated that 350,000 to 400,000 tons are wasted annually. The present cost of production is high, and it will be necessary to convert the husks into pulp near the mill from which they are a by-product, in order to save expense in transportation. Even then it is questionable if the pulp can be produced at a figure that will allow it to compete with wood pulp, or other kinds of pulp now used for paper making. Other uses to which the coir fibre is put are rope making, filling mattresses, etc., and the making of corky pulp for insulation purposes.

Raspberries in Scotland.—*The Glasgow Herald* for August 18 states that prices for Raspberries at Blairgowrie are tending upwards, sales having taken place at £42 per ton, and sellers holding out for more. During the week ending August 18, 304 tons of fruit were dispatched from Blairgowrie Station, making a total for the season to date of 847½ tons, compared with 1,010 tons at the same time last year.

The Cultivation of Medicinal Herbs.—The *Journal of the Ministry of Agriculture* for August warns those who contemplate growing medicinal herbs for profit that there are abundant supplies available at the present time, and no ground for apprehending any shortage in the future. The supplies are obtained chiefly from overseas, and the prices generally are the same as those obtaining before the war. The *Journal* further states that it seems unlikely that the extended production of medicinal herbs in this country would be successful as a commercial undertaking, except to those who have exceptional opportunities for disposing of their products. The greatest difficulty seems to be the expense of collecting small quantities grown in scattered situations, and of properly drying them.

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International Horticultural Congress at Amsterdam.—The programme of the International Horticultural Congress, organised by the Royal Netherlands Horticultural and Botanic Society in commemoration of its fiftieth anniversary, to be held at Amsterdam on September 17-23, to which we referred in our issue for March 24, p. 155, has been issued, and those who contemplate attending will find in it much useful information as to travelling, hotel accommodation and the programme of events. The Secretary is M. J. Sirks, D.Sc., Bergweg 62, Wageningen, Holland.

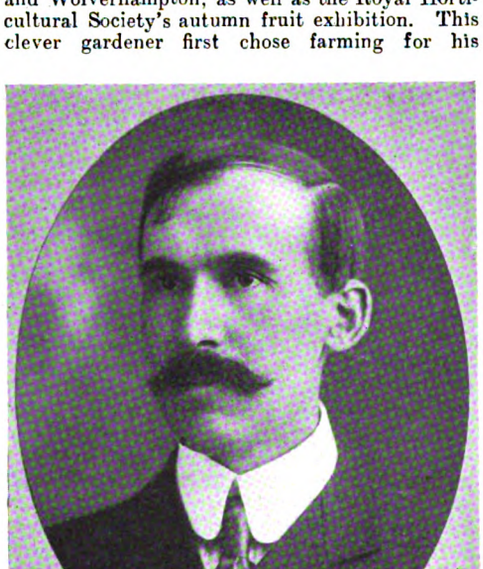
The Testing of Vegetable Seeds.—Mr. C. B. Saunders, Chief Officer, Official Seed Testing Station for England and Wales, has published some interesting particulars* of the testing of vegetable seeds. He states that seeds of all Crucifers, Onion, Carrot, and Turnip, are germinated on filter paper in petri dishes and present very few difficulties. In the early autumn freshly harvested seeds of Crucifers germinate rather slowly, and no satisfactory method has yet been discovered of hastening the germination of this class of seed. With regard to Parsnip seed, it is found if it is placed on the surface of moist sand it often germinates better than if placed upon filter paper. The testing of Beet seeds calls for a special method, as the clusters vary in size, some samples containing large ones and others small, with the result that germination may be uneven. The practice is to pass the purified sample through a series of sieves, in order to divide it up into three portions, large, medium, and small clusters. The sample having been graded in this way, the number of clusters in each heap is counted and expressed as a percentage of the total, then, in counting out the separate hundred for germination, clusters are taken from each of the three heaps in proportion to these percentages. Beet seed is germinated in sand in aluminium dishes. Celery, Parsley, and some other seeds belonging to the Umbelliferae, which germinate slowly, always give better results on the Copenhagen tank than they do in petri dishes in a cabinet incubator. Most Grasses seem to germinate in light better than in darkness.

Imperial Fruit Show.—The secretary of the Imperial Fruit Show, Mr. J. F. Tamblyn, 18, Bedford Square, W.C., directs our attention to a competition for small exhibits for growers of fruit, either commercial or amateur, at the Imperial Fruit Show to be held at Manchester from October 26 to November 3. The sum of £60 is offered in prizes in this section, which comprises six classes for Apples and Pears staged on plates.

Forest Fires in the South of France.—During the recent warm weather many forest fires occurred in different parts of the South of France near Nice and Cannes, and so fiercely did the flames consume and spread that the once beautiful forests of Esterel and the Maures, the pride of the Côte d'Azur, to-day present saddening spectacles of charred desolation. It is roughly computed that 50,000 acres have been absolutely ruined, and according to one report the destruction of Mimosas alone represents a loss of £50,000. The flames travelled quickly, and panic seized the populations of the villages in the track of the blazing woodlands. At many points of the coast where the woodland reaches to the water's edge it was the sea alone that arrested the progress of destruction. Apart from the lamentable destruction of forests and villages, many isolated villages have been destroyed, including property not far from St Aygulf, belonging to M. Franklin Bouillon, Deputy for the Seine et Oise. Besides the fires in the Riviera, there have been similar conflagrations in other parts of France. Much alarm was caused by two outbreaks in the incomparable Forest of Fontainebleau, familiar to so many visitors to Paris. Fortunately the flames were subdued by a large force of soldiers, but in one place an area of something like 250 acres had already been destroyed.

* *Methods of Seed Analysis.* By C. B. Saunders. The National Institute of Agricultural Botany, Huntingdon Road, Cambridge. Price 1s. 1d., post free.

Mr. S. Barker.—Mr. S. Barker, the Duke of Newcastle's gardener at Clumber, Worksop, will be known, at least by name, to most of our readers, for he ranks amongst the most skilful cultivators of indoor fruits in this country, and he has many successes to his credit at all the chief shows up and down the country. Visitors to the Shrewsbury show, which was held on the 15th and 16th inst., and especially professional gardeners, were delighted to see that Mr. Barker had again entered the lists in the fruit classes, after being absent from the show as a competitor for six years, and he again won the first prize for the champion table of dessert fruit of thirty dishes, an honour which may be regarded as the blue ribbon of the fruit-growing world. Besides being first in this class, Mr. Barker also won many prizes in the Grape classes, thus repeating his successes of 1917, the last occasion when he exhibited at Shrewsbury. Mr. Barker's name is equally well known at other important shows, such as those of York and Wolverhampton, as well as the Royal Horticultural Society's autumn fruit exhibition. This clever gardener first chose farming for his



MR. S. BARKER.

profession, for he comes of an agricultural stock, but he soon left farming for horticulture, and whilst in his teens was engaged in Grape growing at the Vineries, Littleover, Derby. He was also later employed in Messrs. Robert Owen's Nurseries, at Marden, at Mr. Philip Ladd's Nurseries, at Swanley, at the Horticultural College, Swanley, and at Winslade Gardens, Exeter. He was subsequently appointed plant foreman and Rose grower at Blenheim, Woodstock, under Mr. Whillans, where he remained two years, leaving to take up the position of foreman in Lord Burton's Gardens at Rangemore. There he remained under Mr. Bennett for six years, until he was appointed gardener at Clumber, in 1899. Although Mr. Barker's reputation is so high as a cultivator of indoor fruits, he has won many prizes for other subjects, including indoor Carnations and hardy fruits. His skill as a Grape grower is shown by his winning the prize in the chief class for Grapes at the R.H.S. autumn fruit show for five years in succession, that is, from 1911-1917, the show being discontinued in 1914, owing to the outbreak of war. The cultivation of choice indoor fruits has always been regarded as the highest test of the skill of a gardener, and although the opportunities for growing and exhibiting are not what they were before the war, we are glad to know that there are still gardeners like Mr. Barker who can grow and show fruit of the finest possible quality.

Appointment.—Dr. George H. Pethybridge, formerly head of the Seed and Plant Disease Division of the Department of Agriculture and Technical Instruction for Ireland, has been appointed mycologist to the Ministry of Agriculture and Fisheries for England. Dr. Pethybridge's work on Potato diseases is well known, and, being a man of very sound judgment, the appointment will meet with the general approval of growers.

National Dahlia Society.—The annual show of this society will be held in the R.H.S. Hall on Wednesday, September 5, when a splendid display is anticipated. Schedules and particulars may be obtained from the Hon. Secretary, Mr. A. C. Bartlett, 318, Kew Road, Kew.

Display of Nursery Stock.—A writer in the *National Nurseryman* of America draws attention to the value of railways for displaying nursery stock to the public. He states: "Many of the railroads have recognised the value of beauty along their ways, and millions of dollars have been spent to make things pleasing, apart from their usefulness, and it can readily be conceived that the railroad has great potential possibilities in helping the nurseryman to display his goods. A well-conceived plan, devised for co-operation with the railroads, would serve the double purpose of beautifying the railroad's right-of-way and so benefiting the railroad and travelling public, and would also be the best possible means of publicity for the nurseryman." English travellers who have seen and admired the beautiful displays of Messrs. Sutton and Sons at Reading, Messrs. James Carter and Co. at Raynes Park, Messrs. Allwood Bros. at Wivelsfield, and others which could be equally commended, will agree with the American writer that much more could well be done in this way, to the advantage alike of the nurseryman and the travelling public.

Potato Imports.—Imports of Potatos registered during the week ending 28th July consisted of 3,364 tons from France, 2,800 tons from Holland, 392 tons from Spain, 287 tons from the Channel Islands, 198 tons from the Irish Free State, 117 tons from Belgium, 50 tons from Italy, and 15 tons from the Canary Islands, a total of 7,223 tons, against 6,881 tons during the previous week.

Agricultural Credits Act, 1923.—The Agricultural Credits Act, which received the Royal Assent on the 31st ult., provides the following credit facilities for agriculturists. Section 1 empowers the Public Works Loan Commissioners to lend money to "approved associations" for the purposes of making advances on mortgages, also to lend money direct to borrowers, subject, in both cases, to certain conditions. The amount secured by the mortgage must be repayable within a period of 60 years, and must not exceed 75 per cent. of the value of the land, as ascertained to the satisfaction of the Public Works Loan Commissioners at the date when the advance by the Commissioners is made. In the case where the repayment extends over the full period of 60 years, the rate of interest and sinking fund will be approximately 5½ per cent. It should, however, be borne in mind that these facilities are limited to those farmers who agreed to purchase their holdings not earlier than the 5th day of April, 1917, nor later than the 27th day of June, 1921, and that the land comprised in the mortgage must be wholly or mainly agricultural land. Those eligible for, and desirous of taking advantage of, the facilities offered by this section, can do so by making formal application to the Farmers' Land Purchase Company, 1, Great George Street, Westminster, S.W.1, or to the Secretary, Public Works Loan Board, Old Jewry, E.C.2. Under Section 2 the Minister of Agriculture is empowered to promote the formation of Agricultural Credit Societies, having for their object, or one of their objects, the carrying on of the business of combining the credit of their members, so as to enable them, with the assistance of advances from the Minister of Agriculture,

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to make loans to their members, repayable within a period not exceeding 5 years, for such agricultural purposes as may be approved by the Minister. These societies will be required to register under the Industrial and Provident Societies Acts, 1893-1913, to adopt rules approved by the Minister and the Chief Registrar, and will be entitled, subject to Treasury regulations, to apply to the Minister of Agriculture for advances up to a limit of £1 for every £1 share held by their members. A set of model rules has been drawn up, and copies will be obtainable from His Majesty's Stationery Office, Imperial House, Kingsway, W.C., at an early date. The relevant Treasury Regulations will also be obtainable from the same source. The share capital of such societies will consist of an unlimited number of £1 shares, on which 5s. per share shall be paid up on allotment. There is no limit placed on the number of shares that any member may hold, but every member must hold at least one share. A member may make application to his society for loans up to the limit of £5 for each £1 share held by the member provided that this sum does not exceed one-tenth of the total share capital of the society for the time being issued. Those interested in the matter, or desirous of forming a society or of ascertaining whether a society is in process of formation in their locality, should communicate with the Secretary, the Ministry of Agriculture and Fisheries, 10, Whitehall Place, S.W.1. Section 3 of the Act extends the facilities offered by the Improvement of Land Acts. The owners of agricultural estates, who wish to undertake permanent improvements such as the erection or extension of farm buildings and cottages, the making of roads, sewers, drains, etc., or the erection of silos, can obtain full particulars from the Lands Improvement Company 1, Great George Street, Westminster, S.W.1, which operates under the Improvement of Land Acts.

Appointments for the Ensuing Week.—Wednesday, August 29: Mitcham, Tooting and District Horticultural Society's meeting; Sandy and District Horticultural Society's show; Derbyshire Agricultural and Horticultural Society's show; Dunbar Flower Show; Helensburgh and Gareloch Flower Show; Lanark Flower Show. Thursday, August 30: Royal Oxfordshire Horticultural Society's show; Sandy and District Horticultural Society's show; Ayton Flower Show; Dundee Flower Show (three days). Saturday, September 1: Bannockburn Flower Show; Blackburn and District Horticultural Society's meeting; Dalrymple Flower Show; Selkirk Flower Show; Douglas (Lanark) Flower Show; Cambuslang Flower Show; Duns Flower Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Cambridge Botanic Garden.* Our readers will be glad to learn that the new garden here progresses favourably under the praiseworthy exertions of Mr. Murray. He has planted the new ground with as complete a set of trees and shrubs capable of bearing our climate as can well be procured. He has removed from the old ground specimens of all the herbaceous plants which were growing there, and he has further circulated printed lists of such hardy herbaceous plants as he has not yet procured, with a request that those who may be able and willing to supply any of them, would return the list marked, for the purpose of enabling him to make a selection from one or other accordingly. As the time for removing hardy perennials is near at hand, he is very desirous of receiving these return lists, of which as yet we learn only a very few have been sent him; and we are sure, when we mention the trouble and interest Mr. Murray is taking in getting together as perfect a collection of hardy plants as the case may admit, we have only thus to make his desires known to have them attended to. *Gard. Chron., August* 19, 1848.

Publications Received.—*Roses and How to Excel with Them.* By R. V. Giffard Woolley. Country Life, Ltd., 20, Tavistock Street, Covent Garden, W.C.2. Price 2s. 6d. net.

THE BULB GARDEN.

A NEW HYBRID LILY.

It cannot be said that Lilies have been much improved by the art of the hybridist; on the contrary, the Lily has, in this respect, been the most neglected of all garden plants. Within recent years, however, some attention has been given to the crossing of Lilies, and in consequence we have a whole range of hybrids between Martagon and Hansonii, but the best known Lily hybrid is undoubtedly L. testaceum (syn. excelsum), better known as the Nankeen Lily. This hybrid is said to be the result of crossing L. candidum and L. chalcedonicum, but its origin, curiously enough, remains a mystery. The Lily illustrated in

FIG. 40.—LILY WHITE KNIGHT, A HYBRID BETWEEN L. TESTACEUM AND L. CANDIDUM.

Fig. 40, named White Knight, was raised by crossing L. testaceum with its parent, L. candidum. The flowers, borne on tall, stately stems, are of a pure glistening white, with golden anthers. The newcomer resembles L. testaceum in form, foliage and habit; in fact, in everything but colour. *Herbert Cowley.*

IRISES.

WHICH IS THE ORRIS ROOT?

The Iris generally sent out from English nurseries as the "Orris root" is Iris florentina, but the editorial note (see *Gard. Chron.* of August 11, page 81) leaves the impression that this product is obtained from Iris germanica and Iris pallida, and not from Iris florentina. The difference is, I think, a question of nomenclature, as Iris florentina is sometimes regarded as a form of Iris germanica even though there are grave doubts about the specific rank of Iris germanica.

Writing of Iris florentina in *The Genus Iris*, Mr. W. R. Dykes states:—"The variety is well known in gardens, where it flowers in May with I. germanica. Hitherto it has been given specific rank, but it is difficult to separate it by any character except colour from I. germanica, with which it agrees in its inflorescence, in the character of the spathes, in the narrow leaves that attain some length before midwinter, and in the formation of the tube and ovary. The similarity between the two plants had already struck me, and my impression of their identity was confirmed last year (1911) by the flowering of a plant which I had obtained from Florence through the kindness of Messrs. Barr and Sons. It occurred among a batch of plants that were obtained as specimens of the source of "Orris Root," and, besides showing that Iris germanica and I. pallida are used indiscriminately for that purpose, they also provided an exact purple counterpart of I. florentina. This Florentine example of I. germanica had slightly more scarious spathes and longer, narrower falls than those of the purple form most commonly known in English gardens. These two characters are typical of the variety florentina, as is also the slender stem."

We may take it from this that I. florentina and its purple counterpart are used in the supply of Orris Root. There is a misprint in my note on page 81. For the "propagation" of Orris Root please read "preparation" of Orris Root. *Herbert Cowley.*

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The Week's Work.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Taking Cuttings.—The precise date for beginning to propagate next year's stocks of soft-wooded plants will vary in different localities, according to the season, while the quantity to be dealt with must also be taken into account. To prevent too much denuding of the beds at one time, the work of taking cuttings should, where many plants have to be raised, be spread over two or three occasions. Beside taking cuttings, it is advisable to retain some of the old plants as stock specimens when clearing the beds on the approach of frost, potting or boxing these plants as may be most convenient. This should be adopted in the case of practically all tender bedding plants.

Cuttings of Shrubs.—In some gardens it is a rule to insert a few or many cuttings of various kinds of shrubs during the next few weeks. All the hardier types will do quite well dibbled in rows in the open ground, while the more delicate may have the protection of a cold frame, or, failing such a provision, a wall or fence would provide some protection. See that all cuttings are made firm in the soil and also watered.

Watering Wall-Plants.—The hot, dry weather has rendered this work imperative, especially where the soil is of a light and porous nature. Newly-planted subjects in particular should be looked to, and any that are finishing their growth. In prolonged dry spells even strong growing plants, such as Rambler Roses, show the need of water by the foliage becoming mildewed and the lower leaves turning yellow.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Pot Vines.—Vines in pots may shortly be transferred to a sheltered position out-of-doors, where they will receive the benefit of full sunshine to mature the canes. The pots should be plunged, or otherwise protected from bright sunshine and drying winds. It is desirable to preserve the principal leaves in a healthy condition for as long as possible, and to this end the roots will require to be watered carefully until the foliage ripens and falls. Later, the lateral growths may be gradually reduced to divert the whole energy of the vine into the main bud.

Care of the Roots.—When removing the old soil great care must be exercised to prevent any fibrous roots being damaged. As the roots are cleared bind them up in wet stable litter and mats, to prevent them from drying out. When replacing the roots any damaged portions should be removed by means of a sharp knife. Lay out the roots regularly throughout the border, placing some of the strongest near the top, say, 7 inches to 9 inches below the surface, and as each layer of roots is placed in position, damp them before adding a fresh layer of soil. If the soil is reasonably moist, inside borders will require no water until the house is closed. An outside border will naturally receive sufficient moisture from the autumn rains, and in the latter case it is advisable to guard against an excess of moisture by covering the border with shutters, corrugated iron sheets, or spare lights, the last for preference, as they permit the sun's rays to pass through and warm the soil. During the time the work is proceeding, and for a week or two after its completion, shade the vines on bright days, keep the house close, and syringe the vines several times a day if the weather be bright and sunny. When the foliage has recovered from the check caused by root disturbance more air may be given, and syringing gradually discontinued.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Souvenir de la Malmaison Carnations.—Plants which were propagated by layering some time since should be ready for lifting and potting. Before lifting they should be thoroughly soaked at the roots the previous day; 48-sized pots are usually large enough for these newly-rooted layers. The potting compost should consist of good mellow loam, and little or no leaf-mould should be added to it; instead of sand old mortar rubble may be used to render the compost open and porous, as all Carnations enjoy lime in the soil. The potting compost should be rammed fairly firmly, and the plants stood in cold frames, which should be kept fairly close for a few days, and shaded during bright sunshine.

Winter or Perpetual-flowering Carnations.—In most gardens this type of Carnation has taken the place of Malmaisons. Where they are stood out-of-doors means should be taken to protect them from heavy rains, as an excess of moisture is almost sure to lead to an attack of rust; and the only sure way of preventing or curing this is to keep the plants fairly dry at the roots. On no account should any moisture be allowed on the foliage, as this is a sure means of starting and propagating the disease. Certain varieties, such as Carola, should never be stood in the open, as they are almost certain to get rust. In any case, all the plants should be placed under cover towards the end of the present month. Plants of earlier-flowering batches, that have filled their pots with roots, should receive some approved fertiliser, of which there are numbers specially compounded for Carnations. Good guano is, however, a suitable general manure for all classes of plants. Successional batches of plants should be potted on as they require it.

Browallia Jamesonii.—If cuttings of this Browallia are inserted at this time, the resulting plants will, if they are grown steadily, make good specimens in 8-inch or 10-inch pots for next year. This plant needs full exposure to all the sun possible, and is a fine subject for planting out in a sunny greenhouse.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Celery.—This vegetable should be given special attention this month, as the plants are growing freely. All side shoots should be kept picked off. Dust the foliage occasionally with old soot on dull and showery days, if possible. Brown patches in the leaves should be removed by the hand, as these harbour the Celery maggot, and if the maggot is allowed to increase it will soon disfigure a whole row. Soot is not only a fine stimulant for Celery, but will help to keep this pest in check. If heads are required for early use, blanching may be commenced, which takes about six or seven weeks. The plants should first be watered copiously with diluted liquid manure on the previous day, and then a few inches of soil placed around the stems, taking care that none enters the hearts, or the latter will become deformed. The best method of blanching early Celery, however, is by bands of stiff brown paper, about 6 inches wide, tied around the plant as growth proceeds. It saves much labour, the roots may be watered while blanching is proceeding, and it is obvious that much finer produce is thus obtained. Strawy manure placed along the rows will greatly help to conserve the soil moisture, which will be a great advantage if the weather in August and September is very hot.

Celeriac.—This vegetable will not require much attention now, beyond keeping the plants well watered in hot weather, and stirring the surface of the soil with the Dutch hoe.

Asparagus.—Keep the Asparagus beds clean by hand weeding, and dust them with Asparagus manure, which the autumn rains will wash down to the roots. The strongest growths should be supported if they are likely to be blown down by strong winds.

Outdoor Tomatos.—Tomatos growing out-of-doors should have all side shoots picked out, and the foliage slightly reduced to allow sun and air to reach the fruit. When the plants have set four or five trusses, they should be stopped, as they will not ripen more fruits than this properly. Do not allow the plants to suffer for want of water.

HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Wasps and Earwigs.—Fruit growers who have had to contend with aphides and other insect pests early in the season are now troubled with wasps and earwigs, which are injuring their Peaches and Nectarines. It is some years since we have been so bothered with earwigs. We have used muslin bags for some of the fruits, but even these the earwigs have, in some cases, bored a hole through. In regard to wasps, farmers and others look upon wasps as an inevitable visitation, with the result that gardeners and fruit growers have to do the necessary destruction of the nests. Although all property owners should do their fair share in the destruction of these pests, no grower can afford a further loss of crops this year. Wasps have even attacked Apples here in early August.

Watering and Hoeing.—Trees that are cropping should not be allowed to suffer for want of moisture and watering, and feeding should be resorted to. Hoeing the surface soil should be done constantly. Impoverished trees may be given a dressing of a good fertiliser. A good plan, if the trees are enfeebled through repeated overcropping, is to cut the branches of standard trees hard back in the autumn or winter. The new growths will, if properly thinned and trained, soon produce larger and better fruit. The extension system may be applied equally to Apples and Pears. The gathering of fruit should be done carefully to avoid bruising.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Newly-potted Cattleyas.—Cattleyas that have been potted recently should be treated in precisely the same manner as those that are not in need of it, and it is quite interesting to observe the development of fresh roots in the new material if the latter is kept on the dry side. When repotting any of these plants, it should be remembered that over-potting is an evil, and should be guarded against; the smaller the pot the better the safeguard against injury from excessive watering at the roots. In repotting this family, it will be found that there is great diversity in the nature of the roots, owing to the great variety of parentage in the different hybrids. The thick rooters are generally strong growers, and are capable of filling a larger receptacle with roots than those which make roots of a finer nature. The latter comprise some of the weakest and most delicate growers, and should be placed in the smallest receptacle possible. If potted and treated as advised, they will enter upon a long season of rest, so far as growth is concerned, and will break away in the spring with renewed energy, and produce their beautiful flowers freely. During the winter they should be grown in a dry, airy atmosphere, in a temperature of about 60°, with sufficient water to prevent them shrivelling. Cattleya Dowiana and its variety aurea, also its numerous hybrids, which produce their flowers during the autumn are growing freely, and should be placed at the warmer end of the house in order that the flowers may develop properly. After growth is completed, and the flowers are over, the plants should be treated as advised for C. Warscewiczii. Air and light are essential to the well being of this large family of plants, hence the necessity of keeping the glass of the houses in which they are grown clean, and especially in smoky districts. Cleansing the roof-glass both inside and out is work that will be well repaid for the trouble.

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HARDY FLOWER BORDER.

DICENTRA SPECTABILIS.

This well-known plant, commonly called Bleeding Heart or Lyre Flower, is frequently forced for early floral decoration as a pot plant. Although fine examples are frequently met with in old cottage gardens, it has come to be regarded as unsuitable for ordinary outdoor cultivation. It was received originally from Siberia, and is therefore quite hardy, but requires a sheltered spot where cold winds cannot injure the young foliage, and so planted that the sun, in the event of frost, will not reach the young growth before it is thawed, or it may be severely damaged.

D. spectabilis is by far the best and most useful garden species, and in rich, well-drained soil will reach to a height of 18 inches or more, the several graceful stems laden with heart-shaped, pendulous flowers of a rich rosy tinge—hence the common name of Bleeding Heart.

The flowers are produced in May or June, and are continually opening for weeks. A variety was introduced some years ago, named alba, but it is of much weaker growth, and, as the blooms are not white, but of a pinkish hue, it does not justify its title. A pure white form would be valuable, and will probably come in due course.

The species eximea is very hardy. It is much smaller than spectabilis, and grows as freely as a weed. It is quite at home in a stiff soil, and passes unharmed through each winter. A thriving colony may easily be obtained from the planting of a single root, and the profusion of its red flowers makes it a desirable plant, although it lacks the grace of D. spectabilis. D. Cucullaria is known as the Dutchman's Breeches. This species is suitable for the rockery, being dwarf in habit; it bears white and yellow flowers.

All the Dicentra may be planted in autumn, and are, perhaps, better recognised under their old name of Dielytra. *T. D. T.*

NOTICES OF BOOKS.

Dwarf Conifers.*

This handbook is the work of an enthusiastic amateur, who both by practical experience and extensive reading is well qualified to add an original chapter to the history of Conifers of abnormal growth. In his garden at Knapton, near Abbeyleix, Mr. Hornibrook had the most varied collection of dwarf Conifers in existence. This collection, the amassing and study of which was a labour of love for many years, is now unhappily dispersed, but most of the larger specimens have been transplanted to Glasnevin, where they are flourishing on a grassy slope beside the rock garden. The book is exhaustive on both the practical and theoretical sides, no fewer than 460 different varieties of dwarf Conifers being described, as compared with 160 forms mentioned by Beissner, the latest authority. The origin and history of each variety is accompanied by a description sufficiently explicit to distinguish it; and in the case of any rare form not in general cultivation, an indication is given of where a plant of it can be found. Twenty-five well-chosen illustrations show the fascinating appearance of some of these pigmy trees.

Mr. Hornibrook's practical hints on the cultivation of his favourites will be read with pleasure by most gardeners. He recommends that dwarf Conifers should be grown either by themselves on the grassy slope of a hill or, better still, amongst ordinary flowering plants in rock gardens. The most ideal situation is an old sandstone quarry, in every chink or cranny of which a tiny Conifer was planted by him, and left to its own devices; and the effect now is indescribably charming. He grows them wherever there is room on lawns and on rockwork. He also grows a certain number in pots, which may be transplanted at any time of the year. These pots may be sunk in odd spots of the rockery, where alpines in flower at the moment are improved by the contrast. The annual growth of dwarf Conifers is so slow and sure that one can plant them freely amongst flowers, with a knowledge that they will not encroach. They are, of course, admirably adapted for small gardens, where ordinary trees are totally out of place.

Mr. Hornibrook's account of the great variety that reigns amongst dwarf Conifers deserves quoting in full:—"The little trees are found in many shapes; tiny fastigiate columns, compact cones, round ball-like shrubs; pyramids broad and narrow, and little bushes with flat tops; others with round, umbrella-like tops; low round or humped cushions. Bushes regular and irregular, with neat, compact, evenly arranged branchlets and foliage, and with the same twisted and contorted like a tangled head of hair.

"They also differ greatly in colour. Every shade of green will be found among them, likewise foliage of glaucous grey and blue, foliage all gold or silver, or splashed with either. Shrubs with young shoots, all white; shrubs which, while retaining their leaves, change their colour in winter. One must select coloured varieties with care, rejecting any that are not clear in colour or distinct in marking. Of glaucous blue forms, Juniperus virginiana var. Kosteri, Cupressus Lawsoniana var. Fletcheri, Abies concolor glauca compacta; and of golden foliaged forms, Juniperus chinensis var. aurea, Thuya occidentalis 'Rheingold,' and Chamaecyparis pisifera filifera aurea may be selected."

The scientific interest of the subject is not neglected. Natural dwarf trees are grouped by Mr. Hornibrook into three classes—first, such as have arisen in the seed-beds of nurseries. Some Conifers vary enormously from seed, and in certain species new forms are constantly appearing, showing variation in colour, height and habit. In other species dwarf forms are of rare occurrence. This tendency to vary and not vary is significant and deserves further study. The second class of dwarf forms result from environment. Self-sown seedlings of Conifers at high altitudes and in exposed situations become stunted in growth, and sometimes become prostrate shrubs, like a form of Juniperus virginiana, found growing wild on the sea cliffs of Maine. Plants of this, 18 inches high, have prostrate stems, which spread into dense mats 15 feet across. Such forms tend to revert to normal when cultivated in sheltered sites on good soil; while dwarf varieties, which originated as seedlings, usually retain their habit irrespective of age or situation. The third class of dwarf trees originate from a sport on a branch of an otherwise normal tree, and are propagated by cuttings or grafts. Witches' Brooms, with their strange conglomeration of branches, are a prolific source of these sports.

Minute directions are given as to modes of propagation. All varieties may be propagated by grafts; but this method should not be adopted, except as a last extremity, because grafted dwarfs usually grow stronger than those on their own roots, and are frequently affected by the characters of the stock. Grafted plants also frequently revert to normal. Most Conifers can be easily propagated by cuttings; in fact, Mr. Hornibrook has struck Taxus, Abies, Picea, Pseudotsuga, Tsuga, Sequoia, Cupressus, Thuya, Thujopsis and Juniperus. The only genera that he has failed to strike from cuttings are Pinus and Cedrus. He roots cuttings in sharp sand, both in autumn and spring, using either a single shoot of the current year's growth with a heel, or else a small branch with its branchlets; and a good percentage of both strike. Layering may be adopted when cuttings are hard to obtain or are not likely to strike readily. *A. Henry.*

* *Dwarf and Slow-growing Conifers.* By Murray Hornibrook. Country Life, Ltd., 1923. Price 10s. 6d. net.

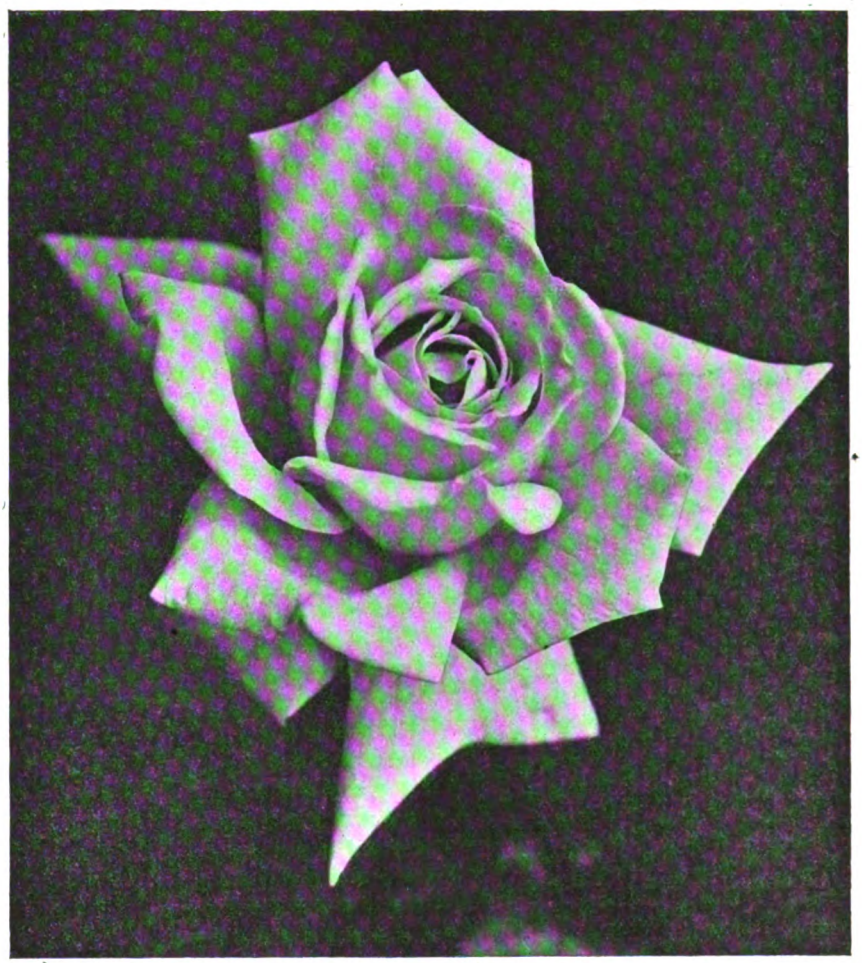

FIG. 41.—ROSE JOAN HOWARTH: NATIONAL ROSE SOCIETY'S CERTIFICATE OF MERIT, JULY 10, 1923. SHOWN BY MESSRS. BEES, LTD. (SEE P. 47).

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SWEET WILLIAMS.

IT is not always convenient to grow the same kind of plant year after year, and among those left out of our arrangements in these gardens for some time past is the Sweet William. This season, after the lapse of some years, it is again being grown. In the dwarf Scarlet variety a marked improvement is seen in the brilliance of colouring; the dwarf Pink, Auricula-eyed variety, which comprises many fine forms, is very beautiful, and there are also mutable forms: a crimson-centred form, with white edge, is also grown. Besides these I call to remembrance pure white, dark crimson (also with dark foliage), and many double varieties, which were found useful for sending to London in the season, few flowers standing better when cut than these.

All the Sweet Williams are useful for massing. Many years ago, on calling on an old friend—Mr. Moorman, then at Victoria Park—the flowers which left the most vivid impression on my mind were Sweet Williams, grouped in very liberal masses. Even where there is not space to group different colours separately, they may be mixed with perfectly satisfactory results. William Cobbett, it may be recalled, was so greatly enamoured of the Sweet William as to regard it as the most beautiful of hardy flowers. Generally it has been depreciated for its lack of fragrance, its "homely cottage smell," as Clare describes it, but it certainly is scented, and pleasantly.

Although there is no record of the Sweet William earlier than the end of the sixteenth century, it is not unlikely that it was grown long previously. Names recorded by Lyte and Gerarde — Colemeniers, Tolmeniér, London Tufts, London Pride, Johns, and Sweet Johns —"the John so sweete of smell"—could hardly come into general use in a year or two, and this is borne out by the remark of the latter that they were "esteemed for their beauty to decke vp gardens, the bosomes of the beautifull, garlands and crownes for pleasure." Moreover it was a favourite with the poets—the "Sweet William small" of Cowley—and it was one of the flowers in Drayton's chaplet of flowers:—

"Sweet William, Campion, Sops-in-wine,
One by another neatly."

And how nicely Horace Smith makes it into a trisyllable:—

"In borrow'd lustre seem'd to sham
The Rose or red Sweet Wil-li-am."

By Parkinson's time varieties were sufficiently distinct to receive separate descriptions, names, and paragraphs, and he clearly separates the Sweet William from the Sweet John. He notes that "The Sweete John hath his leaves—narrower than Sweete Williams, set by couples, at the joynts of the stalkes—at the top, whereof stand many small flowers like unto small Pinkes—more deeply jagged than the Williams—of a small or soft sent." The scent of the Johns was all along regarded as better than that of its bigger contemporary. One of Parkinson's varieties was in colour a "murrey purple like velvet," and Rea describes this as the red velvet Sweet William. But there seems to have been slight, if any, improvement in the plant till well into the eighteenth century.

Miller, with others, mentions the variegated Sweet William, which is the same as our Auricula-eyed form, of which there is a very good coloured figure in *A Complete Dictionary of Practical Gardening*. The Sweet John seems to have gone out of cultivation more than a century ago, unless it is still retained in strains of dwarf Sweet Williams. It may be worth mentioning that in the old references to these plants "sweet" is employed as an adjective, Williams, for instance, being the name, and *sweet* is used to distinguish the plant from *wild* Williams.

It is scarcely needful to note anything about the cultivation of these flowers, only that I find the plants grow large enough for any purpose when the seeds are sown in May, and they continue in flower longer when transplanted into flowering position in autumn rather than in spring. It is possible to preserve any special plant if the spikes are removed before seed is formed, and the basal shoots are assisted by the application of some rich, fine soil, which promotes the formation of roots; such shoots may be "slipped" and planted in autumn.

Probably more interesting than the species are the hybrids that have been derived from it. The first heard of was Fairchild's Sweet William, better known as the mule Pink, and several instances are recorded of such hybrids in the eighteenth century. One of the very finest is the Dwarf Double, known also as Murray's and Ware's, concerning the history of which I have been unable to obtain any information but that it has long been known in Scotland. The flower heads are only six to nine inches in height, the colour bright crimson, and the plant is increased in autumn from self-rooted shoots. It is a true mule. The two following are probably lost to cultivation: Grievei, the parentage being a Sweet William and a laced Pink, and Lindsayi, from a Sweet William and Dianthus alpinus. In 1901 the hybrid named Lady Dixon was exhibited in London; this is a reputed cross between a Sweet William and a Carnation—a cross which some people regard as impossible. These are all difficult to keep alive.

Mr. C. Elliott, in the interesting note on Dianthus Atkinsonii (see p. 70), is almost certain that a Sweet William is one of the parents. Of this there is no record so far as I am aware. I have not seen the plant for very many years. The following extract from *The Book of the Carnation* contains all that I know of its origin. "This is one of the most gloriously beautiful of the mule Pinks, and is supposed to have been the offspring of D. chinensis. It was raised about the year 1845 by Mrs. Atkinson, of Bacton Hall, Norfolk. The flowers are blood-red, one and a half to two and a half inches across, borne on slender stems over a foot high. It has never been known to produce seeds (I have had seeds sent me, but the plants were another thing altogether), and flowers so profusely that, like Napoleon III., it is difficult to perpetuate, or in many soils to preserve, as after flowering the plant is apt to die." Plants not permitted to flower, however, produce cuttings. *R. P. Brotherston, Tyninghame Gardens, Prestonkirk.*

GARDEN NOTES FROM S.W. SCOTLAND.

REPORTS of extreme drought in the south afford strange reading for us north of Tweed, inasmuch as we have had abundant rain throughout July and the first week of August. The proverbial Lammas floods were punctuated on the 2nd and 3rd of that month by the most violent south-easterly gale that anyone now living can remember in that month. The flower garden was a sorry sight in the morning—all the more so for the damage wrought upon the Madonna and Nankeen Lilies, which were in fine flower, several stems being blown clean out of the ground. L. regale was knocked about, but the stems of that species and of L. pseudo-tigrinum (a very fine thing, deserving a more satisfactory name) have a wiry consistency that resists storm better than those of greater succulence.

If we have not got entirely free from the dread fungus, Botrytis cinerea, we may claim, to use a phrase of somewhat ambiguous reputation, "to have the situation well in hand." The general crop is free from the fungus, although here and there are clumps of Madonna and Nankeen Lilies severely affected in places where the foliage was damaged by rough winds. The most obstinate case is that of L. chalcedonicum; but I do not despair of ensuring that brilliant Lily against infection by a course of treatment that has proved effective with the others. That treatment proceeds on the assumption that the fungus is not the primary agent in the disease, but the symptom and concomitant of impaired vitality in the plant. Failure of vigour in animals and plants is well recognised as an invitation to parasitic attack. An unhealthy dog becomes lousy; a brook trout, the very type of lustre and energy when in health, becomes the prey of leeches and copepods when its health is affected by an injury or old age; Dasyscypha calycina, that minute fungus which has rendered it futile to plant the European Larch in a considerable part of Great Britain, may be detected in Continental Larch forests, but never prevails to injure the trees, indicating that some adverse condition in parts of Great Britain has lowered the Larch's power of resisting the parasite. Small colonies of it may be found on the Japanese Larch in this country, but the extraordinary vigour of that species sets the pest at defiance.

So it is, in my belief, with Lilies. If means can be found to keep them in vigorous health the gardener may snap his fingers at Botrytis. I attribute the measure of success we have attained to a liberal use of wood ashes. In planting the bulbs we set them in a nidus of sharp sand and wood ash in equal proportion and spread a good mulch of the same material over them annually. The potash in the ash acts as a stimulant to growth, while the particles of charcoal serve as an antiseptic and as an obstacle to slugs. Care must, of course, be taken to keep the ash dry until it is applied, because the potash is readily soluble, and a single heavy shower of rain suffices to wash it out of the heap. It may be noted that the percentage of potash in the ash of small branches and foliage is considerably higher than in that of timber. Professor Henry Greenish kindly undertook for me to ascertain the percentage of potash in the ash of dried Bracken. His report may be summarised in his own words: "For practical purposes you may assume that 50 tons of the dried Fern would yield an ash containing one ton of potash." This was the result of testing Bracken cut in July. In a subsequent letter he informed me that the Fern yielded a higher percentage of potash when cut in September. Do not let me be understood to prescribe wood ashes as a specific remedy for Botrytis. The spores of that fungus are always present, ready to take advantage of any weakly plant as a nidus. All I wish to submit is that enormous quantities of the ash are wasted through neglecting the precaution of securing it before it is ruined by rain; that it is a valuable stimulant for all bulbous plants; that it is a waste product in every garden, and that its application to Lilies here has been followed by a marked diminution of Botrytis.

Two species of Lily have flowered here this summer for the first time, namely, L. Burbankii, a reputed hybrid between L. pardalinum and L. washingtonianum—a ruddy orange Martagon with crimson anthers, and L. Duchartrei—Farrar's "marble Martagon," silvery white, flushed with rose and mottled with violet. Both are Lilies of merit, and their present vigour seems to imply a good constitution.

The Himalayan Cyananthus lobatus has always proved refractory here. Time after

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time it has been planted, seldom surviving more than one of our dripping west-country winters, and invariably disappearing in a second one. Farrer's Cynanthus has behaved very differently. Two little plants were given to me last year. They were stuck in at the foot of a retaining wall, one facing south, the other west. I forgot all about them till one day in August a gleam of blue from a tangle of Saxifraga aizoides caught my eye. Methought it was a Gentian; but on clearing away the Saxifrage, there was a nice mat of Cyananthus nine inches wide, with half a dozen expanded blooms, and plenty more to come. The other plant has done equally well. The flowers are smaller than those of C. lobatus, but of the same glistening blue. *Herbert Maxwell, Monreith.*

INDOOR PLANTS.

KALOSANTHES (CRASSULA) COCCINEA.

This is one of the most brilliant greenhouse plants in cultivation, and is useful for many kinds of decorative work. The flowers are very fragrant, red or scarlet in colour, and are borne in trusses at the extreme points of the shoots, so that every cluster of flower is very prominent and shows itself to great advantage under any circumstances. It is a first-rate plant in every respect, and will grow and flower without much attention. Established plants will thrive and flower freely in the temperature of a comparatively cool greenhouse in 4-inch and 5-inch pots; they do not do so well if overpotted. The plants, being succulents, do not require a great deal of water when well established in their pots, but during the two or three months of their active growth they require more water, with plenty of sunlight and air, free from draughts. If planted in the beginning of June, the brilliantly coloured flowers make a striking display for six to eight weeks in outdoor beds during July and August.

Cuttings root freely in slight bottom heat; they should be watered sparingly until rooted, for, being succulent plants, they are liable to rot if given too much moisture. A good time for taking cuttings is during August and September; those inserted early form plenty of roots before the winter. The best cuttings are made from the tops of the shoots that have not flowered; all the old shoots, when cut back, will also make good cuttings. Insert the cuttings singly in small pots, give water to settle the soil, and place the pots, when rooted, in a cool frame or on the shelf in a greenhouse, but do not shade them. During the winter the plants require to be kept in a temperature about 40° to 45°, and they need very little water, especially during the depth of winter.

In the spring, when the plant commences to grow, give them a little more than the ordinary greenhouse temperature for a few weeks, and pinch out the tops to encourage them to produce more shoots, which will in due course grow and form fine specimen plants. Often more shoots develop than are required, and in this case the weaker ones should be removed to give more vigour to the others that remain; four to six shoots on each plant are sufficient, according to its strength. When the plant commences to grow, it should be repotted in rich compost, consisting of light, turfy loam, with a little leaf mould and silver sand added. The pots should be well drained. After potting, continue to give the plants a little fire-heat for a short time in order to have them in full vigour by the end of May. The earlier in the summer they finish their growth the more time is available for the ripening of the shoots and formation of their flower buds. After flowering, the plants should be cut back to within 2 inches to 3 inches from the base; a succession of shoots will then be obtained for flowering. The old, cut-back plants may be grown on, and, if repotted in the spring, will flower freely during the summer

CRASSULA FALCATA.

Crassula (Rochea) falcata is a pretty, succulent plant, but very seldom met with at the present day. It is an old favourite, almost forgotten, a very attractive and striking plant, having corymbs of bright orange-crimson flowers freely produced on dwarf plants growing in small pots and requiring very little trouble or attention. It is a most suitable subject for growing in a small greenhouse on a shelf or stage near the roof-glass. It will also thrive and flower in cottage windows, provided it has plenty of light and air. Like all succulent plants, this Crassula requires very little water during the winter, when a temperature of about 40° to 45° suffices. This Crassula is increased by cuttings, and should be treated similarly to Kalosanthe.

KALANCHOE FLAMMEA.

Kalanchoe flammea is a beautiful greenhouse plant introduced from East Africa in the 'nineties of the last century, and, when it flowered for the first time, was considered to be one of the best indoor plants that had been introduced of late years, and a future was predicted for it equal to that well-known Crassula coccinea, but for some unexplained cause it is seldom met with in cultivation at the present day. It is a most remarkable plant, bearing large clusters of brilliantly coloured, orange-scarlet flowers that are carried well above the foliage, and remaining in bloom for several weeks; when cut, the inflorescences remain in good condition in water for eight or ten days. This plant will thrive and flower freely in a comparatively cool greenhouse in which the temperature is about 50° to 55°. Exposure to the light is essential. This Kalanchoe is exceedingly useful for the decoration of the greenhouse, conservatory, dwelling-rooms, and table decoration. It is easily propagated from cuttings taken from the base of the plant after flowering. The plant will flower in about eighteen months from the time of inserting the cuttings, and will bloom freely in 3-inch to 6-inch pots.

All succulent plants root freely from cuttings placed under hand-lights with slight warmth, and require but very little water. When growing in the spring, they require more moisture and plenty of air free from draughts, with abundant sunlight. *John Heal, V.M.H.*

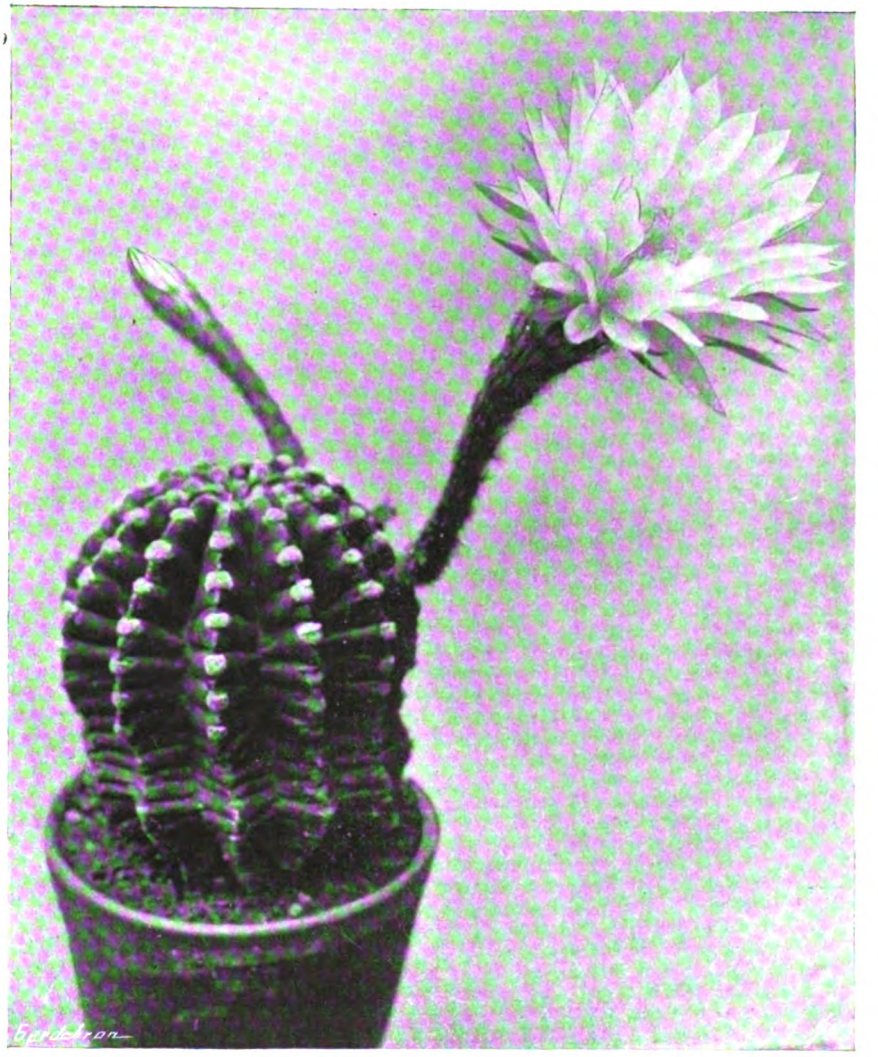

FIG. 42.—CEREUS SCHELHASII.

PLANTS NEW OR NOTEWORTHY.

CEREUS SCHELHASII.

Purchased for Glasnevin from Messrs. Seaward in 1920, Cereus Schelhasii flowered recently, and is one of the most attractive species of the genus, although little seems to be known of its origin. The plant is about eight inches high, cylindrical in form, with twelve prominent ribs. From the summit to about half-way to the base the ribs are furnished with small, dense cushions of grey tomentum, from amongst which project slightly, short, sharp, blackish spines; with age these spines and tomentum disappear. The flowers are of beautiful shell-pink colour, with a tube about six inches long, and furnished with numerous dark hairs.

Labouret in his *Monographie des Cactées* gives as a synonym Echinocactus Eyriesii var. glaucus, *Bot. Reg.*, Vol. 24, t. 31, but the plant there figured is more globular in form with apparently longer spines, whilst the tube of the flower is green, the outer whorls of the flower green and the inner ones white. *J. W. Besant, Glasnevin Botanic Gardens.*

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ORCHID NOTES AND GLEANINGS.

DISAS.

Over one hundred and fifty species of Disa distributed throughout Africa have been recorded, the species inhabiting South Africa only being known in gardens, and of these species, while a few have proved excellent subjects under cultivation and have given the most satisfactory results in the hands of the hybridist, many have proved refractory, and by far the greater part have not been introduced. Disa forms one of the most important sub-tribes of the Ophrydeae, and its members comprise Satyrium, in which the lip is the important feature in the flower, being large, superior, galeate and spurred. In Disa proper the arrangement is reversed, the large dorsal sepal being uppermost, galeate, and the most important feature in the flower, while the petals, which are usually inconspicuous, are situated beneath the dorsal sepal.

Disas may be separated into two main classes —those which include the blue Disas of the D. graminifolia section, which form new tubers, while the old ones gradually decline after flowering; and the practically evergreen section, which has for its central figure D. grandiflora (uniflora), these, while depending mainly on their tubers, progress by stolons forming new growths and tubers.

Disa grandiflora, as it will always be known in gardens, and the central figure in garden Disas, known in its native habitat and also in gardens as "Pride of Table Mountain," was flowered for the first time in Europe in June, 1825, by Mr. Griffin, of South Lambeth; as the specimen was sent him from Cape Town, the species will soon attain its centenary of introduction. Since that time, whilst being a joy to some who have succeeded in meeting its requirements, it has been a source of disappointment to many. The vigour of the plants and the profuse manner in which they produce their large, brilliant, scarlet flowers in the hands of some prove that there is nothing delicate in the constitution of the species if suitable treatment be accorded. Where Disas are treated as Orchid house plants all the year round they collapse in time, but when grown in more airy conditions and a greenhouse temperature with a reasonable amount of sunlight, they are not difficult subjects. Mr. Burkinshaw, one of the most successful growers of Disa grandiflora, records that in the winter of 1894 his plants experienced two or three degrees of frost, which damaged their leaves, but they developed fifty or more spikes of unusually large and brilliant flowers. Others have had similar experience, but in the management of Disas, while adhering to greenhouse treatment in winter, frost should be kept out with a good margin. Mr. Burkinshaw and others recommend greenhouse treatment and a moderate supply of water until February, when a more liberal supply of moisture should be given them, rain water being used when possible until the flowering is over. The best month in which to repot Disas is September. Disa has always been a favourite genus with me, and having many South African correspondents, I took pains to interest some of them in these Orchids with a view to the introduction of those beautiful species which were known only by descriptions and figures, and especially those of the D. grandiflora section. One of my earliest ventures was a doubtful success. A friend had written me about the beauty and variety of D. grandiflora in a certain locality, and I asked him to send me some tubers. He interpreted the request liberally and forwarded a large, glazed Wardian case which contained some still wet slices of South Africa, but only a few pieces of Disa in a very bad condition. My friend's idea was that Disas could be grown best if their native soil was available to start them. I have seen the same practice carried out with other species, which invariably failed, and I conclude that a change in the surroundings is better in all particulars when the subject is removed to a new home.

The introduction of those two charming species, Disa racemosa and D. tripetaloides, which, hybridised with D. grandiflora, have given us the many beautiful hybrids which now adorn our gardens, came as the reward of long endeavour. My two best correspondents were the late Mr. W. Tuck, of Grahamstown, and Mr. Jas. Hall, then of Port Elizabeth, both of whom knew the locality of these species, although the names D. secunda, D. venosa and D. racemosa were confused. After a time both started on the mission, and Mr. Tuck sent D. racemosa as we know it, but Mr. Hall sent a few D. racemosa as D. venosa, and the charming species D. tripetaloides as D. racemosa. It remained for Mr. N. E. Brown, of the Kew Herbarium, to put the matter right, which he did in his description of Disa tripetaloides in *Gard. Chron.*, March 23, 1889, p. 360, from a plant I took him, and in which its complicated nomenclature is clearly defined. The species was afterwards illustrated in *Gard. Chron.* June 21, 1890; D. racemosa was previously illustrated in the issue for May 12, 1888, p. 593.

With the exception of a plant of D. racemosa which Mr. W. Watson brought from the Cape to Kew, the above mentioned importation is the sole material from which our garden plants of these two species, and the many hybrids, have originated. Mr Hall gave as their habitat van Stadtens Gorge, and was enthusiastic about the beauty of the rocky rivulets beside which the plants were growing.

It may be useful to mention how these plants were packed, for there are others of the beautiful class yet to import, and it is to be hoped someone will take the trouble to secure them. Strong growing tubers with leaves were selected and placed six or seven together in a thin covering of the moss growing near them, and no moisture was given beyond what the living moss contained. The little bunches of Disa were then placed in layers in a small deal box, which was sent off at once, and the plants came as fresh almost as when they were collected. The explanation of the success is that they were packed where collected with their natural moisture, no water was added, and they were sent off as soon as possible. On arrival they grew as though they had not been disturbed. It is above all desirable that these and other rare species should have their place in gardens secured by raising them from seed. *James O'Brien.*

NOTES ON THE CULTIVATED PLANTS OF THE REPUBLIC OF SALVADOR.

(*Continued from p.* 101.)

Nymphaea ampla, the only native Water Lily of Salvador, is a white flowered species which occurs in a few of the lakes. Malvaviscus arboreus, so often seen in hothouses, is a common native shrub, but in its native state it is not a showy plant. One species of Fuchsia (F. parviflora) grows as a low shrub upon the higher volcanoes. Its flowers are small and inconspicuous, but the fruit is sweet and of pleasant flavour. Plumeria acutifolia and P. rubra are frequent and prominent trees or shrubs that deserve mention. Their white, red, or variegated corollas are used for stringing garlands, which are employed for decorations upon altars and in homes, especially on the Day of the Cross—the third of May—which might well be called a festival of flowers. Upon this occasion it is the custom to erect in every home a cross which is decorated elaborately, especially with flowers and greenery. In preparation for the celebration flowers are brought from the country into the markets in vast quantities, so that it is possible to form a good idea of both the cultivated and wild kinds.

A noteworthy Salvadorean plant is Ipomoea arborescens, a tree Morning Glory, as large as an Apple tree, with smooth white bark and clusters of pure white flowers. The common Lantana (L. Camara) abounds in hedges and thickets, and in its wild state is of little beauty, although there are sometimes seen forms which have handsome Cherry-red blossoms that are sufficiently conspicuous to attract attention. Petrea arborea, of the same family, is an unusual vine which makes a fine display in cultivation, with its long racemes of blue flowers. Calycophyllum candidissimum is a native relative of the Mussaendas, to which it bears strong resemblance; one lobe of the calyx is expanded into a showy white blade, and during the long blossoming season the tree is an almost solid mass of white.

Hedges are generally employed in Salvador in place of fences for separating fields and enclosing property. The plants utilised for the purpose are of the most diverse kinds, and in general little attention is paid to the hedges after they have once become established. Although when first planted usually only a single kind of shrub or tree is employed, in the course of a few years they become so filled with other trees, shrubs, and coarse herbs that it is often difficult to determine what species was originally planted. There are many miles of hedges all over the country formed of an offensively armed Cactus, Pereskia autumnalis, which forms a dense growth and is often thirty feet high. The Cactus hedges are impenetrable for most animals, but they possess no other virtue, and they waste a large amount of ground, besides being dangerous to stock and to travellers along the roads. The heavy columnar trunks of another Cactus, Lemaireocereus Eichlamii, also are used, set closely side by side, to enclose dooryards and other small areas. A favourite hedge plant is a shrubby Nettle, Urera baccifera, whose hairs cause intense pain and considerable inflammation when they come in contact with the human body. Hedges of Pineapples and of a closely related plant, Bromelia Pinquin, are frequent and answer their purpose well. An endemic species of Euphorbia (E. adinophylla) is often employed, likewise Jatropha aconitifolia and J. curcas, and I have seen a particularly neat hedge, carefully trimmed, formed of Piper tuberculatum, a shrub of dense growth and lustrous, dark green foliage.

A good many exotic trees are cultivated for ornament. Two varieties of Bamboo are grown in all parts of the Republic and have become thoroughly naturalised. Their stems are utilised for many purposes, especially for the construction of the least pretentious dwellings. Casuarina equisetifolia is planted, also the Breadfruit, Artocarpus communis; the Indian rubber tree, Ficus elastica, which like its native congeners is one of the most satisfactory tropical shade trees; Magnolia grandiflora, native of the United States, of which I saw only a few individuals; Camphor and Cinnamon trees and Allspice (Pimienta officinalis); the Horseradish tree, Moringa oleifera, so abundant everywhere in tropical America; Albizzia Lebbek; Brownea coccinea, native of northern South America and of Costa Rica, with Rose-like clusters of vivid pink blossoms; Cassia Fistula; the gaudy Flame-tree, Delonix regia, which is a feature of nearly every park; the Tamarind, whose pods are used for the preparation of beverages and for flavouring ices; Parkinsonia aculeata, a spiny tree with green bark and a profusion of sulphur-yellow flowers; Eucalyptus Gunnii; and Ochroma velutina.

In the towns a common shade tree is the Australian Silk Oak, although for what reason it is chosen is hard to determine, for it affords scant shade and has no obvious merits. For shade in the Coffee plantations Leguminous trees are preferred, and those most planted in Salvador are various species of Inga. A Coffee plantation with a single kind of shade has a superior appearance, in strong contrast with those in which trees of all kinds and sizes are planted. The Inga trees bear long pods which contain an edible, juicy, white flesh about the seeds. Among the exotic trees one of the most beautiful is Eugenia malaccensis, which is of somewhat rare occurrence. It has remarkably handsome foliage, but is itself not particularly showy when in flower, for the flowers are all developed upon the inside of the crown and are not visible from without; but the petals fall upon the clean soil underneath and form the most lovely carpet of purple-pink. *Paul C. Standley, Assistant Curator, Plant Division, U.S.A. National Museum, Washington.*

(*To be concluded.*)

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TREES AND SHRUBS.

PLAGIANTHUS LYALLII.

I recollect seeing this charming shrub for the first time in Kew some fifteen or sixteen years ago. It was growing against a brick wall, and was a very fine specimen indeed. I saw it again some years later, but it had suffered very much in the interval and showed no signs of flower.

On first seeing it I ordered a plant, which has grown in my gardens ever since; it has not a few times been cut to the ground by severe winters, but has always sprouted up again. By some oversight it was not planted against a wall, and though I saw its green leaves year after year, I had given up all hope of its flowering until a few days ago I was attracted by quite a wealth of its charming, white, Cherry-like flowers, and these were especially numerous at the back, where it was flanked by a high Yew hedge, on which side the bush could not get by any chance a ray of the sun from one year's end till the other. I cannot account for its blooming this year, as last season was cold and wet, whilst the earlier part of this so-called summer was one of the worst in my recollection. Certain it is, if it requires the protection of a wall it is not for warmth nor to ripen the wood, as my plant amply demonstrates.

The soil must be very poor, as the Yew roots of the adjoining hedge are very greedy, whilst the plant likes a rich loamy soil. P. Lyallii is a native of New Zealand, where it grows some thirty feet high, whilst with me in Renfrewsire it is only some ten to twelve feet. *Formakin.*

THE AVONDALE FORESTRY STATION.

(*Concluded from p.* 104.)

Of the Spruces only two species have turned out satisfactorily, Sitka Spruce and the ordinary European variety. In the plot containing the former species the trees were mixed with an equal number of Japanese Larch and planted at four feet apart, but suffered badly during the first five or six years from spring frosts. The general result of these frosts was that the Japanese Larch slowly gained on the Spruce, many of the latter being stunted and checked in their growth. In 1917 the Sitka Spruce were considered past recovery, many of them being completely leaderless, and resembling bushes rather than trees. The idea was favoured of growing a mixed crop of Larch and Spruce, side pruning or removing the former in places where the Spruce were most promising, and allowing the latter to die out in the least flourishing parts. The result of this thinning and pruning was so striking, however, that it was gradually extended from year to year, the Spruce recovering in the most remarkable manner, as soon as light had been admitted. In the third year after thinning, normal leaders two to three feet long were being made. The quantity of Larch removed from this plot, consisting of two acres, has been 1,754 poles, containing 2,373 cubic feet. These figures show that a mixture of Japanese Larch and Sitka Spruce can, under favourable circumstances, prove extremely profitable. The Sitka Spruce, while not being a good shade bearer, is possessed of extraordinary powers of recovery, after being to all appearance entirely suppressed.

Of all species common Spruce has produced the most uniform crops, and as this tree has gradually changed its function of a nurse tree into a main crop, four or five sample plots in excellent condition are present. The best growth has been made on sandy loam near the river Avonmore. This plot consisted of three-fourths common Spruce, and one-fourth Colorado Douglas Fir, but the latter are entirely suppressed. The planting distance was 3½ feet, or 889 Douglas Fir and 2,667 Spruce to the acre, practically equal to a planting distance of four feet for the latter. The Spruce has reached a height of 35 to 40 feet, with a volume of 1,200 cubic feet per acre.

Amongst the Pines the greatest growth has been made by Pinus insignis, which is now 40 to 50 feet high, with a quarter girth measurement of six to ten inches, but the crop is very irregular owing to planting failures. Corsican Pine has proved the most satisfactory crop as regards regularity, form of stem, and rate of growth, being 20 to 30 feet in height, with a quarter girth of three to five inches.

Of the various Larches planted, only two are satisfactory, Japanese and European. A pure crop of the former originally planted with Banks Pine in equal numbers at four feet apart, the latter dying out at an early age, now contains 820 cubic feet on half an acre, and a height of 30 to 35 feet. This plot has not been thinned, and the 681 stems still present are remarkably uniform in size throughout, having an average quarter girth of 3¾ inches. No tree can be regarded as suppressed, and the fact that the original number planted is still on the ground shows that a planting distance of about six feet is the most economical for this particular species. European Larch has done well wherever planted, although canker has been prevalent, and in some plots every tree is affected. In common with the experience gained in most parts of the British Isles, thinning has had a marked effect in promoting recovery from this disease.

Oregon Douglas Fir in a plot of about two acres was planted with common Larch in a low-lying situation, and suffered severely between 1905 and 1911 from spring frost. The Douglas Fir were put in at seven feet apart and filled in with Larch to 3½ feet. Between frost and canker the Larch either died out or became suppressed at an early age, leaving the Douglas Fir with no other competitors than neighbours of their own species. This would probably have been satisfactory had spring frost not disfigured the tops of the trees to such an extent that all vestige of a leading shoot was often destroyed for a year or two, and forked and crooked stems resulted. A further trouble originated in the soft and rapid growth resulting from the sheltered situation, and preventing the straightening of the shoots in late summer and autumn. The combined results of these several disadvantages have been that the crop is of a rougher character than would have been the case under more favourable circumstances. As time goes on, however, there is every probability that the trees will improve in form, and that the timber will be clean enough to satisfy all reasonable requirements. *A. Henry.*

FIG. 43.—A FINE BUSH OF PLAGIANTHUS LYALLII FLOWERING IN AN OPEN SITUATION.

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HARDY FRUIT GARDEN.

POLLINATION OF CHERRY, APPLE AND PEAR BLOSSOM.

CHERRY.

Most varieties of Cherries are generally in bloom together for a certain time, and it will be found that the early varieties usually commence to blossom very gradually, whilst the mid-season sorts come into bloom more rapidly, and the late varieties most rapidly of all. It is very important in Cherry orchards that the varieties which have been found to pollinate one another should be planted in close proximity, and it has been found that amongst others the following form good crosses, namely :—Waterloo with Amber Bigarreau, Early Rivers with Turk, Early Rivers with Knight's Black, and Governor Wood with Amber Bigarreau.

APPLE.

In the case of the Apple, where five stigmas are found to overtop the stamens, the stigmas, as a rule, mature before the anthers. In some varieties self-pollination takes place to a limited degree, owing to pollen falling upon the stigmas when the flowers bend sideways towards the light. Cross-pollination, however, is absolutely essential to ensure fruit of high quality, and there is little doubt but that it is beneficial and a factor likely to induce much larger crops in all cases.

For really effective cross-pollination between any two varieties of Apple, the time of flowering should overlap. During recent years commercial growers especially have come to favour large plantations of one variety of Apple, with the result that they have found the cropping very irregular. It is inadvisable to plant more than four rows of any one variety without providing one or two rows of another variety which will be in flower at the right time to provide pollen for cross-pollination purposes.

In the case of plantations where it is not advisable or possible to plant fresh trees, much may be done by top working the trees in every fourth or fifth row with scions from some variety which has been proved to be capable of acting as a suitable pollinator.

There is a great difference in the time of flowering of some varieties of Apples, and it would, for example, be quite useless to plant Royal Jubilee, which is a very late bloomer, to fertilise early flowering varieties, such as Irish Peach, Beauty of Bath, Cox's Orange Pippin, or Stirling Castle.

Few varieties of Apples are entirely self-sterile, but under this heading one must include William Crump and Edward VII.

The large culinary variety, Rev. W. Wilks, has set very heavy crops with its own pollen in my garden.

The idea which is somewhat prevalent that wind plays an important part in the pollination of Apples and Pears is totally incorrect.

PEAR.

In the case of Pears, the stamens are considerably longer than the styles, and when the flowers open the ripe stamens remain curled inwards, whilst the stigmas are ripe and ready for pollination. It therefore follows that cross-pollination by insects is of the very utmost importance. It is advisable to plant varieties which are in flower approximately at the same time in order that insects may carry the pollen from one tree to another. In the case of Pears, the weather is really the main deciding factor as to whether the subsequent crop is likely to be heavy or light. The following Pears include a few of the best varieties, and show those which would readily cross with one another.

Beurré d'Amanlis (early) with Louise Bonne of Jersey (mid-season). Williams' Bon Chrêtien (early), with Beurré Hardy (mid-season), or with Pitmaston Duchess (late). Fondante d'Automne (early) with the late Catillac. Conference (mid-season), with Verulam (late). Marie Louise (mid-season), with Winter Nelis (late).

In the orchard adjoining my garden, Duchesse d'Angoulême flowers earlier than in many places, and is responsible for fertilising Williams' Bon Chrêtien, with the result that very heavy crops are obtained year after year. *Enthusiast*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante, pp. 71-76.)

(*Continued from page* 107.)

ENGLAND, E.

Norfolk.—The fruit crops in general are poor. Sudden extremes of temperature during spring, including cold, harsh winds at the blossoming period, must be held mostly responsible for the present deficiency. Later, severe attacks of caterpillar and aphis, in conjunction with the prevailing drought, weakened and stunted growth to an alarming degree. All small fruits and even Strawberries were also much affected by these conditions. Our soil is of a light, sandy texture, with a chalky and gravelly subsoil. *David McIntosh, Easton Hall Gardens, Thetford.*

——This is a lean year for fruits. The trees, with the exception of Pears, flowered well, but the long-continued spell of cold, sunless weather, with many frosts, even until the end of June, were disastrous. Plums and Cherries failed to stone satisfactorily. It is really surprising that Apples withstood such an amount of cold. The only varieties which suffered were Allington Pippin, King of the Pippins, Newton Wonder and Peasgood's Nonesuch. Insects have been very troublesome, notwithstanding continued spraying. Our soil is very light, with a non-binding gravel subsoil. *Isaiah Johnson, Catton House Gardens, Norwich.*

Suffolk.—The prospect for fruit-growers this year is very disappointing. All kinds of fruit trees blossomed freely, but the combined effects of frost, aphis and drought have practically cleared the trees of fruit. The Apple crop is the only redeeming feature. A few varieties, such as Lord Grosvenor, Warner's King, Lane's Prince Albert, and Bramley's Seedling carry a sprinkling of fruit. *E. G. Creek, County Education Office, Shire Hall, Bury St. Edmunds.*

MIDLAND COUNTIES.

Bedfordshire.—The fruit crops are amongst the worst on record. Aphis and in fact all kinds of pests have been most troublesome, in spite of constant spraying. Pears of every variety are a failure, as also are Apricots, the latter being damaged by the bad weather in early March. Peaches and Nectarines both promise well, also outdoor Figs. Red Currants, Raspberries and Gooseberries are excellent, but Black Currants "ran off" badly. Royal Sovereign and The Duke Strawberries were splendid. Admiral and Laxton's Latest promised well, but needed rain. Apples of all varieties promise well. The hail-storm in April pitted some fruits on the exposed side, but there will be plenty to give us a good crop. Wall Plums are fairly satisfactory, but trees in the open are not very promising. The season is a fortnight late. *W. G. Warner, Chicksands Priory, Shefford.*

——Alternate years here usually give us a bumper crop of Apples, and we should have had a good crop this year, for there was plenty of bloom, but adverse conditions have ruined the prospects. Plums are a failure, and I recently saw Plum trees in several small gardens with scarcely a fruit on them. The first half at least of 1923 will long be remembered by gardeners for its lack of early warm rains, cold, drying winds, and its many practically sunless weeks. *Chas. Turner, Ampthill Park Gardens, Ampthill.*

Buckinghamshire.—It is a most disappointing season for fruit in general, and even in sheltered positions the trees are carrying exceptionally light crops. The spring frosts were so severe that three parts of the blossom was destroyed whilst in the "bud" state. Trees of all descriptions are badly blighted, whole orchards having the appearance of having been swept as by fire; much of the wood has been killed outright, and in the case of Gooseberries and Currants many of the bushes are already quite dead. Our soil is a heavy, retentive loam, resting on clay, and the natural drainage is bad. *W. Hedley Warren, Aston Clinton Gardens, Aylesbury.*

——The Aylesbury Vale Prune Damson crop is a failure, and the prospects of the other fruit crops in this county are poor. Serious damage was done by frosts and cold winds during May and June, whilst moisture and sunshine were noticeably absent until the end of June. Insect pests have done considerable damage to fruit trees, also the fruit, but the recent heavy rains have cleansed the fruit and greatly benefited the trees. There was very little blossom on Pear trees, and the crop of Pears is almost nil. Gooseberries were, in some cases, plentiful, but in exposed positions the crop was much reduced by frosts. Of Apples there are fair crops, although some damage has been done by Apple aphis. *Philip Mann, Education Sub-Office, Aylesbury.*

——With the exception of bush fruits, the fruit crops here are only moderate. The inclement weather in the early spring—a succession of hailstorms and frosts, when Pears and Plums were in flower—had disastrous effects on what appeared to be normal crops of these fruits. Strawberries also were badly damaged by severe late frosts. The soil here is a heavy loam resting on clay. *F. Reid, Dropmore Gardens, Maidenhead.*

——The fruit crops this year will long be remembered in this district as one of the worst ever recorded. Apple, Plum, and Pear trees flowered profusely, but the climatic conditions were much against development of the fruit in its early stages. Cold north-east and easterly winds checked free growth and facilitated attacks of aphis, which in many cases nearly defoliated the trees. In spite of repeated sprayings insect pests appeared to get the upper hand. Our soil is very stiff on heavy clay, and after last winter's continuous rains is practically unworkable. *G. F. Johnson, Waddesdon Gardens, Aylesbury.*

Cheshire.—The fruit crops in these gardens are a sorry spectacle. Apples, except for Lord Grosvenor and King of the Pippins, are a failure. Pear trees, with the exception of Glou Morceau, following the heavy crop of last year, failed to blossom. Plum trees never bloomed more profusely, but frost prevailed during the blooming period, and most of the fruit dropped prematurely. Denniston's Superb, The Czar and Pershore are the only varieties carrying a crop. Black Currants, Red Currants and Raspberries are blighted owing to frost at blossoming time and subsequent cold and dry winds, and carry very light crops. Gooseberries and Strawberries were the best crops of the year, but below the usual in both quantity and quality. Peaches were never more severely attacked with leaf curl, which resulted in the fruit being starved from want of nourishment. The crop, however, is sufficient to need thinning. *T. A. Summerfield, Alderley Park Gardens, Chelford.*

——The crops of Apples and Pears are patchy; here and there occur trees with full crops of both these fruits. The sunless autumn and weakness resulting from overcropping last season, together with the unfavourable weather in May, when frost occurred on twelve mornings during the month, led to these unfortunate results. A lot of Plum bloom was pollinated before the frost came. We are in a low, damp locality. *Alfred N. Jones, Marbury Gardens, Northwich.*

——Some varieties of Apples are carrying good crops of clean fruit, other varieties have not a fruit on them. Pears are practically a failure, and the same is true of Plums and Sweet Cherries. Morello Cherries are an average crop and clean. Gooseberries, Red and Black Currants and Strawberries were all very satisfactory. Raspberries were an average crop; the cold winds damaged the foliage when the canes were commencing to leaf. All trees and bushes were covered with blossom, but the cold, wet autumn of 1922 was so unfavourable for ripening the wood that good crops could hardly be expected. Early in the spring we were threatened with an attack of green-fly, but spraying with Quassia

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extract killed the pest, and the foliage is now clean. Our soil is a heavy, red loam on a sub-soil of sand. *James B. Allan, Tirley Garth Gardens, Tarporley.*

——The poor fruit crops are due in a large measure to a month of wet, cold and almost sunless weather, followed by late frosts. There are a few varieties of Apples which have good crops, such as Annie Elizabeth, Gascoyne's Scarlet, Lord Suffield, Keswick Codlin and Fearn's Pippin. There are hundreds of Pear trees in this district without any fruit, and in many gardens Gooseberry bushes had not a single berry on them. *James Atkinson, Torkington Lodge Gardens, Hazel Grove, nr. Stockport.*

——The fruit crops are the most disappointing on record. There was a plentiful supply of bloom, and an early promise of satisfactory crops of most kinds of hardy fruits, but cold east winds during the first three weeks of April, followed on the 24th of that month by snow showers and eight degrees of frost—when Apples were in full bloom and Pears just set—had a most damaging effect on the crops. The trees are, in many cases, badly infested with green fly, and made but little growth until the end of June. Peaches and Nectarines in unheated houses have not set so well as on former occasions—due, I conclude, to the want of sunshine in 1922. *N. F. Barnes, Eaton Gardens, Chester.*

Derbyshire.—The fruit crops are not good. Pears are almost a failure, and Apples are much under the average crop, except a few early varieties, such as Irish Peach, Worcester Pearmain and Devonshire Quarrenden, all of which have fair crops. All later varieties of Apples are very lightly cropped. Plums, except on wall trees, are almost nil. Sweet Cherries were very poor, but Morello Cherries were a fair crop, although much under the average. Gooseberries, Raspberries and Currants were average crops, and the berries were of good quality. Strawberries were very late. The soil here is light and gravelly, with a subsoil principally of clay. *James Tully, Osmaston Manor Gardens, Ashbourne.*

(*To be continued.*)

HOME CORRESPONDENCE.

Fragrant Tulips (see p. 99).—Tulip Prince of Austria is a fragrant Tulip not mentioned by your correspondent. This Tulip is one of the best varieties for general purposes, is cheap, a good forcer, sturdy grower, popular colour, and grown extensively for market. *Fred. W. Jeffery.*

The Plague of Aphides.—Everything in these gardens has been badly affected with Aphides. Three remedies were tried, (1) nicotine, (2) Quassia extract and soft soap, and finally (3) katakilla. The first two did not seem to be effective, so I tried the last on some Red and Black Currants which had not been sprayed and were very bad; the first spraying killed the aphis. I then tried it on Red and Black Currants which had previously been sprayed with nicotine, on which the aphis were as bad as ever. Again this spraying cleared the pest. The bushes previously sprayed were a good way from the latter, so these had no chance of contaminating those sprayed with nicotine. I have since used katakilla on Plums, Pears, Cherries, Currants, Chrysanthemums, Roses and Broad Beans. All had been previously sprayed several times with nicotine and Quassia extract with the exception of the Broad Beans, but, after spraying with katakilla, I found it the most effective of all. I cannot account for the failure of the nicotine extract and Quassia, as previously I found both most effective. Both were used at full strength, and curiously the nicotine was quite effective on Peaches and Nectarines. I recommended katakilla to several people who were troubled with aphis, and they were all pleased with the results. I had been told that there was a danger of scorching with this preparation, but have failed to see any on anything that has been sprayed with it. I do not think there is any danger if one is careful not to spray when the sun is shining on the trees. Ladybirds were very late in appearing this year. *W. G. Warner, Chicksands Priory Gardens, Shefford.*

The Runner Bean.—In reference to "Notes from a South Devon Garden," by your correspondent, Mr. R. Irvin Lynch, V.M.H., Torquay (see p. 84), on the above subject, I may give my experience of growing the Runner Bean as a perennial for over forty years and with the best results. I am growing three-year-old plants this year, and I have grown them up to seven years old. The advantages claimed are (1) that the old roots produce Beans quite one month in advance of seedlings—a great point from a market point of view—and the first pods in many cases actually rest on the soil; (2) the flowers set better in a dry period, six or more Beans being fit to gather at one time from a single truss of bloom, while seedling plants are dropping their flowers wholesale; (3) I find no better material for exhibition for early shows, the pods being straight, uniform in length, and freely produced till late autumn. We usually make our last gathering about November 5. My method is to dig up the roots, just as one would lift Dahlias, and store them in the same way in a dry and frost-proof place until spring, then start them in boxes, like Dahlias, and plant them out in trenches when two or three inches of growth have been made. The plants are staked and protected with a few branches if nights are frosty. I plant at one foot apart the first year, and increase the distance to two feet as the roots grow older, because the growths increase in number each year. *C. Capp, Old Abbey Gardens, Leiston.*

——Mr. J. Irwin Lynch's statement that the tuberous roots of Runner Beans will give a crop the second season is well known in this part of Ireland, and they are grown fairly commonly in co. Dublin gardens a second season, to produce an early crop of pods; I have practised this method for some years. Like the Dahlia, in our favoured climate, the Scarlet Runner Bean needs very little protection in winter, a few inches of coal-ashes being all that is necessary, and the roots do not always get that, but I invariably find them the better for being lifted and replanted in the spring. Scarlet Emperor treated in this way, with but merely a good layer of weeds in the trench, no manure being obtainable, is now bearing profusely in my garden. *K. Dublin.*

Text-book of Forest Botany.—In his review of *An Elementary Text-book of Australian Forest Botany*, on p. 99 Professor Henry states that "no suitable text-book on forest botany for the use of students and foresters in this country has yet been published." Professor Henry has overlooked the fact that a work of this description, entitled *Trees: A Handbook of Forest Botany for the Woodlands and the Laboratory*, was produced by the late Professor Marshall Ward, of Cambridge, the fifth and concluding volume of which was published in 1809. *A. D. Richardson, Edinburgh.*

The Ornate Gentians (see p. 85).—I was much interested in Mr. Clarence Elliot's note on the Ornate Gentians, and I was wondering if there might be good and poor-growing strains of Gentiana sino-ornatus. When making the rock garden here in 1921, I put four plants, all from different sources, in a group at one end of the moraine; three of them gradually dwindled away; the fourth has grown very strongly, and is now covering about four square feet of ground. This particular plant flowered very freely last season, lasting in bloom for a very long period, and looks like doing so again this year. G. Farreri we lost, but I have tried it again. This species does not appear to be very robust at present. I was wondering if others have had a similar experience with this very beautiful Gentian. *Evan G. Jones, Shalesbrook Gardens, Forest Row, Sussex.*

SOCIETIES.

ROYAL HORTICULTURAL.

August 21.—The fortnightly meeting on Tuesday last was not largely attended, doubtless because many of the Fellows are enjoying their holidays, but the exhibition was very interesting, the various floral groups making a bright display. The principal subjects shown were Gladioli, Roses, Carnations, Dahlias, Verbenas, Phloxes, Tritomas, and miscellaneous border flowers. The number of Orchids shown was surprisingly few, probably the fewest at these meetings since the war. A few novelties were forthcoming, principally in the floral section, and of these several Dahlias were selected for trial at Wisley, whilst one new plant received a First-Class Certificate and three others Awards of Merit.

Choice indoor fruits were staged by Mr. J. A. Nix, whilst a meritorious collection of vegetables was exhibited by Messrs. Barr and Sons.

Orchid Committee.

Present: Frederick J. Hanbury, Esq., F.L.S. (in the chair), Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson (assistant secretary), Arthur Dye, Fred. K. Sander, S. W. Flory, Richard G. Thwaites, W. J. Kaye, Pantia Ralli, E. R. Ashton, H. T. Pitt, and J. Cypher.

There were only two exhibits. A small selection of hybrids was shown by Messrs. Flory and Black, Slough, for which a vote of thanks was given. The collection included two good forms of Cattleya Hardyana alba; Laelio-Cattleya Glorita (C. Rex × L.-C. Thyone) with Primrose-coloured sepals and petals, and good Tyrian-purple lip with fine gold lines from the base; and Brasso-Cattleya Ida Blenheim variety (B.-C. Pluto × C. Dowiana) in colour tawny yellow, with pretty rose-veined lip having a yellow disc.

Messrs. Sanders, St. Albans, showed Cypripedium Godefroyae punctatissimum, probably the largest and best shaped C. Godefroyae. The large flowers are white with heavily blotched lines of deep claret colour, the lip being white with a few violet spots.

Floral Committee.

Present: Messrs. H. B. May (in the chair), H. J. Jones, D. B. Crane, F. J. McLeod, A. Turner, Chas. E. Pearson, W. P. Thomson, W. B. Gingell, H. R. Darlington, S. Morris, H. V. Warrender, J. B. Riding, J. Jennings, Wm. Howe, T. Stevenson, J. Heal, T. Hay, G. Reuthe, W. J. Bean, Jas. Hudson, J. W. Barr, Reginald Cory, W. G. Baker, W. Cuthbertson and Gerald Loder.

Dahlias.

The Joint Dahlia Committee, composed of the members nominated by the Royal Horticultural Society and the National Dahlia Society, met for the first time this season to consider the merits of a large number of seedlings. The following were selected for trial at Wisley next year:—

Gloria.—A very large and handsome decorative variety of rich crimson colour, flushed with maroon. It appears to be free-flowering.

Gossamer.—A large Cactus variety, made up of narrow florets of delicate pale mauve colouring, which is nearly white in the centre of the bloom.

Martin.—A shapely Cactus variety of good exhibition form, yellow in the centre and flushed on the outer florets.

Miss Edith Jones.—A very long-stemmed Cactus variety of rich yellow colour, which becomes heavily stippled with rose on the mature florets.

Periscope.—A rosy-purple Cactus variety of starlike form and borne on long stems.

Doris Trayler.—A beautiful decorative Dahlia of large size, borne on long stems and of rich velvety-crimson colour, heavily flushed with maroon.

A. E. Amos.—A pretty Cactus Dahlia with narrow segments; the incurving florets are of a dark coral-red colour.

John W. Woolman.—A large Cactus variety set squarely on long stems. The broad florets,

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which incurve somewhat, are pale yellow when young and become lightly flushed with age. The above were shown by Messrs. J. Stredwick and Son.

Rosie.—A very beautiful miniature Paeony of shining rosy-mauve colour. As this name has already been used, the variety must be renamed.

Joyce Goddard.—A garden Cactus variety of dazzling scarlet colour, with a golden base to the florets

Betty.—A valuable Pompon of good compact form and pale lilac colour.

Gold Cup.—Another very good Pompon, but of bright yellow colour. This and the three preceding varieties were shown by Messrs. Jarman and Co.

Hindhead Star.—A very decorative variety of buff-yellow colour, tipped with rose-pink. This and the following were shown by Messrs. J. Cheal and Sons.

Vesuvius.—A dazzling miniature Paeony-flowered variety of scarlet colour, heavily shaded with crimson.

Haslemere Star.—This is an improved Southern Star, but of brighter and more attractive appearance.

First-Class Certificate.

Chimaphila maculata.—Although only a few inches high, this is a very uncommon and fascinating plant. The lanceolate evergreen leaves are toothed, and when young are Pea-green, with a sparkling white band along the midrib and veins; with age the leaves darken, but are still highly decorative. The corymbs bear two or three pendulous, white, fleshy flowers of somewhat Hoya-like appearance, and delicious Hawthorn fragrance. This little evergreen was introduced from North America in 1762, and was figured in the *Bot. Mag.* as Pyrola maculata. Shown by Mr. G. Reuthe.

Awards of Merit.

Dianthus Allwoodii Clarkson Pink.—This is a delicately beautiful variety of this well-known free-flowering type, and the flowers are larger and more shapely than usual. The colour is a soft pale pink. Shown by Mr. G. Miller.

Montbretia Cecil.—A very good yellow-flowered variety which has plenty of substance in the petals. The flowers are of rather more than medium size and well disposed on the spike. Shown by Mr. S. Morris.

Rose America.—As the name suggests, this is of transatlantic origin. It is a very fine, shapely H.T. Rose, well filled with large substantial petals, and borne on long, erect stalks. The colour is a pleasing pink, darker in the centre of the blooms, which have a delicious fragrance. Shown by Mr. Elisha J. Hicks.

Other Novelties.

Besides the above, which received awards, there were several very interesting novelties. Rudbeckia purpurea elegans, shown by Mr. Amos Perry, is a distinct improvement on the species. The petals are broader, of richer colour and better disposed around the disc. Lonicera Hildebrandtiana was represented by several branches bearing long, yellow flowers. This was sent by Mr. M. Hodden, West Porlock, Somerset, and appeared to have been grown out-of-doors. Mr. Hodden also showed flowers of the uncommon Bomarea multiflora. Buddleia variabilis var. narhoensis was again submitted to the Committee, and this time by Mr. Lawrenson, Newcastle, who also showed Origanum vulgare. Mr. Charles Turner sent excellent branches of Erythronia crista-galli well furnished with large, coral-red, Pea-shaped flowers, and Clerodendron foetidum bearing heads of bloom rather larger than usual. Gladiolus Poppy, shown by Messrs. Lowe and Gibson, is a variety of striking colouring. The sparkling scarlet flowers have purple and white markings on the lower segments

Groups

Gladioli again formed a considerable portion of the floral exhibits in the hall. Messrs. R. H. Bath, Ltd., had an exceedingly attractive collection, which included large vases of Prince of Wales, White Giant, Willy Wigman, and the deep scarlet Clémenceau of the large-flowered hybrids, with many Primulinus varieties, notably Souvenir, rich yellow, and Salmon Beauty (Silver-Gilt Flora Medal).

A large collection arranged by Major Churcher attracted a deal of attention. In the centre there were artistically arranged bowls of Sedan, Alice Tiplady, Woodcote, Altair and Peronnes. On either side were smaller vases containing a large variety, of which Martha, scarlet and maroon, Montezuma, crimson and purple, and Magic, lilac flushed, were very uncommon (Silver-Gilt Banksian Medal). Messrs. Lowe and Gibson showed Gladiolus Zanthia of rich orange shade, Altair, Red Fire, of glowing colour, and St. Thomas, a new American variety of brick-red colour with rosy maroon lip (Silver Banksian Medal).

A goodly collection of commercial varieties was displayed by Mr. Alfred Edwards (Silver Flora Medal). A length of tabling was well filled by Messrs. Kelway and Son with very good spikes of such varieties as Crown Jewel, Grover Cleveland, Snowdon, Lady Rosemary Portal and Lady C. Combe (Silver Floral Medal).

An excellent collection of Montbretias was well set up by Messrs. Sutton and Sons against the wall by the entrance. They had large stands of Queen Mary, Henry VIII., Una, Carminea, Tangerine and other splendid sorts, which were associated with an enormous quantity of profusely flowered Phlox Drummondii and Verbenas; both of these annuals were shown in a wide range of lovely colours (Silver-Gilt Banksian Medal).

Roses were staged in better condition than at recent meetings. The Rev. J. H. Pemberton made good use of Vanity, Mermaid, Souvenir de Claudius Pernet, Los Angeles and many other sorts (Silver Flora Medal). Messrs. Chaplin Bros. included Isobel, Irish Fireflame, Innocence, Christine and Golden Ophelia in their collection (Silver Banksian Medal). In a smaller collection Messrs. D. Prior and Son showed F. G. Longmans, a free-flowering, pale orange-coloured variety with deep green, shining foliage (Bronze Flora Medal).

Dahlias in larger quantities than a fortnight ago foreshadowed the coming autumn. Messrs J. Cheal and Sons had a very representative collection, which included many good varieties of all types, even including the show and Fancy Dahlias. Their Novelty, a Collerette with extra ray florets of scarlet colour, and small straw coloured quills, is very attractive. Messrs. Carter Page and Co. had many of the highly decorative small Paeony-flowered varieties, and these included Flos, Alma, Ladybird and Olivia. They also showed a good selection of other types (Silver Flora Medal).

General border flowers were shown in seasonable variety and in quantity. Mr. M. Prichard had Montbretias, half-hardy Lobelias and other genera with a quantity of Gladioli (Silver Flora Medal). Mr. W. Wells, junr., included good varieties of Delphinium and herbaceous Phlox (Silver Banksian Medal). Mr. Amos Perry staged many double-flowered Hollyhocks, Kniphofias, Rudbeckias and Helianthus with some of his splendid hardy Ferns (Silver Banksian Medal). Messrs. Isaac House and Sons again showed their perennial Scabious (Silver Banksian Medal), while Mr. F. Gifford had good spikes of Delphiniums (Bronze Flora Medal).

In an exhibit arranged by Mr. G. Reuthe there were well-flowered branches of Eucryphia cordata and several species of Ceanothus. Mr. G. G. Whitelegg had Delphiniums, dwarf Campanulas and a few border Pinks. Mr. Klinkert sent Topiary specimens, and Messrs. L. R. Russell, Ltd., showed a good variety of Clematis, Pittosporums and other shrubs.

Greenhouse Carnations were staged by Messrs. Allwood Bros. and Mr. C. Engelmann (Silver Banksian Medals).

Fruit and Vegetable Committee.

Present: Messrs. J. Cheal (in the chair), W. Lobjoit, Geo. F. Tinley, S. B. Dicks, W. F. Giles, J. Wilson, A. Bullock, E. Neal, A. Metcalfe, F. Jordan, G. Reynolds, Ed. Beckett, W. Bates, S. V. Taylor, W. H. Divers and A. N. Rawes.

A fine, late-fruiting seedling Red Currant, sent by Messrs. Daniel Bros., who stated they had received it from a customer, was recommended for trial at Wisley. It is said to be a chance seedling, and is apparently of much merit. Messrs. Daniel Bros. also exhibited their new Black Currant named September Black, which received a First-Class Certificate in August, 1921.

A Silver-Gilt Hogg Medal was awarded to J. Nix, Esq., Tilgate, Crawley (gr. Mr. E. Neal), for a collection of Grapes, Peaches, Nectarines, Figs and Pears. The Grapes were very heavy bunches of the variety Black Hamburgh; there were in all sixteen bunches having an aggregate weight of forty pounds. The Grapes had been grown in a vinery without fire-heat since April, and the rest of the fruit had received no fire-heat at all. They included excellent Early Grosse Mignonne, Thomas River and Bellegarde Peaches, River's Early Orange Nectarines, Brown Turkey Figs and William's Bon Chrétien Pears.

Messrs. Barr and Sons showed a collection of vegetables for which a Silver-Gilt Knightian Medal was awarded. The quality was exceptionally good in this most difficult season, and the various dishes were arranged in the best exhibition style. They included most kinds in season, notably dishes of Long Purple Aubergines, Scarlet Emperor and Prize Winner Runner Beans, New Red Intermediate Carrots, Frogfield and Ailsa Craig Onions, Harbinger Cabbages, New White Marrow Parnsips, and Tall Red Celery. Beside these there were Lettuces, Beets, Cucumbers, Kohl Rabi, Marrows, Globe Artichokes and Turnips.

READING AND DISTRICT HORTICULTURAL.

Last year the Reading Gardeners' Association, the Reading Corporation Allotments' Committee and the Reading Allotment Holders' Association combined together to hold a show with the two-fold object of encouraging horticulture among the allotment holders of Reading, and to benefit the funds of the Royal Berkshire Hospital. The result was the largest competitive show held in Reading and a cheque for £195 8s. for the hospital. Following on this success it was decided to form an Association, and the show was held on Wednesday, August 11, in grounds placed at the Committee's disposal by Mr. Oliver Dixon. From a horticultural point of view, it was a magnificent success, the entries in most classes being exceedingly numerous and the quality, notwithstanding the unfavourable season, especially good. There were 106 competitors in the various classes, representing 556 entries. Among the principal prize winners in the open classes were Mr. C. E. Keyser, Aldermaston Court (gr. Mr. F. Green), who was first for a collection of 9 kinds of vegetables, first for a collection of 6 kinds of fruits, and first for both Black and White Grapes; Mr. H. Hirst Foxhill, Reading (gardener), who excelled for a miscellaneous group of foliage and flowering plants, for Plums and for 12 vases of herbaceous perennials; Major Krabbe, Calcot Grange (gr. Mr. A. W. Gower), who won five first prizes, (a) for a collection of 6 kinds of vegetables, (b) for a collection of Potatos, (c) for Runner Beans, (d) for culinary Apples, and (e) for 6 vases of herbaceous perennials. Mr. H. R. Beeton, Hammonds, Checkendon (gr. Mr. J. Wynn), also won five first prizes for a decorated dinner table, for Peas, for long Carrots, for 6 vases of garden Roses, and for a basket of flowers respectively. Mr. Keeble, Coley Park, Reading (gr. Mr. D. Turner), showed the best Onions and Peaches, and was placed second for a collection of fruit. Mr. Pretty, Elmhurst, Reading (gr. Mr. A. H. Fulker), led for Antirrhinums and Tomatos.

In the Allotment Holders' Section Mr. R. Butler, of Spring Gardens, Reading, scored a great success in winning the first prize for a collection of six kinds of vegetables in competition with ten others, his produce and staging being equal in every respect to that in the open classes. He also secured first prize for six Onions in a class of 29 entries. Mr. J. Bartlett was very successful in this section, securing first prize for a collection of Potatos,

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first prizes for kidney white, kidney coloured, round coloured, and second for kidney coloured Potatos. There were 77 entries for single dishes of Potatos and 13 entries for a collection. There were also 25 entries for round Beet, 18 for Shallots, 24 for Marrows and 20 for Lettuces.

Major Lubbock, of Pangbourne (gr. Mr. J. B. Lowe), staged a magnificent non-competitive collection of Sweet Peas. The Reading University College Horticultural Department (Mr. A. J. Cobb) put up a most tastefully arranged collection of vegetables, whilst the Chalk Hill Nurseries, Ltd., Reading, occupied one end of the principal marquees with bays of Mimulus, hardy herbaceous perennials and Zonal Pelargoniums.

KING'S WALDEN BURY FLOWER SHOW.

Ideal weather favoured this annual show, which was held on August 8. On the same day new pleasure grounds were opened at King's Walden Bury, and this doubtless was partly responsible for the large number of people, about 2,000, who visited the show. The exhibits were arranged in two tents. Table decorations were again very good, there being eight tables in the open class, and six arranged with wild flowers and grasses by children. Vegetables in the cottagers' classes were very good.

Several non-competitive exhibits were shown. Messrs. Cutbush and Son put up a large miscellaneous group of plants and herbaceous flowers. Messrs. Harkness and Sons displayed a stand of Roses, and Mr. J. Thompson also showed Roses. Mr. Wheeler, Hitchin, had an effective display of Roses and Sweet Peas. Messrs. Kitchener, Hitchin, exhibited Gladioli, which were much admired. A large collection of vegetables, fruit and Sweet Peas were exhibited from King's Walden Bury Gardens.

NEWPORT AND DISTRICT GARDENERS'.

The annual meeting of this society was held on the 8th inst. Mr. J. Harris (Ffrwd Vale) presided. The officers were elected for the coming session. Mr. C. Basham, The Garth, Bassaleg, was appointed President; Mr. A. W. Davis, Woodland Park Nurseries, Chairman; Mr. J. Hopkins, Vice-Chairman; Mr. H. G. Garland, Hon. Secretary; Mr. W. Lewis, Assistant Secretary; and Mr. J. Jackson, Treasurer. After the business of the meeting was conducted, Mr. Edward Harris stated that the Rose show held on June 28, at Bron-y-gaer, in aid of the local hospital, resulted in a profit of £133 19s. 9d. in aid of the local hospital funds.

NORTHAMPTON MUNICIPAL HORTICULTURAL.

The eighth annual floral fête and exhibition of the above Society was held in Abington Park on August 7 and 8, and proved a great success. Chief interest centred in the competition for the three Wren Silver Challenge Cups, each of the value of 50 guineas. A noteworthy exhibit of vegetables was staged by Messrs. J. Carter and Co., and was awarded the Society's large Gold Medal. Messrs. Thomas Perkins and Sons, of Northampton, exhibited a grand collection of miscellaneous plants, fruits and flowers, for which a large Gold Medal was awarded. A delightful rockery was also exhibited by this firm, for which a Gold Medal was awarded. Messrs. Ellison, of West Bromwich, gained a Silver Medal for an excellent exhibit of Ferns and Cacti.

The competition in the trade class for a group of Roses, 20 ft. by 4 ft. 6 in., was very keen. Mr. A. S. Dunton, of Wolverhampton, who won the Cup last year, was again successful. Messrs. Henry Morse and Son, Eaton, Norwich, were second, and Mr. George Burch, Peterborough, third, respectively. Mr. E. W. King, Coggeshall, Essex, won the Wren Challenge Cup offered for the best exhibit of Sweet Peas. Mr. A. S. Dunton won the second prize in this class. Mr. G. Wall, of Bath, won the Cup offered for Carnations, for the third year in succession, and it now becomes his own property. Mr. C. Engelmann, Saffron Walden, followed closely, with an exhibit of much merit.

For a group of flowering and foliage plants arranged in a space of 200 square feet Mr. W. A. Holmes, Chesterfield, won the chief award with a charming exhibit. Messrs. H. E. and W. Lack, Wellingborough, gained second prize with a fine display.

In the classes for floral table decorations the first prize was won by Mr. W. Holmes; 2nd, Messrs. H. Moore and Sons, Eaton, Norwich; 3rd, Mr. T. D. Wren, Northampton (gr. Mr. A. D. Wright).

In the amateur classes Miss Elsie Curtis, Abington Park, Northampton, gained two first prizes. In the class for thirty-six Roses, distinct, Messrs. Hugh Dickson, Ltd., Belfast, won the first prize easily with a grand exhibit; 2nd, Mr. George Burch; 3rd, Messrs. Peach and Stone, Newport Pagnell. For eighteen Roses, distinct, Messrs. Hugh Dickson, Ltd., again excelled, with Mr. Burch again second, and this order was maintained in the class for twelve Roses, distinct. For twelve vases of Sweet Peas Capt. R. B. Brassey, Cottesbrook Hall (gr. Mr. J. G. Quinn), was placed first. Hardy perennials were best shown by Messrs. Thomas Perkins and Sons, Northampton; 2nd, Messrs. Peach and Stone. Capt. R. B. Brassey won the chief prizes in the fruit classes, and he also won the Bostock Challenge Cup for a collection of vegetables, in which Mr. C. Kitchener, Olney, was second.

ROYAL CALEDONIAN HORTICULTURAL.

August 7.—The ordinary monthly meeting of this society was held at 5, St. Andrew's Square, Edinburgh, on this date, Mr. W. G. Pirie, Vice-President, in the chair. A paper on "Some of the Scarcer Alpines," by Mr. William Austin, Comely Bank Nursery, Edinburgh, was read by the Secretary. Mr. Austin dealt with alpines which are quite hardy, chiefly with the newer Rhododendrons and Primulas, and his remarks in the main consisted of cultural and other details necessary for their successful growth.

The exhibits consisted of a collection of Begonias, Gloxinias, Pelargoniums and Carnations from Messrs. Dobbie and Co., Ltd. (awarded a Gold Medal); Dianthus Napoleon III., from Mr. W. Lamont, Edinburgh, and an unnamed hybrid Gooseberry from Mr. Coventry.

REPLY.

In reply to the query by *J. E.* on p. 78 I may say that about Hereford, this year, there has been an unusual prevalence of Trifolium minus, the small yellow Clover, both on lawns and pasture. In some places the former, where not closely mown, were quite yellow with the blossoms. As it seemed possible that a good dressing of sulphate of ammonia might do good, I was interested in a large, full-sized croquet lawn which was to have had this dressing, but, as only half was to be used for lawn tennis, a "double dose" of the sulphate (about 2 oz. per sq. yd.) had been given to this half; the contrast was very distinct, for the treated half showed hardly a Clover plant, whilst the other was distinctly yellow. Hereabouts, there is no difficulty in getting Clover to come up; one dressing of basic slag has brought to the fore any number of Clover plants without any seed being scattered. It is not unlikely that *J. E.* may maintain his Clover by this means. I lately assisted in dressing a lawn in Guernsey in which objectionable patches of T. repens had appeared, but it is too early to report any result at present. It may be added that, before the dressing was applied, the Clover patches were well raked up repeatedly, and the mower was run over the lawn in order to remove as much of the Clover as possible. *H. E. D.*

ANSWERS TO CORRESPONDENTS.

Begonias Dropping Their Buds and Leaves: *J. B. W.* Without knowing all the circumstances it is difficult to understand why your Begonias should drop their flowers and buds, but it is no doubt due to some cultural error. You state that in some plants the stout stems rot off; this points to their being kept in a close, moist atmosphere, and such conditions would account for the flowers and buds falling. During the summer months Begonias enjoy plenty of air, and certainly do not require a heated house. Dryness at the roots would also cause the flowers to fall. We assume you refer to tuberous-rooted Begonias, though you do not state the kind.

Caper Spurge: *Stevo.* The plant is Euphorbia Lathyris, the Caper Spurge, frequently found wild in various parts of the country, and sometimes grown in gardens for its seeds, which are pickled and used as capers. These, however, are not the true capers, the latter being the flower buds of Capparis spinosa.

Culinary Pea for Naming: *Cornubia.* The pod resembles the variety Glory of Devon in shape and colour. It is impossible for us to name varieties of Peas from a single pod, and you did not even state the height of the variety or the colour of the haulm. Glory of Devon is a pale-podded variety, with dark stems, and grows about three feet high.

Fig Tree Diseased: *C. F.* The Fig leaves and fruits are affected by the fungus Cercospora Bolleana. All diseased leaves and fruits should be collected and burnt. If the trees are sprayed with diluted Bordeaux mixture, it will help to check the disease, but in very bad cases the best thing to do is to root up and burn the trees and plant clean stock in fresh soil.

Gardeners' Hours: *W. H. G.* The condition of your employment as regards overtime is governed by the terms of your engagement. It is customary for gardeners sometimes to work overtime, as this is necessary on certain occasions when work is pressing, but it is usual to make compensation for such extra time. With regard to bothy duties, these should also be agreed to at the time of the engagement. If a head gardener insists on a member of his staff working overtime, there is no other course but to conform to his wishes or seek other employment.

Grapes Shrivelled: *F. T. S.* The Grapes reached us in a very bad condition, most of the berries being mildewed, due doubtless to the very hot weather. The brown, shrivelled condition of the stalks of the fruits suggests shanking, but the condition of the berries may be due to insufficiency of moisture in the border last autumn, and in the spring when growth was active. Examine the border to ascertain its condition of moisture, and take care not to keep the roots too dry in the resting season.

Horse Radish, Trees, and Flowers: *M. O. O. Hastings.* (1) Horse Radish may be exterminated by trenching the ground 2 feet deep or more and patiently picking out all the roots. Any pieces that spring up the following year should be allowed to grow until the crops have been gathered, when they can be dug out. We have found no difficulty in getting rid of Horse Radish where the ground is not occupied by trees or shrubs. (2) Trees that thrive in chalk soil are Pyrus Aria, P. latifolia, P. Aucuparia, Green, Copper, and Purple Beeches, Acer Pseudoplatanus, A. campestre, Ulmus stricta (Cornish Elm), U. stricta Wheatleyi (Jersey Elm), Prunus Avium (Wild Cherry), and Pinus sylvestris (Scotch Pine). (3) Herbaceous plants for chalk are Galega Hartlandii, Coronilla varia, Gypsophila paniculata, Lychnis coronaria, L. chalcedonica, Geum Mrs. Bradshaw, Anchusa italica, Dropmore var., Chrysanthemum maximum Mayfield Giant, Anthemis tinctoria

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or any variety of it, Aquilegias, most Campanulas, such as C. persicifolia and varieties, and Gaillardias. Suitable rock plants are Alyssum saxatile, dwarf Campanulas, Helianthemums, Arabis albida, various Cerastiums, Hypericums, Iberis, Tunica Saxifraga, Nepeta Mussinii, Thymus Serpyllum, etc. (4) Cow, horse, pig, and hop manure, as well as all rotted garden weeds and rotted leaves that will supply humus and hold moisture in summer are suitable. (5) There are two places of the name of Newmarket, and there does not seem to be a nurseryman of importance at either. Herbaceous plants could be obtained from Messrs. R. H. Bath, Ltd., Wisbech, Cambridgeshire; and trees from Mr. R. C. Notcutt, Woodbridge, Suffolk. A nearer firm, perhaps, is Mr. G. Willers, Trumpington Road, Cambridge. (6) If you trench the garden soil 2 feet deep, you will have little difficulty in growing bulbs or any of the above plants. Keep the best or darkest-coloured soil on the top, and work strawy manure in the bottom spit to keep the soil there open

Moss on Lawns: *T. T.* The moss sent is one of the hair mosses, namely, Polytrichum juniperinum. It thrives in damp soils, shady situations, and such as are sour through water remaining upon them for a long time after heavy rain, especially in winter. Peaty soils are also favourable to it, and that means the soil is sour, and perhaps poor in plant food. If water is inclined to stand upon any part of the lawns it would be well to put in some drains, consisting of earthenware pipes of narrow bore, and only twelve inches deep. The rest consists in feeding the grass with top-dressings of good soil. Winter is the most convenient time to do this, when lawns are not being much used. Sift some old potting soil or anything similarly good and rich. To every barrow load of the sifted soil add a six-inch potful of newly slaked lime, and a four-inch potful of superphosphate of lime. About a gallon of old, well-rotted manure to every barrow load of soil would greatly improve it. A light dressing of this material could be given in November and another at the beginning of March. In the meantime the grass might be stimulated now with a dressing of lawn sand, and another light one a month later.

Mulberry: *T. R.* The Mulberry belongs to the Natural Order Rosaceae. The flowers form an aggregation on the common torus, so that each pip is a distinct fruit. In the Pineapple and the Mulberry the leaves of the flowers and the entire inflorescence become fleshy, and form what is known as a collective fruit.

Names of Plants: *R. R.* 1, Cupressus pisifera var. plumosa; 2, Cimicifuga simplex; 3, too withered to identify; 4, Sequoia gigantea; 5, Cedrus Deodara; 6, Cupressus Lawsoniana; 7, Galega officinalis var. *W. D. and S.* 1, Geranium pratense; 2, Stachys germanica. *P. A. H.* We cannot undertake to name florists' flowers. *A. J. D.* Dierama pulcherrimum. *K. F. F.* 1, Coronilla Emerus; 2, Leycesteria formosa; 3, Spiraea canescens; 4, Chrysanthemum Parthenium. *A. S. R.* 1, Sedum album; 2, S. reflexum; 3, S. rupestre; 4, S. roseum. *A. B. H.* 1, Anemone pennsylvanica; 2, Sisyrinchium iridifolium (yellow); 3, appears to be a strong form of S. grandiflorum, or hybrid of it, but would like more information as to its origin. *T. W.* Polygonum aviculare (annual).

Tomatos Withering: *J. B.* The shrivelling of your Tomato fruits points to the plant being unable to obtain sufficient moisture to counteract that lost by transpiration. The primary cause of the trouble is not to be found in the fruit itself, but in the plant. It is probable that root action is exceptionally poor as the result of unsuitable soil conditions or some disease.

Communications Received.—G. H. H. W.—C. F.—J. B.—Cornubia—A. B. H.—Mrs. O. H.—C. J. W.—H. E. M.—F. R.—A. H.—F. B.—H. M.—R. M. S. J. H.—X. Y. Z.—Japonica—T. H.

MARKETS.

COVENT GARDEN, Tuesday, August 21, 1923.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz.	10 0	18 0
—elegans	10 0	12 0
Aralia Sieboldii	10 0	12 0
Araucarias	30 0	48 0
Asparagus plumosus	12 0	15 0
—Sprengeri	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Cacti, per tray, 12's, 15's	5 0	7 0
Chrysanthemums —white, doz.	15 0	18 0
—pink ,, ,,	12 0	15 0
—bronze ,, ,,	15 0	18 0
Crotons, per doz.	30 0	42 0
Cyrtomium	10 0	15 0
Heather white	15 0	18 0
,, ,, 60's	6 0	8 0
Hydrangeas —paniculata, ca. white & pink, doz.	3 6	4 6
	15 0	24 0
Lilium, longiflorum, each	2 6	3 6
Lilium —speciosum album, each	3 6	4 0
—speciosum rubrum, each	3 0	3 6
Marguerites, per doz.	15 0	18 0
Nephrolepis, in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	24 0	30 0
—60's	15 0	18 0
—Cocos	24 0	36 0
Pteris, in variety	12 0	21 0
—large 60's	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's	3 6	4 0

POT PLANTS.

Remarks.—Many stands in this department are empty, which is not unusual for August. The most attractive of the white, pink and bronze Chrysanthemums are in 24 and 32-sized pots. White Heather in 48's and 60-sized pots are also a good decorative line, and find a ready sale. Some fine plants of coloured Crotons are also on sale, in addition to other foliage plants.

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum, decorum, doz. bun.	12 0	15 0
—cuneatum, per doz. bun.	8 0	10 0
Asparagus, plumosus, per bun.		
long trails, 6's	4 0	5 0
med. sprays	2 6	3 6
short ,,	1 0	1 6
—Sprengeri, per bun.		
long sprays	2 6	3 0
med. ,,	1 3	1 6
short ,,	0 9	1 0
Asters, per doz. bunches		
—white	5 0	8 0
—coloured	6 0	8 0
Carnations per doz. blooms	1 6	3 6
Chrysanthemum, per doz blooms		
—white, ,,	3 0	6 0
—yellow ,,	5 0	7 0
—bronze ,,	1 6	2 6
,, spray per doz. bun.	12 0	15 0
Croton leaves, var., per bun.	2 6	4 0
Gardenias, 12's, per box	4 0	5 0
18's, per box	5 0	6 0
Gladiolus, The Bride, per doz. bun.	12 0	15 0
Fern, French per doz. bun.	1 0	1 3
Forget-me-not per doz. bun.	4 0	6 0
Heather, white per doz. bun.	4 0	10 0
Lavender per doz. bun.	15 0	18 0
Lilium speciosum long per doz.	3 6	4 0
short ,, ,,	4 0	5 0
Lily of the Valley, per doz. bun.	18 0	24 0
Orchids, per doz.		
—Cattleyas	18 0	30 0
—Cypripediums		
Pelargonium, per doz. bunch, double scarlet	—	6 6
Roses, per doz. blooms—		
—Melody	1 6	2 0
—Ophelia	1 6	2 0
Smilax, per doz. trails	4 0	5 0
Stephanotis, per 72 pips	3 0	3 0
Stock, per doz. bun. mauve	9 0	—
—white per doz. bun	8 0	12 0
Sweet Peas, per doz. bun.	3 0	4 0
Sweet Sultan, white, per doz. bun.	4 0	8 0
—mauve, per doz. bun.	4 0	8 0
—yellow, per doz. bun.	5 0	6 0
Violas, per doz bun.	1 6	2 0

CUT FLOWERS.

Remarks.—Similar conditions prevail in this department as those given last week. Some of the outdoor blooms, and especially Asters and Sweet Peas, are showing the effects of the dry weather of the past few weeks. At present the supplies are equal to the moderate demand. The present weather appears most suitable for Statices, of which the supplies continue to be heavy. They include S. sinuata in blue, mauve, pink, white and yellow colours; S. latifolia and S. incana. Lilium longiflorum and white and pink L. lancifolium maintain a moderate price. Carnations are not to be recommended, the majority being very inferior in quality, and until the new crop commences they will not be much in demand. A few blooms of the best quality find a ready sale. Several sorts of Roses are arriving in a very unsatisfactory condition, and vary in price from 6d. per dozen to 2s. 6d. per dozen. Chrysanthemums are becoming more attractive; some good quality blooms of Sanctity, Countess (white), Mercedes (yellow), also some medium-sized bronze blooms, and a few bunches of spray bronze are available. Of foliage, with the exception of Maidenhair, there is a plentiful supply. Smilax from Guernsey in particular greatly exceeds the demand.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples— Tasmanian, and N.Zealand		
—Sturmer	18 0	21 0
English—		
—Lord Derby ½ bushel	5 0	6 0
—Lord Suffield	5 0	6 0
—Grenadier, ½ bushel	—	5 6
—Early Julyan ½ sieve	1 9	2 6
—Quarrenden	5 0	8 0
Bananas singles	16 0	25 0
—doubles	20 0	22 0
Figs doz.	4 0	8 0
Grapes—		
—Alicante	1 3	2 0
—Belgian	1 3	1 6
—Cannon Hall	3 0	5 0
—Hamburgh	1 3	3 0
—English Muscat	2 6	5 0
Grape Fruit—		
—Jamaica	27 6	30 0
Lemons—		
—Murcia, case	18 0	25 0
—Messina, case	18 0	20 0
Melons, English and Guernsey, each	2 0	5 0
—Cantaloupe ea.	4 0	10 0
—Nectarine, doz.	6 0	24 0
Oranges—		
—South African Navels	16 0	22 0
—Seedling	16 0	22 0
Peaches		
—English, doz.	6 0	18 0
Pears		
—French boxes		
Williams 48's	5 6	6 6
,, crates	10 0	12 0
Plums—		
—English, Early Rivers, ½ sieve	8 0	10 0
—Czars	9 0	12 0
—French, half	3 0	10 0
—Spanish, Greengages, ½ sieve	8 0	14 0

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Beans, outdoor—		
—Scarlets, ½ sieve	5 0	6 0
—French Beans	0 4	0 6
Beets—		
—New, doz. bun.	3 0	4 0
Cabbage, doz.	2 6	3 0
Cauliflowers, doz.	5 0	6 0
Cucumber, Flat	16 0	22 0
Green Artichokes, dozen	2 0	3 0
Lettuce, dozen—		
—Round	1 3	2 0
—Cos	5 0	6 0
Marrows, doz.	2 0	3 0
Mint, doz.	2 0	3 0
Mushrooms, lb.	2 6	3 0
Onions—		
—Egyptian	7 0	8 0
—Valencian, case	9 0	10 0
Peas, bushel,	6 0	9 0
Pines, case	20 0	45 0
Potatos	4 6	9 0
Radishes, doz.	1 0	1 6
New Turnips, doz. bunches	3 0	5 0
Tomatos—		
—English		
—Pink and White	8 0	9 6
—White	5 0	6 0
—Blue	3 6	4 0
—Guernsey	4 0	—
—Dutch	3 0	5 0

GARDENING APPOINTMENTS.

Mr. D. Crombie, for the past four years and three months Gardener to E. R. Moxey, Esq., West Court, Finchampstead, Berkshire, and late Gardener to F. Rendle, Esq., The Grange, Ascot, Berkshire, as Gardener and Bailiff to J. H. Walker, Esq., Great Martins, Sherlock Row, Twyford, Berkshire.

Mr. R. L. Bowering, for the past four years Foreman to Mrs. Walker Munro, Rhinefield House, Brockenhurst, as Gardener to F. B. Rendle, Esq., The Grange, Ascot, Berkshire. (Thanks for 2s. for R.G.O.F. Box.—Eds.)

SCHEDULES RECEIVED.

Sheffield Chrysanthemum Society.—Thirty-sixth annual show, to be held in the Artillery Drill Hall, Edmund Road, Sheffield, on Friday and Saturday, November 9 and 10.—Secretary, Mr. F. B. Hyde, 42, City Road, Sheffield.

Birmingham Chrysanthemum Society.—Fifty-ninth Annual Show, to be held in Bingley Hall, on Tuesday, Wednesday and Thursday, November 6, 7, and 8, 1923.—Secretary, Mr. A. Noakes, 148, Bristol Street, Birmingham.

Metropolitan Vegetable and Flower Show.—Annual show, to be held in the Royal Horticultural Hall, Vincent Square, Westminster, on September 7 and 8.—Secretary, Mr. R. Sudell, 124, Walworth Road, S.E.17.

Derbyshire Gardeners' Association.—Sixteenth annual exhibition of Chrysanthemums, etc., at the Drill Hall, Derby, on Friday and Saturday, November 9 and 10.—Secretary, Mr. C. W. Flanders, 45, Powell Street, Derby.

CATALOGUES RECEIVED.

J. R. Pearson and Sons, Ltd., The Nurseries, Lowdham, Notts.—Bulbs and Garden Sundries.

Leighton, 36, Renfield Street, Glasgow.—Bulbs, Forcing Plants, Trees and Shrubs, etc.

Wm. Paul and Son, Waltham Cross.—Bulbs, Camellias, Spring-flowering Plants.

W. Smith & Son, Ltd., Aberdeen.—Bulbs.

T. Smith, Daisy Hill Nursery, Newry.—Bulbs, etc.

A. Dawkins, 408, King's Road, Chelsea, S.W.10.—Bulbs.

Cooper, Taber and Co., 90 and 92, Southwark Street, S.E.—Bulbs (wholesale).

James Carter and Co., Raynes Park.—Bulbs and Lawn Grasses.

Stewart and Co., 13, South St. Andrew Street, Edinburgh.—Bulbs.

Foreign.

John B. Vanderschoot, Hillegom, Holland.—Bulbs.

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THE
Gardeners' Chronicle
No. 1914.—SATURDAY, SEPT. 1, 1923.

CONTENTS.

Alpine garden, the—
Gentiana Pneumonanthe 133
Tulipa linifolia ... 133
Baxter exhibition, the 126
Belgian import regulations, new 126
Books, notices of—
Trees and Shrubs ... 127
Brotherston, Mr. R. P. 126
Bulb garden, the—
Sparaxis tricolor ... 133
The cultivation of bulbs in fibre ... 133
The Lily season in Southern Scotland 133
Chinese influence in horticulture 125
Clover, Bokhara ... 136
Dahlia Coltness Gem ... 136
Flower shows 136
Flowers of late summer 131
Fruit crops, remarks on the condition of the... 134
Fruit crops, the manuring of 125
Fruit register—
Red Currant Laxton's Perfection ... 135
"Gardener's Chronicle," seventy-five years ago 127
Hardy flower border—
Romneya Coulteri ... 133
Imperial Fruit Show ... 125
Indoor plants—
Bougainvilleas ... 132
Obituary—
Daniels, G. F. ... 137
Ontario, horticultural societies in 126
Orchid notes and gleanings—
Disas 129
Parks and gardens, public 129
Rose garden, the—
Rose America ... 127
Salvador, notes on the cultivated plants of the Republic of ... 132
Snowy fly and big bud in Vancouver ... 131
Societies—
North of England and British Carnation... 137
Royal Horticultural of Aberdeen ... 136
Strawberries, Red Plant disease in 134
Trees and Shrubs—
Hydrangea Mousseline 135
Hypericum Hookerianum var. Leschenaultii 135
Tilia kinsiana ... 135
Tilia Maximowicziana 135
Ward's, Mr. Kingdon, seventh expedition in Asia 130
Week's work, the ... 128

ILLUSTRATIONS.

Brotherston, Mr. R. P., portrait of 126
Chimaphila maculata 131
Disa sagittalis 129
Hypericum Hookerianum var. Leschenaultii 135
Sparaxis tricolor var. Angelique 133
Rose America 127

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 59.0°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday August 29, 10 a.m.: Bar., 29.9; temp., 54°. Weather—Raining.

The Manuring of Fruit Crops.

Systematic investigation of the system of manuring most calculated to evoke large yields of fruit is, of necessity, difficult and tedious. Experiments, to be of use, must be carried on for a number of years—in the case of top fruit for many years—and must be so planned that when results are obtained those results may be of general application. The need for such investigations is manifest. Previous attempts made both in this country and abroad to ascertain the proper manurial treatment of different kinds of fruits have led to conclusions which are by no means concordant. Nor are the conclusions reached by practical experience much more definite. Growers who practise manuring of fruits are probably agreed that bush and small fruits generally should be treated liberally, and that top fruits should be manured sparingly. They are also probably agreed that liberal dressings of quick-acting nitrogenous manures are more likely to provoke rapid and soft vegetative growth than to induce increased yields of fruit. Here and there men of long experience and of inquiring mind have worked out methods of manuring which give excellent results, but even so the question remains whether these methods are of universal or even of general applicability. As is the case with so many horticultural problems which await solution, that of manuring fruit is by no means a simple one. Kind and variety of fruit, nature of stock on which it is grafted, physical and chemical nature of soil, mode and extent of pruning—all have to be taken into consideration before experiments likely to lead to sound conclusions may even be started. It is therefore a matter of satisfaction to know that the fruit station at Long Ashton has recently taken up this subject, and proposes to make a thorough investigation of it. It scarcely need be said that we must wait for some years before any results of importance can be obtained, and therefore those who study the first interim report of the investigations at Long Ashton* will expect no more than a few indications of the kind of results likely to be obtained when the experiments have run their course. The method of experimentation adopted at Long Ashton is one which, though it is not likely to appeal to those who expect immediate results which may be applied directly by the fruit grower, is calculated in the long run to supply the foundation on which a rational system of manuring of fruit trees may be based. The method is the old well-tried one of sand culture. Instead of introducing numerous complications due to the chemical and physical peculiarities of ordinary soil, the plants are grown in sand, to which may be added the different mineral substances that plants require. By the use of this method it is possible to supply either a complete manure or one from which one or other of the essential mineral substances required by plants is withheld. No doubt when the experiment has progressed a little the pot experiments will be supplemented by field experiments, and the value of farmyard manure will be compared with that of artificials. The most interesting of the results—none of which, of course, may be regarded as final—which have been obtained during the first year of the experiment is that which indicates that one and the same mineral substance may have different effects on the shoot and root of one and the same plant. This is the case with lime. When lime is withheld from the nutrient solution supplied to the root, the growth in length of the shoots is unimpeded—in fact, may even be greater than in plants which have received all the mineral substances they require—but on the other hand the withholding of lime results in a marked under-development of the root system. Another observation of interest concerns the extent to which leaf scorch develops according to the kind of manure applied. By withholding supplies of nitrogenous manures leaf scorch is prevented, but of course the plant so starved suffers in other respects. When the rooting medium contains no potash, scorch is at its worst. Lack of this element results also in poor growth of the shoot—plants (Apples) grown without potash making not much more than half the stem growth made by those supplied with a complete nutrient solution. And with potash, unlike the result obtained with calcium, the poorness of stem growth was not compensated by vigour of root growth—the growth of the root in a medium devoid of potash being less than that which occurred in any other of this series of experiments.

As might have been expected, plants (Apples) starved of nitrogen lost their leaves early, and this whether they had been starved of other mineral materials or only of nitrogen. The plants adequately supplied with nitrogen compounds kept their leaves longest except, curiously enough, those which lacked calcium salts. In the interests of those of our readers who may peruse this interesting report we would suggest that in further instalments the author should indicate on each occasion when he uses a serial letter to denote an experiment what special manurial treatment has been meted out to the plants referred to under that letter. This would save the reader the trouble of referring back to the key of the experiments given on an earlier page. Of experiments with other fruits there is at present but little to be said, although it is worth pointing out what is certainly confirmed by experience, that Strawberries benefit markedly by dressings of phosphatic manures and show the benefit in the season of application.

* "Pot Experiments in the Manuring of Fruit Crops," by T. Wallace. *Annual Report of the Agricultural and Horticultural Research Station, Long Ashton*, 1921.

Supplementary Coloured Illustration.—Of the two varieties of Pears depicted in the coloured plate which accompanies the present issue, probably the best known to growers is Beurré Clairgeau, for not only is this variety grown freely in gardens, but it is also extensively cultivated for market purposes on account of its handsome, showy appearance, and the freedom with which the tree crops. It was raised by a gardener of the name which it bears, in the Rue de Bastille, Nantes, and was distributed by M. de Jonghe, of Brussels. The other variety, Maréchal de Cour, is of much finer quality, and Hogg describes it in the *Fruit Manual* as one of the finest Pears in cultivation. The size and appearance are shown in the plate, for the fruit is reproduced natural size; under exceptional cultivation the fruits may grow much larger than the one illustrated, and Mr. R. D. Blackmore records a specimen weighing eighteen ounces. The season of this fine Pear is the end of October and beginning of November. Those who intend to plant Pears this autumn would do well to include a tree or two of this excellent variety, which was raised by Dr. Van Mons about 1840.

Imperial Fruit Show.—Efforts are being made to induce retail fruiterers and florists throughout the country to make a special feature of their window displays during the period in which the Imperial Fruit show will be open to the public, October 26 to November 3. Arrangements are being made for special posters to be printed and distributed to fruiterers, through local associations, pointing out that "this window is being specially dressed in connection with the Imperial Fruit Show week." So far Manchester, Rochdale, Liverpool, and the London and Home Counties area are taking steps to make this effort effective, while at Liverpool a window dressing display will be organised, but no prizes offered. We understand that the *Daily Mail* has offered two fifty-guinea gold cups to be won outright at the Imperial Fruit Show. One cup is for the best exhibit of home grown fruit, and the other for the best exhibit of Canadian grown fruit. To meet the complaint made in former years—that there were few facilities for purchasing fruit at the Imperial Fruit Show—the Committee has arranged that one extra box may be added to the number laid down for each entry in the commercial competition. These extra packages will be emptied by the judges for examination, and the contents may be sold afterwards in the exhibition hall, to the general public, either singly or by weight.

Chinese Influence in Horticulture.—The *Garden Magazine* of America is publishing an interesting series of articles by Mr. E. H. Wilson the well-known plant collector, and in the August issue of that journal some interesting historical notes are given on the influence of the Chinese on gardening. He states that we have no knowledge of the first intercourse between China and the nations of the Levant. In the first century of the Christian era Chinese armies penetrated so far westward as the Caspian Sea, and Chinese sway was maintained there for at least a couple of centuries. Probably during this period the Walnut (Juglans regia) and Vine (Vitis vinifera) were brought from that region into

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China, and such fruit trees as the Peach and the Apricot carried to Persia, together with silk and other Chinese articles. The wealth of China reached the peoples of Persia and the Levant, but how much intercourse there may have been is not known. In A.D. 65 a deputation was sent to India to obtain the sacred books and authorised teachers of Buddhism which the Emperor intended to publicly introduce into China. This religion has exercised an all-powerful influence over the peoples of China, Korea, and Japan, inculcating and fostering a love for flowers. Buddha himself made famous the Bo-tree of India (Ficus religiosa), and his disciples in succeeding generations and in other lands have done the same for other trees like the Ginkgo (Ginkgo biloba), a Linden (Tilia Miqueliana), Juniperus chinensis, Thuja orientalis, such shrubs as Paeonia Moutan and such herbs as Nelumbium speciosum. From China, Buddhist apostles carried to Korea, and from Korea to Japan, a great many flowers still favourites in all three lands. Further, they introduced cereals, vegetables, and fruits, and did much to improve the material life of the people.

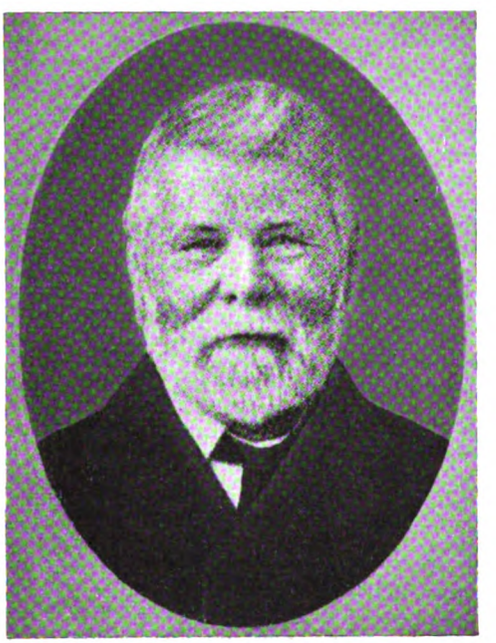
New Belgian Plant Import Regulations.—The Ministry of Agriculture and Fisheries is informed that the Belgian Government has recently issued a decree whereby the importation of Potatos, and fruits or plants of Tomatos and Aubergines, will only be allowed provided that the consignments are accompanied by official certificates of the freedom from the Colorado Beetle of the district where the produce was grown. In the case of Potatos, the certificate must also include a statement that Wart Disease does not exist within twenty kilometres of the place where the tubers were grown, and if the disease exists between five-and-twenty kilometres of that place the consignment must be examined by a Government inspector and certified as free from the disease. The Ministry is prepared to arrange for inspections where necessary, and for the issue of the certificates required by the Belgian Government. A charge of 1s. for each certificate will be made when no inspection is entailed; where inspection is necessary the charge will be at the rate of two guineas per inspector per day, with a minimum charge of one guinea.

Feltham Garden Suburb.—Feltham, in Middlesex, one of the largest outer suburbs in the west of London, has for a long number of years been intimately associated with horticultural pursuits. Readers will remember that Messrs. T. S. Ware and also Messrs. James Veitch and Sons formerly had extensive nurseries there, while at present Messrs. Watkins and Simpson have a large trial ground at Feltham, and Mr. A. W. Smith and the Messrs. Baker have extensive market gardens there. A project is now on foot to develop some two hundred and twenty acres of land as a garden suburb; this land forms part of the security of the debenture holders of Whitehead Aircraft (1917), Ltd., and the project has received the sanction of the Court. The scheme includes the erection of about 1,800 houses, in addition to shops, public buildings, and factories, but ample open spaces will be arranged for, while the old mansion at Hanworth Park, together with its surrounding formal gardens and grounds, is to be used as a club house for the residents.

Horticultural Societies in Ontario.—We gather from a recent publication*, issued by the Department of Agriculture, that there are no fewer than 1,605 horticultural societies in the favoured province of Ontario, and these are federated into the Ontario Horticultural Association, which has held an annual Convention for the past seventeen years. The total expenditure of these societies during the year 1922 amounted to $123,489, of which sum $70,046 was expended in the purchase of seeds, bulbs and plants and on civic improvements. The total membership rose from 37,357 in 1921 to 42,535 in 1922. Legislative grants are made in favour of these societies, and the total receipts under this heading came to $19,246, while municipal grants and donations came to $19,172, and the income from members' fees totalled $42,535. At the Convention held in Toronto in February of this year, interesting and instructive papers were read on: "The Planting and Care of Town and City Home Gardens"; "Nut Culture"; "Successful Cultivation of Melons, Tomatos and Asparagus"; "Cut Flower Arrangement"; "Notes on the Newer Gladiolus"; "Gladiolus primulinus Hybrids"; and "Hardy Lilies."

* *Seventeenth Annual Report of the Horticultural Societies for the Year* 1922. Ontario Department of Agriculture. Clarkson W. James, Toronto.

Mr. R. P. Brotherston.—After a period of service covering no fewer than forty-nine years, Mr. R. P. Brotherston is retiring from the management of the gardens at Tyninghame, Prestonkirk, East Lothian. Mr. Brotherston had the advantage of a training in gardens in England as well as in Scotland, but naturally served his apprenticeship on his own side of the border—at Newtown Don, Kelso, the residence of Lady Eleanor Balfour, under Mr. Thom. Lady Balfour was a keen gardener and took a great interest in the young man who was destined to become a prominent personality in the horticultural world. Later, Mr. Brotherston served for five years under that fine old gardener and florist, the late Mr. James Douglas, when the latter was in charge of the gardens at Loxford Hall. Subsequently he became head gardener in an establishment at Wimbledon, and while there was a prominent member of the famous gardeners' society which held its meetings at Wimbledon House gardens, where Mr. Ollerhead was then gardener. In 1874 our friend and coadjutor was appointed head gardener to the Earl of Haddington, at Tyninghame, where, with the encouragement and appreciative support of his noble employer, has carried out much excellent work. During his lengthy and faithful service Mr. Brotherston has greatly altered the gardens at Tyninghame, introducing many old-fashioned features, such as trim hedges, clipped trees, a covered Apple walk, grass paths, Rose and Honeysuckle walks, a herb garden and extensive herbaceous borders. The old flower garden has been altered little in design, but Mr. Brotherston has varied the planting of it from year to year and always successfully. As our readers are aware, Mr. Brotherston adds to his extensive horticultural experience a wide knowledge of horticultural books, and for this he is greatly indebted to the Earl and Countess of Haddington, whose library was ever at his disposal. We doubt whether any living gardener has had such a thoroughly pleasant horticultural career as Mr. Brotherston. He has been treated with the utmost kindness and the greatest possible consideration by his employers, and when several years ago he desired to "make way for a younger man," he was pressed to remain, and only now has he been persuaded to put off his harness; but he is to live in the village near the scene of his life's work, where he hopes to continue his interesting and pleasing literary notes and surround himself with a colony of his favourite flowers—a hope which we trust will be realised and its fulfilment enjoyed for many years to come.



MR. R. P. BROTHERSTON.

Early Floral Paintings.—In an article by Sir Arthur Evans on the excavations at Knossos, published in the *Times* on Wednesday last, he describes some of the unique paintings—dating about 1600 B.C.—which have been discovered, stating that not only are the bright colours still preserved, but the variety of naturalistic detail goes beyond anything yet brought to light among Minoan remains. Many kinds of flowering plants are represented. The Crocus is much in evidence, including clumps of Crocuses of rose colour and blue on undulating zones of orange and white respectively. Among plants which have been painted in association with variegated rocks are Madonna Lilies, Pancratium maritimum, Irises, flowering Peas or Vetches, Labiates, stellate blooms (in one case oddly combined with bell-shaped buds), flowering Sedges, Ivy and other climbing plants, and Briar Roses. Beside Olive sprays there are what appear to be egg-shaped red and yellow Plums. In one part the rocks are overgrown with wild Peas, and on the other side there climbs up a Rose bush in full bloom, by far the earliest representation of this flower. The corolla is composed of six petals of a golden-rose colour, with the centre dotted red. The rock garden appears to be complete, including the jet of a fountain, with falling spray.

The Alberta Wheat Crop.—The Wheat crop in the Canadian province of Alberta is expected to yield 143 million bushels—over double the yield of 1922. The average crop this year is 24 bushels to the acre. Arrangements are being made to export the Wheat on co-operative lines direct to Liverpool buyers.

The Baxter Exhibition.—There was much to interest the horticulturist in the exhibition of Baxter colour-prints which was held from August 14 to 23, at Messrs. Puttick and Simpson's Galleries, Leicester Square, for Baxter was a pioneer in the process of printing in "natural" colours, as opposed to the crude conventionalities of earlier work. He was born at Lewes in 1804, but he came to London in 1827, and all his work was done there. What is now known as "three colour" printing was not then known, but Baxter, building up the required colours from a steel engraving of the original painting, produced wonderfully artistic effects, in some cases by the use of twenty or thirty different wood-blocks printed one after the other. The exhibition contained some thousand plates of all kinds and sizes, most of them of a popular nature, many being used to illustrate popular music, waltzes, etc. "The Little Gardeners" is a pretty subject, showing two children gathering trails of Roses. Baxter excelled in the art of providing for his public what they required, and finding that pictures of children were in demand, he used such subjects freely. "Gathering Apples" is another illustration of this, showing a group of children with a ladder, clearing an Apple tree of its fruit, a Tudor cottage in the background completing the scene. Number 75 is a scroll of Convolvulus flowers, slightly conventional, intended as a title page for a publication called *The Artist*: and the same flowers form the subject for another title page illustration, this time for *The Agricultural Annual*, 1836. No. 73, which is a very rare print, entitled "The Conqueror of Europe," is an illustration of an Auricula for the *Horticultural Journal*, also issued in 1836. Numbers 174 and 175 are both book illustrations for *The Flower Garden and the Greenhouse*, by Charles Mackintosh. The first, entitled "Greenhouse

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Perennials," shows very good reproductions of four plants—Boronia pinnata, Epacris grandiflora, Geranium (sic), and Kennedia prostrata var. rubicunda. The second, which bears the legend "Greenhouse Shrubs," illustrates Euphorbia fulgens, Hovea Celsi, Tacsonia pinnatistipula, and Erythrina Crista-galli. Numbers 184 and 537 show two examples of the same print—a group of three different varieties of Hollyhocks; the colours are not very brilliant, but the detail is good. Number 67 is a pretty little print of Claremont gardens in 1848. A "Cluster of Passion Flowers and Roses" appears in two or three exemplars, and is pleasing, though as in the case of the Hollyhocks, the colours are not sufficiently brilliant. It would appear that, although Baxter made many improvements in the inks he used, either some of them were a little fugitive, or they were applied in varying intensity in different editions, as there are very distinct differences observable where two or three examples of the same plates are shown.

Appointments for the Ensuing Week.—Sunday, September 2: Wakefield Tulip Society's meeting. Tuesday, September 4: Royal Horticultural Society's Committees meet (two days); Sevenoaks Gardeners' Chrysanthemum Society's meeting; Royal Caledonian Horticultural Society's meeting; Greenock Flower Show (two days). Wednesday, September 5: National Dahlia Society's show; Glasgow and West of Scotland Horticultural Society's show (four days); Lewes and District Horticultural Society's meeting. Thursday, September 6: Blackheath and Lewisham Horticultural Society's show; Dalry (Ayrshire) Flower Show; Manchester and North of England Orchid Society's meeting. Friday, September 7: Alloa Flower Show; Cleland Flower Show; Darvel Flower Show; Metropolitan Vegetable and Flower Show in Royal Horticultural Hall (two days). Saturday, September 8: Crieff Flower Show; Avonbridge Flower Show; Barrhead and District Flower Show; Cambuslang Flower Show; Kilburnie Flower Show; Dollar Flower Show; Gairloch Flower Show; Innerleithen and Traquair Flower Show; Milngavie Flower Show; Brentford Allotment Society's Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Allotments.* Seeing that on all occasions you advocate the allotment system as a means whereby the poor man is benefited, perhaps a short account of Sir Edmund Filmer's allotments will not be uninteresting. His allotments are in three different parts of the parish, in all sixty allotments of a quarter of an acre each; the rent of one division is 7s., the other two are 5s. 6d. each; the rent is paid once a year, when each man receives a receipt for the same in the shape of a good dinner and two quarts of ale. Prizes are given in each division of allotments for those in the best order; the prizes are equal for each lot; it stirs up emulation amongst them, and is the means of making their gardens more profitable. A horticultural show is held, open to the allotment tenantry and cottagers of East Sutton and neighbourhood; here they all compete on equal terms; the prizes are given in all kinds of ironmongery, cooking utensils, and tools; this is an admirable plan of giving prizes, because it enables them to get some good, useful articles they otherwise would not buy, and it gives them more satisfaction, as is seen by the delight and thankfulness they show on receiving them from their kind patron and benefactor. Their show this year, which was last Wednesday, was far superior to the one last year; the prizes were very liberally given; fifty-one prizes were distributed amongst them, and some of them got some very useful and handsome presents; their prizes varied from 1s. 6d. up to 13s. each. *M. T., Gard. Chron., August 26, 1848.*

Publications Received.—*Horticultural Standards.* 1923. Obtainable from Mr. Charles Sizemore, Secretary, American Association of Nurserymen, Louisiana, Missouri. Price 25 cents.—*The Flora and Folk Lore of Shakespeare.* By F. G. Savage. E. J. Burrow and Co., Ltd., Regent House, 93, Kingsway, W.C.2. Price 7s. 6d. net.

NOTICES OF BOOKS.

Trees and Shrubs.

A VALUABLE work on trees and shrubs by Count Ernst Silva Tarouca and Dr. C. Schneider, has recently been published.* Dr. Schneider is well known to students of hardy trees and shrubs, by his *Handbuch der Laubhölz Kunde*, one of the great standard works on the subject. That is almost purely a botanical work; the new one written in association with Count Silva Tarouca is a more popular book, designed for the use of cultivators. It deals exclusively with broad-leaved trees and shrubs, and follows a similar work on Conifers. After opening essays on the use of trees and shrubs in parks and gardens, on evergreens, on those with variegated or coloured foliage and fine autumnal tints, and other subjects of general interest, a dissertation on the genera and species is given. The arrangement is alphabetical, and brief descriptions of all the more important plants are furnished. The book is most profusely illustrated, almost every page containing one or more reproductions of photographs, besides a large number of full-page coloured plates. To those who can read German this work is of particular value and interest.

* *Unsere Freiland Laubhölzer.* By Count E. S. Tarouca and Dr. C. Schneider. Holder-Pichler-Tempsky, Vienna; and F. Freytag, Leipsig.

THE ROSE GARDEN.

ROSE AMERICA.

THE beautiful new Rose named America (see Fig. 44), which received the Royal Horticultural Society's Award of Merit on the 21st ult., is a variety of first-class merit, possessing not only beauty of form and delightful colouring—glowing rose-pink—but a wonderful fragrance, a quality that many of the newer Roses lack. It was raised by Mr. E. G. Hill in the United States of America, in which country its merits have been fully recognised, for in addition to being awarded two silver medals it has received numerous prizes at flower shows in U.S.A.

FIG. 44.—ROSE AMERICA; R.H.S. AWARD OF MERIT, AUGUST 21, 1923. SHOWN BY MR. ELISHA J. HICKS.

The variety is said to bloom from May until the advent of frost. The plant makes a shapely specimen, producing clean, upright growths, and every shoot is said to produce a perfect flower. It is a seedling from Ophelia and has the same habit as its parent. Mr. Elisha J. Hicks, who is distributing the new variety in this country, is of opinion that it will become as popular as Mme. Abel Chatenay, Lady Hillingdon, and Ophelia. Although pink Roses are numerous, this novelty is quite distinct, and its beauty is enhanced by the darker colour in the centre, which is revealed as the outer petals fold back. The stems are stout and long, making the new variety suitable for market purposes, for which we predict it has a future.

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Odontoglossum crispum.—This popular Orchid and the hybrids of this section are often repotted towards the end of August, but in view of the exceptionally hot weather of the past few weeks the present time will be more suitable for the operation as the cooler conditions outside and the heavy dews at night will be favourable to the plants becoming established quickly. Plants on which the new growths have attained the length of several inches, and are about to produce new roots, should have attention first, to be followed by others as they reach the desired stage until the work is completed. Do not overpot, or it will be two seasons before the plants produce good spikes, and be careful not to break the roots. Remove the old, rootless, and leafless pseudo-bulbs. Should it be desirable to increase the stock of any of the plants from which the back pseudo-bulbs have been removed, these, if set in a box or pan, and placed on a layer of live Sphagnum moss, will soon make new growths, when they may be transferred to small pots. Every opportunity should be taken to increase the stock of all choice varieties. Work the material carefully in between the roots, and do not push all the roots to the bottom of the pots. The compost should not be pressed too firmly within the pots, as the roots are not capable of penetrating hard substances. A suitable compost consists of equal parts of peat, A1 fibre, and Sphagnum moss, with a slight addition of clean, broken leaves in the rooting medium. Thrip should be searched for and every means taken to destroy the pest when it is detected by fumigating with a suitable insecticide.

HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Raspberries.—With the removal of old fruit stems, the new canes will have a better opportunity of becoming ripened. Pull out all superfluous and sappy growths, and keep the plantation free of weeds. Autumn-fruiting varieties will be now proving their usefulness. They, too, make suckers freely, a few of the stronger ones of which may be retained for planting elsewhere.

New Plantations.—It will now be necessary to consider what trees will be required for planting during the coming months, and they should be selected and orders placed with the nurserymen as soon as possible. The selection of site is an all-important factor, especially in an orchard of large size. Trees should be planted on the high ground, provided it is sheltered from cold north and east winds. The nature of the soil, too, needs careful consideration, also the natural drainage, and where this is in fault artificial drainage should be resorted to. It sometimes happens that in preparing the stations for fruit trees in advance of planting, they form water traps; and unless the soil is loosened at the bottom the trees will become subject to canker. However, the practice of planting trees above the level of the ground will tend to obviate this trouble. As time permits, preparations should be made for enclosing the ground against cattle and rabbits. The number of drainage pipes (if required), stakes for tree supports, etc., should be estimated for. If the site is on pasture, the grass should be cut as low as possible. It may be desirable to leave the grass for a year or so, breaking up the ground only where the trees are to be planted. Trees should be allowed at least six feet space free of grass, for it is now well established that grass roots are very detrimental to the growth of young fruit trees, and a cultivated area of the size advised admits of manuring and mulching the roots.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Winter Onions.—Make a liberal sowing of Onions in drills made one foot apart. If the ground is dry, water the drills before sowing the seed. Make the ground very firm and rake the surface finely. As soon as the young plants are through the soil, dust them in showery weather with old soot, and hoe the ground between the rows to promote healthy growth and to keep down weeds. Two good varieties for autumn sowing are Giant Red Rocca and Lemon Rocca. Onions transplanted last March should all be lifted by now, carefully dried and stored for present use. The small, silver-skinned varieties grown for pickling may be lifted and dried as advised for the others.

Rhubarb.—As soon as the foliage of Rhubarb has died down sufficiently, it may be removed and the beds given a liberal top-dressing of well-rotted manure, which should be forked into the soil next spring. This annual autumn top-dressing is essential if fine sticks are required and the plants to be kept in a strong, healthy condition

General Remarks.—The first half of the year, at least in the Midlands, has not been remarkable for any great rainfall, and the absence of sun during June has caused all vegetables to be very backward. Evaporation, therefore, was very slow, which in a way was fortunate; but seedling Beets, Carrots, Beans, etc., hardly seemed to grow at all. Since the advent of warmer weather, they have made good headway, assisted by copious waterings about twice a week, and constantly stirring the surface soil by the Dutch hoe.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Veltheimia.—Plants of Veltheimia viridifolia and V. glauca that have been dried off during the summer should now be started. If in good condition at the roots, it is only necessary to give them a good watering and then remove some of the surface soil and substitute fresh compost. If it is necessary to repot them, all the old soil should be shaken away, and dead and decaying roots removed, as well as any decaying matter at the base of the bulbs. Veltheimias do quite well in any good potting compost. Like most South African bulbs, they succeed quite well in a cool greenhouse. In the case of newly repotted plants, water should be very carefully applied until they have made some top growth and a quantity of new roots. This is a good rule to observe with all newly potted bulbous plants. Where stocks do not exist, dry bulbs may be purchased at this time.

Nerines.—These bulbous plants usually commence flowering about this time, the earliest being N. Fothergillii major, and the display is kept up for some time by the later-flowering hybrids. Plants which have been kept dry for the summer should now be well watered. Unless they are in bad condition at the roots, repotting is not necessary, as they usually flower best when the pots are crowded with bulbs. If repotting is necessary, all the old soil should be shaken away, and all dead and decaying roots trimmed off. As they are usually retained in the same pots for a number of years, they should be given a rich compost, consisting of good, medium loam, mixed with a 6-inch potful of bone-meal to every bushel of soil, and sufficient clean, coarse sand to render the mixture porous. Very little water should be applied to the soil until the plants have made a quantity of new roots. Nerines only require the protection of a cold frame, or a light, airy greenhouse, during all stages of their cultivation, during autumn, winter, and spring, which is their growing period. They should be grown in a light, airy position close to the roof-glass, and must not be allowed to suffer from neglect in watering and feeding the roots.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

The Early Vinery.—After the crop is removed from the early vinery the vines are often neglected, but it is necessary to pay strict attention to details to obtain future success. Borders well filled with roots should not be allowed to become dry; indeed, occasional applications of manure, either natural or artificial, will enable the vines to store in the embryo buds material for a vigorous start next year. Superfluous laterals should be checked early, shortening the fruiting laterals gradually, in order that the basal buds may derive all possible benefit from sunlight. It is important that the foliage should be clean and free from red spider, and once the crop is cleared there should be little difficulty in eradicating this pest. If the vines are troubled with mealy bug, remove the loose bark on the spurs, and forcibly syringe the vines to dislodge the bugs. In localities where the rainfall has been heavy, with a corresponding lack of sunshine outside the borders will be wet and cold, and if they are mulched matters will be worse, therefore the mulching material should be removed, and the surface lightly pricked over to allow the warm air to penetrate the soil and reach the roots.

Vine Borders.—Vines which have failed to make satisfactory growth or finish their crop will generally be found faulty at the roots. In such cases the borders should be carefully examined to find out if the mischief occurs there. If the soil is in bad condition, and the roots unhealthy, the best plan is to renew the borders entirely. Where the roots are growing both in outside and inside borders, it is advisable to renew one border at a time, if the condition of the soil is not too serious, as there will then be less check to the vines. It is advisable to undertake this work before the foliage ripens, as there is then an inducement to the vines to throw out fresh roots to supply sap to the foliage and buds. Every possible preparation should be made to carry out the work expeditiously. Good fibrous loam of a medium texture should be chopped up roughly, mixing with it some old mortar rubble or broken plaster, wood ash, or charred garden refuse, and crushed bones. The rooting medium for vines should be so composed that water will pass freely through it, for once there is stagnation the vines will suffer. Place freshly cut turves, grass side downwards, over the drainage material. A depth of 2 feet 6 inches of soil should be allowed, and if the border is more than that depth add more drainage.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Border Violets.—Plants intended for blooming out-of-doors require divesting of their runners, just the same as those intended for growing in frames. If backward in growth, apply a dusting of old soot between the rows, and hoe it in—for choice in showery weather.

Rambler Roses.—The bulk of Rambler Roses have finished flowering, and the work of thinning the shoots may be commenced. The amount of pruning should be in accordance with the strength and character of the variety dealt with. Where young wood is plentiful, free thinning out and pruning may be done; in some instances every particle of old growth may be dispensed with. On the contrary, a scarcity of new shoots must, in cases where there is a large space to fill, be made good by the retention of the best of the older wood, which will give a display of bloom another year, though not equalling, of course, that from healthy young stems. On occasions the Rambler type of Rose is used to beautify rough banks or fill odd corners—in which cases the plants should be allowed to tumble about in a free and natural manner, no thinning being required beyond the removal of dead wood, a little of which naturally accumulates in the course of a few years.

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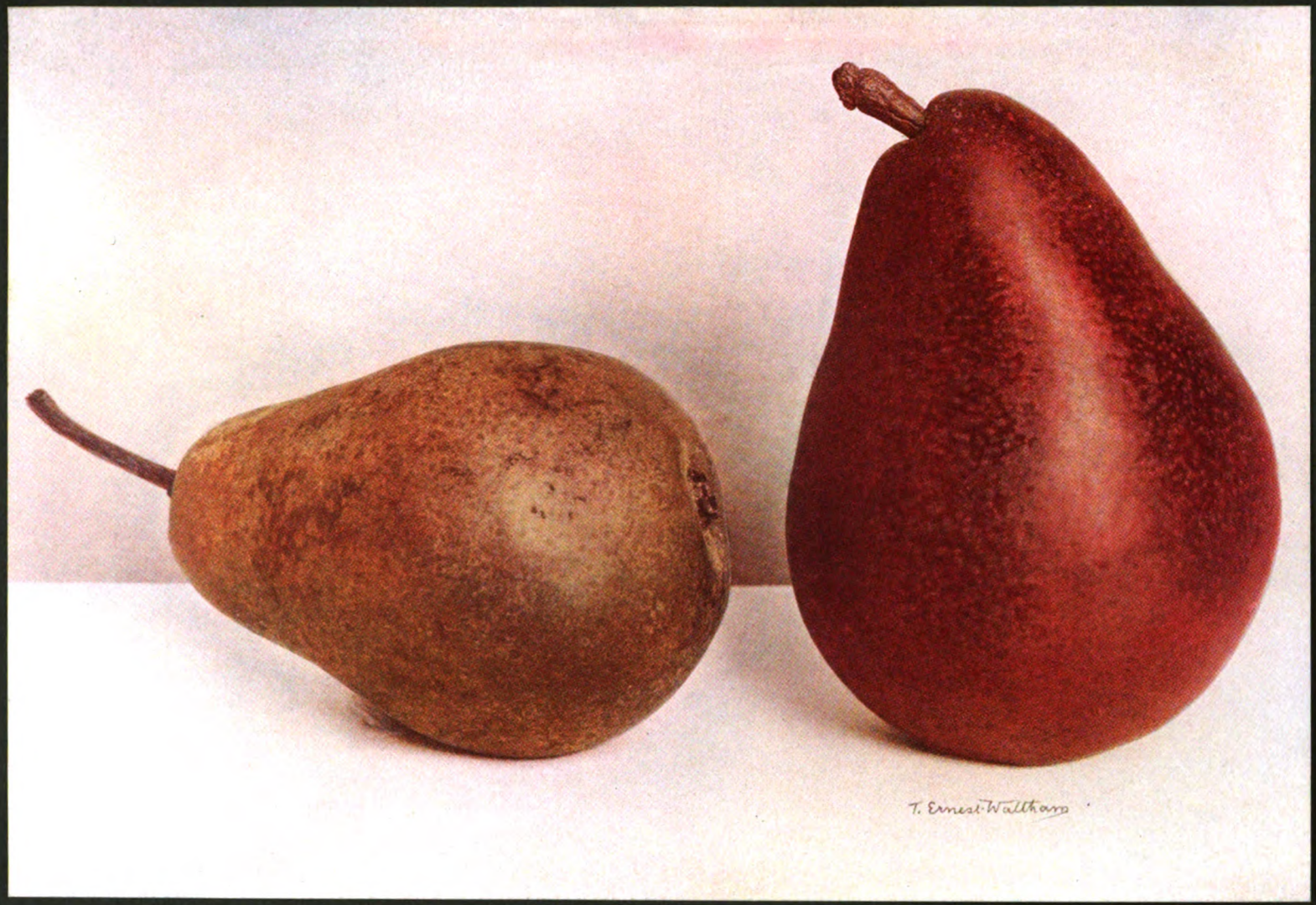

PEAR

MARECHAL DE COUR

A variety neglected in the market, but one possessing excellent flavour

PEAR

BEURRÉ CLAIRGEAU

Popular in the market, but of inferior flavour

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PUBLIC PARKS AND GARDENS.

THE QUARRY PARK, SHREWSBURY.

THE spacious Quarry Park at Shrewsbury is well known to many gardeners, for in it is held the Shropshire Horticultural Society's Floral Fête, which this year was visited by 100,000 visitors on the second day.

Noticeable features of The Quarry are the avenues of lofty Lime trees, over 200 years old, and considered to be among the finest in Britain. Three avenues, crossing the park at various points, merge into the semi-circular avenue skirting the Severn, which, forming a loop, flows along the lower frontage of the park. The Shropshire War Memorial, the replica of a classic temple, within which is a life-size bronze figure of St. Michael, stands at the end of the central avenue, which is 400 yards long and perfectly straight. From the centre of this avenue, looking from end to end, the view is particularly impressive. On the high ground above the Severn, opposite the end of the avenue leading from Quarry Place, are the buildings of the famous Shrewsbury School.

Within The Quarry is "The Dingle," with lake, islands, and fountains. Numerous flower beds are cut out in the turf and planted with a variety of subjects which collectively produce a very gay effect. Two central circular beds are filled with fine foliaged plants, Eucalyptus, Acacia, Ricinus, Zea Mays, Agave americana, with a centre plant of Chamaerops humilis, an edging of Echeveria, and panels of blue-flowered Nemesia and Petunia. There is a red, white and blue bed planted with Dahlia Coltness Gem, a trailing blue Lobelia, and standard plants of a white and green-foliaged Fuchsia. Other combinations include pink Antirrhinums, with pink Ivy-leaved Pelargoniums, tuberous-rooted Begonias, and Dactylis glomerata variegata; Roses interplanted with Gladiolus, Lobelia cardinalis and Alyssum maritimum.

Other flower beds contain Pelargonium Paul Crampel, flowering freely, and the heat on the show days brought out the fragrance of the Heliotrope, which, as standards and bushes, is planted in quantity. In the borders above the retaining wall surrounding The Dingle Phloxes and other hardy herbaceous plants are now in their full beauty. *Fred. W. Jeffery, Dalserf, N.B.*

THE Marquis of Lincolnshire has presented to the Borough of High Wycombe three and a half acres of woodland, grotto and waterfall in Daws Hill Park, for the public enjoyment. A very large gathering of the public witnessed the ceremony when Lord Lincolnshire handed the title-deeds to the Mayor at the Town Hall on August 22. The cascade is approached by a charming pathway to be used as a public promenade. It was constructed in 1801, and the walks, pleasure grounds, and plantations were laid out by "Capability" Brown, under the direction of the Earl of Shelburne. On the same occasion as the presentation of Lord Lincolnshire's munificent gift, the historically interesting "Rye Mead," extending to about thirty acres, was transferred from the Charity Governors to the Town Council of High Wycombe.

ORCHID NOTES AND GLEANINGS.

DISAS.

(*Continued from p.* 118.)

ON p. 118 I referred to Disa grandiflora and its hybrids, also D. racemosa and D. tripetaloides. I will now deal with others in cultivation.

DISA CRASSICORNIS, LINDL. (known to many as D. Megaceras, Hook., *Bot. Mag.* t. 6,529), is one of the most desirable species to establish in gardens and one in which the possibilities in the hands of the hybridist, who has acquired such proficiency in the D. grandiflora section, are incalculable.

It is a strong grower in its own home and the small lots which have been received in Great Britain gave hope at first by flowering occasionally, but the plants ultimately died, and it is probable that the species is not now in gardens. I have seen it flowering well at Glasnevin Botanic Gardens, Dublin. I have also succeeded in flowering it, and it has bloomed in several gardens, but I think has never lived long. I have had it sent from high altitudes on the Drakensberg several times, those who collected the few plants always reporting that it was not plentiful, though very strong growing. The following extract from a letter received from the late Mr. W. Tuck, of Grahamstown, will help to show that this desirable species should be amenable to culture:—

"Disa crassicornis is a fine, handsome-leaved plant, with tall stems of fine white or cream-coloured flowers spotted inside with purple, and having curious, stout, funnel-shaped spurs. The flowers are about two inches across, and so delightfully fragrant that they may be found by the sense of smell when they cannot be readily seen for the other vegetation in the highland district where they are sparsely distributed. The hilly region where it grows is covered with snow every winter, black frosts occur, and I have seen icicles hanging about all day up there in the shade. D. crassicornis grows in the clefts of the rocks, and also in the low bush in strong red loam."

Mr. John Marshall, from his upland cattle farm on the Boschberg, when sending me three or four strong plants, also reported in the same terms, and referred to the delicate fragrance even from unseen flowers. The particulars given suggest that there should be no difficulty in growing the plant, but although I found advantage in potting them in yellow loam fibre and a little Sphagnum moss, only the strongest bloomed and then declined.

DISA ERUBESCENS, RENDLE, is a most desirable, showy species, well known from specimens collected at high altitudes (Nyassaland, 5,000 feet; Mount Ruwenzori, 6-7,000 feet). Wild specimens show that it is a strong species and about one foot in height, and bears erect spikes of five to eight flowers, which, though smaller and different in shape than those of D. grandiflora, have much of the bright colouring of that species.

Tubers of D. erubescens were sent to Kew by J. M. Purvis, Esq., and one flowered there in March, 1906. The dorsal sepal is one and a quarter inch long, rich orange, spotted with crimson. The spreading, lateral sepals are scarlet. The short petals are coloured at the tips light orange.

It does not appear that the species has been received in any other gardens, and opportunity should be taken to import it again. Although inhabiting tropical Africa, the high altitude at which it is found places it in the same class as the Cape species.

DISA LONGICORNU, LINN., a charming blue Disa, was discovered by Thunberg in 1773 high up on Table Mountain. The plant is of low growth, the tubers being furnished with bright green leaves and producing spikes of one or two handsome, lilac-blue flowers, which seem disproportionately large for the small stature of the plant.

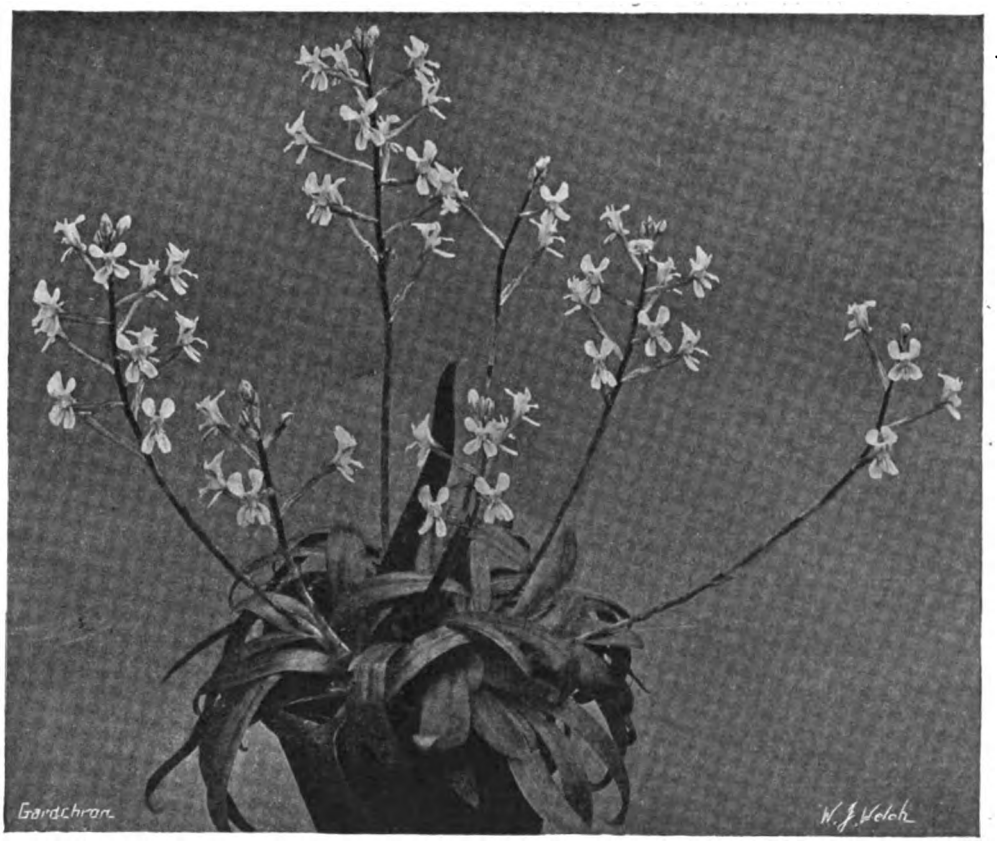

FIG 45.—DISA SAGITTALIS.

D. longicornu invariably grows in moss-covered ledges and chinks in the rocks above rivulets. It has been frequently imported, and flowered in this country.

DISA SAGITTALIS, Sw. (see Fig. 45) is a very pretty species with six-inch sprays of six to twelve pretty, pure white flowers with occasional thin lavender-blue lines. It is one of the easiest to grow, and is at present in a thriving condition in several gardens in this country.

DISA CORNUTA, Sw.—Mr. Jas. Hall, in writing of this pretty and fragrant species, stated "in habit and the production of its dense heads of flowers I would liken it to a Hyacinth, and from what I see of it in its home I should say that it would be as easy to grow as the Hyacinth."

In 1887 Mr. Smee, of Wallington, showed several plants of D. cornuta at the Royal Horticultural Society's meeting, which had been flowered in the open garden. It bloomed well at Glasnevin, producing dense spikes of pretty yellow flowers with showy, hooded, upper sepal of purple colour. It was frequently seen before 1914, but I have not seen it recently. *James O'Brien.*

(*To be continued.*)

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. 20.—THE SALWEEN-IRRAWADDY DIVIDE.

AT dawn, on October 21—a sweet, clear, dewy dawn—the minimum thermometer showed 44° F. We breakfasted early, and started at 8.30 a.m., descending immediately to the torrent, a few hundred feet below, by a steep and hazardous path.

At once we found ourselves in the depth of the rain forest. For the next few hours the going was thoroughly bad. Up and down slippery, notched logs, balancing on ledges and tree trunks, scrambling over boulders and cliffs, grasping anything which presented itself—roots, lianas, rocks—we proceeded perilously. I grew accustomed to the taste of my heart in my mouth. The sweat poured from us.

Under these circumstances, since we had at all costs to go on, on, on, it was not possible to see much of the forest, beyond the fact that it was a forest. The dim light, the concentration of mind necessary to stand up and keep moving, and the roaring water alongside, all added to one's confusion of mind. It was mentally overwhelming, but it was also grand and solemn beyond belief. That one was in the rain forest, that the trees were burdened with a vast epiphytic flora, and laced together with creepers, and that the herbaceous undergrowth (notably Ferns and Urticaceae) surged waist-high, was as much as one could be certain of. Now and again I observed the clean, shining trunk of a stamineum Rhododendron (surely the series should be called Oxyphyllum?) or the large, oval leaves of a Magnolia, the fissured bark of an Oak, or the fallen fruits of a Schima or a Walnut. Occasionally a lance of sunlight split the dense canopy, and struck the nodding scarlet flowers of an Aeschynanthus or the sleek foliage of some Zingiberaceous plant. But for the most part I struggled up this remorseless yet fascinating stairway, myopic in the green haze of moss and Ferns and foliage, striped with dark tree trunks in a world of noise.

Nevertheless, we mounted rapidly. Whatever might be said in censure of the hunter's path, at least it did not deviate. It went straight up the valley, over any and every obstacle. One thing was certain—without a guide, I could never have found the way, or, more accurately, should quickly have lost it. A native accustomed to these forests could, of course, have followed the track without difficulty, by signs too refined for me to notice. But mooning along, keeping even half an eye on the wealth of vegetation, as I tried to do, was fatal. My head was in a whirl. Half a dozen times I found myself off the path, wading waist-deep through the yielding undergrowth and falling into holes, and was rescued by the men.

After four hours of this, we halted for lunch. A subtle change had come over the forest. The trees had increased greatly in size. Birch, Maple, Picea, Larix, Pseudotsuga, and large-leafed Rhododendrons had replaced the warm temperate trees of the lower forest; the Indo-Malayan element had disappeared, and the mixed forest was largely Coniferous (see Fig. 46). Calculating from the barometer reading, and correcting for temperature, we were now 3,132 feet above the Salween River. Some of the trees were gigantic, and largest of all was a species of Pseudotsuga. It is from these immense trunks that the Lutzu fashion their canoes.

We allowed an hour and a half for lunch, and then continued the ascent over a chaos of granite blocks. The forest became more open and patchy. A wilderness of shrubs lined the river and filled the open spaces. Here and there sheets of meadow intervened, with herbs 10 feet high—giant Umbellifers and Compositae, Thalictrum, Strobilanthes, and others. But the meadow was already brown and decayed. A Nemocharis yielded ripe seed—N. pardanthina I suspect, N. tricolor I hope; not that

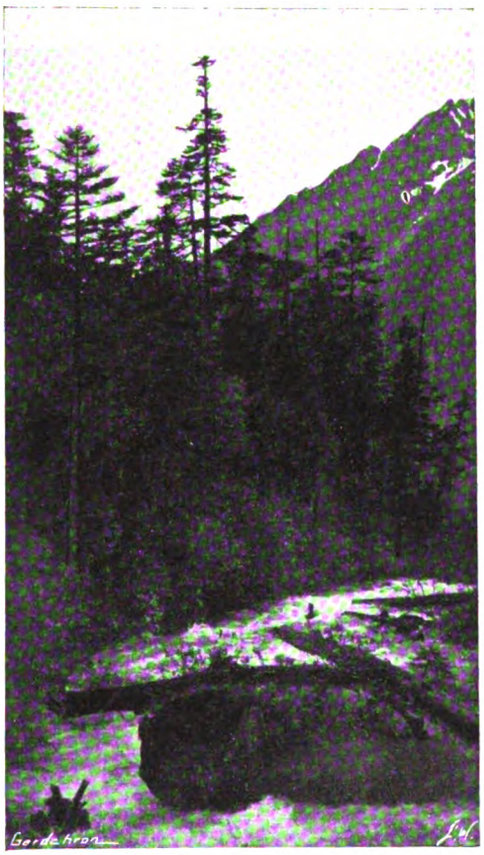

FIG. 46.—ABIES AND RHODODENDRONS BY THE STREAM; SALWEEN-IRRAWADDY DIVIDE.

there is much difference to the eye, at any rate, but it would be interesting to justify the latter species with a living example. My own views on the genus, with its several alleged species, I have already discussed.

Presently the valley opened out, and at 4 p.m. we halted, having marched just under six hours all told. Good quarters for the night were afforded by an immense block of granite, in the shelter of which we camped. I had time before supper to look about me and to collect seeds.

The valley just here was open and fairly level. The stream flowed more restrainedly over its granite gravel bed, and its high banks were lined with bushes, chromatic with autumn tints.

Conspicuous on the shingle flats were bushes of Rhododendron brevistylum (? K.W. 5428; one of the Heliolepis series); and on the great boulders was a low tangled bush, not rising 3 feet from the ground, with very hairy stems, petioles, and capsules (K.W. 5427). The long, stiff hairs at once suggest the Barbatum series; but the coppery-red indumentum of the under-leaf surface is reminiscent of Roxieanum, in whose favour I cast my vote—not having seen the flowers. In the shelter of the Bamboo brake, this species formed a sturdy bush 6 or 8 feet high; one wonders which attitude it will adopt in this country.

Another almost abundant species was one of the Neriiflorum series—a small, bushy tree with almost glabrous foliage and compact trusses of eight to twelve flowers (K.W. 5415).

Following a fine day, the night proved equally brilliant, the sky crowded with vivid stars. Our altitude was now 3,964 feet above the Salween, an ascent of 2,408 feet on the day's march.

The change of climate now began to make itself felt, and next morning the minimum thermometer showed only 39° F. The sky was still clear. We now found ourselves climbing from terrace to terrace, up an obviously glaciated valley. The "treads" of this giant stairway were covered with alpine meadow, divided by strips of Bamboo brake; the "risers" consisted of a confusion of boulders partly smothered under a dense growth of shrubs and trees.

On either side of us rose a sheer granite wall, bounding the valley. That on the left was the higher, and was furrowed at intervals by slots, down which stones slid and clattered; that on the right separated us from an upper parallel valley, down which flowed a glacier from the Gompa La. Through the gullies on that side we could see the flank of the glacier, a wall of ice high above our heads. Formerly it had spilled over into our valley and joined its glacier (now defunct); but since the general retreat of the ice, the floor of our valley had been lowered by water erosion, leaving the other glacier up in the air. As already remarked, all the glaciers on the east face of the Gompa La discharge into the one big valley.

To complicate the simple arrangement of "tread" and "riser," therefore, we had these huge cones of rubble shot down from the glacier on our right, athwart our path, besides a succession of streams. At one time we would be toiling up a "riser," jumping from boulder to boulder; at another, scrambling over a gravel cone, slit down the middle by a deep trench down which the torrent slurred: or forcing our way through a belt of Bamboo which rained dew generously down our backs; or wading up to our necks through a supersaturated meadow; or paddling across a torrent.

The forest, where forest still prevailed, consisted mostly of Picea, Pseudotsuga, Pyrus, Maple, and Birch, but trees were scattered over the landscape, forming a sort of park. There were also dense patches of scrub Willow, sere in leaf, and on the boulder beds a tangle of Rubus, Ribes, Enkianthus, Rhododendron and Vine, whose foliage was all the colours of the less refracted end of the spectrum; Clematis, Schizandra, and other woody climbers joined joyfully in the fray. There were Rhododendrons everywhere, but not in such massive formation as at Mu-li, though in far greater variety. Of them I shall have more to say later.

Presently we found ourselves on great bulging slabs of granite planed smooth by extinct glaciers. A small, ignoble Gentian was in flower here, and the clubs of a Lycopodium were conspicuous. Rhododendron sanguineum sprawled flat on the rock, though in the Bamboo thickets it chose to form a compact bush 3 or 4 feet high.

At 11.30 we halted for lunch and a rest, resuming at 1. Meanwhile the sky had become overcast, and an alarming drizzle set in. If the going had been difficult so far, it now became desperate. We could proceed by the stream no longer; the path—if an invisible track can be called a path—began to climb the mountain flank on our right, which consisted mostly of granite slabs as described. Unfortunately, they were sometimes covered with a veneer of bog, which slid away when I stepped on it. The result may be imagined. I collected seed of an Iris here (K.W. 5459), and also of a Primula.

The going did not improve. We paddled up steep stream beds through tunnels of Bamboo,

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17, July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, March 10, 24, April 7, 21, May 5, June 2, 23, July 7, 21, and August 18, 1923.

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climbed cliffs, and crossed several deep gullies. The rain changed to snow, and I grew seriously alarmed. All the peaks disappeared. Finally at 4.30 we halted in the last patch of Abies forest, high above the deeply eroded valley. It had been a good effort—seven hours' hard climbing, which accounted for another 2,621 feet. We were now 6,585 feet above the Salween.

The variety of Rhododendron met with during the latter part of the day was simply bewildering, and it was almost impossible to keep pace with them. They changed with ever-increasing rapidity as we ascended; and even the same species went through some protean evolutions, according to its habitat—this applies particularly to species of the Sanguineum and Haematodes type.

The capsules of the alpine species were mostly gaping, and I collected seed of half a dozen species, including a Saluenense (K.W. 5434) and a low-growing Haematodes (K.W. 5431).

Under the trees where we camped were several bark shelters, and these the men occupied; but I slept by the fire in my wee tent, for it was bitterly cold as soon as the sun disappeared. However, a brilliant sunset was succeeded by a splendid night. The arc of mountains at the head of our valley, with the pass we should have to cross on the morrow, was etched against the smouldering sky. Right above us towered the dark bulk of the Gompa La, its glacier gleaming like an iceberg. Dark clouds were sailing away over Burma, but below them flamed a broad bend of tawny sky. I sat by the fire for an hour after supper, writing my notes, then turned in dressed, for the cold did not encourage a casting off of garments. *F. Kingdon Ward.*

SNOWY FLY AND BIG BUD IN VANCOUVER.

THE Snowy Fly is found near the sea on the west coast of Vancouver Island under conditions which leave no doubt but that it is a native. In early summer all stages from the eggs to the mature flies are found on the underside of the leaves of Rubus spectabilis. Eventually the flies transfer themselves to the dense young foliage of Gaultheria Shallon and betray their presence by rising in swarms when disturbed. The perfect fly is not altogether snowy white; seen under the lens the upper pair of wings have certain brown marks, and these in some instances assume the shape of an arrow. It would seem as though the Snowy Fly had originally come from the warm south of Vancouver Island, maybe its northern limit in the open air. The pest appears identical with the white flies which infested Tomato plants in Britain forty to fifty years ago.

"Big Bud" is another pest which seems to have established itself on Vancouver Island without the aid of the white man. About eight years ago, and in the early winter, a plant of Ribes laxiflorum (a species belonging to the Ribesia or Currant division of the genus) was lifted from the forest of an uninhabited island in Barclay Sound. The following spring its unnaturally developed fruit buds indicated that something was wrong, and examination showed that the inflorescence was already destroyed in the buds, apparently by a minute grub which reduced the inside of the bud to a brown dust as in "big bud." The plant was cut to the ground and allowed to grow away from the root, and since then it has flowered normally.

Ribes laxiflorum is an interesting shrub with prostrate stems from 12 feet to 20 feet in length when growing in the shade; with orbicular five-lobed, cordate leaves, and erect racemes of brick-red, saucer-shaped flowers. Its fruit is glandular, bristly, globose, and wine-coloured. It grows near the coast from Alaska to the mouth of the Columbia River. Barclay Sound, Vancouver Island, is therefore near its southern boundary, and this record of it being infested with "big bud" may lead to knowledge of the geographical limits of this modern garden pest. *George Fraser, Ucluelet, B.C., Canada.*

LATE SUMMER FLOWERS.

BETWEEN the passing of the July flowers and the opening of those of autumn there is a gap of some five or six weeks when that portion of the garden devoted to hardy flowers is not very bright. It is not an easy matter in mixed borders to cater for all seasons well; in fact, the attempt entails much forethought and labour, otherwise the effect at no period is ever great. The easiest way out of the difficulty is to aim at securing the fullest display of bright colours in the months when the most appreciation is to be expected. In many establishments the owners are absent, but in others it is necessary to arrange for a good display for a few weeks to come. In such cases it might prove worth while to make the plants in season a feature, although it may have to be at the expense of earlier or later displays. Amongst the subjects for the period in question Gladioli are most dependable. There are several classes, but those recognised as autumn or large-flowering are the most in demand for border work, and varieties such as Golden West (orange-red), America (lavender-pink), Halley (salmon-pink), Enchantress (lilac), and good yellow and scarlet sorts, of which there are several, should be planted in groups of a dozen or so, such clumps being very effective. The Primulinus hybrids of Gladiolus, with their refined colours and graceful habit, are rapidly becoming popular. Unfortunately the hooded form does not reveal itself in all the hybrids which are included under the heading, but when recent varieties like Golden Girl, Nydia, White Buttercup and Myra become more plentiful, there will be no complaints.

The modern varieties of Montbretia are very beautiful. Since Star of the East was introduced great progress has been made with these flowers, and in the near future the Earlham Hall hybrids will rank amongst the most popular of early autumn flowers, but they need treating much the same as Gladioli to be a success; in fact, they are best started under glass and planted out.

Phloxes are invariably associated with Shrewsbury Show, the big event in the horticultural world finding them at their best. Not in every garden, however, are they an unqualified success, for only in the most favoured situations and in good soil is it possible to continue growing them profitably without propagating new stock from cuttings.

Pentstemons, especially those of the Southgate Gem class, are almost as valuable as Antirrhinums for bedding purposes, and there are several excellent tall growers which add to the display in the mixed border at this season. Dahlias have a lengthy season of flowering, and when well grown they are valuable assets to the garden in August. Of the various sections the freest and earliest are the single, decorative and star types.

Hollyhocks are worth grouping extensively, and by planting seedlings disease is less noticeable. Early-flowering Chrysanthemums in the mass are more a September than an August feature, yet varieties such as Carrie, Goacher's Crimson, Diana, and several of the newer singles, come in useful.

Amongst plants which lend variety to the mixed border, either as single specimens or in groups of three or so, Aster acris, a pretty shade of violet blue, is very useful. White is conspicuous in the late Ox-eye Daisy Alaska. Erigerons offer much variety, and of the later kinds Quakeress (lilac) and the newer mauve-pink, B. Ladhams, are both very showy. Sea Hollies in metallic blue are useful, and in Eryngium Oliverianum the heads are fine. Heleniums cover a long period, flowering from June to October, and adding considerably to the brightness of the border. For our purpose H. aurantiacum (2 ft.) and H. cupreum Crimson Beauty (2½ ft.) are dependable. Two good Sunflowers are to be had in Helianthus laetiflorus Daniel Dewar, and H. H. G. Moon.

Rudbeckia Newmanii has a neat, bushy habit, and the purple and brown flowers are very pleasing. Scabiosa caucasica, with its pale, bluish-mauve flowers, is never better than just now, and is well worth growing in quantity for cutting. The sea Lavenders and Statice latifolia, which produces cloud-like masses of lavender-coloured flowers of remarkable lasting qualities, are other good flowers for late summer. Thalictrum dipterocarpum is one of the most imposing border subjects, but unfortunately the plant is not quite hardy and requires, in many places, a sheltered position and light protection in winter. The foregoing is by no means a complete list of late summer flowers, but those enumerated are indispensable. *T. G.*

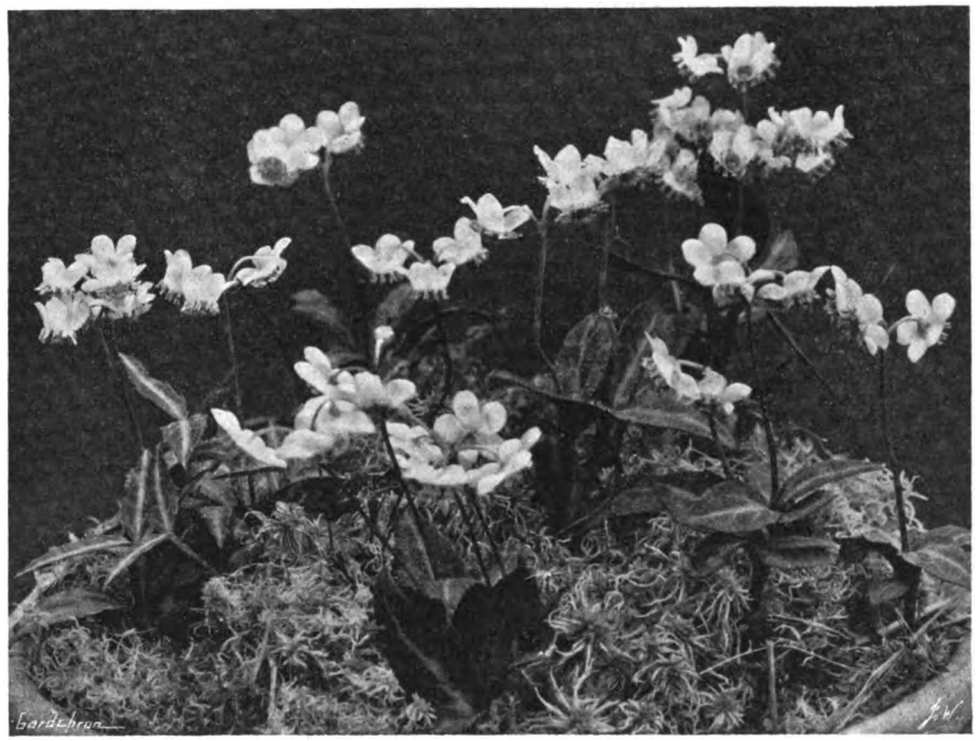

FIG. 47 —CHIMAPHILA MACULATA. R.H.S. FIRST CLASS CERTIFICATE, AUGUST 21, 1923 (SEE P. 122).

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NOTES ON THE CULTIVATED PLANTS OF THE REPUBLIC OF SALVADOR.

(*Concluded from page* 118.)

As in most tropical countries, the variety of fruit trees is very great, but it must be admitted that the larger number of tropical fruits have little attraction for persons not accustomed to them, for too many have no other merit than sweetness. In Central America it is common to hear the native people say that a certain fruit is very good because it is so sweet. Most of the common tropical fruits are grown, such as the various kinds of Anonas, including the Soursop (A. muricata), whose enormous, spine-covered fruits, so heavy as to bend the branches to the ground, are used principally for flavouring ices and beverages; the White Anona (A. diversifolia), considered the best of its group; and the Sweetsop (A. reticulata). Avocados (Persea americana) are produced in abundance, but in quality they are not equal to those of Guatemala. Chrysobalanus Icaco bears a small, black, inspid, Olive-like fruit, similar to that of Simaruba glauca, which is a characteristic tree of the country.

All the Citrus fruits are cultivated, and Oranges of superior flavour are plentiful in the markets, being sold usually at about three cents per dozen. The Grape Fruit is rare, and it is probably too sour ever to become popular in Central America. The Lemon is seldom seen and its place is taken by the Lime. The Citrons, so common in the markets, are used in the preparation of a delicious confection of pleasing green colour. The Cashew tree (Anacardium occidentale) grows wild and is nearly always to be seen about dwellings. There are two varieties, with red and yellow peduncles, the fruits of which are much eaten, but are not especially agreeable to the palate. The roasted seeds are delicious, however, and are a good substitute for Almonds.

The Hog Plum (Spondias Mombin) grows with little or no attention, but the fruits of certain choice varieties are highly esteemed. The early Spanish explorers not inappropriately gave them the name of "Plum." for their fruits are closely similar in form and colour to those of the northern tree, and their flavour is much the same. The Mango is the favourite fruit of the Salvadoreans; the tree appears in every finca, affording refreshing shade, and unlimited quantities of Mangoes are consumed in their season. The Mamey (Mammea americana) is one of the most worthy of the common fruit trees, bearing a large, russet, globose or ellipsoid fruit, whose flesh suggests in flavour that of an Apricot or a cling-stone Peach. Two species of Passiflora are cultivated in the higher lands, and the fruit of one of them (P. ligularis) is of pleasant flavour and appearance. The Papaw (Carica Papaya) is very common, and is generally liked by those who make its acquaintance for the first time. Pomegranates are rare, but Guavas are so abundant as to become troublesome weeds. The Rose Apple (Eugenia Jambos) is a lofty tree with deep green foliage, bearing a small, buff, fruit containing a single seed, its rather hard flesh having a peculiar flavour that suggests nothing so much as highly scented toilet soap. The Star Apple (Chrysophyllum Cainito) deserves higher rank for its elegant foliage than for its innocuous fruit. The Sapote, Lucuma (Calocarpum) mammosa, is one of the most plentiful and favourite fruits, while several other trees of the same family (Sapotaceae) are generally cultivated.

The most valuable of Salvadorean fruits is the Banana. Salvador is the only Central American country which does not produce Bananas for export, but vast quantities are grown for local consumption, and they constitute an important part of the native diet. Several varieties are planted, that most esteemed for eating raw being the one which is commonly seen in northern markets. For cooking, the Plantain is best, but the Banana most grown in Salvador for that purpose is the Majoncho, a form with a short, pale yellow fruit and coarse, fibrous flesh. Next to Maize, Beans and Rice, it is the most general food among the poorer classes.

Upon the higher volcanoes the climate is sufficiently cool for the culture of the fruits of temperate regions. Strawberries of the American type (Fragaria chiloensis) are brought from the volcano of San Salvador to the markets of the capital at nearly all seasons. A delicious Blackberry, whose specific identity is uncertain, thrives upon the same volcano, and the berries bring a high price in the markets. At least two species of wild Blackberries are found in the country, but their fruits are so sour that they are little eaten. Quinces, Apples and Peaches are cultivated, but not extensively or successfully, for the fruit is small and of poor quality, although this may be the result of planting inferior varieties. Grapes are seen occasionally and at low altitudes, but they must be protected constantly against the attacks of a large leaf-cutting ant, which is the chief enemy of Central American horticulturists. The Zompopo, as this ant is called, will in a single night strip a tree or bush of its leaves, and is equally destructive to herbaceous plants. The most effective form of protection is a cement trough filled with water about the plots in which the plants are grown.

Upon some of the high mountains there may be found one of the rare tropical American fruits, the Pepino (Solanum muricatum), which in habit and inflorescence is much like the Potato plant. It bears a large egg-shaped fruit, yellow or striped with purple, which is eaten as a dessert fruit.

There could be mentioned numerous native plants which bear edible fruits, but in most cases these are of inferior quality and are little esteemed even locally. Such are the Sunzapote (Licania platypus) and the Ulozapote or Zapotillo (Couepia polyandra) which belong to the Rose family, although they bear little resemblance to the well-known plants of that group. The white Sapote (Casimiroa edulis) is common, and has a fruit which resembles in flavour and appearance a large Apple, with green or yellow skin, and is very good to eat. There is a popular belief, probably well-founded, that it induces drowsiness. A close relative of the Cacao, known locally as Cushta (Theobroma angustifolium) is grown at Sonsonate for its edible, highly scented fruit, whose seeds furnish a good quality of Cacao. The Patashte (Theobroma bicolor) also is grown at Sonsonate for its seeds, and the common Cacao (Theobroma Cacao) is cultivated in many places, but the quantity of seeds produced is small, and neither cocoa nor chocolate is much consumed locally.

Most of the well-known vegetables succeed in Salvador, even at low elevations. Those most grown, after Beans, are Onions, Garlic, Tomatos, Carrots, Beets, Lettuce, Radishes, Turnips, and Squashes. Peppers are common, but the very hot ones, which form so characteristic a feature of Mexican and Guatemalan cookery, find little favour in Salvador, although the Garlic employed is an equally obnoxious substitute. In the mountains, Cabbage and Cauliflower are produced with complete success, and I have seen Asparagus also. Peas are little planted and are rarely seen in the markets, where they are known, curiously enough, even among the country people, by the French term of *petits pois*. Watercress thrives in many of the streams and is, next to Lettuce, the most popular salad plant. Potatos have long been cultivated in the higher mountains, but their tubers scarcely exceed Walnuts in size. Sweet Potatos and Yams are much utilised, and the tuberous roots of the Yucca plant are a favourite and savoury vegetable. An American production is the Jicama (Pachyrhizus erosus), grown for its tubers, which resemble Turnips, are juicy and sweet, and eaten raw.

The markets are well supplied with Cucumbers, Cantaloupes, and Watermelons, and the last, strangely enough, are the most expensive of all Salvadorean fruits, at least during the dry season. Some of the larger ones realise as much as a dollar and fifty cents each, which compares favourably with the prices at which they are retailed in the United States in winter.

Lack of space forbids mention, in an already long list, of many other interesting plants that are noteworthy for various reasons. A mental picture of a tropical country usually abounds in Palm trees, but in Salvador these are not impressively numerous, except for the Coconut, that most graceful of all trees, which is a characteristic feature of the landscape at middle and low altitudes. Two towns, San Vicente and Sonsonate, are noted for their wealth of these, the latter so much so that it is known locally as the "City of Coconuts." There appear to be only about seven species of Palms native in Salvador. The leaves of one of them, an Acanthorrhiza, are much used for weaving hats. There are three species of the small and slender Palms of the genus Chamaedorea whose tender inflorescences furnish one of the most delicious vegetables that I have ever eaten.

Orchids, too, are always to be expected in a tropical country, although their abundance has been much exaggerated in the popular imagination. Because of the comparatively dry climate, they are not very common anywhere in Salvador, and of the few species represented not many are at all showy. The one notable exception is Cattleya Skinneri, plentiful nearly everywhere at middle elevations, the bushy plants as large as a bushel basket, perched high upon the trees and easily visible at a long distance. The richly-coloured blossoms are scarcely at all inferior to those produced in hothouses, but the people who gather them and bring the flowers to the markets seem not to esteem them above the humble annuals that are familiar in our own gardens. *Paul C. Standley, Assistant Curator, Plant Division, U.S.A. National Museum, Washington.*

INDOOR PLANTS.

BOUGAINVILLEAS.

BOUGAINVILLEAS are charming climbers admirably adapted for training up pillars or rafters in ordinary warm greenhouses and conservatories. They do best planted out in a well-drained border of rich, turfy loam and leaf mould, with silver sand added. When the plants are growing freely they should be relieved of all weak growths, otherwise they will soon become crowded with growth. They require plenty of light and air, but freedom from draught, to flower successfully indoors in this country.

Some years ago it was the custom to grow Bougainvilleas as stove plants, but it has been found that they succeed best grown in a cooler temperature, especially when required for exhibition purposes, as when grown in a stove temperature the foliage and bracts flag quickly. Many of the varieties may be grown as half standards and standards with pretty effect, also as bush specimens, and they will flower freely in 48 and 32-sized pots.

After the flowering period is over, which is about October, the plants should be kept moderately dry, and exposed to all the sun possible to ripen the wood for next year's flowering. In the spring, before starting them into growth, the branches should be shortened, and the old exhausted shoots cut out. If planted out in a large glasshouse there is no need to cut away many of the long, rambling shoots, but only to thin out the weaker ones. During the winter the temperature in which these plants are grown should be about 45° to 50°. They may be started in the middle of February, and when showing their flower buds should be fed with liquid manure once a week, to encourage the bracts to open freely.

Cuttings formed of half-ripened wood root readily in sandy soil, placed in a warm, moist frame or hand light. If rooted early they will make good strong plants for the following year.

The best Bougainvilleas for cultivation are B. glabra, a fine pale rose-coloured species, a free grower, and profuse bloomer; B. Cypheri, a deep rose form, a free bloomer and a good pot plant; B. Sanderiana, a remarkable free-flowering variety having flower bracts of medium size, somewhat darker than those of the type. The flower bracts are produced in great profusion on quite young plants. This Bougainvillea may be grown as standards, or as specimens in pots. At Camphill Queen's Park, Glasgow, there is a magnificent specimen planted out in a cool house, which is a mass of bloom annually. B. lateritia has brick-red bracts. This plant flowers freely out-of-doors in the South of France. Maud

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Chettleburgh is a beautiful variety with rich rose-coloured bracts. B. Warscewiczii is one of the finest of the species, but unfortunately it is not so well known as many of the others. It has large deep rose-coloured bracts and is very free-flowering. The plant is grown to perfection in a corridor, amongst other greenhouse plants, by Mr. Maxwell, gardener at Errol Park, Errol, Perthshire. There are many other kinds, but those described are the best, and the plants make a grand display for a very long time with very little trouble or expense. *John Heal, V.M.H.*

THE BULB GARDEN.

THE LILY SEASON IN SOUTHERN SCOTLAND.

LILIUM regale, a native of Western China, is the most beautiful Lily I have seen for many years. I have had this incomparable species adorning my finest flower-border for the first time this season, and its artistic aspect, its wonderful combination of colours, brown, white and yellow, with green lines radiating (like Lilium speciosum Kraetzeri) from the centre, combined with fragrance, somewhat resembling that of Magnolia Watsonii, have made it an object of great admiration. This beautiful Lily deserves to be widely cultivated, and under very favourable conditions it may be grown from seed to full flowering size within two years. It has been cultivated with great success by Mr. McDouall, in Logan Gardens; where also L. Grayi, L. philippinense var. formosanum (a very distinctive and handsome Lily), L. nepalense, usually somewhat arduous of culture under open-air conditions, L. giganteum, L. pardalinum var. Burbankii, L. Humboldii, a species of impressive aspect, and the large flowered L. auratum platyphyllum, are grandly grown.

In the gardens of Monreith, Lochinch and Logan, in Wigtownshire, and in those of Southwick and Cavens in Kirkcudbrightshire, the great Lily of the Himalayas has for several seasons been quite commanding in its size and height, and in the number of its glorious flowers, whose fragrance, like that of Lilium speciosum, is highly fascinating, because it is refined. I often wonder that the latter highly artistic Lily, the culture of which is by no means exacting, is not much more extensively grown in our larger British gardens; especially as it is the latest, and assuredly one of the loveliest of them all. For my own part, I attach so much importance to its graceful aspect and delicate odour, when experienced by its cultivator on a calm evening in September, that I regard it as a veritable floral inspiration. The stately Madonna Lily (Lilium candidum), which I greatly fear is seldom adequately appreciated for its beauty and fragrance, and such splendidly effective varieties of Lilium longiflorum as Wilsonii and giganteum, are also eminently entitled, by reason of their artistic capabilities, to a much more extensive cultivation. *David R. Williamson.*

THE CULTIVATION OF BULBS IN FIBRE.

BULBS do splendidly grown in bowls containing fibre consisting of two parts moss fibre and one part each of finely ground sea-shell and charcoal. The fibre provides the rooting medium and retains moisture. The fine shell assists in maintaining a porous condition in the fibre, preventing it becoming stagnant. Air is essential to the roots of all plants and helps to convert the plant foods into a condition suitable for the plant. The charcoal serves the dual purpose of keeping the fibre sweet, and retaining moisture in its porous structure.

The bulbs should be planted in the bowls about the end of September. Make sure that the compost is in a thoroughly damp condition; this is very important, for if the fibre is the least dry when placed in the bowls it will be impossible to make it moist afterwards.

Place a few lumps of charcoal in the bottom of the bowl, to act as drainage. For large bulbs such as Hyacinths, Narcissi and Tulips, put an inch of fibre over the charcoal and press it down firmly. For small bulbs add sufficient compost so that when the former are placed thereon their tips will be half an inch below the surface of the bowl. Press the fibre moderately firmly, arrange the bulbs about a quarter of an inch apart, and cover them with compost, pressing it down slightly until the bowl is filled to within half an inch of its rim, and the tips of the bulbs showing through.

When the bulbs are set the bowls should be placed closely together, covered with about six inches of cocoanut fibre, and stored in a cool dark cellar, where they should remain for two months. When the plants start to grow they should be left uncovered for a few days, then removed to the rooms.

It is quite easy by selecting suitable kinds of bulbs to have a succession of flowers from Christmas to Easter. Thus, White Roman Hyacinths would be in bloom in December and January; Snowdrops, Crocuses, Scillas, Paper White Narcissus, Chionodoxas, Duc Van Thol Tulips, Muscari azureum, Polyanthus Narcissi,

FIG. 48. — SPARAXIS TRICOLOR VAR. ANGELIQUE.

and Hyacinths in January and February; Hyacinths, Narcissi, Jonquils, and Early Tulips in March; May-flowering and Darwin Tulips in April.

Narcissus Poetaz Elvira also makes a dainty display grown several together in a bowl. Empress, Golden Spur, Sir Watkin and Barri Conspicuous, are other good sorts of Narcissi for the same purpose. *W. Miller, Mill House, Horse and Groom Lane, Warley, Essex.*

SPARAXIS TRICOLOR.

CONSIDERING the brilliance of the varietal forms of these Cape bulbs, it is very surprising that they are not more often grown. Their cultivation is simple. The bulbs should be planted in autumn, and they do best in sunny, well-drained borders, in which they soon become perfectly at home. They are also admirable pot plants, requiring the same treatment as Ixias and producing a wonderful display of spring flowers for the conservatory. Few flowers, if any, are more brilliant than Sparaxis tricolor Fire King. The flowers, borne on branched stems less than eighteen inches high, are bright flaming scarlet, with a showy yellow centre surrounded by a rim of jet black. It is a most startling combination of colour that never fails to arrest attention. The variety Angelique (see Fig. 48) has lovely pale lemon-coloured flowers, deepening in tone to the centre. It is a beautiful form that might well have been called citrina. These Sparaxis are excellent as cut flowers. June is the month of flowering in the open. *Herbert Cowley.*

HARDY FLOWER BORDER.

ROMNEYA COULTERI.

THIS giant Poppy of California, with its large blossoms 6 inches or 8 inches across, pure white with a golden disc in the centre, is an exceedingly beautiful plant. Its petals are like crimped and fluted satin, and the display of flowers extends over several weeks during July and August. It is not an easy plant to establish, and should be grown in deep, well-drained, sandy soil, and afforded a sheltered position.

This Romneya is said to grow from seed, but although seed is sometimes produced, it seldom thoroughly ripens in our climate, and the best way to increase the stock of plants is to insert root cuttings in the autumn.

For this purpose a portion of the root should be carefully uncovered and a straight piece about half-an-inch in diameter severed from it, which may be cut into two-inch lengths. The long, woody roots of this plant taper very little, and care should be taken when cutting them into lengths to make sure of the right end of insertion. Each root cutting should be inserted separately in a three-inch pot in a compost of light, sandy material; the upper part of the cutting should be only slightly covered, and it should be quite firm in the soil, which should be fairly moist. The pots should then be plunged to their rims in a bed of coal ashes, in a cold frame, and kept free from frost. In the spring the young plants will make new growth, and under favourable conditions they may be planted out in June. Weak plants, however, will be better grown on in pots until the following spring.

In cold districts Romneyas are often cut to the ground in winter, but they make much finer growth and produce more flowers when their branches come through the ordeal of our winter climate uninjured. *W. Auton.*

THE ALPINE GARDEN.

GENTIANA PNEUMONANTHE.

THE Marsh Gentian, a strictly local, if not rare, native species, possesses at least one attribute that is common to many of its race, and that is an extreme variability. Not only does this plant vary in stature and manner of growth, some forms being but a few inches in height and rigidly upright, while others will attain to 9 inches, and assume a semi-prostrate manner, but the leafage differs considerably.

There are also said to be branched forms, which I have not seen, and types exist in which the stems are crowned with but one flower, or a bunch of several. The blossoms, in an average specimen, are held upright and are deeply and narrowly bell-shaped, or tubular. They are a rich sapphire-blue within, tending to azure at the tips, while the outside is a dull blue striped and suffused with a metallic green. The white form, with its delicate touches of gold and green, is a singularly lovely plant. Though G. Pneumonanthe is a plant of peaty bogs, it will prosper in any cool corner in peat and sand or leaf-mould and loam, with full exposure. There is an alpine form in which the flower is considerably larger than that of our native plant. The latter commences to bloom in August and continues into September.

TULIPA LINIFOLIA.

TULIPA LINIFOLIA is a charming species, six to nine inches high, with narrow leaves and good-sized flowers of a brilliant vermilion-scarlet. The leaves are narrow, and are prettily waved. Plant the bulbs in rich but light soil, surround them with sand and cover them with three inches of sandy soil. *S. Arnott.*

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REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante, pp. 71-76.)

(*Continued from page* 121.)

MIDLAND COUNTIES.

HERTFORDSHIRE.—Apple trees set fruits freely, and the Apple crop is an average one; but if the dry weather continues many fruits will drop prematurely. Strawberries were very good, and the berries of large size, which I attribute to mulching the beds with manure early in April. Bush fruits have been very plentiful, especially Gooseberries, which are of large size and good flavour. Morello Cherries were good, but not very numerous. The soil is of a light texture, resting mostly on chalk. *James A. Paice, Aldenham Vicarage Gardens, Watford.*

——The fruit crops are the worst I have known here for several years. All fruit trees were a mass of blossom, and had apparently set their fruits, especially Pears and Plums. We have no Pears either on wall trees or in the open, and very few Peaches and Nectarines. Court of Wick is the only variety of Apple with a heavy crop, requiring thinning, the next best being Lane's Prince Albert. We have a fair sprinkling of Worcester Pearmain, Ribston Pippin and Cox's Orange Pippin. I attribute the failure to the unfavourable weather conditions during April and May, also to lack of sunshine during the setting period and insect pests later. Strawberries were good, although small on account of drought. *Geo. H. Hill, Caldecote Gardens, Bushey Heath, nr. Watford.*

——The fruit crops are, generally, disappointing, yet there was good promise for most kinds of fruits early in the season. Apple trees flowered splendidly, but, in spite of precautions, such as grease banding and persistent spraying, the trees have been very badly infested both with caterpillars and aphis, some of the larger trees being practically stripped of their leaves. This is, in my opinion, chiefly owing to two causes: (a) the ungenial and cold spring, and (b) the absence of good cleansing rains, the rainfall here having been very light. Of Pears we have almost none, the trees bearing practically no flowers after the heavy crop of last season, though they look perfectly healthy. Plums and Damsons of all kinds flowered freely and set fruits abundantly, but in the majority of cases the latter failed to swell. Our best crops are Victoria, Coe's Golden Drop and Monarch; the only Damson with a satisfactory crop is Langley Bullace, which variety never fails us. Bush fruits generally were prolific crops, except Black Currants, Strawberries suffered severely from frost. *Edwin Beckett, Aldenham House Gardens, Elstree.*

——The promise of abundant fruit crops has not been realised. Adverse weather, long periods of cold, drying winds, and exceptional low rainfall in June, caused the fruits to drop after they were well set. Even where protection was afforded, sunless days caused a reduction of the crops. Apples are fairly satisfactory, but since the heat wave, commencing early in July, even they commenced to drop. However, a certain amount of self-thinning will be welcome. Pear trees developed few blossoms, and a large crop was not expected. Plums set well, but persistent cold periods prevented them from swelling, and the crop is small. Peaches and Nectarines were affected in a lesser degree, but the foliage suffered considerably, and damage by hail was evident on these and other fruits. Small fruits escaped damage, as we placed fish-netting over the more exposed bushes when exceptional frosts occurred. The exceptionally heavy rainfall during the severe storms of July 9 and 10 (3 inches, 2 inches and 1 inch respectively fell) helped the Strawberry and Raspberry crop very much, as at that date the main crops of the former was just coming in. Our soil varies; in parts we have loam and in others clay, overlying chalk. *A. J. Hartless, King's Walden Bury Gardens, Hitchin.*

——The Apple crop in these gardens is very good, and in most cases the trees have set sufficient fruit to necessitate thinning. The following are the best cropped varieties: Cox's Orange Pippin, St. Everard, Beauty of Bath, Lane's Prince Albert, Rev. W. Wilks, and Rival. Aphis is not so troublesome this year as last. Pears are a complete failure outside, but Pear trees in the fruit case have cropped so freely as to require thinning. Plums on walls are very good, but standard Plum trees have a very thin crop, and the same is true of Damsons. Cherries were good, but aphis has been very troublesome. Peach trees are carrying sufficient fruit, but owing to the dull, cold weather in the early spring, Peach blister has been very troublesome this year. Small fruits were very good, and the fruit of excellent quality, especially where the bushes were kept well supplied with water during the hot weather in the early part of July. *T. Pateman, Brocket Hall Gardens, Near Hatfield.*

LEICESTERSHIRE.—Fruit is very scarce in these gardens, although in the early part of the year there was great promise of good crops. Cold, sunless days and cold winds, with frost, spoiled the prospects. Blight and caterpillars were very troublesome on fruit trees, and syringing did not seem to destroy them before the damage was far advanced. Our soil is heavy to light in texture. *W. Coe, Prestwold Gardens, Loughborough.*

——The crops of Apples, Pears, Plums, Cherries, and Raspberries, are complete failures, due to severe frost on May 24, when we registered 8 degrees, and partly due to the very mild winter and immatured fruit buds. *Wm. Paterson, Swithland Hall Gardens, Loughborough.*

NORTHAMPTONSHIRE.—In the early spring there was great promise of good fruit crops, but on May 15, a severe hailstorm did much damage to the crops. After the storm many trees and bushes had the appearance of being fired at with buckshot. Several frosts in succession did further harm, but even then fair crops would have been obtained in sheltered positions. Then came the most destructive frost of all, on the morning of May 23; 8 degrees were registered on the screen, and eleven on the ground, and all prospects of a good fruit year vanished. *F. W. Gallop, Lilford Gardens, Peterborough.*

——The Apple crop promised well, but the fruits were nearly all ruined by frost at two different periods, when the blossoms were fully expanded. Pear trees failed to bloom; having carried heavy crops for the two previous years they could not be expected to flower well this season. The first blossoms of Strawberries were ruined by frost, but the crop surpassed expectations, although it was a fortnight late. Severe frost on May 24 did considerable damage in this neighbourhood. *Arthur R. Searle, Castle Ashby Gardens, Northampton.*

NOTTINGHAMSHIRE.—The fruit crops are disappointing; the weather conditions were unfavourable to clean, healthy growth, consequently all kinds of pests and diseases were troublesome, and spraying was almost a waste of time and material, as the prevailing high winds made this operation at the proper period for prevention practically impossible. Most early varieties of Apples are bearing good crops, but late sorts such as Bramley's Seedling, Newton Wonder and Sturmer Pippin are very poorly cropped. New Northern Greening is an exception; this is not a first quality cooker, but never fails to crop in these gardens, and it does best in a grass orchard. Pears are very scarce. Plums would have been a good average crop but for aphis; spraying has helped to retain a fair sprinkling of fruits, Czar being easily the best cropper. Cherries and the soft fruits are the redeeming features in the fruit crops. Our soil is a deep, medium loam on red clay. *William R. Scott, Bunny Park Gardens.*

——Plums and Pears are failures, and Apples are patchy. The trees were full of blossom, which appeared to set well, but cold winds and low temperature during May and June, together with the ravages of aphis, and insect pests, caused Plums, Apples and Pears to drop wholesale. Cherries and Strawberries were both rather under average crops. Gooseberries were good. Red and Black Currants were medium crops. *S. Barker, Clumber Gardens, Worksop.*

(*To be continued.*)

RED PLANT DISEASE IN STRAWBERRIES.

IN their letter, published in your issue of August 11 (p. 88), Messrs. Ballard and Peren appear to misconstrue the main issue.

I have consistently claimed that "Red Plant" disease was produced by eelworms. This claim is not refuted, but becomes substantiated by the statement that the eelworm which produces the disease has now been identified as Aphelenchus fragariae, Ritz. Bos.

The Long Ashton experts have been investigating this disease since 1920. As a result of visits to the affected area, and an examination of affected plants, they gave it out as their considered opinion that parasitic eelworms could not be found in affected plants from the Tamar area. I challenged that statement, and particularly so with Mr. Peren at the Bath and West Show, and again at Long Ashton. Mr. Peren will remember that at the Bath and West Show (Plymouth, June, 1922) I asked one of the assistants for, and obtained, a crown bud from one of the Long Ashton plants, in which eelworms were not supposed to be present, and that I demonstrated the presence of large numbers of eelworms in the centre of the bud (perhaps the name of this species can now be given). I am now informed by the joint authors that there are many species and even genera of eelworms! Do the joint authors imagine that I should have staged an eelworm exhibit at the "Bath and West" (which included "Cauliflower" and "Red Plant" in Strawberries: Root Knot diseases of Beet, Cucumber and Tomatos; Narcissi, Fern and Carnation eelworms; ear-cockle in Wheat; eelworms in Hazel big-buds, in Black Currant big buds, and in diseased Pea cotyledons) without knowledge of such a very elementary matter? In one lot of Strawberry plants alone, which were sent to Harpenden for examination, something like six different species were found, and only one of these, the Aphelenchus, parasitic. On a previous occasion Mr. Peren was kind enough to ask if I would tell him the difference between parasitic and free-living eelworms.

After three years pegging away at the research stations I am guilty of "vague pronouncements." I stated emphatically at the Long Ashton meeting of the Horticultural Education Association in September last (after Mr. Peren had given his discourse on "Red Plant" disease, suggesting Mosaic as the cause) that despite what had been said by Mr. Peren as to the cause of the disease, I was satisfied, after having examined thousands of affected plants, that eelworms were the cause of the trouble, as I had invariably found numbers of parasitic eelworms in the crown buds of affected plants. I also asked what these pests were supposed to be doing there if they were not causing trouble direct; were they spreading the virus? I also told Mr. Peren privately that I had succeeded in reproducing the disease in two Strawberry plants which were previously unaffected, and that I hoped to continue the experiment in 1923.

I have done my best since 1920 to get the Ministry's experts to agree that the disease was produced by the eelworms, and I have told the Tamar Valley growers that I was positive that the disease was caused by eelworms, and have suggested various methods of cultivation in order to combat the trouble. I also stated that, so far, I was alone in these views, but that I felt confident that the experts would accept the theory before very long.

As to publication, am I to understand that

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because my views have been stated in the *Gard. Chron.*, in county reports, and in reports to the Ministry of Agriculture, as well as publicly (with my microscope at hand to back them up), and I have not published a set thesis on the subject, naming the organism, instead of giving it the general term eelworm, that they are to have no consideration whatever, whereas those who have denied the presence of eelworms in the affected plants and suggested Mosaic disease as an alternative, can claim full credit for a *new* discovery?

It is generally conceded that while it is easy to distinguish between parasitic and free living eelworms, only those like Dr. Ritzema Bos, who are eelworm specialists, are able to give an authoritative diagnosis as to the genera and species of any specimen. If Long Ashton now have such an expert in Mr. Ballard, I am pleased to hear of it, as there is a good deal of eelworm trouble in the West of England and in the Isles of Scilly, and information as to a practical cure would be appreciated by a large number of growers.

I may have made a mistake in not sending my specimens to the Continent so as to obtain an authoritative diagnosis of the eelworm causing the trouble in Strawberries; but, in any case, I had the assurance of Dr. Fryer, of Harpenden, that eelworms were present in the affected plants, and that the parasitic form found was an Aphelenchus.

Appended are quotations from a letter to Professor Cotton, and from his reply, while he was still at Harpenden:—

County Hall, Truro,
March 26, 1922.

DEAR COTTON,—Some time ago, when discussing the Red Plant disease of Strawberries, I promised to send you along any specimens which actually showed the eelworms in the buds of the affected plants. (You will probably remember that I have contended that the so-called Red Plant disease of the Tamar Valley was due solely to eelworms.)

The plants in the enclosed box came from a private garden at St. Tudy. On seeing the plants I suspected eelworm trouble, and brought away some specimens for examination. I think you will agree with me that there are sufficient eelworms present in the buds of these plants to make any plant look sick. . . . I am of the opinion that this trouble is very general amongst Strawberries, and as affected plants only flower with difficulty, I am of the opinion that much of the so-called blindness of Strawberries is due to eelworm.

Pathological Laboratory.
Milton Road,
Harpenden, Herts,
March 30, 1922.

DEAR JOHNS,—With regard to your letter as to Red Plant, Mrs. Alcock has examined the Strawberry shoots, and finds, as you say, that eelworm is present. They (the shoots) are, moreover, distinctly puffy and rather suggestive, in advance, of parasitic species being present. *W. H. Johns.*

FRUIT REGISTER.

RED CURRANT LAXTON'S PERFECTION.

ALL who desire a good Red Currant should plant this variety, as it is quite the finest I am acquainted with. The bunches are very long, the individual berries of great size and deep red colour, and the variety is a large cropper. The bunches on some young trees I have hang all round the main stem and on the base of the branches as thickly as they possibly could.

The plant is a strong grower, and each bunch has from 15 to 20 berries. It is not quite so early as some varieties, which, in one respect, is a point in its favour, and the bunches will hang a long time in good condition, even through such hot weather as we have experienced this July. *R. W. Thatcher, Carlton Park Gardens, Market Harborough.*

TREES AND SHRUBS.

HYPERICUM HOOKERIANUM VAR. LESCHENAULTII.

THIS is incomparably the finest of all the Hypericums grown at Glasnevin (see Fig. 49). The flowers, produced at the ends of twigs of the current year, often exceed three inches in diameter, and are of a deep, rich yellow. Grown in a sunny position, the leaves are glaucous on both surfaces, though to a much greater degree on the lower surface. The smooth young twigs are flushed with reddish brown on the sunny side, and the older shoots are brown. At Glasnevin we find the variety a little more tender than the type, but given the protection of a sunny wall or a sheltered nook it could probably be grown in most parts of Britain and Ireland. *J. W. Besant, Glasnevin Botanic Gardens.*

FIG. 49.—HYPERICUM HOOKERIANUM VAR. LESCHENAULTII.

TILIA MAXIMOWICZIANA.

TILIA Maximowicziana is a native of Japan, and produces the most powerfully-scented flowers among the species in the Kew collection. Last year there were few flowers, but this year an abundance. The trees I have in mind were planted about 1910, and are 6 metres or so in height, with a girth of 5 decimetres. Although the trees are not on their own roots, having in the first place been grafted on to another stock, they are nevertheless in healthy condition, upright and with splendid buds, due, no doubt, to judicious pruning, and they give promise of a long future and much larger dimensions.

The trunk is smooth, without any signs yet of fissures, dark coloured, with main branches thrown out at an angle of 60°, forming a pyramidal top; the leading shoots are flexuose. The branchlets are grey, covered with starry down, and carry bright green leaves which are roundish-ovate, 9-14 cm. long and 8-10 cm. broad in their widest parts, oblique, with heart-shaped base, and short-pointed apex; the leaf margin is toothed, with glandular tips. Although the upper leaf surface is practically smooth, the lower is completely covered with short, grey down, which is densest in the vein axils; the petioles are rather sender, but firm enough to hold the leaves forward.

The pedunculate bracts are long and narrow (many malformed), 8-9 cm. long, 2 cm. broad, somewhat downy, from which hang the inflorescences, generally with 6-12 flowers, but sometimes so many as 20, yellow or honey-coloured, very strongly fragrant.

Fruits are produced in abundance, and are quite a feature, as seen on the trees from distance, the lowest to topmost branch being embellished with the hanging cymose clusters. At present they are the size of Peas, and not quite so round, globose, densely felted, and plainly five-ribbed. Whether the seeds will mature is yet uncertain, probably some will. It will be interesting if they do, as then young stock may be grown without recourse to grafting.

With the exception of Tilia japonica and T. Miqueliana, two supposed species from Japan, this is the only one I know from that country. *C. F. C.*

TILIA KINSIANA.

SINCE I wrote the note on Tilia Maximowicziana above, I have paid a visit to the Herbarium at Kew, and inspected the Tilias from Japan, and found T. kinsiana from Central Japan. Judging from the specimen the tree must be quite different from all cultivated species and forms. If seed or stock could be obtained and plants grown in this country, and found hardy, I believe T. kinsiana would be a most notable addition and introduction. *C. F. C.*

HYDRANGEA MOUSSELINE.

THE Hydrangeas are very fine for shrubbery planting, and nearly all of them carry handsome trusses of bloom. The variety Mousseline is almost an exact counterpart of H. hortensis, with the exception that it is quite hardy. The foliage falls during the first sharp frost, but the plant throws up strong shoots from the base, which are crowned with large trusses of lovely pink bloom during July and August. Shrubs that flower during the summer and autumn are especially valuable, and this Hydrangea is one of the best for brightening up the shrubbery during that period. In dry weather Hydrangeas should have their roots well soaked with water and occasionally with liquid manure. *R. W. T.*

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HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Bokhara Clover. — Your correspondent *S. B. D.*, commenting on p. 85 on a piece of journalism characteristic of a section of the daily press, goes on to express a personal estimate of this Clover which we feel should not be allowed to pass unchallenged. The fact remains there are in Great Britain and Ireland farmers (practical men) who cultivate this fodder, and that in America it is grown very extensively both for forage and for green manuring. Sweet (or Bokhara) Clover is unfortunate in its name. For it is not a Clover, properly speaking, and requires very different handling. Once it commences to "go to seed" it is, as a fodder, as unattractive, and possibly as unpalatable, as a Swede, a Mangel or a Cabbage would prove under similar circumstances. Lucerne itself over-ripe is woody. Sweet Clover may be grown under conditions where Lucerne does not succeed, and, in fact, has been found valuable as a preparer of the ground for this crop. We are of the opinion that a place will be found in this country for Sweet Clover, not displacing but supplementing other Legumes. In some sections of the United States this plant is replacing Red Clover in rotations, partly for the sake of the superior amount of humus it contributes. This (we are speaking of the original biennial Sweet Clover) is frequently confused with the new annual variety of same—"Hubam." Though botanically identical, they are sufficiently distinct to warrant us reserving the exclusive use of the older term for the original plant, so we prefer always to speak of the annual variety as Hubam. This word was invented to connote the name of the discoverer (Professor Hughes) and the place of its origin—Alabama. *William Power and Co., Waterford.*

St. Cuthbert's Cole.—I have been out of England for a month, so have only just seen Mr. R. W. Brotherston's note in your issue of July 14 (p. 27). I am rather puzzled, for I cannot find the name, nor anything even like it, in "the list of old names at the end of Gerard's *Herbal*." "Cutbertole and Cutbertill"—the nearest approximations, are stated to be Branke Ursine (Acanthus), as also is "Sedocke," which, in Johnson's edition, is spelt "Sea Docke." I may say that when compiling our *Dictionary of English Plant-names* we, of course, consulted this most interesting list, and included most of the names—among them those above quoted—but attempted no explanation, which, indeed, I think is still to seek. *James Britten.*

Gardeners' Hours.—I regret to see from your "Answers to Correspondents" column that the practice of young gardeners working overtime still continues, and fear it is not always accompanied by sufficient remuneration. In a well-managed garden it is only on very rare occasions that overtime work is strictly necessary; the usual stoking and closing of ventilators, which is taken in turns by the men in connection with Sunday duty, is on a different footing, and cannot be avoided; this—like the farmers' men attending to cattle—is a work of necessity; it should, however, always be paid for. But ordinary garden work is different, and should be completed in the ordinary working hours of the district; and overtime work is absolutely wrong in principle, and is not profitable to the employer or good for the employee. The after-effects of the great war have made matters very difficult for gardeners in private places; many employers cannot afford to spend more on their gardens than they did before the war, consequently the number of men employed has to be much reduced. In such cases employers should arrange to discontinue some part of the garden work, and not expect the gardener to accomplish so much as when perhaps he had double the number of men. *W. H. Divers, V.M.H.*

Flower Shows (see p. 97).—I read the leading article on flower shows with interest, and suggest that all profits from such shows should be given to some local charity or hospital. [Our correspondent evidently suggests this in order to escape payment of the entertainment tax.—EDS.] There are several reasons for the lack of interest in flower shows, and I would suggest that the great need is more novelty, for visitors will talk more about one novelty than all the rest of the exhibits in the show. Flowers should be displayed to demonstrate their uses, and especially their utility when cut, and boards used for the display of Pansies, Violas, Daisies, etc., at flower shows should be forbidden. We need more and choicer collections of fruit at flower shows, whilst in the case of vegetables there should be more classes for collections and fewer for single dish classes, as one well-displayed collection of vegetables is worth fifty single dishes. I am willing to admit that flower shows have greatly improved, but we need something more artistic and attractive in the arrangement of shows, for bare boards are an eye-sore, and all labelling should be legible but unobtrusive. *Acorn.*

Pelargonium Unique and others.—I was much interested in Mr. Lynch's note (page 84) on this old plant. Up to 50 years ago it might still have been seen planted as a specimen in the flower garden, and for the greenhouse it was trained balloon-shape in large pots, it being a plant that required plenty of root room. I have it here but not in bloom, although I consider Mr. Lynch's colour, "deep rose-pink," is not applicable to this variety; a rose-purple might more correctly describe its colour and, indeed, I find Purple Unique and Rollison's Unique in an early magazine recorded as synonymous. I think I am right in stating that the Uniques, with one or two exceptions, are derivations of P. quercifolium. They are rampant in habit, and besides the above there is the scarlet and lilac, and Moore's Victory (also Moose's Victory and P. moreanum) is probably the oldest of the family. It is the only one I find noted in a list of Pelargoniums for the greenhouse in 1838, and it occurs even earlier, but the correct date I do not know. There is a variety, Fair Helen, like the sport Mr. Lynch describes. There is, or was, a dwarf zonal with stems as colourless as those of Freak of Nature, which had a great popularity for bedding, and was named Cerise Unique. In the garden where I was an apprentice a collection of these fragrant Pelargoniums was cultivated. They were kept in sunk pits during the winter and planted out in summer; they proved a very interesting feature of the garden. But there is not a great number worth perpetuating. The everywhere-grown P. graveolens in variety, fragrans, crispum variegatum, Lady Plymouth, Duchess of Sutherland, Pretty Polly and filicifolium or Pheasant's Foot, once so much in demand for buttonholes and bouquets and the Uniques would form a nice selection. The last named, it may be noted, possesses quite a pleasant scent. I may add that some of these are readily propagated from root cuttings—Fair Helen, for instance. *R. P. Brotherston.*

Dahlia Coltness Gem.—Although Dahlia Coltness Gem appears to have become extremely popular in gardens throughout the south of Scotland, very little has been written concerning its value for garden decoration in the south of England. It may therefore be interesting to observe that a large bed of this variety at Kew, near the Palm House, is at present making a fine display of richly coloured flowers and, curiously enough, the shade of colour is softer than the brilliant hue seen in Pelargonium Paul Crampel, only a few yards away. It is obvious, however, that this dwarf Dahlia needs some attention during its flowering period, for unless the seed pods are removed at frequent intervals the plants are likely to lose their vigour and the display will be spoiled and shortened. I am led to make this observation after seeing a small bed of this Dahlia in a front garden at Swanley, where none of the seed pods had been removed and at approximately the same date (August 17) the plants at Swanley were exhausted and ineffective, while those at Kew retained their vigour and continued their brilliant display. *C.*

SOCIETIES.

ROYAL HORTICULTURAL OF ABERDEEN.

AUGUST 23, 24, and 25.—Entering upon its centenary year—it was instituted in 1824—this society continues with ever increasing and untiring endeavour to stimulate an interest in horticulture in the large area it embraces. Next year the Scottish National Sweet Pea Society will hold a joint show. This year's show was held in the Union Terrace Gardens, Aberdeen, on the above dates. While very conveniently situated—they are in the centre of the city—it must be admitted the gardens are not quite an ideal venue for a flower show. More space must be provided, and this will best be found in a return to the Duthie Public Park, Aberdeen, where for many years the society has held its annual exhibitions. Nevertheless, the display this year was a wonderfully good one, the quality all through excellent, the colour fine, the arrangements good, and the competition keen.

Some fine exhibits were shown in the section for plants. The best table of pot plants arranged for effect (not exceeding 7 ft. 6 in. by 6 ft.) was shown by VISCOUNTESS COWDRAY, Dunecht House, Aberdeenshire (gr. Mr. William Smith), who had a fresh lot of flowers, superbly arranged; 2nd, Mr. A. E. BENZIE, Morkeu, Aberdeenshire (gr. Mr. W. Henderson), with a meritorious display; 3rd, Miss MCLENNAN, Springhill House, Aberdeen (gr. Mr. D. L. Scorgie). Leading places for specimen plants, Ferns, and plants for dinner-table decoration were gained by LADY COWDRAY with very attractive entries. Zonal Pelargoniums, Fuchsias, and Begonias from Morkeu worthily gained the premier honours, and for Pelargoniums and Begonias the best were those sent from Enfield, Aberdeenshire (gr. Mr. R. Murray). In short, the display in this division formed a bright and attractive feature of the exhibition.

Very good entries were seen in the cut flower section, the outstanding features of which were the Roses and Sweet Peas. The silver challenge cup offered for the best 18 blooms of H.P. and H.T. Roses, or either, distinct varieties, was worthily won by COLONEL GILL, of Dalhebity, Aberdeenshire (gr. Mr. A. Brebner), with a capital exhibit in which the leading varieties were of outstanding excellence. The leading honours in the other Rose classes also went to COLONEL GILL, while LADY COWDRAY and Mr. D. B. D. STEWART, Banchory House (gr. Mr. J. Cameron), followed closely behind. The best Cactus Dahlias were shown by Mr. J. COUTTS, Woodhill, Aberdeen, whilst Miss MCLENNAN, Springhill House, excelled for Single Dahlias. In the other classes—Asters, herbaceous flowers, and fine foliage bedding plants, including annuals—Mr. COUTTS, Woodhill, contributed a fine display and gained the chief awards. LADY COWDRAY led for Zonal Pelargoniums and Begonias, with remarkably good entries. Sweet Peas, considering the unfavourable season, were well shown. The redoubtable grower of Sweet Peas, LADY COWDRAY, Dunecht House, who met with such success in St. Andrew's Hall, Glasgow, on July 25 and 26 last, when she contributed some superb blooms, had to give way to the entries from Duff House, Banff (gr. J. A. Grigor). The Banff House flowers were remarkably good, and proved one of the brightest and most attractive features of the exhibition. Mr. GRIGOR'S outstanding blooms were of Royal Scot, Cecily, Austin Federick, and Hebe.

FRUIT.—Some very meritorious entries were forthcoming in this division, with the exception of Grapes, which have never been an outstanding feature of the Aberdeen show. LADY COWDRAY won the premier prize for a collection of 6 dishes of hardy fruit, not more than 2 dishes of any kind, with a well-grown selection. Hardy fruits were all well represented, especially in the Black Currant classes. The leading places for Strawberries were taken by DENMORE HOUSE, Aberdeen (gr. Mr. Geo. Tocher), and Rubislaw, Aberdeen (gr. Mr. Norman M. Duncan), led for yellow, green and red Gooseberries. Mr. LUMSDEN, Balmedie House, Aberdeen (gr. Mr. Robert Pirie), had the best Red Currants. The 1st prize for Black Currants was won by Mr.

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DUNCAN for remarkably well-grown specimens. As already noted, Grapes were not greatly in evidence, but the entries from Mr. BENZIE, Morkeu, and from Cortes, Lonmay, Aberdeenshire (gr. Mr. W. K Murray), were good. LADY COWDRAY led for Melons, while the premier places for Peaches and Nectarines were taken by Mr. A. R. MCRAE, Castle Fraser Gardens.

VEGETABLES.—As is ever the case at the Aberdeen show, the chief feature in this division was the superb display of clean, shapely, well-grown Potatos. As is her wont, Miss MCLENNAN, Springhill House, Aberdeen (gr. D. L. Scorgie), led with a superb collection of vegetables, arranged on a table space 4 ft. by 3 ft., and comprising 9 varieties., viz. Peas, Cabbages, Cauliflowers, Potatos, Turnips, Carrots, Onions, Parsley, and Beetroots. She excelled likewise for salads, Carrots, Cucumbers, Beetroots and Potatos. Messrs. W. and B. LAWSON, market gardeners, Cornhill, Aberdeen, had finely-grown exhibits in the Potato classes, and also led for Cabbages and Turnips. Potatos made a fine show, and the leading honours were divided by Springhill House, Duff House, Linton House, Cluny, Aberdeenshire (gr. Mr. Andrew Gardiner), and Cornhill.

NURSERYMEN AND FLORISTS.—Messrs. ADAM and CRAIGMILE, Fernielea Nurseries, Aberdeen, led in the class for 36 blooms of H.P. and H.T. Roses, or either, named, distinct varieties, and for which they worthily gained the R.H.S. Silver Challenge Cup. It was a good entry, the varieties shown being of outstanding excellence. This firm also won first place for 24 Tea or Noisette (or either) Roses, distinct.

NON-COMPETITIVE EXHIBITS.—Some exceptionally fine exhibits were staged by nurserymen and florists of Aberdeen. The firms showing were: Messrs. W. SMITH & SON., Ltd., Burnside, Forresterhill, and Silverhillock Nurseries, Aberdeen; Messrs. BEN REID & Co., Aberdeen; Mr. M. H. SINCLAIR, Aberdeen; and Messrs. KNOWLES & SONS, Aberdeen and Kent.

ROYAL HORTICULTURAL OF IRELAND.

THE autumn show of the above society was held by kind permission of the Earl of Iveagh, K.P., in the covered court, Earlsfort Terrace, Dublin, on the 14th and 15th ult. The number of entries were nearly double those at any show held since the war, and the weather was ideal. Hardy flowers were, as usual, a strong feature. Mrs. GEORGE MITCHELL, Mrs. STEPHENSON, the Hon. A. E. GUINNESS, Madame FOTTRELL, Capt. DALY, and Major KELLY, were the chief prize-winners in the classes for hardy flowers. In the class for annuals, twelve bunches distinct, Lord ARDEE, Kilruddery, Bray (gr., Mr. W. Barrett) was an easy first prize winner with a superb collection, among which Zinnias, as double and as big as show Dahlias, were conspicuous. A collection of Roses, comprising some 4,000 blooms, in the perfection of form, were staged by Messrs. S. MCGREDY, The Royal Nurseries, Portadown, Co. Down, for which the society's large Gold Medal was unanimously awarded. Messrs. MCGREDY were easy winners in the class for twelve Roses, one variety, not exhibited prior to 1921 with "Admiration," and for twelve blooms of distinct varieties introduced since January 1, 1920.

Sweet Peas were plentifully exhibited and surprisingly good after the storm of the 2nd ult Lord ARDEE won in the champion class for Sweet Peas with 18 bunches distinct, in which he had four competitors. Viscount POWERSCOURT, Powerscourt, Enniskerry (gr., Mr. W. H. Lee), had the best 12 bunches. Fruit, with the exception of grapes, which seem to have had their day here, was well represented. forty dishes of Gooseberries, comprising three classes, were excellent, as were Currants in their classes. Good Melons were in evidence: the first prize fruit of a scarlet fleshed Melon, shown by Mr. C. PILGRIM, Luttrellstown, Clonsilla, was a grand specimen.

The vegetable section was unusually well filled, the Hon. A. E. GUINNESS, Glenmaroon, Co. Dublin (gr., Mr. W. Stevens), being first in five entries of 12 kinds, with superb examples, Lord ARDEE and Lord CLONCURRY, Lyons, Co. Kildare (gr., Mr. W. Hall), following closely. Non-competing exhibits, apart from the Portadown Roses alluded to, included a collection of Potatos from Viscount Powerscourt, admirably staged by Mr. W. H. LEE, for which a silver medal was awarded; trusses of a new seedling Tomato from Lord ARDEE, which received a certificate of commendation; vases of the beautiful Begonia balsamaeflora (Martiana?), set up by Mr. C. PALMER, gardener to the Earl of Iveagh, K.P., Farmleigh, Co. Dublin; and plants of Calceolaria alba from the DUBLIN NURSERY Co., Blackrock.

NORTH OF ENGLAND HORTICULTURAL AND BRITISH CARNATION.

THE combined exhibition of these two Societies was held at Harrogate on Wednesday, Thursday and Friday, the 22nd, 23rd and 24th ult. The show was a semi-municipal function, for it received the support of the Harrogate Corporation and the Harrogate Chamber of Trade. The exhibition was a great success, and is said to be the finest ever held in Harrogate. In addition to Carnations, there were fine exhibits of Hollyhocks, Orchids, Gladioli, hardy flowers and rock gardens.

In the Carnation classes Mr. C. ENGELMANN met with unusual success, winning no fewer than seventeen first prizes, including four challenge Cups and a Silver Medal in the open section; he won the North of England Horticultural Society's Gold Medal, the British Carnation Society's Gold Medal, the Cup presented by the Harrogate Corporation, the American Carnation Society's Cup offered for American novelties, and the Brunton Cup offered for British novelties. Mr. J. E. HATHAWAY, gardener to John Brennand, Esq., Baldersby Park, Thirsk, was also a prominent prize winner, for he was successful in winning first prizes in no fewer than eleven classes, and he won all the first prizes in the classes open to amateurs north of the Trent. Mr. T. PATEMAN, gardener to Sir J. Nall-Cain, Brocket Hall, won two first prizes and five second prizes. The exhibition was opened by the Mayoress, who was presented with a bouquet by Miss Mary Hall, daughter of the Rev. J. Bernard Hall. Mr. J. S. Brunton, chairman of the two Societies, presided at the opening ceremony.

Mr. C. ENGELMANN won first prize in the following classes: (a) seven vases of Carnations, twenty-five blooms of seven varieties; (b) three vases of twelve blooms each of British novelties distributed since January 1, 1920; (c) three vases of twelve blooms of American novelties distributed since January 1, 1920; (d) one vase of Carnations, not fewer than one hundred blooms of one variety; (e) one vase of Carnations, fifty blooms in three or more varieties; (f) one vase of crimson Carnations, twenty-five blooms, scent to be taken into consideration; (g) two boxes of thirty-six Carnation blooms, two distinct varieties, packed for market to illustrate methods of packing; (h) three vases of Carnation blooms, three distinct colours, twenty-five blooms in each vase; (i) one vase of white Carnations, twelve blooms of one variety selected from Classification List A; (j) one vase of light rose or deep pink Carnations, twelve blooms, one variety, selected from Classification List B; (k) one vase of salmon-pink Carnations, twelve blooms, one variety, selected from Classification List C; (l) one vase of red Carnations, twelve blooms, one variety, selected from Classification List D; (m) one vase of crimson Carnations, twelve blooms, one variety, selected from Classification List E; (n) one vase Carnations, twelve blooms, one variety, selected from Classification Lists F., G., or H.; (o) one vase of Fancy Carnations, twelve blooms, one or more varieties, selected from Classification Lists I, J, or K; (p) Silver-Gilt Medal awarded to the best vase in Classes 10 to 16 inclusive; (q) one vase of Carnations, twelve blooms, representing each of the twelve colour Classes A to L inclusive; and (r) one vase of Carnations, of apricot and yellow shades, twenty-five blooms. Mr HATHAWAY excelled in the class for a group of perpetual-flowering Carnations, in which the first prize was the Lord Howard de Walden Silver-Gilt Challenge Vase, together with £5 in cash. He was also successful in the class for (a) a decorative vase of Carnations; (b) one vase of white Carnations; (c) one vase of light rose or deep pink Carnations; (d) one vase of salmon-pink Carnations; (e) one vase of crimson Carnations; (f) one vase of Carnations selected from the Classification Lists F, G; (g) one vase of Fancy Carnations; (h) one vase or bowl of perpetual-flowering Carnations; (i) one vase or bowl of hardy perpetual border Carnations; and (j) the special prize of twenty-five Carnation plants for the best six vases of five blooms in sections B and C.

Sir CHARLES NALL-CAIN showed the best vase of Messrs. Stuart Low and Co.'s novelties and the best vase of red Carnations in the classes open to gentlemen's gardeners and amateurs.

The best decorated tables were shown by Mrs. J. S. BRUNTON, whilst Miss E. B. CAMPBELL, of Harrogate, won three prizes, including the Covent Garden Trophy in the florists' section. Messrs. STUART LOW AND CO. won a Silver-Gilt Medal and the Ogden Cup for a group of Carnations, whilst Messrs. K. LUXFORD AND CO. won the Whitehead Cup and a Silver-Gilt Medal, also for Carnations.

The following medal awards were made by the British Carnation Society. Gold Medals: to Mr. ENGELMANN and Miss CAMPBELL; Silver-Gilt Medals: to Messrs. K. LUXFORD AND CO.; Messrs. STUART LOW AND CO., and Mr. C. ENGELMANN; Silver Medal: to Messrs. ALLWOOD BROS. In addition the following special awards were made: Mr. G. W. HILL, gardener to Mr. H. Frankling, a medal presented by *Gardening Illustrated*; Mrs. WHITEHEAD (gardener Mr. W. Wilkinson), syringe presented by Abol, Ltd.; Mr. J. E. MAUNDER, a Silver Medal for border Carnations. An Award of Merit was granted to the new Carnation Vivienne exhibited by Messrs. W. BONSALL AND SON.

The following awards were made by the North of England Horticultural Society:—

Large Gold Medals: Messrs. DICKSON AND ROBINSON, for Dahlias, etc.; Messrs. G. GIBSON AND CO., for herbaceous flowers; Messrs. DOBBIE AND CO., for Dahlias; Messrs. JAMES VERT AND SONS, for Hollyhocks.

Gold Medals: Messrs. MANSELL AND HATCHER, for Orchids; Messrs. BACKHOUSE NURSERIES (YORK), LTD., for rock gardens; Mr. H. FRANKLING, Harrogate (gr. Mr. G. W. Hill), for Begonias.

Large Silver-Gilt Medals: Mr. J. THORPE, for fruit and flowers; Mr. E. J. PARSONS, for fruit.

Silver-Gilt Medals: Messrs. R. V. ROGERS, for Roses; Mr. ALVA HALL, for Ferns; Messrs. W. BONSALL AND SON, for Carnations; Mr. P. GARDNER, for rock garden; Messrs. KENT AND BRYDON, LTD., for herbaceous flowers.

Silver Medal: Mrs. WHITEHEAD, Harrogate (gr. Mr. W. Wilkinson), for a decorative group of Begonias, etc.

Large Bronze Medal: Messrs. DICKSON'S, for Roses and Carnations.

Bronze Medal: Messrs. BAKERS, for herbaceous flowers.

First-Class Certificate: Mr. ALVA HALL, Harrogate, for Campanula Hallii.

On the second day of the exhibition the Rev. J. Bernard Hall delivered a lecture on "Dwarf-growing Roses for cutting and fragrance suitable for Yorkshire."

Obituary.

G. F. Daniels.—The death occurred on August 22 at Norwich of Mr. George F. Daniels, for nearly thirty years manager of the vegetable and agricultural seeds and Potato departments of the well-known firm of Messrs. Daniels Bros., Ltd., of Norwich. Mr. Daniels, who had been seriously ill for some months, was the eldest son of the late Mr. George Daniels, the founder of the firm, and was widely known in the seed trade as well as among the citizens of Norwich, by whom he was held in high esteem. He leaves a widow and four children.

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NEW HORTICULTURAL INVENTIONS.

LATEST PATENT APPLICATIONS.

19434.—Webb, J. W. — Turf-cutters, etc. July 30.

19097.—Andersen, M.—Machine for thinning out Beet plants. July 25.

19326.—Bedall, B. H.—Machine for separating seeds. July 27.

18628.—Carter, S. C.—Apparatus for mowing growth between planted rows. July 19.

18737.—Watkins, P.—Gardening implement. July 20.

SPECIFICATIONS PUBLISHED LAST MONTH.

201396.—Fletcher, A. J.—Apparatus for spraying Hops, fruit trees and the like.

200858.—Constable, A. H.—Implements for sowing seeds and distributing fertilisers and for cultivating and earthing up.

200581.—Clare, H. J. Newton.—Motive power unit for driving lawn-mowers and similar implements.

178467.—Rupprecht, Dr. G.—Process for treating plant cultures with sulphur.

200193.—Gorle, H. V.—Planting devices.

200354.—Martin, W. E.—Agricultural implement for splitting ridges.

ABSTRACT PUBLISHED LAST MONTH.

198242.—Manures: Brewer, G. W. S., Harting, Ethel Road, Broadstairs.—A dry or powdered fertiliser consisting of peat or peat refuse, peat soil or other soil derived from land which has been under cultivation, "killed" lime or chalk, and one or more fertilising agents such as phosphates, nitrates, potash salts, ammonia salts, soot or fish manure. The peat, soil and lime or chalk are mixed and allowed to stand for a few days, with occasional turning; the mixture is then dried, and, if necessary, disintegrated, and the fertilising agents are added. The manure is stated to introduce nitrifying bacteria.

This list is specially compiled for the *Gardeners' Chronicle*, by Messrs. Rayner and Co., Registered Patent Agents, of 5, Chancery Lane, London, from whom all information relating to Patents, Trade Marks and Designs can be obtained gratuitously.

Messrs. Rayner and Co. will obtain printed copies of the published specifications and abstract only, and forward on post free for the price of 1s. 6d. each.

ANSWERS TO CORRESPONDENTS.

CORRECTION.—In the reply to *T. R.* in last week's issue, the Mulberry is stated to belong to the Rosaceae; it is, of course, a member of the Urticaceae.

HARDY FLOWERS FOR MARKET: *A. C. G.* As you are evidently a beginner you should choose such easily-grown subjects for the present as Sweet Peas, Shasta Daisies, Stocks, China Asters, Gaillardias, Coreopsis, Sweet Sultans, Scabious, Statice, Antirrhinums, and Dianthus Allwoodii. Certain bulbs could be attempted, such as Tulips, Daffodils and Gladioli. The Tulips and Daffodils will furnish material early in the season and the Gladioli would be available in late summer. As you state your ground is in a warm, sheltered situation on a slope facing south you might sow the Sweet Peas in the autumn with a view to having them early in bloom. As you gain success and experience you would be able to enlarge the list, specialising in subjects which you found most saleable.

LEEKS AT A FLOWER SHOW IN JULY: *Constant Reader.* It is nothing remarkable to see Leeks in a collection of vegetables at a July exhibition. With regard to the time when Leeks are in season, although they are not usually available until the autumn, they would be in season as soon as they are large enough for use. Whilst the R.H.S. *Code of Rules for Judging* recommends certain points—in the case of Leeks a total of eight; for length of form 4, uniformity 2, condition 1, purity and cleanliness 1, respectively—there is no reason why judges should not reduce the pointing for the two last to one-half or even a quarter of a point; indeed, it is often necessary in close judging to adopt half-points in order to determine the winning exhibit.

MELON DISEASED. *H. W.* The Melon reached us in a state of decay and it was therefore impossible to determine the cause of the trouble. We think, however, the disease is not due to fungous attack.

NAMES OF PLANTS: *A. T. S.* 1, Billbergia, probably a hybrid, of which there are numbers; 2, Doryanthes sp., possibly D. excelsa; 3, Strelitzia reginae; 4, Eucomis punctata; 5, Prunus pumila; 6, Bocconia cordata; 7, Spartium junceum 8, Cerastium tomentosum. —*C. J. W.* 1, Hypericum patulum var. Henryi; 2, Acer Negundo.—*N. M. L.* Aesculus parviflora.—*Correspondent* and *Constant Reader.* We cannot undertake to name florists' flowers; send specimens to Carnation and Rose growers respectively.

NECTARINES FAILING: *W. A.* The Nectarine fruits arrived in a condition which made examination impossible. From the brief description given in your letter we believe the cause of the cracking is to be found in some error of cultivation rather than in the stock the tree is grafted upon. Sometimes, of course, the stocks may be at fault. Cracking may be caused either by an attack of green fly or of thrips just after the fruits have set; or by excessive and too early syringing in damp or very hot weather. Devote attention to these matters, and partially lift the roots in the autumn, adding more lime rubble to assist the fruits when stoning.

PEACH LEAF CURL: *J. N. M.* Your Peach leaves are affected with the fungus Exoascus deformans. This disease is always most in evidence when there is a sudden fall in temperature, and especially when cold winds prevail, but it is checked by an increase of temperature. The affected leaves should be removed, and burnt. Spraying the trees with Burgundy mixture just before the leaf buds burst is a preventive measure that has proved eminently satisfactory; the mixture is rendered more effective if three-quarters of a pint of milk is added to every three gallons, as this addition increases its adhesiveness.

PLUM LEAVES DISCOLOURED: *R. M. S.* The sooty appearance of the Plum leaves is due to the presence of a black mould caused by a fungus growing on honey-dew secreted by aphides. It would appear also that the tree is affected by Silver Leaf disease, but there is so much black mould present on the leaves that it is impossible to say definitely.

RENTAL OF GREENHOUSES: *F. H.* Without inspecting the premises it is not possible to arrive at a figure which would be a fair rental for the nursery, but assuming the rental to be £175 a year for the area and crops stated in your letter, we think it extremely unlikely that you would be able to make a good living from the establishment. Of course, if most of the produce could be retailed and the nursery leased on a lower rental it might be possible to make the place pay, provided the soil is good and you have an efficient knowledge of methods of cultivation.

SOIL FOR CARNATIONS: *H. C.* Use about two-thirds of fairly strong loam, that has been stacked some time, pull it to pieces by hand, and add a little fresh lime or lime rubble, with some ground oyster shells and ash from the garden bonfire. If the loam is of poor quality add an 8-inch potful of bonemeal to each barrow-load of compost; no other manure is necessary at potting time, as the plants may be fed later with a reliable Carnation manure.

Communications Received. — Grower—F. C.—J. H. D.—H. E. P.—J. R. C.—Firs—S. B.—S. P. S.—H. M.—T. J. F.—A. H.—C. F. C.—J. K.—F. C.—W. O. I.—S. B. D.—T. W.

MARKETS.

COVENT GARDEN, Tuesday, August 28, 1923.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz.	10 0	18 0
—elegans	10 0	12 0
Aralia Sieboldii	10 0	12 0
Araucarias	30 0	48 0
Asparagus plumosus	12 0	15 0
—Sprengeri	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Cacti, per tray, 12's, 15's	5 0	7 0
Chrysanthemums —white, doz,	15 0	18 0
—pink ,, ,,	12 0	15 0
—bronze ,, ,,	15 0	18 0
Crotons, per doz.	30 0	42 0
Cyrtomium	10 0	15 0
Heather white	15 0	18 0
,, ,, 60's	6 0	8 0

	s. d.	s. d.
Hydrangeas —paniculata, ea.	3 6	4 6
white & pink, doz.	15 0	24 0
Lilium, longiflorum, each	2 6	3 6
Lilium —speciosum album, each	3 6	4 0
—speciosum, rubrum, each	3 0	3 6
Marguerites, per doz.	15 0	18 0
Nephrolepis, in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	24 0	30 0
—60's	15 0	18 0
—Cocos	24 0	36 0
Pteris, in variety	12 0	21 0
—large 60's	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's	3 6	4 0

CUT FLOWERS.

REMARKS.—There appears to be a gradual shortening up of supplies in this department, this being most noticeable amongst outdoor flowers, such as Asters, Stocks, Shasta Daisies and Gypsophila. No doubt the heavy rains during the past few days are accountable for the shorter supplies. Carnations are much shorter in supply, and their prices are advancing. Prices are also firmer for best Roses, but there are still plenty of cheap Roses. The quantities of Chrysanthemums are slowly increasing; white and yellow blooms are selling freely. The best sorts are Sanctity and the yellow Mercedes. Bronze varieties are only medium. Pink blooms are expected to be on sale this week. There is also a limited supply of spray bronze, whilst yellow and pink spray is of very poor quality. Good spray has yet to arrive. All Liliums are scarcer, and their prices are again on the up grade. A better supply of Lily-of-the-Valley is greatly welcomed, and other choice flowers are Stephanotis, Gardenias, Lapagerias and Bouvardias. Giant-flowered Gladiolus from home growers are arriving in first class condition, the white, scarlet and pink varieties being exceptionally fine. Similar sorts are arriving from Holland, but they are inferior and much cheaper. A small consignment of Physalis has arrived in the market; the spikes are very fine and well coloured. There has been a general advance in prices throughout this department during the last few days. Orchid blooms are practically unobtainable.

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Beans, outdoor—		
—Scarlets, ½ sieve	5 0	6 0
—French Beans	0 4	0 6
Beets—		
—New, doz. bun.	3 0	4 0
Cabbage, doz.	2 6	3 0
Cauliflowers, doz.	5 0	6 0
Cucumber, Flat	10 0	22 0
Green Artichokes, dozen	2 0	3 0
Lettuce, dozen—		
—Round	1 3	2 0
—Cos	5 0	6 0
Marrows, doz.	3 0	4 0
Mint, doz.	2 0	3 0
Mushrooms, lb.	2 6	3 0

	s. d.	s. d.
Onions—		
—Egyptian	7 0	8 0
—Valencian, case	9 0	10 0
Peas, bushel,	6 0	9 0
Pines, case	20 0	45 0
Potatos	4 6	9 0
Radishes, doz.	1 0	1 6
New Turnips, doz. bunches	3 0	5 0
Tomatos—		
—English		
—Pink and White	5 0	6 0
—White	3 0	4 0
—Blue	3 0	4 0
—Guernsey	4 0	—
—Dutch	3 0	5 0

GARDENING APPOINTMENT.

Mr. L. W. Apps, for the past eleven months Gardener to Mr. GROVES, Heathfield Park, and previously for nine years with the late Sir EDMUND and Lady LODER, Leonardslee, Horsham, as Gardener and Bailiff to W. LESTER, Esq., White Ness, Kingsgate-on-Sea. (Thanks for 2s. 6d. for R.G.O.F. Box. EDS.)

CATALOGUES RECEIVED.

EDWARD WEBB AND SONS (STOURBRIDGE), LTD., Wordsley, Stourbridge—Bulbs and Seeds.

UPSTONES, 35, Church Street, Rotherham.—Bulbs, Roses, Fruit Trees, etc.

DICKSONS, Chester.—Roses; Bulbous Flower Roots, etc.; Fruit Trees.

Bulbs.

BROWN AND WILSON, 10, Market Place, Manchester.

E. P. DIXON AND SONS, LTD., Hull.

SUTTON AND SONS, Reading.

FISHER, SON AND SIBRAY, LTD., Royal Nurseries, Handsworth, Sheffield.

Foreign.

HORTULUX, LTD., Bofferdange, near Luxemburg.—Roses (Wholesale).

ANT. ROOZEN AND SON, Overveen, nr. Haarlem, Holland.—Dutch and Cape Bulbs, Herbaceous Plants, Shrubs, etc.

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THE
Gardeners' Chronicle
No. 1915.—*SATURDAY, SEPT.* 8, 1923.

CONTENTS.

Agricultural scholarships 139
Apples, little known methods of keeping... 144
Cherries, the pollination of 149
Chrysanthemum Mrs. Charles Read ... 145
Dahlias at Hyde Park... 140
Delphinium trials at Wisley 141
Development Commission, the 139
Evergreens, planting ... 145
Florists' flowers—
Carnations 143
Food, an unusual ... 140
Forest-tree nursery trade, critical position of British 139
Fruit and vegetable crops 140
Fruit crops, remarks on the condition of the... 148
"Gardeners' Chronicle" seventy-five years ago 141
Gladiolus as a decorative cut flower, the ... 143
Gosting, Mr. William Henry 140
Hampton Court vine, the 140
Hardy flower border—
Kniphofias 141
Paeonia Wittmanniana 141
Sedum pulchellum ... 141
Sedum spectabile ... 141
Hops, acreage of ... 140
Indoor plants—
Nerium Oleander ... 146
Lathyrus odoratus zeylanicus 145
Lobjoit, Mr. W. G. 140
National Chrysanthemum Society ... 140
Orchid notes and gleanings—
Disas 147
Laelio-Cattleya oxfordensis 147
Parks and gardens, public 147
Poa annua, is it a perennial? 149
Potato varieties, list of 140
Railwaymen's horticultural exhibition at Southport 140
Rhododendrons, propagation of alpine ... 144
Societies—
Banff Horticultural 151
Cardiff Gardeners' ... 151
Manchester & North of England Orch'd ... 151
Reading & District Gardeners'... ... 151
Royal Horticultural 150
Strawberries, "red plant" in 149
Tomatos, imports of ... 140
Trees and shrubs—
Tecoma radicans ... 146
Vegetable garden—
Runner Beans ... 148
Winter Lettuces ... 148
Violas 148
Week's work, the ... 142
Welsh garden, notes from a 146
Wisley, notes from ... 146

ILLUSTRATIONS.

Bedford embankment gardens, view of the 147
Carnation Lady Hermione 142
Chrysanthemum Mrs. Charles Read 145
Gladiolus Alice Tiplady arranged with Gypsophila ... 143
Gosting, Mr. W. H., portrait of 140
Sedum spectabile, butterflies on a group of 141

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 57.3.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, September 5, 10 a.m.; Bar., 30.4; temp., 63°. Weather—Sunny.

The Development Commission.

Year by year the Development Commission issues its reports* and each year shows more clearly both the wisdom of the politicians who brought about the establishment of the Commission and the energy and perspicacity of the Commissioners. It is doubtful, however, whether the reports are so widely read as they deserve to be. For this the price at which they are issued is perhaps in part responsible. Notwithstanding the high cost of printing, it should be possible to publish a pamphlet of one hundred and thirty-eight pages for less than three shillings and eightpence-halfpenny. It should, moreover, not be impossible even though the cost of publication were so high as to justify this price, to persuade the Treasury to allow of the issue of the Reports below cost price. For it is of very great importance that the nation should be aware of the energetic and sustained endeavours which are being made by the Commission to develop the natural resources of the country. One means of doing this would, we think, be by the issue of a summary of the substance of previous reports in a compact and handy volume. The work of the Development Commission covers wide ground and includes the fostering of rural industries, the promotion of research and enterprise in agriculture and horticulture, and the development of fisheries and harbours. The resources of the Development Commission have been greatly augmented by the "windfall" of £850,000, the administration of which was entrusted to the Commission by the Corn Protection Repeal Act of 1921. Of all the work undertaken by the Commission, that of promoting the development of rural industries is the most difficult. Until recently, this work was confined to assisting certain specific schemes, such, for example, as the growing of sugar Beet and Tobacco, and other special crops. But the Commission recognises that for the inquiry into the scope which exists or may be created for old and new rural industries, a permanent organisation is required. The Geddes axe destroyed the rural industries branch established by the Ministry of Agriculture, and it is therefore important that some permanent body should exist whose business it is to inquire into questions relating to this subject. As a preliminary to the work of encouraging rural industries, the staff of the Research Institute for Agricultural Economics has made a survey and inquiry into the rural industries round Oxford, the results of which have been published under this title in book form by the Clarendon Press, Oxford; price 7s. 6d. The district included in this survey covers an area round Oxford with a radius of thirty miles. The industries investigated were many and various—woodland industries, Osier cultivation, basket-making weaving, etc. One of the most interesting conclusions reached is that the village artisans, blacksmith, wheelwright, carpenter and saddler, might, with better organisation and with more resources, play a far larger part than they do at present in supplying local agricultural needs. No one who lives in the country will dissent from this opinion; for few people have not discovered that their desire to use local craftsmen is thwarted by the slowness with which the latter are able to accomplish the work given to them, and this not because of lack of good will or ability, but owing to insufficient resources of personnel and power. There is ample evidence that no small measure of success in encouraging rural industries has been achieved by other countries—as, for example, Germany—and that it has resulted in imposing a certain check to the drift of rural population into towns. The Report of the Commission points out that conditions in this country are not unfavourable to a like success, and cites, by way of example, the fact that the installation of electric light and power in the county district of Herefordshire has already resulted in a large increase in the work done by local wheelwrights. It makes, therefore, melancholy reading to learn that our county industries are at present largely derelict, and everyone will hope that the Rural Industries Intelligence Bureau, which has recently been established, may succeed in arresting the decay of rural enterprises, which should enable members of rural communities to maintain themselves even in the face of the present pervasive centralising industrial system. In their work of managing agricultural research, the Development Commission have a better charted course to steer, and all who read the Report will recognise that they have navigated it to good effect. Provision for research in animal diseases, than which no agricultural problem is more important, has occupied a good deal of their attention, and among newer projects is that of fostering research into questions relating to agricultural machinery. Perhaps the most interesting of the statements contained in the Report and relating to achievement is the one (p. 36) which claims that electrification of crops is likely to result, in certain cases, in increased yields amounting to 22 per cent. Should this prove to be the case, it will mean that a course has been discovered which brings this country a definite step nearer to the stage in which it may be self-supporting in foodstuffs. That ideal may be difficult to realise in its entirety, but, for our part, we refuse to believe that it is impossible. The economic side of the question is not within our province to discuss, but it must clearly be a legitimate aspiration of all those interested in the development of agriculture and horticulture that England, Scotland and Wales should be able, if the need arise, to supply the main bulk of the food consumed in these Islands. When overseas supplies are cheap, it may seem to pay better to buy in the cheap market, but if and when these supplies become short and dear, every ton of home-raised produce cannot but help both the farmers and the nation.

* Development Commission. *Twelfth Report.* Published by H. M. Stationery Office, London. Price 3s. 8½d.

Agricultural Scholarships.—The list of awards of scholarships to the sons and daughters of agricultural workers and others under the scheme established from the fund provided by the Corn Production Acts (Repeal) Act, 1921, for the development of agriculture, has been issued. Ten candidates have been granted scholarships for three or more years, tenable at university departments of agriculture, and nine students scholarships for two years, tenable at agricultural colleges. In connection with the scholarships for courses not exceeding one year, tenable at farm institutes or similar institutions, 89 scholarships have been granted; 56 to boys and 33 to girls, for short courses in agriculture, horticulture, dairying, etc. The parents or guardians of the candidates to whom scholarships have been granted include 21 agricultural workers, six working bailiffs, 25 smallholders, three market gardeners and six working gardeners.

Gordon Castle Woods.—About sixty of the members of the Moray and Nairn Foresters' Society recently paid a visit to the woods at Gordon Castle, the Duke of Richmond and Gordon's Scottish seat. Under the guidance of Mr. John Clark, head forester, the party were shown many interesting woods and young plantations, and at the close, Mr. E. S. Grant, Altyre, gave a short demonstration on squirrel damage. A committee was appointed to organise a campaign against these pests.

Critical Position of British Forest-Tree Nursery Trade.—The critical position of the forest-tree nursery trade in this country, owing to the activity of the German growers and the large number of nurseries now established and supervised by the Forestry Commission, is causing much alarm in what was once a very prosperous business. Discussing the subject, Mr. W. M. Gossip, Inverness, a well-known forest-tree grower, and the son and grandson of nurserymen, gives a very gloomy opinion of the future of the trade in this country. He declares forest-tree nurseries are dying out in this country, and he holds the Government is to blame. He contrasted the astonishingly prosperous German nurseries with those at home, and said the former were buying the latest and most up-to-date machinery, magnificent horses, and the heads of these nurseries all possessed fine motor-cars. These Germans have unlimited Polish labour at about 6d. per head per day, with the result that everything is in capital order, and their crops beautifully clean. He knew what he was speaking about, having resided for several lengthy periods in Germany, studying German methods, before and since the war. Then their own Forestry Commission, which is part of the Government of this country,

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should have given home nurserymen the chance of growing the trees required for the afforestation of the country. The Forestry Commission could have fixed its own terms, and the home nurserymen could quite easily have supplied all the trees wanted. Were the home nurserymen guaranteed they would get Government orders, they could have afforded to take chances, had their ground worked properly, and installed new machinery. The Forestry Commission is working unemployment schemes for the Government, but this will not last long. Meanwhile, the German nurseries, by the help of their Government, are thriving, prosperous assets to the nation. He contended it was a short-sighted policy of a British Government helping to assist to strangle a home industry, and so, in a way, help the Germans, whose policy ever seemed to be the ruin of British industries. There is no doubt private traders here can grow, and do grow, as good plants or better and much more cheaply than any Government department ever will do. At present the trade cannot be sure of selling forest trees because the Forestry Commission is growing colossal quantities.

List of Potato Varieties.—The Board of Agriculture for Scotland has compiled a list of the names of all the known varieties of Potatos, together with their synonyms. It includes 1,300 names and states whether the varieties are immune from or susceptible to Wart Disease in all cases where such knowledge is available. The list should prove of considerable value to growers, and especially those who specialise in the production of seed tubers. Copies may be obtained on application to the Secretary, Board of Agriculture for Scotlond, York Buildings, Queen Street, Edinburgh.

Imports of Tomatos.—During the three months, April, May, and June, the total importation of Tomatos into this country was 33,903 tons, being 6,269 for April, 15,195 for May, and 12,439 for June. Of this large amount only 514 tons were received from Dutch sources. By far the largest quantity came from the Canary Islands, which sent us no fewer than 13,441 tons in May and over 6,000 tons in each month of April and June. Spain sent us a considerable quantity of Tomatos in June, but the amount, 2,058 tons, was considerably lower than in June, 1922, when the figure was 4,301 tons.

Railwaymen's Horticultural Exhibition at Southport.—An interesting and extensive exhition of produce grown by the members of the London, Midland, and Scottish Railway Company's Horticultural Society (Northern Section) was held in Victoria Park, Southport, on the 25th ult. The number of entries totalled 2,981, against 1,581 in 1922, when the exhibition was held at Crewe. Notwithstanding the inclement weather which has prevailed in the northern districts, the exhibits were of a particularly high standard of quality. The display was arranged in two large marquees, each 126 feet by 40 feet, while a tent 60 feet by 30 feet was devoted entirely to honorary exhibits. Amongst the vegetables fifty-nine entries of Peas were an outstanding feature, first and second prizes being won by the variety Gladstone. There were no fewer than nineteen collections of vegetables staged, and the one exhibited by Mr. Anderton, of Westhead, obtained the Oldfield Cup for the best collection in the show, while Mr. Bunn, Liverpool, and Mr. Hope, Crewe, obtained first prizes in other classes. Potatos were another fine feature, and for these the society offered £10 in prizes. Mr. A. Davies, Nantwich, won the Manchester cup for vegetables, while Mr. E. N. Baldwin, Ormskirk, was awarded the Brocklebank cup for vegetables grown entirely on the railwayside. The Bruce Ismay cup for flowers was won by Mr. Hughes, Penwortham, while the Williams cup for Roses was awarded to Mr. J. J. Pelvin, Crewe. The Bingham Bowl for Sweet Peas and Carnations was won by Mr. J. Brookshaw, Crewe, whilst Mr. A. Davies won the society's shield and silver medal for the highest aggregate of points in the show. The honorary exhibits included collections of Sweet Peas from Mr. Henry Eckford; Gladioli from Messrs. Lowe and Gibson, and contributions from Mr. Manson, Messrs. Brown and Sons, Messrs. Kerr and Sons, and Messrs. Vickers. Over 4,000 people attended the exhibition, but unfortunately the weather was bad.

Mr. William Henry Gostling.—Mr. Gostling was born at Tilmanstone, Kent, in 1862, and at the early age of thirteen years he developed a passion for Orchids, which at that time were becoming extremely popular. In order to study these plants and their cultivation he went to Sunbury House, Tunbridge Wells, where the Rev. R. Kinley had a grand collection and specialised in Phalaenopsis. From there Mr. Gostling entered service with Messrs. Hugh Low and Co., at Clapton, to take charge of the importations which the collector, Mr. Smith, was then sending from Java. His next appointment was to the Orchid Department at Kew with Mr. W. Watson, and many beautiful plants flowered under his care, some of them for the first time in England. In 1882 J. T. Peacock,

MR. WILLIAM HENRY GOSTLING.

Esq., of Sudbury House, Hammersmith, was spending large sums of money on Orchids and Cacti, and he invited Mr. Gostling to take charge of his Orchid collection. Few gardeners of to-day are able to realise what excitement there was then in the horticultural world when a new species was discovered. Orchids were almost a craze, and Messrs. Protheroe's Rooms and Mr. William Bull's exhibition, etc., were centres of enthusiasm. In those days Orchids were exhibited as something wonderful and new, hence the Sudbury House collection was often drawn upon for public and private exhibitions. The death of the owner caused this unique collection to be broken up, and although Mr. Gostling subsequently took charge of other collections, he never felt the same interest in the plants. Believing the enthusiasm for Orchids would pass, he devoted his experience and energies to the general management of country estates. In this occupation he has continued to the present time, and is now engaged in winding up affairs on the Upton House Estate, Nursling, Hampshire, the home of the late Col. Griffiths, with whom he was associated for many years.

Dahlias at Hyde Park.—To the lover of Dahlias the splendid display by the Victoria Gate, Hyde Park, gives considerable enjoyment and useful instruction in the treatment and effective arrangement of these very popular plants. All of the latest and finest varieties are present, and probably not fewer than one thousand plants have been used. The system of labelling is good, each label being clearly and deeply written, and placed in such a position that one can see at a glance the name required. Mr. Hay is to be congratulated on the arrangement and fine condition of his plants. In connection with these Dahlias a correspondent writes: "I have noticed a great favourite with the general public is the variety called Union Jack. Last year I visited a certain London park where there was a small but interesting border of Dahlias, and it was near this particular variety the public congregated. These Union Jacks were not quite true to type, as not only were the striped flowers present, but also occasional reversions to self-red. Now, it is quite correct and indeed proper the Union Jack should receive its just admiration and public attention, but when 'taking on the red' it is time the patriotic gardener cried halt! I saw no 'reds' in Mr. Hay's collection."

Mr. W. G. Lobjoit.—The many friends of Mr. W. G. Lobjoit, O.B.E., J.P., will be interested to learn of the marriage of his second daughter, Winifred Grace, to Mr. George Peach Johnson, M.A., younger son of Mr. E. S. Johnson, J.P., on September 1, at the Parish Church, Heston.

National Chrysanthemum Society.—As usual, the National Chrysanthemum Society's Floral Committee will hold its meetings at the Royal Horticultural Hall, and these will take place on the Monday afternoons of September 17, October 1, October 15, November 12, November 26, and December 10, commencing at 3.15 p.m., while on Thursday, November 1, the opening day of the Society's great exhibition, the Floral Committee will meet at the Royal Horticultural Hall at 11 a.m. Notice of intention to place new Chrysanthemums before the Committee should be sent to the Secretary, Mr. C. H. Curtis, 5, Tavistock Street, Covent Garden, W.C.

The Hampton Court Vine.—The Grapes produced by the Grape vine at Hampton Court are sold annually and the proceeds devoted to charitable purposes. The cutting of the bunches was commenced on Monday last, and the fruit sold at 5s. per pound, in baskets made by the blind members of St. Dunstan's Institution, for which 1s. is charged.

An Unusual Food.—According to the *Journal of the Royal Society of Arts*, swallows' nests are considered a great table delicacy by the Chinese, and a sumptuous Chinese dinner is not complete unless there is a dish of this palatable food. There are two kinds of nests, a white variety and a feathered variety, the latter having birds' feathers in the texture. The nests are obtained from the Malay Archipelago, including Borneo, Sumatra, Java, and the Philippine Islands. They are also found in other places, especially on the reefs or islets off the coast of Changpu. The popular belief that the nests are made from jellyfish or seaweed is said to be erroneous. The particular swallows' nests used are said to be rich in albuminous matter, the nitrogen content varying from 3.39 to 24.6 per cent.

Acreage of Hops.—The preliminary returns compiled by the Ministry of Agriculture show that the acreage under Hops in England was 24,890, compared with 26,450 acres in 1922. By far the greatest area devoted to Hops is in Kent, which has a total of 14,450 acres; Hereford is next with 3,890 acres, Sussex with 2,270 acres, Worcester 1,950 acres, and Hampshire 1,020 acres.

The Fruit and Vegetable Crops.—The effect of the dry weather on the fruit and vegetable crops is reflected in the list of prices published in the Agricultural Market Report issued by the Ministry of Agriculture. In the wholesale markets a week ago Sharpe's Express Potato averaged 160s. 6d. per ton, and King Edward 180s. per ton, as compared with 86s. and 111s. per ton respectively a year ago. In the Wisbech market the value of King Edward this year has been even more—£7 per ton, against £3 to

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£3 10s. per ton at the end of August, 1922. Both Cabbages and Cauliflowers made good prices last month, Cabbages averaging 2s. 2d. and Cauliflowers 4s. 2d. per dozen, as compared with 1s. 11d. and 3s. 5d. per doz. respectively a year ago. The Scarlet Runner crop is very backward, and the average quotation last week was as much as 5d. per pound, compared with slightly less than 1½d. per pound last August. Prices for Carrots and Turnips are double the value obtained last year, and Vegetable Marrows, Lettuces and Cucumbers are also much dearer. The prices for Tomatos fell very considerably during the last week of August, but they are still about 20 per cent. higher than on the corresponding date of 1922. It is interesting to know that all salad vegetables are realising more than double pre-war prices. While such soft fruits as Gooseberries, Raspberries, Strawberries and Currants sold for more than double the prices realised in 1913 and 1914, they have been a little cheaper than they were last year. Cherries realised a good market, but probably the greatest increase is in the price of Egg Plums, which averaged in the last week of August 29s. per hundredweight, compared with 7s. 6d. per hundredweight a year ago. Apples are decidedly dearer than during August, 1922, the dessert varieties realising about 65 per cent. and cooking varieties about 85 per cent. more than last year, while the few Pears on sale are also realising very high prices.

Trial of Delphiniums at Wisley.—The Royal Horticultural Society will carry out, during the coming season, a trial of Delphiniums in their gardens at Wisley. Three plants of each variety should be sent to the Director, R.H.S. Gardens, Wisley, Ripley, Surrey (goods to Horsley Station, Southern Railway), on or before October 30. The necessary entry forms may be obtained on application to him.

Appointments for the Ensuing Week.—Monday, September 10: United Horticultural Benefit and Provident Society's meeting; Hove Horticultural Society's show (two days); Bath Gardeners' Society's meeting. Tuesday, September 11: Jersey Gardeners' Society's meeting. Wednesday, September 12: Royal Caledonian Horticultural Society's show (two days); Watford Horticultural Society's show; East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting. Thursday, September 13: Wargrave and District Gardeners' Society's meeting; Metropolitan Borough of Bermondsey Flower, Fruit and Vegetable show (three days). Friday, September 14: Scandinavian Horticultural show at Gothenburg, Sweden (eight days); Newarthill Flower show (two days).

"Gardeners' Chronicle" Seventy-Five Years Ago.—*Culture of Tomatos.* We treat the Love-apple or Tomato here as follows:—In the first week in March we sow in pots filled with rich sandy mould, and, placing them in a Melon or Cucumber frame, water them. As soon as the plants appear in their second leaf we pot them off in rich mould, three in a pot. When the roots have filled the pots we shift them into larger pots, removing the smallest plant, and leaving only the two strongest. We then place them in a Vinery or Peach house and give them a good supply of water, sprinkling over head every morning. By the first week in May they will be ready to plant out between the wall trees on either a south or east aspect. In planting, remove the soil to the depth of a foot, and fill the holes up with rotten dung; then turn the plants out of their pots, plant them, and cover the dung over with the soil, dishing the latter so as to make it hold water. Nail up the plants, and water them once a week. As soon as they show bloom, remove all the "water-shoots" or laterals, and stop the first joint above the flower so as to set the first bloom. By stopping in this manner we get ripe fruit in the first week in July, and a regular supply throughout the season. This year we had them ripe in the last week in June. If frost sets in, cut off the green fruit and place it on a flue in a stove or Vinery, and it will ripen as well as on a wall. *Robert Draper, Newby Park, Thirsk. Gard. Chron., September* 2, 1848.

HARDY FLOWER BORDER.

SEDUM SPECTABILE.

IF this is not the handsomest of all the hardy Sedums, it is certainly the best of all the taller late-flowering species and varieties, and one that will always be esteemed for the bold masses of colour it presents throughout autumn. The large, flattish heads of chalky-pink, bristling with stamens—the happy hunting ground of the last of the bees and butterflies (see Fig. 50)—are attractive against the pale blue-grey of the ample and fleshy foliage, and it is a matter of opinion whether any of the varieties are an improvement on the type. In common with many others of the Telephium set, S. spectabile will flourish in a soil that would be considered too stiff and cold for most members of the genus, but a good border soil of average quality probably suits it best. Whilst it rejoices in sun, it does not object to partial shade, and it often succeeds wonderfully as a town garden plant.

FIG 50.—BUTTERFLIES ON A GROUP OF SEDUM SPECTABILE.

As it is a native of Japan S. spectabile is sometimes erroneously known as S. japonica.

SEDUM PULCHELLUM.

THOUGH one or two inferior species sometimes usurp its name, S. pulchellum is distinct enough and handsome enough to remove any doubt as to its identity. It is a late-summer and autumn-flowering hardy species from the States of Missouri and Virginia, and is almost unique among the genus in its preference for a cool, moist soil. The fresh, emerald-green, linear leaves, which are evergreen, are borne like those of the common S. reflexum on crowded stems, upright or semi-prostrate, and they are frequently tinted with red. Above these, to the height of about 6 inches, rise the leafy flowering stems, which terminate in a bold head of blossoms consisting of large, four-petalled, rosy-purple stars set closely on a 4-5 branched cyme. S. pulchellum is not only one of the most beautiful of its race, but it is of the easiest culture. Though preferring a free soil near water, it will often grow quite well in an ordinary cool border, and its late-flowering habit affords it an additional claim for popularity. Propagation is easily effected by division. *A. T. J.*

KNIPHOFIAS.

THE effectiveness and brilliance of Kniphofias in the scarlet border, or the mixed herbaceous border, during August and September is well known, and these striking autumn flowers should be largely grown for these purposes.

They are, however, even more effective when grown in large masses in the wild garden where they may be given prominent positions, as they are magnificent when in flower and in winter their dark green leaves are quite attractive. They revel in an open position in full sunshine, where their torch-like spikes are seen at their best and produce a wonderful blending of yellow, orange and scarlet with a soft "bloom" thrown over these brilliant shades. Planted in bold groups their effect is visible from a long distance, so that they are plants of much value to the landscape gardener.

K. aloides and the varieties grandis, nobilis and longiscapa are all particularly handsome, and well worth growing, as also are many of the hybrids such as Obelisque and Ophir, which have handsome yellow and orange spikes of flower 6 feet or 7 feet high. There have been many varieties of Torch-Lilies introduced during the last twenty years, but probably seventy per cent. of them are traceable to K. aloides, itself a plant capable of yielding very fine effects either planted in quantity, alone, or grouped with other suitable vegetation.

Kniphofias grow well in a good, medium, sandy loam and appreciate liberal, annual top-dressings of manure. The soil should, however, be well drained, as, although these plants like plenty of moisture during the summer, anything approaching stagnant moisture at the roots is inimical to them, and is frequently the cause of losses during the winter.

Kniphofias may be increased by division in the spring, but it is not wise to disturb the old plants more than is really necessary. Seed is produced fairly freely from the bases of the earlier flower spikes, and affords an additional means of propagation. *W. Auton, Pyrford Court Gardens, Woking.*

PAEONIA WITTMANNIANA.

THIS charming, creamy-yellow Paeonia, one of the prettiest and most delightful species, was for long considered difficult to bloom, but this opinion appears to be gradually passing away, and it is now frequently seen in flower. It has flowered well in several gardens I have visited within late years, and seeing it in bloom in one of these gardens induces me to pen a note reminding others of this charming, single Paeony. It seems to grow best in a light, but rich soil, and a sunny place. *S. A.*

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The Week's Work.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Tall Flag Iris.—Where these have not yet received attention, another month is available for the work of planting. Beside the flower border proper, spare ground between shrubs offers a suitable planting place, also open spaces by woodland walks. For extensive plantings it may be preferable to allow but one colour to a group or position. These Irises should not be grown in dense shade.

Pentstemon Cuttings.—The first half of September is the best time in which to root cuttings of Pentstemons, but it is not always possible to secure them at such time, as in hot, dry seasons growth is backward, and one must perforce wait until the cuttings can be had. These remarks apply in particular to one-year-old stock—two-year-old plants having a goodly number of shoots available for inserting now. The cuttings may be dibbled in sandy soil in frames, boxes, or pots. Frames are an advantage if the cuttings are spaced a fair distance apart, inasmuch as the plants may remain undisturbed until planting-out time; whereas, when put in thickly, repotting or transplanting is necessary.

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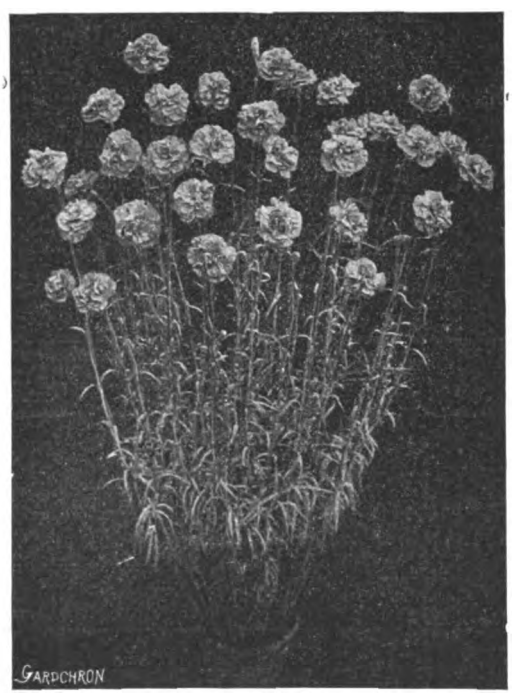

FIG. 51.—CARNATION LADY HERMIONE (SEE P. 143).

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THE value of the Gladiolus as a decorative garden flower has been realised for many years, but, chiefly owing to its size, it has never been seriously considered as having any particular merit as a cut flower for indoor decoration. However, the improvement of the primulinus hybrids has now, to a large extent, removed the disadvantage of unwieldiness possessed by the Gandavensis section, though the latter type still holds a very high place in decorative schemes on a large scale, such as ballrooms.

The main points in favour of the primulinus hybrids are beauty of colouring, and shape of flower, gracefulness of spacing of the blooms on the spikes, and slenderness of the spike itself.

In glass bowls, with Gypsophila, the spikes may be arranged quite easily, to give a very beautiful effect. The straight, stiff, sword-like spike of the Gandavensis, with its mass of closely set flowers, does not show to advantage and, should any spike come away from the perpendicular to any degree, the whole beauty of the flower is lost. With the primulinus hybrids it is different; the graceful curves of the slender spikes and the peculiar shape and placing of the flowers themselves, both lend beauty to a bowl. The accompanying illustration (see Fig. 52), shows the variety Alice Tiplady, arranged in this manner. This variety was introduced by Kunderd, in 1915, and became an immediate favourite, with its beautiful orange-saffron colour and large, well-shaped flowers. Of the smaller-flowered varieties, perhaps, the best is Nydia, whose beautiful rose-coloured blossoms are among the finest decorative flowers grown.

August and September often present difficulties in the way of indoor floral decoration, which these primulinus hybrids go far to overcome. The initial outlay is not great, the flowers themselves are no trouble to grow, and their beauty and value for autumn decoration will be readily realised by all who cultivate them. *G. M. C.*

[Our correspondent does not refer to the value of the smaller-flowered varieties for floral decorations indoors. These, however, are exceedingly beautiful, and the variety The Bride has been sold in large numbers during the past month or so in Covent Garden market for the special purpose of indoor decorations. The spikes are very elegant and the blooms remain fresh for a considerable time. *Eds.*]

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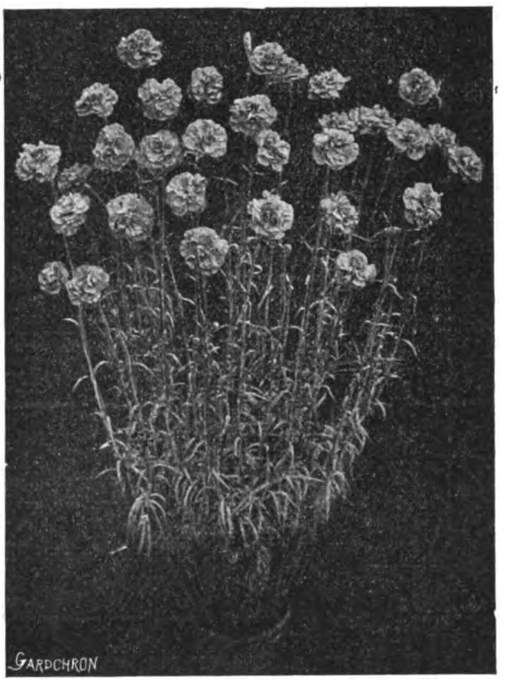

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THE GLADIOLUS AS A DECORATIVE CUT FLOWER.

The value of the Gladiolus as a decorative garden flower has been realised for many years, but, chiefly owing to its size, it has never been seriously considered as having any particular merit as a cut flower for indoor decoration. However, the improvement of the primulinus hybrids has now, to a large extent, removed the disadvantage of unwieldiness possessed by the Gandavensis section, though the latter type still holds a very high place in decorative schemes on a large scale, such as ballrooms.

The main points in favour of the primulinus hybrids are beauty of colouring, and shape of flower, gracefulness of spacing of the blooms on the spikes, and slenderness of the spike itself.

In glass bowls, with Gypsophila, the spikes may be arranged quite easily, to give a very beautiful effect. The straight, stiff, sword-like spike of the Gandavensis, with its mass of closely set flowers, does not show to advantage and, should any spike come away from the perpendicular to any degree, the whole beauty of the flower is lost. With the primulinus hybrids it is different; the graceful curves of the slender spikes and the peculiar shape and placing of the flowers themselves, both lend beauty to a bowl. The accompanying illustration (see Fig. 52), shows the variety Alice Tiplady, arranged in this manner. This variety was introduced by Kunderd, in 1915, and became an immediate favourite, with its beautiful orange-saffron colour and large, well-shaped flowers. Of the smaller-flowered varieties, perhaps, the best is Nydia, whose beautiful rose-coloured blossoms are among the finest decorative flowers grown.

August and September often present difficulties in the way of indoor floral decoration, which these primulinus hybrids go far to overcome. The initial outlay is not great, the flowers themselves are no trouble to grow, and their beauty and value for autumn decoration will be readily realised by all who cultivate them. *G. M. C.*

[Our correspondent does not refer to the value of the smaller-flowered varieties for floral decorations indoors. These, however, are exceedingly beautiful, and the variety The Bride has been sold in large numbers during the past month or so in Covent Garden market for the special purpose of indoor decorations. The spikes are very elegant and the blooms remain fresh for a considerable time. *Eds.*]

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LITTLE KNOWN METHODS OF KEEPING APPLES.

MOST gardeners desire to keep Apples as late as possible in order to furnish the establishment with fruit at a time when there are very few other kinds of fruits available from the garden. But not all are equally successful in keeping Apples, and in many cases the fruits are apt to shrivel in the fruit room and lose their qualities long before the time when they decay naturally.

A few seasons since I saw several methods adopted in experimenting with Apples for long keeping, and specimens brought to my notice were sound and of first-rate flavour. Tubs holding about 56 lb. to 70 lb. of Apples were prepared as follows:—A layer of dry sand was placed in the bottom of the tub, and the fruits, after being wiped with a dry, soft cloth, were arranged in a layer on the sand. More sand was placed in the tub—small reddish sand and very dry—and the packing of the fruit was continued in layers until the top one was within 2 inches of the rim of the tub, when the work was finished by adding a final layer of sand. The tubs were then placed in an old summer-house where it was quite cool, but perfectly dry. When the fruits were seen by me in July, the varieties being Cox's Orange Pippin and Court Pendu Plat, they were in good condition. Another method adopted was to line deep boxes with Oak leaves and cover the fruits with the leaves as in a nest, after first seeing that they were wiped perfectly dry. This method answers satisfactorily, and splendid fruits of Ribston Pippin were shown to me, taken out of the leaves at the end of May. This system of storing seems to follow Nature's method of keeping Apples, and apparently the leaves assist in retaining the qualities of the fruit for a very long time.

Another plan was to leave a quantity of the fruits in a heap in the orchard and to cover the latter with fallen Apple leaves, which were retained in position by small-meshed wire netting. In this case the variety was Dumelow's Seedling (Syn. Wellington), and the fruits stored in this way remained perfectly sound until the end of June.

One of the best late dessert Apples is Sturmer Pippin, but many growers make the mistake of gathering the fruits of this sort too early. This very desirable late Apple should be allowed to hang on the tree until very late, and then it will retain its crispness to the end. By thoroughly ripening the fruits the yellow flesh of this excellent Apple develops its finest qualities, and such fruits will remain sound until the end of July. The tree makes a good standard for orchard cultivation, and the variety also does well in bush and espalier form. It is one of our most valuable late Apples, although its appearance is not so taking as some of our late sorts. Australian and Tasmanian growers cultivate this variety extensively for the English market, and fruits sent several thousand miles by rail and sea arrive here in the pink of condition; in some cases not a single fruit in the box shows the least blemish or any injury by pressure on the box. Fruits of Sturmer Pippin from Australian sources realise high prices, for they are in great demand, not only for their beautiful appearance, but also for their excellent quality. It is probable that with a climate hotter than in this country Sturmer Pippin does even better in Australia and Tasmania than with us.

Other varieties that may be recommended for late keeping are Lodgemore Nonpareil, a fruit of medium size, roundish ovate in shape and regular in outline; the skin is golden yellow, slightly flushed on the side next to the sun; the flesh is yellowish, firm, crisp, and sweet, with an abundance of juice and a fine aroma. Some years ago I saw a tree of this variety in the Stroud district, and I wondered why this fine Apple is not more extensively cultivated. This Apple is sometimes known as Clissold's Seedling.

Wanstall, known also as Jack-in-the-Wood, is another very useful late Apple. It is said to have originated with a tailor named Wanstall, near Sittingbourne, Kent. Specimens were sent to me for naming, some five years ago, in the month of May, and the fruits attracted me at once. They are of medium size, round, with prominent angles on the side; so far as I can recollect, the number was five, making the fruit five-sided, with ribbing as pronounced as in Winter Quoining. The skin is deep golden yellow, with red and crimson striping next to the sun, and with patches of russet and grey dots. The stalk is half an inch long and deeply inserted; the flesh is yellow, crisp, and sugary, and very finely flavoured, and I consider it superior in quality to Ribston Pippin. I hope to come across this variety again, as I wish to obtain a few grafts; none of the fruit lists I have at hand offer this old sort.

Apples intended for "laying down" should be sound and of firm texture. When the fruits are removed for use, they should be wiped thoroughly and exposed as little to the air as possible before being placed on the dessert table, as they soon lose their flavour, whilst exposure to the air makes them pithy and discoloured. As the season for harvesting Apples is approaching, those who wish to prolong their season of Apples for, say, six weeks to a couple of months should try the tub and sand method of storing late sorts in the case of both dessert and culinary varieties. *Pomona.*

PROPAGATION OF ALPINE RHODODENDRONS.

I PREFER to commence the propagation of Alpine Rhododendrons throughout August and continue during September. Some of the older plants were ripening their growth at the end of August, and have plumped up their flower buds for next year, but others, especially young plants, are still growing and sappy enough to offer ideal cuttings.

The plants may be propagated in an ordinary small frame placed in semi-shade, and wherever it be situated see that the ground on which it is placed is thoroughly drained. Over the drainage material place the coarser material found in the compost bins, to form an under-layer for the rooting medium. Of the latter 80 per cent. should be sand of a nature that will not set hard, merely toned down with fine loose peat, leaf mould and light loam; make this more than moderately firm, to the depth of six inches, with the surface level from 18 to 24 inches below the light.

Scarcely any skill is required in the selection of the cuttings, for the natural growths of the plants in the course of the season are generally of cutting size only; a piece of last year's wood will often have several shoots suitable for the purpose.

The cuttings are simply made by an oblique cut below the junction of the desired cutting with the old wood; remove enough leaves to allow for insertion. Reject cuttings that are terminated with flower buds, but if such growths are needed, the flower bud should be removed in the process of making the cutting. The stocks of these plants are all too small, and the propagator has to make the best of his limitations, and use whatever cuttings are available. Curiously enough, in many cases thin and small unorthodox cuttings root and thrive the best. The cut may be made below or at a node, for roots are emitted from any part of the stem below ground.

If frame accommodation is not needed owing to the small supply of cuttings, use 4 inch or 5 inch pots, insert the cuttings, plunge the pots to the rims in ashes or fibre, and cover each pot with a bell-glass, but not for long, only a fortnight or so; in fact it is questionable if the glasses are of any real assistance in frames, except that they keep out drip. I do know they are a great nuisance, and I believe the difference in the percentage of rooted cuttings with or without their use would be negligible.

Insert the cuttings either in the frame or the prepared pots, closely enough to touch each other; make them firm with a neat hard-wood dibber, by the pressure of a half-twist action of the wrist, and not by a pointed thrust. Thoroughly water in the cuttings and never allow the compost to become dry. Cover the frame with the light, and keep it close; subsequent attention to shading during bright weather is necessary, but the shading material should be removed early enough in the afternoon to allow sufficient sun-heat to enter to keep the frame warm during the night. In bright and dry weather, create a moist atmosphere by repeated mist-like sprayings.

As the cuttings form roots, accustom the plants to increased ventilation, but protect them from severe frosts. Do not pot the rooted cuttings before growth takes place early in the following spring, for it is better to plant them then in a rough frame from which the light may be entirely removed when necessary.

During the cutting stage keep a sharp watch for dead and decaying leaves; examine the batch methodically, and remove every medium of fungus infection. I would warn growers against the placing of cuttings from outdoor plants in heated propagating pits; more than once I have seen batches of cuttings inserted in the best of material with minute care, and yet all succumbed. However, I have a good word to say in favour of potting up stock plants in the early autumn, placing them in a propagating house and gently forcing them into growth in the early spring, when cuttings an inch long may be obtained, and these will root readily to the extent of 90 per cent., either placed inside the heated propagating frame, or under bell-jars on the stage. But the results will be far from satisfactory if the plants are in the house in mid-summer, and cuttings are tried in the same manner as suggested in these notes.

The above remarks apply to such Rhododendrons as R. impeditum, R. intricatum, R. hippophaeoides, R. parvifolium and R. flavidum, but there are many others in the Lapponicum group, such as R. scintillans, R. orthocladum, R. nigro-punctatum, R. rupicolum, etc., which I feel sure would root readily if treated in the manner described. *C.*

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PLANTING EVERGREENS.

WHILST "doctors may differ" as to whether evergreens are better planted in autumn than spring, or vice versa, there is no doubt but that the winter planting of such subjects every year brings loss and disappointment to the many novices who practise it.

Personally, I prefer planting in September to any other time, with the sole exception perhaps of certain Conifers, which seem to move better just when their spring growth is beginning. Then there are, of course, the more tender subjects. Most of us would prefer to leave these in the nurseryman's hands, or at any rate in their pots, so that they may be given shelter, if necessary, until April or May, rather than plant in autumn with all their first winter out of doors ahead of them.

But with these reservations September is the time for planting evergreens. The very fact that the ground is warm, and therefore conducive to immediate and vigorous root activity, is alone a substantial argument in favour of this month for such work. But there are other factors also to be considered, and one of these is the humidity of the atmosphere that prevails from this time onwards to winter, which means that the exhaustive evaporation which usually tells so heavily against the transplanted evergreen is reduced to a minimum under normal conditions.

Some consideration must, however, be given to the nature of one's soil in such matters, and it will often be found that those who advocate spring planting have a colder, heavier medium to work with than those who, enjoying a freely-drained land, prefer to do this work in autumn. Evergreens planted in the former medium in spring would naturally be less likely to suffer from an early summer drought.

Where large-leaved evergreens, and such subjects as Hollies and choice Rhododendrons, appear to be suffering from undue transpiration after planting, it will often be of the greatest assistance to remove a considerable proportion of the leaves. But this should not be necessary at the present season, save where the roots have suffered considerable disturbance and injury. *A. T. J.*

LATHYRUS ODORATUS ZEYLANICUS.

THE SWEET PEA OF CEYLON.

THE interesting discussion of the problem of the "Sweet Pea of Ceylon" by Mr. S. B. Dicks, in the *Gard. Chron.* of June 30, 1923, which treats the subject exhaustively from, one might say, the European standpoint, prompts me to offer a few suggestions on this question from the Ceylon aspect.

The Dutch held only the coast districts of Ceylon. Their rule did not extend to the interior—the hill region—which was in the hands of the Kandyan Sinhalese, who were always hostile to, and frequently at war with the Dutch invaders. Hence Grimm, Hermann, Hartog, and Thunberg could botanise only in the neighbourhood of the coast. Now, the Sweet Pea will not grow in the low-country of Ceylon, nor at Peradeniya (1,600 feet). It grows well at Nuwara Eliya (6,200 feet), and more or less successfully from about 4,000 feet upwards. But Hartog, who is supposed to have gathered the Sweet Pea in Ceylon, could not have had access to any district of Ceylon in which the Sweet Pea will grow at the present day. Consequently, it does not appear credible, assuming the specimen was correctly named, that Hartog could have collected the Sweet Pea in any garden in Ceylon.

The specimen collected by Blume in Java (1822-26) may not afford a parallel. By 1820, the British were in possession of the hill districts of Ceylon, and were cultivating European flowers and vegetables there. Hence it would have been quite possible that at that date a specimen of the Sweet Pea might have been collected in Ceylon. Similarly, there are hill stations in Java; and, before the Javan example can be accepted as tending to confirm the Ceylon record, it should be ascertained whether these hill stations were available in Blume's time.

The botanists who visited Ceylon in the Dutch era came *via* the Cape. They collected plants in that country, as well as in Ceylon, and their collections were not always kept separate. Confusion was no doubt unavoidable under the meagre facilities for travel in those days. Linnaeus' *Flora Zeylanica*, which was an account of Hermann's Ceylon plants, includes Bobartia indica L. and Gnaphalium indicum L., both Cape plants; and Hermann has left us a puzzle, insoluble in the absence of a specimen, in Cyclamen indicum, for which he gave an alleged Sinhalese name, Urula, which is merely a translation of the European name of Sowbread. Thunberg visited Japan, Java, Ceylon and the Cape, on one of his voyages, and his plants were similarly confused; a reference to Juel's *Plantae Thunbergianae* shows that the "Sinhalese" names affixed to his specimens are in some cases Javanese and in others South African. It is known that Hartog collected at the Cape. May not his specimens have been similarly mixed up? It would seem much more probable that he would collect the Sweet Pea at the Cape than in Ceylon. *T. Petch, Peradeniya, Ceylon.*

CHRYSANTHEMUM MRS. CHARLES READ.

JULY may seem too early for Chrysanthemums, but there is no doubt as to their popularity in mid-July as pot plants.

Mr. F. Ladds, of Swanley, Bexley Heath, and Covent Garden, has been successful in raising two useful golden-bronze varieties which commence to flower early in July. One of these, and the one most useful for the supply of cut flowers, is Mrs. Jack Pearson, figured in our issue of February 3, 1923, p. 65; the other has been named Mrs. Charles Read (Fig. 53). This has shapely, long-lasting flowers, and the earliest plants were offered for sale in Covent Garden market during the second week in July. Of dwarf and sturdy habit, it gives little trouble to the cultivator, as it is grown out-of-doors from April onwards. The cuttings are inserted soon after Christmas, four in a 60-sized pot, and each potful is transferred to a 48-sized pot. As soon as they are established they are placed out-of-doors.

The plants sold readily and regularly in Covent Garden Market, and the specimen illustrated above was photographed on July 14, when it carried seven expanded and one unopened flower. Unfortunately, the variety does not produce sucker cuttings freely, therefore a rather large proportion of plants has to be reserved for stock purposes.

FIG. 53.—CHRYSANTHEMUM MRS. CHARLES READ.

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NOTES FROM A WELSH GARDEN.

THOUGH the gale which swept across the country in the early part of the month left in its wake irreparable injury, the heavy rain that fell about the same time did much towards repairing the damage. Such plants as hybrid Clematises, however, were blackened beyond recovery for this season, and ornamental Vines in exposed places have been wilted as by fire.

The Heaths, as might be expected, came through the ordeal the most cheerfully. Indeed, these have seldom been so good, the colours in several forms of Erica cinerea being exceptionally brilliant, and in some of these varieties the spikes of blossom are over six inches in length. E. c. rosea still holds its own among the earlier summer bloomers where a bold effect is desired, and E. c. var. alba can be very effective, the pure white bells being in bold contrast to the exceptionally dark green foliage. The splendid Calluna vulgaris var. Serlei, its stately stems rising to some three feet, is now asserting its claim to a foremost place among the white Heathers, but there is a great charm about the dwarfer variety, gracilis. The new E. vagans, var. St. Keverne, destined to become the most popular of its kind, was early in flower. It is a particularly robust grower, with leafage of a fuller green than that of most kindred varieties, and the very large flower spikes in a fresh, wild-Rose pink are very beautiful and distinct. E. Watsonii, said to be a natural hybrid between E. ciliaris and E. tetralix, is a variety that deserves to be more widely grown, for in flower and foliage it displays the best and most taking features of both its parents.

Romneya Coulteri is always liable to injury by wind, but our oldest and largest plant in a sheltered border escaped the worst of the gale, and, where somewhat thinned, its 7 ft. growths and abundant flowers are now rather finer than usual. No less may be said of Lavatera Olbia, always such a valuable August blossomer, but the wind robbed Dendromecon rigidum of its crop of buds, which promised a good autumn display, and severely injured the somewhat top-heavy Buddleias of the variabilis type.

One of the most beautiful objects in the late summer garden is Apera arundinacea, the Pheasant-tailed grass. Some old clumps of this, about 2 ft. high and 3 ft. to 4 ft. across, are the very refinement of elegance, and the narrow, arching blades, their pale glossy green stained with streaks of coppery-red and tawny brown, are not less attractive than the lovely, sweeping plumes of glistening bronzy purple which adorn the plants with such singular grace. This fine species, though not quite hardy, will withstand fairly severe winters in a dry, stony soil, and self-sown seedlings are usually abundant.

A young specimen of Metrosideros floribunda growing in a sunny spot in open woodland has been bearing its fiery crimson bottle-brushes for some weeks, and another southerner, the Chilean evergreen twining shrub, Berberidopsis corallina, is in bloom on a north wall. Similar conditions to those which the latter enjoys are shared by Tropaeolum speciosum, which has taken possession of a thicket of Azalea pontica, which it has festooned with its scarlet wreaths; and Desfontainia spinosa, which has been in flower since early July, and looks like continuing for several weeks yet.

The Willow Gentians (G. asclepiadea) are always a charming feature of the woodland at this season, and they comprise a number of forms which range in height from 1 ft. to 4 ft. There is also what appears to be a perfectly upright variety of the same species with very dark blue flowers. The latter vary in those plants of the normal sweeping habit, from a luminous azure to a good full blue. Nor can one omit to mention the chaste and lovely white variety which seldom looks so well as it does among Ferns and other herbage of the half-shaded wood bottoms.

Potentilla fruticosa Farreri may generally be relied upon to produce a good late crop of blossom, and this month it is doing exceptionally well, as also is P. f. Vilmoriniana. The fine clear blue of Ceratostigma Larpentae and C. Willmottae associates well with the yellow and creamy white of the above, and in the poor soil in which these Ceratostigmas will flourish the old Linaria repens (purpurea) will make a goodly show of colour. Though this tall and stately Toadflax may be a rather too redundant seeder in some gardens, it is not so here, and some of its forms, notably those with bluish-lavender flowers and the yellow-lipped white, are very effective grouped in their proper place; their flowering season extends from midsummer to late autumn.

Mimulus Bartonianus, whose 3 ft. stems produced such a generous yield of the big, rose-coloured, orange-throated flowers throughout the middle weeks of summer, is putting up a fresh crop of flowering shoots, and, under similar conditions—the soil being cool but freely drained—the uncommon Lobelia Cavanellesii is as well furnished with its curious red and yellow flowers as it was in June. This plant has proved quite as hardy here as L. cardinalis, and, as it runs a good deal, propagation by offsets is a simple matter.

The changeable weather, with its extremes of temperature, of this erratic summer has not daunted the cheerful vigour of the dwarfer Kniphofias, which are once more proving their inestimable value as rock-garden and border plants, many of which can be depended upon to produce successional crops of their brilliantly coloured spikes from June to late autumn. Though it is difficult to differentiate between these charming subjects, I think K. Nelsoni, K. rufa, K. corallina, K. Macowanii, K. brevifolia and K. Goldelse must be considered among the choicest of the better-known dwarf sorts. *A. T. J.*

NOTES FROM WISLEY.

IT is difficult to explain why some admirable and easily cultivated plants fail to achieve popularity. Many deserving species have been lost to cultivation, and others have remained in comparative obscurity, while others more fortunate have very slowly fought their way to recognition. An instance of delayed popular recognition is to be found in Physostegia virginiana, a herbaceous plant related to the Skullcaps. Numbers of these plants, bearing spikes of pretty pink flowers, are to be seen in the shelter beds and herbaceous borders at Wisley.

The gardens have benefited considerably from the recent rain, which has given many plants a new lease of life, and those recently planted a good start. Thousands of seedlings of woodland Primulas, such as P. japonica, P. pulverulenta, P. Bulleyana and P. Beesiana, have just been planted out in the wild garden, and should next year make a gorgeous display.

Offsets have been removed from those plants of Lilium giganteum which flowered this year, and no fewer than three hundred have been planted. These, however, will not flower for at least three years. The glowing flowers of Lilium superbum are now to be seen in parts of the wild garden, where they show up to advantage against the dark background of Rhododendrons. This handsome Lily may be compared to a large and elegant form of L. pardalinum, and has chocolate-coloured stems.

The coming of autumn is marked by the colouring of fruit on the Mountain Ash and on Cotoneaster frigida, which has a large crop of red berries shortly to turn black, and has so far escaped attention from the birds. A plantation of Rubus odoratus, with its now bronzed foliage, also suggests the changing of the season.

On the rock garden a new species of Buddleia which is in flower is bound to be a most useful acquisition. This is Buddleia nanhoensis. Its great merit lies in its comparative dwarfness, for though it has not been grown here very long it seems improbable that it will exceed five feet in height. The flowers resemble those of B. variabilis, and have the same attraction for butterflies and moths.

Among the rock plants Acaena microphylla—to compensate for its modest inflorescence—is sending out showy red spines, and the pink flower-heads of Pterocephalus Parnassii are being transformed into grey, feathery cushions.

(Enothera speciosa, a perennial Evening Primrose having pure white flowers with a lemon yellow centre, is in flower, and the pink-flowered hybrid, Œ. Arendsii, is just over. Not far away is Putoria calabrica, a prostrate sub-shrub which has been very lavish with its pink, tubular blossoms. Superficially the plant is not unlike Daphne Cneorum, but lacks the delicious scent of the latter.

In the bog the rich yellow flowers of Senecio japonica are conspicuous. Here also Sagittaria japonica, a member of the Water Plantain tribe, is flowering.

Most of the Dahlias recommended for trial at Wisley by the joint committee of the Royal Horticultural Society and the National Dahlia Society are commencing to bloom, while those which obtained awards last year have been retained, and are also to be seen. *J. E. G. White.*

TREES AND SHRUBS.

TECOMA RADICANS.

OF the few Trumpet flowers suitable for outdoor cultivation, T. radicans (Bignonia radicans) is generally the hardiest and most satisfactory. This is a deciduous climber of rapid growth that will ascend a wall to 30 feet or more high, clinging to the masonry like Ivy, by means of fibrous roots. The leaves are pinnate, large and handsome, rich green and slightly downy on the under-sides. During August and throughout autumn the flowers are produced in bold clusters at the end of the current year's growths. Individually, these blossoms are trumpet-shaped and of a dark orange-scarlet shade, tending to vermilion.

T. radicans is a native of the south-eastern United States and one of the first garden subjects to be introduced to British gardens from America. Against a warm wall there are few localities in which it will not prosper, and, once established, it will need little attention beyond that of pruning back the laterals to one or two eyes in spring. Though a handsome subject when in full flower, T. radicans is not such a pleasing colour as that of the more tender T. grandiflora and some of its choicer varieties. *N. Wales.*

INDOOR PLANTS.

NERIUM OLEANDER.

THIS handsome flowering shrub, with its glossy, evergreen leaves, is frequently grown in a warm greenhouse, where it becomes a prey to mealy-bug, scale, thrips, etc. Grown outside during the summer and autumn, with the protection of a light, airy house in the winter only, it is much less liable to become infested with these pests, and is a most useful plant for late summer decoration in the formal or terrace garden. Well-grown plants in tubs make beautiful subjects for this purpose when in flower, and are not unattractive even when not in bloom.

To produce good specimens, copious watering and liberal feeding are necessary during the period of active growth, the plants being kept slightly drier after flowering, so that the new growths are not incited to flower.

The flowers are produced in terminal, racemose cymes from well-ripened wood, and the new growths develop at the base of the spray of blossom at the same time—hence the only pruning that is needed is the removal entirely of any worn-out branches to allow their places to be taken by occasional new growths that develop at the base.

When the plant finally becomes too leggy, it can be cut hard back in early spring, but it will not then flower during that season. Cuttings of matured shoots root freely if inserted in small pots and placed in a close frame, and a few cuttings should be struck yearly and the plants grown on so that old and worn-out specimens may be discarded. *W. Auton, Pyrford Court Gardens, Woking.*

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ORCHID NOTES AND GLEANINGS.

DISAS

(*Continued from page* 129.)

The blue Disas and others of the grassy-leaved class, whose method of growth and flowering is similar to the British Orchis, have been imported in small quantities for many years, and have occasionally bloomed, been much admired, and passed away, the memory of their graceful beauty alone remaining to their growers.

Disa graminifolia (Herschelia coelestis) is the finest type of the class, and it was well shown by Mr. Tautz, September 11, 1888, when a botanical certificate was awarded the plant, and this, and other blue Disas have flowered frequently at Glasnevin, also in collections in this country.

Disa lacera (Bot. Cert.) and its variety multifida (Award of Merit when shown by Messrs. Charlesworth and Co., on February 22, 1910), D. venusta, D. barbata, D. lugens, and others of the class were flowered occasionally, but no one attained continued success in their cultivation. The first good tubers of D. graminifolia I obtained from Mr. Jas. Hall, of Port Elisabeth, who wrote at the time :—(March, 1885) "If you could see them in bloom here by the thousand I am sure you would say that they should not be much trouble in any cold frame, or even out-of-doors in warm situations. Too much nursing is, I fear, the cause of their failure in gardens at home. Disas of this class form a new bulb (tuber) every year. The old bulb also decays every year. In a week or so after the flowers fade the wind and sun dries up the old flower-stems, and all traces of where the plants are to be found are entirely lost until the next flowering season comes round, their scanty foliage being mixed up with the long grass and Heather. This ought to give the key to successful culture, for everyone knows so well where Heather grows at home, and it is in a similar place that our lovely Disas and Satyriums grow here. Disas may be said to be never inactive, for as soon as the flowers and leaves fade the new bulb is ready to start, which it at once proceeds to do slowly and surely until by the following January the leaves spring up from the tubers which have last grown, and in February and March the tall spikes of four to eight clear blue flowers (on D. graminifolia) appear. December, January and February are the warmest and dry months, and during that time the plants are most active."

The above particulars, written on the upland plain with the Disas blooming around, show that these pretty terrestrial Orchids have the same habit of growth and flowering as our own British Orchids, and it helps us to understand why the Disas are not good subjects to grow and flower after removal and transport. British Orchids, when utilised as garden plants, behave in much the same way. They will grow luxuriantly where they like, but they will not often grow where the gardener likes. The same applies to most of the pretty European Ophrydeae. The explanation seems to be that even in their native habitats both the exotic and the British species depend on renewal by seeds, and, failing that, the plants over any area may die out, but the copiously-shed seeds are ready to replenish the loss of the parent plants.

In a series of articles on spontaneous hybrids of hardy plants, that clever and observant lover of plants, Mr. C. Wolley Dod, of Edge Hall, wrote of the Madeira Orchis foliosa and the British Orchis maculata in his semi-wild garden (see *Gard. Chron.*, March 25, 1899, p 179): "Orchis foliosa makes hybrids with O. maculata. I have for many years grown O. foliosa as a hardy plant. Some years ago I noticed spotted leaves amongst them, but now that I have picked out many of these hybrids, I find plain leaves are as common in them as spotted. The flower-spike is longer, the flowers smaller, and the general character and habit partakes of both parents. They make excellent border plants. O. maculata comes up spontaneously in such spots of the garden as it fancies, the seed being plentifully present in the soil. A favourite spot for it to come is the centre of a mass of rhizomes of German Iris. I may mention that as a sign of the prevalence of Orchis maculata in the native soil that, near the garden is a field which had been for many years ploughed land, but became full of this flower two years after it was laid down for pasture. In that case the roots may have been dormant in the soil, but I am sure that those in my garden came from seed."

Viewed by the light of the communications from Mr. Hall and Mr. Woolley Dod's article, it is easy to account for the failure to bloom, except in a few cases of imported tuberous Disas in the first year, and their unfitness to bloom. The fact is that their behaviour in gardens is only the same as it would be in their native home if they were lifted and kept dry for months and then planted near the spot where they formerly grew. The disturbance and drying prevents the formation of the new tuber necessary for the next flowering, and decline follows.

These Disas are as adaptable for growing outdoors in a selected sheltered position as the Madeira Orchis foliosa, and yet in several gardens Orchis foliosa is quite at home, and Mr. Wolley Dod indicates the method of perpetuating its succession by seed as a safeguard against failure of the tubers. The nearest imitation of his methods with the grassy-leaved Disas I made some years ago was with two or three tubers which I planted in summer in my garden beneath a bush. They came through the winter in good condition with nice white new tubers, but were too small to flower. They were lost sight of and doubtless perished, but they established the fact that they could withstand an ordinary winter. But with these and other species I am sure that the best results would be attained by seeding them and sowing the seed as soon as it is ripe.

The Gladiolus-like, pink Disa pulchra flowered several times with me, and two plants were shown from Tring Park, November, 1905. One received a Botanical Certificate and the other an Award of Merit.

The yellow and orange D. chrysostachya and D. porrecta which seemed at first to be reliable are probably not now to be found, the only little species of this class which is safe in gardens being D. sagittalis. If the grassy-leaved Disas were located when in flower and collected at the end of the year, or January of the following year before growth and flowering begins, the tubers of the freshly imported specimens would, if quickly sent, flower, and a full year be available for the ensuing new tuber, which would have a good opportunity of attaining flowering strength. Collected in flower the chance of the plant blooming the year in which the tubers are received is destroyed, except for a stray tuber or so which may not have sent up spikes before they were dug up. *James O'Brien.*

(*To be continued.*)

LAELIO-CATTLEYA OXFORDENSIS.

Pantia Ralli, Esq., Ashtead Park, Surrey (Orchid grower, Mr. Farnes), sends a noble flower of this showy cross between Laelio-Cattleya callistoglossa (L. purpurata × Warscewiczii) and Cattleya Tityus (Enid × Octave Doin), the small plant having been obtained on the dispersal of the Ogilvie collection at Oxford.

The ancestry of L.-C. oxfordensis includes Laelia purpurata, C. Mossiae, C. Mendelii, C. Dowiana and C. Warscewiczii twice. The flower, which is over seven inches across the broad and wavy-edged petals, is blush white with a tinge of mauve. The lip shows much influence of C. Dowiana; it is deep ruby-purple with thin gold lines from the base to the centre. The fleshy column is pure white. It is fragrant and a good addition to the favourite C. Tityus crosses.

PUBLIC PARKS AND GARDENS.

For a great number of years Bedford has been in every sense of the term a Garden City. The illustration (Fig. 54) shows part of the flower garden, which is situated on the left bank of the River Ouse—about 24 feet from the water's edge. These gardens are maintained by the municipal authority, and all the plants are raised under the care of Mr. H. Quarmby, in Bedford Park—where there are between 200 and 300 ft. of glass. This particular part was designed by Mr. Quarmby—the town gardener, in 1922, to put a finishing touch to the War Memorial, which stands a few yards from the front of the view shown. Nearly 200,000 plants are used annually. The chief of these are Pelargoniums, Paul Crampel, Little Trot, Madame Crousse, and Harry Hieover. Dracaena indivisa is used in the centre of the beds. Other subjects are Fuchsias Tower of London and Fascination, Mesembryanthemum, Willow-leaved Beet, Abutilon Thompsoni, White Marguerites, and Verbena venosa, whilst the borders are almost entirely planted with Lobelia Mrs. Clibran, and Alyssum minimum.

FIG. 54.—THE EMBANKMENT GARDENS, BEDFORD.

Mr. Quarmby devotes a great deal of attention to these gardens, which form one of the most attractive show places of the town. They are the joy and pride of Bedfordians, and others, and are visited by thousands, who admire the beautiful colour scheme, and listen to the strains of the band which discourses music from a floating stand a few yards away.

Gardeners and garden lovers who are visiting the metropolis in the immediate future and have the opportunity should pay a visit to Battersea Park, which has completely recovered its beautiful pre-war condition under the able management of Mr. Frank Wright. The flower beds in the sub-tropical gardens are especially good, notably those furnished completely with Coleuses. The scenery in the sub-tropical garden and the part known as the peninsula, especially near the lake, is very imposing, and another beautiful part is the Old English Garden near the main entrance.

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VIOLAS.

To enable them to bloom profusely over a lengthened period Violas require a good and moist soil, not necessarily wet, but one which will support the plants during dry weather. Even in light, well-drained soil, if rich in humus by liberal dressings of manure and leaf soil, Violas will withstand the effects of drought with better results than those produced in a heavier land. Violas are not marsh plants; they grow naturally on knolls, or slopes, or in ground free from stagnant water; therefore, although moist soil may be desirable, it must be well drained.

Sites for garden Violas should be worked to a depth of 15 in. to 18 in. in autumn, when some partially-decayed vegetable refuse should be placed not further from the surface than 1 ft. If the ground will not admit of being turned up deeper than one foot, loosen the hard base, place the manure upon it, and throw up the top roughly for the winter. In spring dress the surface with leaf-soil, wood ash, or old manure, these materials being suited to the requirements of the plants.

Plants raised from seeds grow more uprightly but do not branch nearly so well, and are not, for a time at least, so floriferous as those raised from cuttings. Those, however, who wish to raise seedlings may sow the seed from the end of August to the second week in September in light, rich soil in a sheltered situation. They should be pricked out 3 in. apart in a sheltered spot in October, and planted where they are to flower in March or early April; they will then become well established early.

Cuttings produce the best and most floriferous plants. Take the cuttings towards the end of September or during the first week in October. Choose for them a sheltered border—under a low wall or fence—and moderately rich soil, made fine and level and surfaced with a thin layer of sand. The cuttings should be made from growths which spring from the base of the plants—not exhausted flowering growth—and about 2½ in. to 3 in. long. Dibble them in about half their length 2 in. apart, make the soil firm about them, and follow with a good watering. In cold and exposed gardens the cuttings may be put in a frame and wintered in every respect like shrubby Calceolarias.

Planting should be done in spring before dry weather sets in, and in no case delayed until the usual bedding time, for Violas and Calceolarias are not able to contend with drought if it comes upon them before the roots have obtained a good hold of the soil. Short duration of bloom and sudden collapse are due to late planting.

Plants raised from cuttings made early in October will give an effective summer display, but not infrequently Viola beds become ineffective in autumn, as, indeed, all plants do that have been in perfection during the hot summer months. For late or autumn bloom, cuttings may be struck in May or June in a shady place. For spring or early summer flowering—for it is not until May that Violas are in their full beauty—the cuttings should be inserted during the second week in August and planting done in October. An earlier display may be had by wintering the plants in frames and planting them out during March. Plants divided in October and then planted will afford a good early display.

Violas will withstand wet weather very well, better perhaps than any other bedding plants, and succeed in summer in high, cold situations, where more tender subjects present a starved appearance. Being moisture-loving plants, they are benefited by a top dressing of old manure or coconut fibre refuse in summer, and these materials should be removed as the soil gets moist in autumn.

To keep Violas in full bloom throughout the summer it is necessary to remove the seed pods regularly and to thin out the old stems occasionally so as to encourage young growth; given these attentions and an occasional watering with weak liquid manure, Violas will continue in bearing from early spring to late summer. *James A. Paice, Mill Hill.*

VEGETABLE GARDEN.

WINTER LETTUCES.

As the time for sowing winter Lettuces is near at hand the publication of the awards recently made at Wisley is very opportune.

The trials were most satisfactory as a whole; the winter was comparatively mild, and practically all the trials came to maturity, and as two long rows were planted of each variety the trial was sufficiently extensive to satisfy the most exacting.

The trueness of the strains submitted for test was highly satisfactory, and reflected the greatest credit on the firms by whom they were supplied. It was an agreeable surprise to find that the most successful varieties in the list of awards were the old standard sorts. Of those to which the F.C.C. was given the large form of the old Stansted Park variety was an easy first; in size, appearance and quality it could not be excelled. The adaptability of this Lettuce for universal culture is shown by the fact that it is the variety on which the growers in Southern France rely, and with which our markets are flooded in the early spring. White Madeira, another old favourite; Brittany Winter White, a popular French variety, and Veitch's Winter Giant, rightly received a similar award. All the foregoing are Cabbage varieties, and are only adapted for winter use.

Of the two Cabbage varieties to which an A.M. was awarded, the Hardy Green Hammersmith was quite a surprise, as this variety has been under a cloud for some years past. The colour (a very dark green) is not acceptable to everybody, but the samples tested were of excellent shape and substance and had passed through the rigours of the winter unscathed. The other variety was the well-known All-the-Year-Round, which, despite its rather pale colour is bound to keep to the front. Its reliability and constancy of character are evidenced by the fact that no fewer than six seed firms gained an award for their strains. Of these two varieties the Hammersmith is only adapted for winter use. All-the-Year-Round is good for any and every season.

The upright Cos varieties did not make very brave show; the conditions which prevailed when they were hearting up were not favourable to the production of that tempting but rather delicate appearance which the salad lover so much desires, and even the popular Lobjoit's failed to satisfy the Committee.

The three varieties to which an award was given do not call for much comment, except that for those who appreciate a small, solid, very hardy Lettuce either of the three—Density, Gem and Goldring's Bath (syn. Sugarloaf and Improved Compact Bath)—will fill the bill.

Of the six varieties that were highly commended Schofield's Hardy Winter was far and away the best: for colour, form, size and reliability it cannot be beaten. Early French Frame is valuable for intensive culture. Grand Admiral is a "fail me never" and Hercules (syn. Webb's Wonderful) qualified in perfect style as a winter variety. It is one of the best large, crisp Lettuces in commerce, succeeds well in any and every country, and is probably grown more largely than any other variety in the world. Trocadero (syn. Big Boston) was the greatest disappointment in the field, being relegated to the lowest place in the list. Samples were received from several different firms, but whether the conditions at Wisley were unsuitable, or from some other cause, it failed to satisfy the Committee although, judging by the extent to which it is grown in England, France and America, it must certainly be a very meritorious variety. *S. B. D.*

RUNNER BEANS.

THE dry summer has been very unsuited to Scarlet Runner Beans. In view of the importance of this crop, it would pay, where it has not been done, to soak the roots liberally. A method of training I saw practised a few years ago was to stop each plant and to train two shoots to tall, stout stakes, 15 ft. high, taking out the laterals as they developed, exactly as is done in the case of Tomatos. The pods were mostly 15 or 17 inches long. *T.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante, pp. 71-76.)
(*Continued from page* 134.)

MIDLAND COUNTIES.

OXFORDSHIRE.—The fruit crops are the worst I ever remember. With the exception of Pears, all trees and bushes had an abundance of blossom, but severe frosts in late April and throughout May completely destroyed the prospects for good crops. There was a fair number of Gooseberries, Currants and Raspberries, but the last were very small owing to drought. Strawberries suffered in the same way as last season, viz., severe drought when the berries were swelling. We only registered ¼ inch of rain during six weeks of early summer. Our soil is a light, thin loam on limestone brash. *Ben Campbell, The Gardens, Cornbury Park, Charlbury.*

——Apples are a fine crop, and very good and clean. Pears are the poorest crop for years. The Strawberry crop was very bountiful and good. Gooseberries, Raspberries and Currants were also satisfactory. Peaches and Nectarines are very scarce. During the 33 years I have been here I have had only one year without Apples; they do exceptionally well on this soil. The cold winds in April ruined the Plum crop and nearly did the same for the trees. We had blight in abundance. Our soil is a light loam on gravel and chalk. *J. A. Hall, The Gardens, Shiplake Court, Henley-on-Thames.*

——All fruit crops, with the exception of small fruits are much under the average, and the trees do not look so healthy as usual owing to continued cold in spring, followed by summer drought. American blight is very troublesome this year, also fly on Black Currants. Pears are the lightest crop I have ever known, which I consider is the result of the drought of 1921, when all buds made were fruit buds, and last year it was just the reverse, for Pear trees were almost without flower this spring. Strawberries have been a good crop, but the berries suffered through the fierce sunheat, and were rather on the small side. Both Peaches and Apricots suffered considerably from the cold spring, and leaf curl was very bad, a complaint that has not before been any trouble here in my time. Our soil is a heavy loam overlying stiff clay. *Victor Gammon, Eynsham Hall Gardens, Witney.*

STAFFORDSHIRE.—The present season is the worst for fruit that I have known for the past eight years. Insect pests are responsible for the bad Apple crop. Caterpillars have been numerous, but the trees are making very good growth now, which our strong retentive soil favours. Pears are very scarce, no doubt owing to last year's very heavy crop. Plums promised well, but the fruits dropped after setting. Plum trees were badly infected with aphis. Strawberries were late in ripening. *J. W. Miskin, Woodseat Gardens, Rocester.*

WARWICKSHIRE.—The fruit crops in general are a failure, after a splendid promise, especially Apples and Plums; but the cold spring, accompanied by aphis infestation, completed the disaster. During my forty-five years' experience I have never known this pest to be more troublesome than it has been this year, and in some cases it will take three years to get the trees back to normal conditions. The soil is sandy loam, with a sandstone subsoil. *N. W. Priaulx, Allesley Hall Gardens, Allesley, nr. Coventry.*

——No season within my recollection has been quite so disappointing with regard to Apples, Pears, Plums, and Cherries. These trees at flowering time were more than usually promising, but the weather subsequently was so bad that there is small wonder at our present poor prospects. Late frosts were frequent and severe, and for a period of ten weeks, until July 20, less than one inch of rain fell in our

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district, which seemed to be a local drought pocket. Mildew has been prevalent on Apple trees. Silver Leaf has appeared for the first time here on Prunus serotina flore-pleno. *Ben H. Martin, Moreton Paddox Gardens, Warwick.*

—This season's fruit crops are amongst the worst on record, principally owing to late frost on May 23, which was very destructive to Strawberry bloom and did considerable damage to Plums and Pears This frost, followed by very cold, high winds throughout June, and a very low rainfall—less than 0.40 inch in six weeks—caused large quantities of young fruit to drop. Blight is very prevalent, especially on Plums and Currants. Peaches and Nectarines are blistered very badly. The crops of Plums and Pears are almost failures. Apples, with few exceptions, are much under the average, and at present it is difficult to decide what the quality will be. Gooseberries were the most satisfactory crop. *H. F. Smale. Warwick Castle Gardens.*

ENGLAND, S.

BERKSHIRE.—In the early part of the season there was a splendid promise for a good fruit year, as all fruit trees had an abundance of blossom, which was, however, spoilt by drought, cold north-east winds, and frost. Apples and bush fruits alone are carrying average crops. *A. B. Wadds, Englefield Gardens, Reading.*

—The winter of 1923 was mild, and fruit buds began to open earlier than usual. On April 9 and 10, 7° and 5° of frost were registered: this was followed on the 11th, 12th and 15th by torrential rains and cold winds. A period of cold, sunless weather followed, and early in May another sharp frost of 10° was registered. The fruit crops are most disappointing, and in the case of Pears almost a failure. Strawberries, although slightly touched with frost, turned out well. Apples are cropping irregularly, certain varieties having withstood the climatic conditions better than others. *J. Minty, Oakley Court Gardens, Windsor.*

—With the exception of Pears, all fruit trees flowered well and set fruits, but late frost and a continued spell of very cold winds favoured the spread of insect pests, and although repeated sprayings were resorted to, the crops of all kinds of stone fruits were ruined, even Morello Cherries. Most varieties of Apples are a good average crop, but many of the trees are affected with blight. Strawberries have been a good crop; bush fruits also, with the exception of Black Currants, were satisfactory. Walnuts are a fair crop, but we have no Filberts. *J. Howard, Benham Park Gardens, Newbury.*

DORSETSHIRE.—The best cropped varieties of Apples are Irish Peach, James Grieve, Bramley's Seedling, Striped Beefing, Keswick Codling, Kingston Bountiful, and Wealthy. A lot of other sorts are a failure. Of Pears we have scarcely any, and Plums are almost as scarce. Gooseberries were a heavy crop, though the berries were on the small side. Currants of all sorts were good, and Strawberries have been very good. The extreme heat and drought spoiled the Raspberry crop. Our soil is chalky and light in texture. *Thos. Denny, The Down House Gardens, Blandford.*

—The Apple crop is on the whole fairly good, though the blossom on a number of trees did not expand, owing, I believe, to injury from heavy hailstorms. Pears are a failure. Plums are patchy; the trees are beginning to suffer from drought, and are dirty. Raspberries also were much affected owing to the absence of rain. Only 0.20 in. of rain fell in the past forty-five days, and that small amount is soon gone on our chalky soil. *W. E. Axford, St. Giles Gardens, Salisbury.*

HAMPSHIRE.—During May and June we experienced very little sunshine, and there were persistent very cold nights, with very keen, cold N. and N.E. winds. These conditions were particularly trying to Raspberries, Damson and Plum blossoms. Apples promise well. Strawberries were good and plentiful. Black Currants also were fine, and Red Currants very good. We had a wonderful crop of Gooseberries. *George Ellwood, Swanmore Park Gardens, Bishops Waltham.*

KENT.—The remarkable show of blossom on Apple, Plum and Cherry trees in and around this district encouraged the grower, but weather conditions frustrated these hopes; Plums and Apples suffered severely here and there, yet in the immediate neighbourhood the majority of these trees are heavily laden. Cherries were plentiful, but the foliage of most fruit trees in the open was dreadfully blighted, what with aphis and caterpillars, and things do not look very promising for another year. Soft fruits have been plentiful, but the sunless weather during June hampered their ripening, specially in the case of Strawberries; Raspberries, Red and Black Currants were on the small side. The soil varies considerably within a mile, from heavy to light and gravelly. *James Mayne, 32, Wigtown Road, Eltham, S.E.*

—Apples early in the season were an average crop in places, but the yield is now under, and if the dry weather continues there will be scarcely any. We have been very short of rain in this district. Pears are almost a complete failure. The cold weather of June affected the foliage of Peaches and Nectarines very much and checked the growth, so that the fruit cannot be expected to attain full size. Raspberries made a good show to begin with, but the dry weather shrivelled them up. *J. D. Colledge, Cobham Hall Gardens, Cobham*

—With the exception of Pears, which developed scarcely any bloom, there was great promise for excellent crops early in the season. Some Apple trees, chiefly old ones, have set an average crop, but young trees are very shy in bearing. Plums came into flower with a few warm days, but later experienced cold north-east winds, with the thermometer down to freezing point on several nights. Black Currants, Red Currants, Strawberries and Raspberries remained in flower over a longer period than usual owing to sunless days and cold nights, but they set remarkably good crops. Peaches, Nectarines and Apricots, although artificially pollinated, failed to set average crops. Caterpillars and Aphis have been very troublesome. The soil is a stiff, clayey mixture over a clay sub-soil. *H. E. Kemp, Holmewood Gardens, Tunbridge Wells.*

—The fruit crop generally reflects very markedly the absence of sun in 1922. Peaches, Nectarines and Apricots did not ripen their wood, and Pears produced practically no blossom. The Apple crop would probably have been large, but in many cases was ruined by an attack of caterpillar, followed by aphis infestation. Strawberries were probably the outstanding crop of the season. Nuts in most parts of the county are an entire failure, but it will be remembered that this follows two very heavy crops. *Edward A. Bunyard, The Bungalow, Allington.*

—Taking Apples as perhaps the most important fruit we grow, I am pleased to say that the prospect of a bumper crop seems well assured in this district. Some of the trees are tremendously cropped, so much so that there must be a big fall. Red aphis is very troublesome—consequently many of those remaining on the trees, with also an attack of scab, will be what we call "scrumps." Since writing the above I notice the leaves of Apple trees are dropping owing to black spots—under some of the trees the ground is literally covered with small fruits. Pears are a total failure, as also were Raspberries. Strawberries were not only a splendid crop, but of a large size and of splendid flavour. Other small fruits are good average crops, but owing to aphis will be somewhat dirty. *George Woodward, Barham Court, Maidstone.*

—Pears are almost a complete failure—resulting from an over-crop last year. The single exception is Pear Doyenné du Comice, which has a good crop on all the trees (pyramids). Our soil is on the heavy side and deep. *Charles E. Shea, The Elms, Foots Cray.*

(To be continued.)

HOME CORRESPONDENCE.

Is Poa annua a Perennial?—Prior to coming North, my answer to the above question would have been in the negative. After much observation of Poa annua in Lancashire, however, I am prepared to assert that here, at least, it is decidedly perennial in habit. I was induced to make careful observation of this plant (which is so often regarded as a pernicious weed) owing to seeing the greenkeepers pricking (transplanting) this grass into some crown-type bowling greens of which I have charge. Knowing the antipathy with which this plant is regarded by lawn specialists, and also its behaviour in other districts, I gave instructions that it was not to be used for this purpose, but, owing to lack of discrimination on the part of the green-keepers, it is still used with other species. Judging by the results that accrue, it is merely a case of "giving a dog a bad name," for not only is it prevalent in some of the best greens in this town, but close observation has proved to me that it constitutes a considerable proportion of the turf in many good greens which I have seen in neighbouring towns. Naturally, the best judges of what a good bowling green should be are the bowlers themselves. As I have often heard expert bowlers commend greens as being good ones, which I am aware are full of Poa annua, then I claim that it is not unworthy of cultivation, and that under the adverse atmospheric conditions of some towns it is quite desirable. Doubtless there are many who hold different opinions, and an expression of these would be welcome. *F. Baker, Parks Department, Wigan.*

Pollination of Cherries.—Will your correspondent *Enthusiast* kindly inform me where the variety of Cherry named Knight's Black, which he refers to on p. 120, can be obtained, and whether it is Knight's Early Black, Knight's Late Black, or a variety distinct from either of these? It is in regard to *Enthusiast's* statement that Early Rivers and Knight's Black pollinate one another successfully that I am particularly interested, for I have recently reported (*Journal of Pomology*, Vol. III., No. 2) that Early Rivers fails to form fruits when pollinated with Knight's Early Black. Since then I have repeated the cross and again failed to obtain a single fruit from this and from the reciprocal cross. From the account of the variety in *Trans. Hort. Soc.*, Vol. III., p. 211 (1820), Vol IV., p. 510 (1822), communicated by Thomas Andrew Knight, and from the description and figure in Lindley's *Pomologia Britannica*, Vol. II., p. 93 (1841), I believe the Knight's Early Black used by me to be correctly named. I have, however, recently obtained another individual under the name of Knight's Early Black which successfully pollinates Bedford Prolific; and since Early Rivers and Bedford Prolific are in the same incompatible group, it may presumably also prove an efficient polliniser for Early Rivers. This individual, however, is not true Knight's Early Black. Having short stalks, a salient character of Bohemian Black, it probably is that variety. In Cherries, varietal differences are frequently slight, and that considerable confusion exists regarding their nomenclature is widely recognised. To meet with two or more individuals under one varietal name is not uncommon, and for this reason I would like to obtain and introduce the Knight's Black referred to by *Enthusiast* into the experiments being carried out here. *M. B. Crane, John Innes Horticultural Institution.*

"Red Plant" in Strawberries.—Mr. Johns, in his letter published in your issue of the 1st inst., fails to prove that he at any time announced or showed evidence to prove that Aphelenchus fragariae was responsible for the production of "Red Plant" and "Cauliflower," and that, in fact, they were the same disease. This is the only aspect of the case which interests us, and further correspondence is unnecessary. *E. Ballard and G. F. Peren, Long Ashton, Bristol.*

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SOCIETIES.

ROYAL HORTICULTURAL.

SEPTEMBER 4.—Notwithstanding the inclement weather and the absence of so many people on holiday there was a capital exhibition at Westminster on the above date. The hall was well filled with exhibits, but not crowded, and the chief attractions were Dahlias, Montbretias, flowering shrubs, Carnations, Orchids, Violas, Gladioli, and late border and alpine flowers. The Floral Committee made no award for new plants, but made up for deficiencies in this respect by granting no fewer than thirty-two medals, which number suggests increased freedom and generosity rather than the curtailment of medal awards foreshadowed some time ago.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson (assistant secretary), Pantia Ralli, Frederick J. Hanbury, H. T. Pitt, Chas. H. Curtis, T. Armstrong, E. R. Ashton and Stuart H. Low.

AWARDS OF MERIT.

Laelio-Cattleya Mrs. Medo, Low's var. (*C. Venus* × *L.-C. luminosa*), from Messrs. STUART LOW AND CO., Jarvisbrook, Sussex. A beautiful hybrid and differing from the original form for which Messrs. Low received an Award of Merit at the last show at Holland Park. That form had the shape of C. Dowiana; in the present variety, which is the more beautiful, the lip is shaped like that of C. Iris in C. Venus. The showy flower has clear chrome-yellow sepals and petals, and claret-purple lip, with yellow markings at the sides of the middle section.

Brasso-Laelio-Cattleya Tucuman, Claygate Lodge var. (*C. Rhoda* × *B.-L.-C. Cooksonii*) from J. J. BOLTON, Esq., Claygate Lodge, Claygate (gr. Mr. S. Lyne). The spike bore two flowers of Cattleya shape, the C. Dowiana in B.-L.-C. Cooksonii setting the form and size, and the Laelia cinnabarina, in B.-L. Mrs. Gratrix, influencing the colour. The sepals and petals are gold colour with a slight bronze shade; the front of the broad crimped lip is reddish-purple, lighter at the margin and with gold lines from the base to the centre.

CULTURAL COMMENDATION.

To Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tunbridge Wells, for a very fine plant of Cattleya Iris magnifica with a spike of nine large flowers with bronzy-yellow sepals and petals, and showy claret-purple lip. The plant has been at Orchidhurst for fifteen years and frequently used for hybridising.

GROUPS.

A vote of thanks was passed to J. J. BOLTON, Esq., for a small but select exhibit, which included three very fine forms of Cattleya Hardyana alba with clear white sepals and petals and purple lip, also a splendid plant of the large-flowered Dendrobium formosum giganteum with twelve flowers.

Messrs. STUART LOW AND CO., Jarvisbrook, Sussex, were awarded a Silver Banksian Medal for a showy and interesting group in which the special features were the large and handsome Brasso-Laelio-Cattleya Truffautiana var. Elene (L.-C. luminosa × B.C. Mrs. J. Leemann), a companion plant to that for which they secured a First-Class Certificate at the last Chelsea show; the present variety has large lemon-yellow flowers tinged with mauve and a broad, rose-purple coloured lip; Sophro-Cattleya Sylvia Low's variety (S.-C. Doris × C. Hardyana), a Cattleya-like flower of clear chrome-yellow and a violet-purple lip; Sophro-Laelio Orpetiana, two very dissimilar forms of their Sophro-Laelio-Cattleya Argonaut, both pretty, the one of mauve and purple colour, and the other light claret-purple with a darker lip. Among species were Cattleya Loddigesii alba, Oncidium incurvum album, Angraecum articulatum with a long raceme of flowers; several Odontoglossum grande and various Cypripediums.

Messrs. ARMSTRONG AND BROWN, Orchidhurst, staged a selection of hybrids which included a fine form of their Laelio-Cattleya Golden Wren (C. iridescens × L.-C. Thyone), with good chrome-yellow flowers that have bright purple lips; the rare, white-lipped Coelogyne speciosa alba, which had previously secured an Award of Merit, the pretty little Trias disciflora with comparatively large flowers and purple spotted labellums; and the interesting Bulbophyllum barbigerum.

Floral Committee.

Present: Messrs. H. B. May (chairman), D. B. Crane, G. W. Leak, Gerald Loder, Chas. E. Pearson, G. Harrow, M. C. Allwood, W. Howe, C. R. Fielder, J. F. McLeod, H. J. Jones, W. B. Gingell, T. Hay, J. B. Riding, Thos. Stevenson, Amos Perry, Clarence Elliott, W. B. Cranfield, Reginald Cory, Sydney Morris, A. Turner, and W. G. Baker.

New plants and novelties were conspicuous by their absence, a few Gladioli and Chrysanthemums—a total of six subjects—were placed before the Floral Committee, but no award was made.

An interesting plant shown by Mr. G. G. WHITELEGG was Anagallis Monellii var. Willmoreana, of semi-trailing drooping habit and bearing numbers of rich blue flowers.

GROUPS.

No doubt in view of the National Dahlia Society's show on the morrow, Dahlias were an important feature of the floral exhibits. Messrs. CARTER PAGE AND CO. had a very large collection of excellent blooms (Silver-Gilt Flora Medal). Messrs. J. CHEAL AND SONS also showed typical blooms of the different sections (Silver Banksian Medal), and the CENTRAL GARDEN SUPPLIES CO. (Bronze Banksian Medal) also staged good blooms, but we reserve our comments on these collections for our report of the Dahlia show.

Messrs. SUTTON AND SONS again set up a large and imposing collection of the best commercial varieties of Montbretia. The large ornamental jars, containing liberal quantities of fine spikes, made a very charming display. The principal varieties were Queen Mary, large bright orange flowers with crimson markings; Una, delicate pale orange, with crimson reverse; Queen Charlotte, deep orange with paler zone; Henry VIII., a very large orange-coloured flower freely stained with red; and Lemon Queen (Silver-Gilt Banksian Medal).

On a table space Mr. S. MORRIS set up an interesting collection of new or recent varieties of Montbretias, and all of considerable merit. Copper King is a desirable flower of uncommon colouring, which may be described as dull crimson heavily shaded with copper; Jessie is a charming combination of crimson and golden yellow; Rosemary is a very round flower of orange-yellow shades; Joan of Arc is a very good yellow, and Queen of Spain is the best pale orange-yellow variety (Silver Flora Medal).

Besides the above collections, which were composed solely of Montbretias, this flower was associated with other hardy border flowers by various exhibitors.

Mr. AMOS PERRY showed such valuable plants as Pentstemon barbatus Torreyi, Physostegia virginiana, several showy species of Kniphofia, Lilium splendens of rich colouring, and a collection of herbaceous Phlox (Silver Banksian Medal).

Messrs. B. LADHAMS, LTD., also displayed a small collection of their useful varieties of perennial Lobelias, Phygelius capensis, flowering sprays of Rubus fruticosa, and heavily fruited branches of Blackberry Shirley Prolific (Silver Banksian Medal).

On a floor space Mr. H. J. JONES made an attractive display with a large collection of herbaceous Phlox and well-grown plants of Cocos Weddeliana. Chief varieties amongst the Phloxes were Marie S. Jacob, Mrs. M. van Hoboken, soft rosy mauve; Thor, of slightly deeper colour and with a pronounced carmine eye; Wm. Ramsey, royal purple; and Riverton Jewell, mauve with carmine eye (Silver-Gilt Flora Medal). Mr. M. PRICHARD contributed an interesting collection of border flowers, including Gladioli, Michaelmas Daisies, Gaillardias, Aconitum Fisheri and Campanula bononiense album, a comparatively slender, erect-growing species bearing white flowers (Silver Flora Medal).

Besides the rare Anagallis Monellii, var. Willmoreana, of beautiful blue colour, Mr. G. G. WHITELEGG showed some good Delphiniums, Tree Lupins, Erigeron hybridus roseum and other border flowers (Silver Flora Medal). Mr. T. CARLILE filled a long table space with such border flowers as Delphiniums, herbaceous Phlox, Kniphofias and Pentstemons (Silver Banksian Medal). Mr. W. WELLS, Junr., included several pots of the dwarf Nertera depressa bearing orange-coloured berries, and also showed Lupins and Scabious (Silver Banksian Medal).

The CHALK HILL NURSERY CO. staged some excellent pot plants of their Giant Mimulus, vases of Pentstemons, Gladiolus, a good strain of Antirrhinums, and many interesting little plants of Sempervivum species (Silver Banksian Medal). Mr. F. G. WOOD included beautiful flowers of Rudbeckia purpurea of a good form, Lobelia magnifica and several varieties of herbaceous Phlox (Bronze Flora Medal).

In the annexe Mr. F. GIFFORD arranged a valuable collection of Delphiniums in such varieties as Queen of the Belgians, Lord Curzon and Lavanda (Bronze Flora Medal). Mr. G. REUTHE displayed a collection of Liliums, Phitesia buxifolia, Campanula turbinata and its varieties in his exhibit of uncommon plants (Bronze Flora Medal). Messrs. RICH AND CO. showed Phloxes and hardy Crinums (Bronze Flora Medal). The CENTRAL GARDEN SUPPLIES CO. included Gladiolus and Roses in an exhibit (Bronze Banksian Medal). Mr. G. W. MILLER staged a collection of hardy flowers (Bronze Flora Medal).

Though of rather small size the Roses in the various collections were especially brightly coloured. Messrs. WHEATCROFT BROS., who are fresh exhibitors at these fortnightly meetings, set up a collection of Roses which bore intense colouring. Their principal sorts were Emma Wright, The Queen Alexandra Rose and Christine (Silver Banksian Medal). The Rev. J. H. PEMBERTON staged handsome stands of Mary Monro, Golden Emblem, K. of K., Ruth and Mermaid (Silver Flora Medal). Near the gallery Messrs. ALEX. DICKSON AND SONS showed excellent blooms of such Roses as Emma Wright, Betty Uprichard, Lady Inchiquin and K. of K. (Silver Banksian Medal). Messrs. D. PRIOR AND SONS included Alice Amos, Souv. de Georges Pernet and Madame Jules Gravereaux in their exhibit of Roses (Silver Banksian Medal).

Tall stands of Los Angeles, Ophelia, Golden Emblem, Mrs. Hy. Bowles and the fragrant Walter C. Clarke were well shown by Messrs. PAUL AND SON (Silver Flora Medal).

A large collection of Gladiolus was displayed by Messrs. KELWAY AND SON. Their outstanding varieties were Sword of Fire, Dorothy Kelway, Prince of Orange, Alderman, Duchess of Argyll and James Kelway Toms (Silver Flora Medal). Messrs. R. H. BATH LTD., staged Prince of Wales, Wilbrick, White Giant, Chris and Alice Tiplady in a good collection of Gladioli (Silver Flora Medal). MAJOR CHURCHER had well arranged vases of Alice Tiplady and Dorothy Wheeler (Bronze Flora Medal). Mr. A. EDWARDS showed Theela, J. A. Koen, Atlanta and Topsy in his collection of Gladioli (Silver Banksian Medal).

Many splendid pot plants of Streptocarpus hybrids were displayed amongst Adiantum Ferns by Messrs. R. and G. CUTHBERT. Many of them were under colour names. Besides these, Princess Mary, deep pink, and Baroness Inverforth, soft rose, were excellent (Silver Flora Medal). Carnations of great merit were shown by Mr. C. ENGELMANN (Bronze Flora Medal). Messrs. ALLWOOD BROS. (Bronze Flora Medal), who also had many vases of their useful Dianthus Allwoodii, and Messrs. STUART LOW AND CO. (Silver Banksian Medal). Mr. YANDALL had splendid Violas in boxes. Moseley Perfection, yellow, Edina, dark blue, W. H. Woodgate, pale blue, and J. V. Macdonald, white, are the names of only a few of the good sorts on view (Silver Banksian Medal).

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Fruit and Vegetable Committee.

Present: Messrs. J. CHEAL (in the chair), W. G. Lobjoit, Geo. F. Tinley, A. C. Smith, H. Prince, T. Pateman, W. Bates, W. H. Divers, E. A. Bunyard and A. N. Rawes.

Mr. W. G. LOBJOIT presented a dish of Apples Worcester Pearmain gathered from trees that had been top grafted on the variety Lady Sudeley, which in turn had been grafted on the Paradise stock, probably Rivers' Broad-leaved Paradise. Mr. Lobjoit considered that there was evidence in the fruits of the influence of Lady Sudeley, in the colouring, the shape, and also sometimes in the flesh, which occasionally is yellow. Mr. Bunyard considered that it was possible the re-grafting might have an influence on the early maturing of the fruits just as "ringing" might affect the ripening, and this also may be responsible for the streaky nature of the red tinge.

Mr. W. CAIRNS, Southill Park Gardens, Biggleswade, Bedford, showed a seedling Melon raised from Royal Jubilee crossed with Superlative. It is a handsome fruit of oval shape and yellow flesh, but the rind is thick and the specimen submitted was not considered to be perfectly finished, but would probably have been better in a fortnight's time. No award was made.

A new Blackberry and a late Raspberry were both recommended for trial at Wisley, where collections of these fruits are grown, and we understand the Raspberry is already growing in the Wisley collection.

Messrs. DANIEL BROS., Norwich, again exhibited their Black Currant September Black, and on this occasion showed a few dishes of Apples of such varieties as Lord Suffield, Stirling Castle, Herring's Pippin, Rev. W. Wilks, Warner's King, Bismarck, Charles Ross and Red Victoria.

CARDIFF GARDENERS.

THE annual outing of the members of the above Society took place on Monday, the 20th ult., when a visit was made to the King's Acre Nurseries, Hereford. The party was met at the station by Mr. Lovelock, the nurseries' representative, who pointed out many of the older objects of interest in the city. After lunch the party proceeded to the nurseries, where all were impressed by the welcome and also the high standard of cultivation.

The firm entertained the party to tea, and on arriving at Cardiff at 10.30 all agreed that not only had it been a day of enjoyment, but most instructive.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

AUGUST 23.—*Committee present:* A. Hanmer, Esq. (in the chair), Messrs. R. Ashworth, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, J. Cypher, A. G. Ellwood, J. Evans, J. Howes, A. Keeling, D. Losh Thorpe, D. McLeod, E. W. Thompson, J. Whitham, and H. Arthur (secretary).

FIRST-CLASS CERTIFICATES.

Cypripedium Daisy Barclay, Gratrix var., a very distinct variety of large size with very bright markings. From S. GRATRIX, Esq.

Cattleya triumphans var. Evansiae (*Rex* × *aurea*), a fine flower with sepals and petals of rich ochre-yellow, the lip being crimson with orange lines; *Laelio-Cattleya Dodona* (*L.-C. Haroldina* × *L.-C. Nelthorpe Beauclerc*), a shapely flower, the sepals and petals crimson-purple with lip of a richer shade and orange lines. From Mr. J. EVANS.

Brasso-Laelio-Cattleya Muriel var. Perfection, an enormous flower with sepals and petals of a deep rosy-mauve colour, the lip having a deep yellow throat. From Messrs. COWAN AND CO. A Silver Medal was also awarded for this plant.

AWARDS OF MERIT.

Laelio-Cattleya Zeno var. splendida; *L.-C. Latona var. Golden Dawn*; *Cattleya Abekeniae*; *Odontoglossum Felicity* (*Olympia* × *ardentissimum*), and *O. crispum var. Sunspot*. From S. GRATRIX, Esq.

Cattleya Diana var. Brilliant (*Sibyl* × *aurea*), from Messrs. COWAN AND CO.

GROUPS.

S. GRATRIX, Esq., West Point (gr. Mr. J. Howes), was awarded a Silver Medal for a group. Mrs. BRUCE and Miss WRIGLEY, Bury, (gr. Mr. A. Burns), staged a group to which a Silver Medal was awarded. Messrs. J. CYPHER AND SONS, Cheltenham, were also awarded a Silver Medal for a group.

READING AND DISTRICT GARDENERS.

BETWEEN forty and fifty members paid a visit to Sheffield Manor gardens by the kind permission of Mr. and Mrs. Liddell on the occasion of the last evening meeting of the summer session of this association. The party was met by Mr. V. O. Smith, the gardener, and commenced an inspection of the glasshouses. The first house contained a bright display of annuals in pots, including Statices, Phlox Drummondii, Lobelias, Verbenas, etc. In the next house visited was a collection of stove plants such as Caladiums, Dracaenas, etc. Carnations were a feature. In the centre of the range tuberous-rooted Begonias, Hydrangeas. Fuchsias and Campanulas were flowering profusely. Tomatos under glass were fruiting splendidly, whilst Fig trees were carrying a good, sound crop. Much interest was manifested in the vineries, magnificent bunches being noted. There were also fine batches of Gloire de Lorraine Begonias, Calanthes, Poinsettias and Chrysanthemums being prepared for autumn flowering. The outside fruit trees were in excellent condition, and the vegetable crops good, notwithstanding the unfavourable season. The herbaceous borders were a blaze of colour. The pleasure grounds were next visited, where the beautiful specimens of Cedars, Oaks and Rhododendrons excited admiration. The visitors were hospitably entertained by Mr. and Mrs. Liddell.

BANFF HORTICULTURAL.

THE Banffshire Horticultural Association continues right well, fulfilling its educative work throughout the area embraced by it, as was apparent by the wonderfully good display the members put up at their annual show in the county town, Banff, on August 15. The entries were good, and the attendance of the public was exceedingly large. Some well-grown specimens were forthcoming in the pot plants section, the leading honours going to Duff House (gr. Mr. J. A. Grigor), Eden House (gr. Mr. James McLennan), and Minmore House (gr. Mr. G. Troup). The dominating feature in the cut flowers section was the fine display of Sweet Peas. The Silver Cup offered for Sweet Peas was won by blooms from Dunlugas House gardens, the runner-up being Mr. Grigor. Apart from the cup-winning entry, mostly all the chief prizes for Sweet Peas were won by the last-named exhibitor. Other leading honours in the cut flower sections went to Minmore House, Eden House, Park House, and Beldorney. The fruit display was a small one, especially the Apple classes. The chief prizes were won by the owners of Fife House, Dunlugas, Fife Arms and Park House. The vegetable classes were well filled, and made up a wonderfully good show. In the class for a collection of vegetables, amid strong competition, leading place was taken by Duff House, while Minmore House, A. Craib, Banff; R. Cook, Banff; A. Chalmers, Tillynaught; and J. Munro, divided the other chief honours.

Exhibits by amateurs made a very satisfactory display, the leading prizes being won by Mr. JOHN MANN, Banff; Mr. A. SOUTER, Gordon Arms Hotel, Keith (winner of Silver Rose Bowl for Sweet Peas); Mrs. GORDON, St. Leonard's, Banff (for fruit); and Mr. JAMES INGLIS, Banff (for vegetables). Mr. JOHN MANN won the Silver Rose Bowl offered to the most successful competitor in the amateur classes. Some indication of the large attendance of the public may be gathered from the fact that Banff Post Office was sold out of entertainment stamps, there being, of course, side-shows, necessitating payment of the Entertainment Tax.

ANSWERS TO CORRESPONDENTS.

CAKE DUST: *Denmark.* Cake dust may have some manurial value, but its use would tend to increase the adhesiveness of heavy soil rather than lighten that medium. You do not state which kind of cake dust you refer to.

CARNATIONS: *Grower.* We do not understand your question. Do you refer to the maintenance of plants for an indefinite period, or the retention of flowers in a fresh condition for so long a period as possible?

COSTS OF GARDEN WORK: *G. H. H. W.* Information as to the average cost of garden work will be found in such publications as Newsham's *Horticultural Note Book*, Seabrook's *Modern Fruit Growing*, and Weather's *Commercial Gardening*, but we do not know of any book which deals solely with the subject. As no doubt you are well aware, the costs will vary considerably according to locality and the nature of the soil, so that any given figures can be only approximate and are liable to considerable variation. But, under average conditions, we believe the cost of bastard trenching would be roughly about 4s. 6d. per rod, and marking, cutting, and rolling turves 36 inches by 12 inches by 1½ inch about 3s. per 100.

FAILURE OF DOYENNE DU COMICE AND PITMASTON DUCHESS PEARS: *J. R. C.* The Pear buds are quite normal. The deformed condition of some of the leaves in early spring was probably due to the unkindly season, which also robbed you and most other gardeners of a crop. In the previous years the trees had hardly been established long enough to bear.

NAMES OF FRUIT: *S. B.* Specimens small, and in some cases malformed and not fully developed. They appear to be: 1, Margil; 2 and 5, Bramley's Seedling; 3, Bismarck; 4, Gladstone; 6, Sheep's Nose.

NAMES OF PLANTS: *M. M. O.* 1, Aralia Guilfoylei; 2, Phyllanthus nivosus; 3, Ophiopogon Jaburan; 4, Strobilanthes dyerianus; 5, Peperomia argyrea; 6, Calathea, sp. not recognised; 7, Pelargonium crispum; 8, Dracaena Godseffiana; 9, Phoenix reclinata; 10, Kentia belmoreana. *H. E. P.* Lactuca Bourgaei. *S. P. S.* 1, Mesembryanthemum blandum; 2, M. Brownii; 3, probably M. Ecklonis; Cassinia fulvida (Diplopappus chrysophyllus); 5, Atriplex Halimus; 6, Gazania splendens. *H. M.* 1, Viburnum rhytidophyllum; 2, Hypericum kalmianum; 3, Crataegus orientalis; 4, Clematis Viticella var.; 5, Prumnopitys elegans; 6, Clerodendron trichotomum; 7, send in flower; 8, Rhus Cotinus; 9, Neillia opulifolia. *Firs.* 1, Cupressus pisifera var. plumosa; 2, Thuya occidentalis; 3, T. dolabrata; 4, Cupressus Lawsoniana; 5, C. nootkatensis; 6, Pseudotsuga Douglasii; 7, Cupressus macrocarpa; 8, Pinus Banksiana.

NECTARINE LORD NAPIER: *S. J.* The apex of the fruits of this variety is very liable to turn brown, especially in very hot weather. Do not syringe the tree very early in bright weather or late in the day in dull weather. Afford temporary shade to the tree after the stoning period of the fruits is over and until they are ripe. Leave the front and top ventilation open a little at night. Red spider and thrips, especially the latter, often cause the fruits to turn brown unless checked in time. If you give the roots plenty of water and avoid the causes mentioned, you should have no further trouble with rusty fruits.

PEACHES WITH SPLIT STONES: *C. S.* The two Peaches had split stones, though this would not prevent the fruits from swelling when stoning was completed. In your case we do not think stoning was completed. The two chief causes of failure were the temperature of 70° to 80° from March onwards (55° to 70° is much safer and better), and gross growth. The tree should not produce such strong wood as you suggest it does. Instead of having to prune this gross wood, partially lift and root prune the tree in the autumn,

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cut back any very strong and gross roots growing downwards, laying the more fibrous roots nearer the surface, and use at least one-third of old lime rubble in the compost. Thoroughly water, shade and syringe the tree afterwards to prevent flagging.

SPRUCE SHOOTS UNHEALTHY. *A. Z.*—The specimen of Spruce sent for examination shows no indication of the tree having been attacked by the Pine weevil, but it was very badly infested with Spruce Aphis (Chermes abietis). This insect punctures the bases of the young leaves about the period of their early development. Eggs are deposited in the leaves, which immediately begin to swell, forming small cone-like galls on the young shoots. These galls are often called Pine-apple galls and are not only disfiguring but detrimental to the health of the trees. Small trees may be cleared of the pest by collecting and burning injured shoots, and larger isolated specimens may be improved in health by spraying with paraffin wash at intervals of 8 or 10 days during the early summer. The best time for spraying, however, is during May and early June. At that period it is possible to destroy many of the mother insects that have hibernated throughout the winter and are then becoming active.

STERILISATION OF SOIL TO KILL WEEDS: *E. G. L. W.* The wording of your question is not quite clear. Anything of a poisonous nature that would kill weed seeds in the soil would more readily kill living plants on the lawn. On the other hand, if you hoe the cultivated ground once a week during May and June there will be no weeds to kill except those of the first crop, which will die and wither on the soil, if the hoeing is done on a dry day. The next crop of weeds cannot appear till autumn, when rain is frequent; and in that case you might have to hoe and rake the weeds off the soil. If you put them in a heap they will ferment or heat and cause the seeds to germinate. Then turn the heap and bury all the weeds that germinate on the top. The seeds that germinate inside the heap as the result of heating will be killed. Some gardeners apply newly slaked lime to hasten the process, but it wastes the fertilising properties of the weeds to some extent. This method of destroying weed seeds is better than applying poisons.

TOMATO FRUITS DISEASED: *A. S. R. and Co.* The black patches on the Tomato fruits are evidences of the presence of Cladosporium scabies. All diseased fruits should be removed and the plants sprayed at intervals with sulphide of potassium. The colouring of the fruits was poor, and suggests that there is need for an addition of potash to the soil.

TREES SHRIVELLED: *H. N.* Without inspecting the trees, it is quite impossible to decide what caused them to shrivel and die. Lightning does, of course, damage trees on occasion, but usually some evidence of its effects is shown by the splitting of the trunk. You do not say whether there is any obvious damage other than the shrivelling, and possibly you must look to some other cause than lightning for the effects set out in your letter.

VINE AND FIG LEAVES DISCOLOURED: *J. K.* An examination of the discoloured leaves proved that neither fungus nor bacterium was present, therefore we can only conclude that the injury is something in the nature of scorching.

VINE LEAVES: *H. W.* There was no fungous disease present on the Vine leaves you sent: the trouble is probably due to scorching, which is brought about by the action of strong sunlight upon the tender foliage while it was wet with condensed moisture. Ventilate the house more freely, and especially early in the morning to drv up moisture before the sun's rays are powerful.

Communications Received.—C. B.—Dr. P.—Mrs. F. N.—Stafford.—A. J. S.—B. and S.—W. A. P.—North Devon.—J. S.—T. M.—E. E.

MARKETS.

COVENT GARDEN, Tuesday, September 4, 1923.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz.	10 0	18 0
—elegans	10 0	12 0
Aralia Sieboldii	10 0	12 0
Araucarias	30 0	48 0
Asparagus plumosus	12 0	15 0
—Sprengeri	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Cacti, per tray, 12's, 15's	5 0	7 0
Chrysanthemums —white, doz.	15 0	18 0
—pink " "	12 0	15 0
—bronze " "	15 0	18 0
Crotons, per doz.	30 0	42 0
Cyrtomium	10 0	15 0
Heather white	15 0	18 0
" " 60's	6 0	8 0
Hydrangeas —paniculata, ea.	3 6	4 6
white & pink, doz.	15 0	24 0
Lilium longiflorum, each	2 6	3 6
—speciosum album, each	3 6	4 0
—speciosum, rubrum, each	3 0	3 6
Marguerites, per doz.	15 0	18 0
Nephrolepis, in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	24 0	30 0
—60's	15 0	18 0
—Cocos	24 0	36 0
Pteris, in variety	12 0	21 0
—large 60's	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's	3 6	4 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum decorum, doz. bun.	12 0	15 0
—cuneatum, per doz. bun.	8 0	10 0
Asparagus plumosus, per bun.		
long trails, 6's	4 0	5 0
med. sprays	2 6	3 6
short "	1 0	1 6
—Sprengeri, per bun.		
long sprays	2 6	3 0
med. "	1 3	1 6
short "	0 9	1 0
Asters, per doz. bunches —white	6 0	9 0
—coloured	5 0	8 0
Carnations per doz. blooms	3 0	4 6
Chrysanthemum, per doz blooms —white, "	3 6	8 0
—yellow "	5 0	7 0
—bronze "	2 6	5 0
—pink "	4 0	6 0
spray per doz. bun.	15 0	30 0
Croton leaves, var., per bun.	2 6	4 0
Gardenias, 12's, per box	6 0	8 0
18's, per box		6 0
Gladiolus, The Bride, per doz. bun.	12 0	15 0
Fern, French per doz. bun.	1 0	1 3
Forget-me-not per doz. bun.	4 0	6 0
Heather, white per doz. bun.	9 0	12 0
Lilium longiflorum long per doz.	5 0	6 0
short " "	5 0	6 0
Lily of the Valley, per doz. bun.	24 0	36 0
Orchids, per doz. —Cattleyas	18 0	30 0
—Cypripediums		
Pelargonium, per doz. bunch, double scarlet—		6 6
Physalis per doz. bun.	21 0	24 0
Roses, per doz. blooms— —Melody	1 6	3 6
—Ophelia	2 0	4 0
Smilax, per doz. trails	5 0	6 0
Stephanotis, per 72 pips	3 0	4 0
Stock, per doz. bun. mauve	9 0	—
—white per doz. bun	12 0	18 0
Sweet Sultan, white, per doz. bun.	4 0	6 0
—mauve, per doz. bun.	4 0	6 0
—yellow, per doz. bun.	5 0	6 0
Violas, per doz bun.	1 6	2 0

CUT FLOWERS.

REMARKS.—There has been a general shortening of supplies of cut blooms during the past few days, which is quite exceptional for the latter part of August and the early days of September. All grades are advancing in price, this being most noticeable amongst Carnations, the general supplies of these flowers at the present time being poor in quality, although they are soon cleared. Roses are also less plentiful, but these are arriving in a better condition, the weather being cooler and suited to their development. Lilium longiflorum is holding firm in price, and is excellent in quality just now. The quantities of Chrysanthemums are gradually increasing, but supplies are not sufficient for present requirements; disbudded blooms now include Sanctity, Duchess white; Mercedes and Hollycot (yellow). Some good bronze and pink Chrysanthemum blooms are now on sale. Spray varieties consist of Horace Martin, Verona and Betty Spark. A few bunches of Roi des Blancs were on sale this morning; this sort will be a good selling line on account of the poor quality of white Asters and the shortage of other small white blooms. Giant-flowered Gladioli from home growers are much shorter, but supplies continue fairly good from Holland. Sweet Sultan, Montebretias and double Gypsophila have been greatly reduced in numbers during the last few days. Statices are still offered in fair quantities. Physalis is arriving in first-class condition and is moderate in price; there is also a good supply of Dahlia blooms

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples— Worcester Pearmain, best ½ bus.	4 6	7 0
2nd "	2 6	4 0
Miller's Seedling, best ½ bus.	4 6	7 0
2nd "	2 6	4 0
Sudeleys, ½ bus.	3 0	4 0
Quarrenden, ½ bushel	3 6	5 0
Tyrolean Golden Remitter, case	0 0	18 0
Summer King, case	0 0	18 0
English— —Lord Derby, bushel	5 0	6 0
—Lord Suffield	5 0	7 0
—Grenadier bus.	5 0	7 0
Bananas singles	16 0	25 0
—doubles	20 0	22 6
Figs, doz.	4 0	12 0
Grapes— —Alicante	1 3	2 6
—Belgian	1 3	1 6
—Cannon Hall	3 0	6 0
—Hamburgh	1 3	3 0
—EnglishMuscat	2 0	6 0
Grape Fruit— —South Africa	18 0	20 0
—Jamaica	30 0	35 0
Lemons— —Murcia, case	16 0	22 0
—Messina, case	14 0	16 0
—Naples	20 0	24 0
Melons, English and Guernsey, each	1 6	5 0
—Cantaloupe ea.	8 0	10 0
—Nectarine, doz. Special	12 0	18 0
Best	6 0	9 0
Nuts— —Cobs	0 9	1 0
Oranges— —South African Navels	16 0	22 0
—Seedling	16 0	22 0
Peaches— —English, doz. Special	12 0	21 0
B st	6 0	9 0
Pears— —French, boxes Williams' crates	10 0	12 0
Pines, crate	15 0	35 0
Plums— —English Victorias	10 0	18 0
—Monarch	15 0	16 0
—Pond's Seedling	12 0	14 0
—Bush	6 0	8
—Continental	3 0	5

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Beans, outdoor— —Scarlets, ½ sieve	6 0	7 6
—French Beans	0 7	0 9
Beets— —New, doz. bun.	3 0	4 0
Cabbage, doz.	2 6	3 0
Cauliflower, doz.	5 0	6 0
Cucumber, f at	10 0	16 0
Lettuce, dozen— —Round	1 3	2 0
—Cos	2 0	4 0
Maize, dozen	4 0	6 0
Marrows, doz.	3 0	4 0
Mushrooms— —Forced, lb.	1 6	2 9
—Field	0 6	1 0
Onions, Valencian, case	9 0	10 0
Peas, bushel	9 0	10 0
Potatos, cwt.	4 6	7 6
Radishes, doz.	1 0	1 6
New Turnips, doz. bunches	3 0	5 0
Tomatos— —English Pink	6 6	7 0
—Pink and White	7 0	7 6
—White	5 0	6 0
—Blue	5 0	6 0
—Guernsey	6 0	7 0
—Dutch	5 0	6 0

REMARKS.—Conditions of trade have been steady, and a fair volume of business has been transacted. English Apples sold well until last week-end, when large quantities of windfalls were forced on the market, the clearing of which brought about a restricted demand, and lower prices for best grades. At the time of writing the tendency is better, and higher prices are being realised. English Plums are not plentiful, and their prices are comparatively high, although there are fairly large quantities of this fruit being imported from the Continent. A sprinkling of Pears coming to hand are selling freely. The Tomato trade is firmer, the dull weather checking supplies. Cucumbers are not inquired for and are quoted lower. Forced Mushrooms are easier, outdoor Mushrooms being more plentiful. Choice fruits, such as Grapes, Peaches, Nectarines, Figs and Melons show little variation in values. A few Cobnuts are being marketed. Green vegetables are in moderate demand. Runner Beans are scarce and realising high prices.

GARDENING APPOINTMENTS.

Mr. John Nibbs, for the past four and a half years Gardener and Bailiff to V. L. OLIVER, Esq., Whitmore Lodge, Sunninghill, Ascot, Berkshire, and previously at The Croft, Henley-on-Thames, as Gardener and Bailiff to K. K. CARSON, Esq., Frimhurst, Frimley Green, Surrey. (Thanks for 2/- for R.G.O.F. Box.—EDS.)

Mr. A. F. Brazener, previously Gardener to Mrs. HASLER, at Newnton House, near Tetbury, Gloucestershire, as Gardener to Major H. C. ALLFREY, at the same address.

SCHEDULE RECEIVED.

Metropolitan Borough of Bermondsey.—Exhibition of Fruit, Flowers and Vegetables, to be held in Bermondsey Town Hall, Spa Road, on Thursday, Friday and Saturday, September 13, 14 and 15.—Secretary, Mr. G. Catchpole, Town Hall, Spa Road, Bermondsey, S.E.16.

CATALOGUES RECEIVED.

BARR AND SONS, 11, King Street, Covent Garden, W.C.2.—Bulbs; Flag Irises; Daffodils.

KING'S ACRE NURSERIES, LTD., Hereford.—Roses.

D. PRIOR AND SON, LTD., Colchester.—Roses, trees and shrubs, etc.

DOBBIE AND CO., LTD., Edinburgh.—Bulbs, Roses, Sweet Peas, etc.

WOOD AND INGRAM, Huntingdon.—Trees, Shrubs, Roses, Fruits, etc.

McHATTIE AND CO., Chester.—Bulbs, Roses, Fruit trees, etc.

D. G. PURDIE, Glasgow.—Bulb and nursery stock.

MORLE AND CO., LTD., 150, Finchley Road, N.W.—Bulbs, flower roots, etc.

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THE

Gardeners' Chronicle

No. 1916.—*SATURDAY. SEPT.* 15, 1923.

CONTENTS.

Afforestation area, new	154	Gardeners' wages	160
Allotment holders to aid a London hospital	154	Indoor plants—	
Alpine garden, the—		Insectivorous plants	160
Delnanthe coerulea	157	Lachenalias	160
Erodium corsicum	157	Obituary—	
Potentilla alpestris	157	Wm. Douglas	165
Anderson, Mr. R.	154	Paeony in America, the	154
Bean, the Runner	163	Pelargonium Rollison's Unique	163
Books, notices of—		Plums, local	161
Botanical Magazine	153	Rose garden, the—	
The Flora and Folk-lore of Shakespeare	158	Rose Pax	159
Bulb garden, the—		Rose show, autumn	154
Planting hardy Bulbs	157	Societies—	
Bulbs, British or Dutch	163	Glasgow International Show	164
Clover, Bokhara	163	National Dahlia	163
Florists' flowers—		Royal Oxford Horticultural	165
New Dahlias	155	Trees and shrubs—	
New Gladioli	155	A fine example of the Maidenhair tree	159
Fruit crops, remarks on the condition of the	162	Prunus puddum	159
Fruit garden, the market	161	Romneya Coulteri	159
"Gardeners' Chronicle" seventy-five years ago	155	Watt, Sir George	153
Indian correspondence—		Week's work, the	156

ILLUSTRATIONS.

Anderson, Mr. Robert, portrait of 154
Dahlias: Mrs. Perry 163; Thos. Ewbank 155
Darlingtonia californica 160
Ginkgo biloba, a fine specimen of 159
Heliamphora nutans 161
Potentilla alpestris 157
Romneya Coulteri, a fine clump of 158

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 56.2°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, September 12, 10 a.m.: Bar., 30.0; temp., 65°. Weather—Sunny.

Fruit-Drying. As is well known, fruit-drying on a commercial scale is as rare in this country as it is common in the United States of America. There, Prunes, Raisins, Apricots, Apples, Pears, Peaches, Blackberries, Loganberries and Raspberries are the chief fruits which are dried. In California, sun-drying is practised and varieties of Peach and Plum specially suitable for drying are grown; but in the other parts of the United States where fruit-drying is practised, artificial heat is used. The production of dried fruit in California is considerable. According to the information published by the United States Department of Agriculture,* the annual production of dried Prunes in the United States amounts to 400,000,000 pounds, and of the quantity one-half consists of sun-dried Californian fruit. Sun-dried Raisins produced in California amount to about 200,000 tons per annum. In other States of the Union, fruit-drying, which is practised on a considerable scale, is carried out by artificial heat, the chief fruits used in the industry being Prunes and Apples. It is of special interest to note that fruit evaporation in America is, as opposed to canning, a small industry carried out by fruit growers and used by them as a stabiliser, or safety-valve. By means of this side industry, surplus fruit in years of high yield is taken off the market and the price of fresh fruit is in some measure maintained. Needless to say, anything which helps to give the grower a fair price when Nature has been kind to him in giving him a good harvest deserves the fullest encouragement. That American fruit growers are fully alive to the importance of utilising this subsidiary means of making fruit-growing profitable is shown by the fact that dried fruit is produced on a quarter of a million farms in the United States. It would be interesting to know the reasons why fruit-drying has not been adopted widely in this country. Some of the reasons are patent. The humid climate evidently increases the cost of drying. The varieties of fruit grown in this country do not appear to be well suited for drying. This applies particularly to Prunes. The "Prune" of America is any variety of Plum which, when dried with its stone, does not go bad. Most Plums, when dried without the removal of the stone, ferment and are therefore useless. Certain varieties of Prunus domestica alone possess the Prune property of keeping after drying in their skins and with their stones. In America the varieties of Prune which dry best are the Italian and the Agen, better known as the French or Petite. Many trials have been made with Prune-drying in this country, but we are not aware that they have been successful. Whether this is due to the use of unsuitable varieties, the adverse climatic conditions experienced in these Islands, or to the failure to apply suitable methods to the drying of Plums, we do not know. It would be interesting to learn the experience on this subject which has been accumulated at the Camden Fruit Preserving Factory. In the United States, it is found necessary as a preliminary to the successful drying of Prunes to render the skins of the fruit more permeable to water than they are in their natural state. This is done by plunging the fruit for a few seconds into a boiling solution of caustic soda or caustic potash. The strength of the solution is varied according to the variety of Prune: for those with the most resistant skins one pound of soda to ten pounds of water, and for varieties with less resistant skins, one pound to twenty-five or thirty gallons. Another method which has been, apparently, in large measure replaced by the soda method, consists in passing the fruit before drying over needle points in order to puncture it with many fine holes. This method, however, is open to the objection that the needle points are apt to break off and stick in the Prunes. After dipping to soften the skins, the Prunes are washed and dried until the fruit is springy and pliable. In the course of drying, the fruit loses about sixty-six per cent. of water, so that three pounds of fresh Prunes give about one pound of dried fruit. Before packing, the Prunes are softened by dipping either in a solution of common salt, one pound to twenty gallons of water, in glycerine, one pound in twenty gallons of water, or in a solution containing one pound of glycerine, one pound of salt to thirty gallons of water. By this means the fruit becomes bright and glossy. In applying it, care has to be taken to leave the fruit in the solution only long enough for it to become pliable, and it is found that it is best to use a hot solution and to dip only for a short time. There can be but little doubt that if a suitable means could be devised of drying the Plums, e.g., Pershore, which are grown commercially in this country, a considerable gain might accrue to Plum growers in years of large Plum harvests; but the proposition is a difficult one because Pershore Plums do not appear to lend themselves readily to drying, and because the Plum harvest is so capricious that in some seasons the drying plant would be idle owing to scarcity of fruit unless it could be switched on to the drying of Apples or other vegetable produce.

* "Evaporation of Fruits." By Joseph S. Caldwell. U.S. Department of Agriculture *Bulletin* No. 114. Washington, D.C., May, 1923.

National Rose Society.—At the recent meeting of the Council of the National Rose Society the exhibition dates for 1924 were fixed provisionally as follow:—Spring Show, April 11; Summer Show at Regent's Park, June 27; Autumn Show, September 11 and 12. The question of a provincial show in the midland or northern counties was left for further consideration. The Society's dinner in celebration of the increase of membership to over ten thousand this year will be held at the Hotel Metropole on Thursday, September 20, on the same day as the Autumn Show.

Sad Death of a Flower Show Adjudicator.—The body of Mr. J. Charlton, of Felling-on-Tyne, was found in a pond near Jarrow on the 10th inst. Mr. Charlton had officiated as a judge at a flower show on the previous Saturday, and apparently fell in the pond in the darkness after leaving the exhibition.

Sir George Watt.—Sir George Watt, C.S.I., so well-known for his work in connection with Indian and other botany, recently celebrated his golden wedding and received many congratulations on the occasion, to which we add our own and those of our readers. Sir George Watt is still keenly interested in his life work, and cultivates a choice collection of alpine and other plants in his beautiful garden at Chinsura, Lockerbie, Dumfries.

"**Botanical Magazine.**"—The *Botanical Magazine*, published on August 13, contains illustrations and descriptions of the following ten plants: Hemerocallis nana, tab. 8968, is one of several dwarf species of Hemerocallis, which Mr. George Forest discovered in the mountains of north-west Yunnan. The flowers are solitary or paired, 6-7 cm. long, and coloured deep orange. The plant is hardy in the milder parts of the country, but the flowers are very fugitive, lasting only a day or two, so that the species is not likely to be of great value for gardens; Picea brachytyla, tab. 8969. Apparently several names have been given to this Conifer, including ajanensis, Alcockiana, complanata, ascendens and Sargentiana, and Abies brachytyla, which was given by Franchet, who first described the plant in 1899. Dr. Stapf states that having examined practically all the dried material quoted by the authors of the names given, he comes to the conclusion that there is no combination of characters that might be used to discriminate between them, and of single characters apparently only one to sort them by, namely, the shape of the cone-scales. There is a fine specimen of this Picea in Mr. G. W. E. Loder's garden at Wakehurst, Ardingly, Sussex. It is said to have very handsome foliage, the bright green of the backs of the needles contrasting very pleasantly with the glaucous white of the reversed faces. Clethra Delavayi, tab. 8970, a new Chinese plant, is a charming subject for the shrubbery, where it gets slight shelter from other subjects. It has broadly lanceolate foliage, the leaves being rich green above, whilst the under surface is very pale or almost grey; the young foliage has a down formed of minute star-shaped hairs. The flowers are developed in one-sided racemes and have white or faintly crimson coloured corollas. The beauty of the plant is enhanced by the segments of the calyx turning deep rose or red after the petals have dropped. Echinocereus Baileyi, tab. 8971, is a handsome flowered Cactus, having a tufted, cylindrical stem, and bearing on the upper part large, funnel-shaped flowers of a beautiful carmine-rose colour. The species is a native of North

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America. Carmichaelia australis, tab. 8972, is, like other members of the family, leafless or almost leafless, but develops a very large number of small, flattish branches, bearing flowers arranged in short three to six flowered racemes, which spring from the axils of the scale leaves. The blossoms are very pretty, being white striped with violet on the standard. The plant was in cultivation in this country so long since as 1825, and grows at Kew out-of-doors in the shelter of the walls of the Temperate House, where it flowers in June and July. Rhododendron sinogrande, tab. 8973. This plant was illustrated and described in *Gard. Chron.*, June 3, 1922. The illustration was reproduced from a photograph taken by Mr. A. J. Creek, Trengwainton Gardens, Heamoor, Cornwall, where the plant flowered last year, producing five flower buds and ninety-eight fully developed flowers. Gentiana rigescens, tab. 8974. In a description of this plant published in *Gard. Chron.*, January 3, 1914, p. 15, it is stated to be a sturdy grower of a bushy habit with persistent stems and foliage. The flowers are of violet-pink colour. The plant is very floriferous and late blooming; it is a native of West Yunnan. Haemanthus Lynesii, tab. 8975. This very brilliantly flowered bulbous plant was discovered by Admiral Lynes, in the Darfur region on the western side of the Lake Chad-Nile divide. Admiral Lynes gave some of the bulbs to the late Mr. Elwes, who flowered the plant in the latter half of July, 1922. The plant needs to be grown in a stove house under conditions similar to those that suit H. multiflorus. The almost globose umbel of flowers carries over fifty blooms, the attractive part of which are the brilliantly scarlet filaments, each some 2-3 cm. long. Wattakaka sinensis, tab. 8976. This plant is a member of the Asclepiadaceae, and forms a climbing or pendulous shrub up to three metres high. It was flowered by the Hon. Vicary Gibbs in his garden at Aldenham House last summer, and raised from seed collected by Mr. E. H. Wilson, about fifteen years ago. The flowers are very much like those of the Hoya, and are developed in a pendulous umbel. The segments of the corolla are fleshy and white, or faintly creamy, with coral or claret-red dots partly running into blotches and streaks. The plant at Aldenham is growing on a wall facing south, and so far has never suffered injury from frost. Echium coeleste, tab. 8977. This very showy plant has beautiful sky-blue flowers, produced in a long, erect-growing panicle. It is a native of the Canary Islands, where several other species are found, but E. coeleste is said to be probably the most beautiful of them all. The plant would need indoor cultivation in this country, except in such favourable localities as Cornwall.

New Afforestation Area.—The Forestry Commission has acquired about 1,800 acres on the Kerry Hills, in Montgomeryshire, for the purpose of afforestation. The district supplied much timber during the war, the soil and situation being naturally suited for its production, and especially the growing of Conifer timber. It is intended to proceed with the clearing of the ground at the earliest possible moment, in order to find work for unemployed labour. In other directions it is hoped that the scheme will create a demand for labour, such as in the multiplying of small holdings in the district as nurseries of labour for the forests in winter, while the maintenance of the forest will also mean the permanent employment of a considerable body of men. Eventually saw-milling and a box and basket-making industry may be established in the neighbourhood. The acquisitions of the Forestry Commission up to date are approximately 171,000 acres of land in Great Britain, of which 114,000 acres are reported to be land that can be planted. Of this area about half is distributed throughout England and Wales, and the remainder throughout Scotland. The amount of work before the Forestry Commission in dealing with the land already acquired is very considerable, as up to the present not more than 27,000 acres have been planted.

Mr. Robert Anderson. — Widely known throughout the horticultural world as Superintendent of the Phœnix Park, Dublin, Mr. Robert Anderson's retirement from that important and onerous post, after nearly twenty-four years' service, now notified, comes somewhat in the nature of a surprise, as he is in the prime of his activities. He is a born gardener in the fullest sense of the term, and his father, and grandfathers on both sides of the family, were in their day noted Scotch gardeners. His early training took place under his father at Newstead Abbey, Nottinghamshire, where he spent four years, leaving to enter the propagating department of Messrs. Dickson's nursery, Edinburgh, from there passing on to Castle Wemyss gardens under the late Mr. Henderson. After two years at Castle Wemyss and a year at Cally Park, Kirkcudbrightshire, Mr. Anderson was appointed to the post of foreman under the late Mr. Jas. Smith at the Earl of Rosebery's gardens, Mentmore, Buckinghamshire, a position he filled for two years. Then followed a period at Dalkeith Palace gardens, under the late Mr. Malcolm Dunn, and, eventually,

MR. R. ANDERSON.

after being engaged as foreman in Lord Sackville's gardens, Knole Park, Kent, he was there promoted as head gardener. Mr. Anderson next became gardener and estate manager to the Hon. Harris Temple, Waterstown, Athlone, Westmeath, a position which ended fifteen years after with that gentleman's death. In the year 1900 he received the appointment under the Public Board of Works (Ireland) from which he now retires. Both as Superintendent of the noble Phœnix Park generally, and the People's Gardens in particular, Mr. Anderson has had ample scope for his cultured taste and abilities, and the happy experience of carrying out various alterations suggested by him. Notably has this been evident in extensive and tastefully expressed schemes of shrubbery planting outside the gardens in proximity to the city entrance, with both ornamental and forestry planting farther afield. Within the Park's circumference of seven miles, embracing 1,760 acres, with all its amenities to control, including the extensive gardens and grounds attached to the various official residences; with twenty-eight miles of magnificent roads, for which Mr. Anderson has been directly—or as horticultural adviser to the Board, indirectly—responsible; the Inchicore North, and Long Meadows estates, the Royal Hospital, Kilmainham; and grounds connected with other government buildings, his post, as remarked, has indeed been an onerous one. Nevertheless, it is his work in the People's Gardens which has brought him and kept him most in the critical public eye. These gardens in their admirable setting and pleasing natural variety, always interesting, have afforded the opportunity for creating those remarkable floral displays in spring and summer which interested visitors have considered as second to none in Europe. Mr. Anderson's many friends will wish him, with Mrs. Anderson, continued health and all happiness in quiet retirement.

Autumn Rose Show.—The National Rose Society's autumn Rose show will be again held this year in the Royal Horticultural Hall, Vincent Square, Westminster, on Thursday and Friday, the 20th and 21st inst.

Allotment Holders to Aid a London Hospital.—Under the auspices of the Borough of Hornsey Allotments Association, a Gift Day will be held by Highgate allotment holders and local residents, in aid of the Royal Northern Hospital, on Saturday, 15th instant at 3 p.m., at "Oakleigh, View Road, Highgate, by kind permission of Mr. Percy Mitchell, J.P. Gifts may be sent to this address or to the Hon. Secretary, Mr. A. H. W. Blackburn, 105, North Road, Highgate. Mr. G. B. Mower White, F.R.C.S., Emeritus Surgeon, will receive gifts on behalf of the hospital.

End of Summer Time.—Readers are reminded that summer time ends to-morrow, Sunday, September 16, at 3 a.m. (summer time), when the clocks should be put back to 2 a.m. Whilst a few people consider that the operation of the Daylight Saving Act is a disadvantage, the majority will be sorry when "summer time" ends, especially those who are fond of out-door sports and hobbies, of which gardening may be reckoned one of the most popular, particularly since the war. Summer has seemed all too short, and now that another period of fine weather has set in, it seems a pity that the extra hour of evening daylight will be taken suddenly from us. The difference now that the days are shortening is very appreciable, and some think that to reduce summer time by a quarter of an hour each week for a month would be preferable, in order that the change from summer to autumn might not seem so pronounced.

The Paeony in America.—The Paeony is one of the favourite flowers of growers in the United States of America, probably because it succeeds so well in that country and has a value, not only from a garden point of view, but also for floral decorations indoors. The American Paeony Society has a membership of six hundred and eighteen, and, judging by an illustration in the *Bulletin of Paeony News*, this year's exhibition in the Hippodrome of the Minnesota State fair grounds was one of the largest held in connection with any special flower. The building in which the exhibition took place has a floor space of 290 feet by 110 feet, and, beside the blooms displayed in the exhibition proper, there was a background of evergreens and booths filled with Paeonies, the *Bulletin* stating that the exhibition proved a sight long to be remembered. The *Bulletin*, which is published by the Society, is somewhat on the lines of our Rose, Sweet Pea, and Carnation Annuals, and deals with all kinds of matter pertaining to the Paeony. In an article by Mr. Bertrand H. Farron "Some noteworthy varieties of Paeonies of the present day," he states that ever since the American Paeony Society was organised an effort has been made to agree on what are the best hundred varieties, without success, but he gives a list of what he considers the first ten, which are Therese, Le Cygne, Kelway's Glorious, Philippe Rivoire, Solange, Walter Faxon, Mons. Martin Cahuzac, Enchanteresse, Karl Rosenfield, and Richard Carvel. It is interesting that most of these varieties are not of American raising, although Mr. Farr states that there are certain varieties of American raising with which they can be matched. As to outstanding varieties, by which he interprets those varieties most discussed and written about, he gives Jubilee, Mrs. Edward Harding, Kelway's Queen, and Miss Salway.

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Research Station, Long Ashton, Bristol.—On Wednesday, the 26th inst., the fruit plantations of the Station will be open to visitors from 11 a.m. to 4 p.m. The experimental work in progress will be explained by members of the staff, and in addition some of the most recent types of spraying machines and cultivators will be shown in working order by representatives of leading firms. Demonstrations of tree stump blasting will take place at 12.45 p.m. and 2.30 p.m. At intervals during the day members of the staff of the horticultural division of the Ministry of Agriculture and Fisheries will demonstrate methods of packing and grading Apples, and the new Cutler grader will be on view. An exhibition of some of the newer varieties of Apples is being arranged. The Minister of Agriculture, Lt.-Col. Sir Robert Arthur Sanders, Bart., J.P., M.P., has intimated his intention of visiting the Station on this occasion, and it is hoped that there will be a representative attendance of agriculturists and horticulturists of the West of England to meet him.

Map of Wart Disease Infected Areas.—The Ministry of Agriculture has issued a map showing the principal districts which are scheduled as infected areas under the Wart Disease of Potatos Order of 1923. This map will be of particular value to dealers in Potatos, since the movement of Potatos from the infected areas to other districts is prohibited except as regards Potatos of immune varieties for ware purposes. A list of the areas is appended to the map, copies of which may be obtained from the Offices of the Ministry, at 10, Whitehall Place, London, S.W.1, price 6d., post free.

Appointments for the Ensuing Week.—Monday, September 17: National Chrysanthemum Society's Floral Committee meets. Tuesday, September 18: Royal Horticultural Society's Committees meet; Winchester Horticultural Society's meeting. Wednesday, September 19: Morley and District Paxton Society's meeting. Thursday, September 20: National Rose Society's autumn show at R.H.S. Hall (2 days): Manchester and North of England Orchid Society's meeting. Friday, September 21: Eastbourne Horticultural Society's meeting. Saturday, September 22: Paisley Florists' Society's show; Walkerburn Flower Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Cockroaches.* About six weeks ago our Orchid house was infested with cockroaches to such a degree, that sometimes, in the course of one night, large plants were denuded of their roots, and to kill these pests the following scheme was had recourse to. Three pennyworth of arsenic was mixed with half a pound of melted tallow, and in this a quantity of small birch twigs were dipped five or six times, till they became coated. These were then stuck among the plants, and made to hang down in the way that Orchid roots do. The cockroaches, taking the tallowed twigs for roots, ate their fill, and death was the consequence. So effectually has this answered, that now there is not a cockroach, nor the effects of one to be seen, and the plants are again making beautiful roots. I took great care not to let any of the poison touch the plants, experience having taught me that, if any poisonous substance is brought in contact with the tender parts of a plant, those plants die. A good sized Potato, with its centre cut out, is a first-rate trap for them, and answers at the same time as a trap for small shell-snails, earwigs, and woodlice. It should be placed with the hollow side downwards, so as to form a sort of hiding place. I convinced one of the young men here of the utility of having a few of these simple traps in an Orchid house, by showing him one evening, two large brown snails and a cockroach making a comfortable meal off an Ash-leaved Kidney, and yesterday morning I showed the same person fourteen woodlice in one Potato. *John A. Watson, Exotic Nursery, King's Road, Chelsea. Gard. Chron., September* 9, 1848.

FLORISTS' FLOWERS.

NEW GLADIOLI.

It is always interesting to grow a few new plants each year, even if the anticipation is greater than the realisation. It is not to be expected that all new varieties of Gladiolus will turn out "top notchers," but this year results have not been so good—at least, in my case—as in some previous years.

The first variety to attract my attention was Ivorine, an Australian-raised flower, sent to me last year too late to report on. In colouring it resembles Incontestable, but the growth is taller and perhaps the flower is slightly larger.

Then came Scarlet Treasure, an American variety of Primulinus type. It is a bold flower, and makes a striking picture massed in a bowl.

FIG. 55.—NEW DAHLIA THOS. EWBANK (SEE P. 163).

Juno was next on the list, with rich orange flowers, but the fault, this year at least, is that it is dwarf. Then came Excelsior, a five-footer, with flowers reminding one of those of Mrs. Frank Pendleton. Another Primulinus hybrid, Yellow Treasure, is an attractive yellow with a well-frilled spike. This has the appearance of a good grower and multiplier.

Of the new Kunderd introductions, up to the present (August 25) I am not so favourably impressed. Of the eight large-flowered varieties I have seen, Lycello, Treasure, and Orange Glow appealed to me most. Of the new Primulinus varieties of the same raiser, Pansy will stand out as the premier flower.

Of the older varieties which have maintained their reputation mention may be made of J. E. Shaylor, Mary Pickford, Byron L. Smith, Mrs. Dr. Norton, Scarlet princeps, Red Fire, Fire Ribbon, and Black Pansy.

Of the smaller growers it would not be fair to overlook Gold, and there is another variety, Scarlet Wonder, which produces the largest flower I know. The individual blooms are as large as, if not larger than, those of White Giant; it produces in most cases two spikes from each corm, is a gross grower in every respect, and should prove a good border plant, not being too tall.

Having mentioned Gold reminds me that Golden Measure is also in bloom, and I can judge the rival merits of the two for the first time. I think the former will gradually oust the latter. It is a much neater-growing plant, and the flowers are of good quality, both as regards size and colour. Golden Dream, unfortunately, is not yet in bloom, so I have been unable to compare this with Gold so far. Last year Golden Dream varied somewhat in depth of colour, a characteristic which it did not appear to possess the previous year.

Have any of your readers grown Orange Glory? This is the most uncertain variety I know, but, owing to its colour, one cannot decide to discard it. The first year I grew it, it produced such beautiful spikes that I increased my stock of it, only to find out the vagaries of the plant, for it did not bloom during the next two years; then last year it consented to send up a few spikes, but so late that they did not fully develop. This year I planted about forty corms, but up to the present I have failed to discover more than one flower spike. *Smilax.*

NEW DAHLIAS.

In the present issue we publish illustrations of two new Dahlias (see Figs. 55, 61), both of which have been recommended for trial in the R.H.S. gardens at Wisley; for descriptions of these Dahlias we refer our readers to the report of the National Dahlia Society's show on page 163. We take the opportunity to remind Dahlia lovers that the novelties recommended for trial last year are in flower in the R.H.S. Gardens at Wisley, where they may be inspected.

B

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Masdevallia.—The present season is most suitable for overhauling the stronger growing varieties, potting those that require it, making the compost firm, and surfacing others that are in a sound state. The compost should consist of good fibrous peat, A1 fibre, and Sphagnum-moss in equal parts, with sufficient fine broken crocks to render the whole open and porous. Ordinary flowerpots are suitable for such as can be accommodated in reasonable sized pots; but larger specimens are best grown in deep pans, or half pots, as they are sometimes called Whatever receptacles are used, the drainage should be perfect, as the plants require an abundance of water when in full growth. Certain kinds of Masdevallia are stronger rooters than others, and the former may be given slightly more pot room than those of a less robust constitution. Whenever a plant shows signs of decay in the centre, it should be broken up, and the decayed portions removed. The outer parts that are sound and vigorous may be re-made into a specimen, or potted up separately according to requirements.

Re-making Specimen Plants.—In re-forming a specimen, make quite sure there is some new material between each section of the plant, as it is placed together. By placing the pieces together in this way, it is then possible for the plant to develop in every direction. Plants that are in a thoroughly sound state, with good centres, will be benefited by shifting them into larger pots, being careful to disentangle the roots, and remove all sour and decomposed material. It is better in all cases to err on the side of using pots or pans of an undersize rather than place them in large receptacles. No Orchid succeeds if its roots are in a constantly wet condition, and these plants especially suffer during the winter if the compost remains in a wet state for any considerable length of time. If any of the stronger growers have made a very large number of roots, and are not afforded new rooting material, there is a danger of the plants presenting a sickly, unhealthy appearance before another season comes round, and it is always much easier to keep a healthy plant in condition than to bring an unhealthy one back to good health. These remarks apply to all the large, strong-growing Masdevallias, such as M. Harryana, M. Veitchii, and many others, which comprise a family that was at one time appreciated, perhaps more than any other class of Orchids, for their distinct and desirable colours. They grow best in the warmest part of the cool or Odontoglossum house, in a position close to the roof-glass, where they may be shaded from strong sunshine. Although they enjoy plenty of light, they are not capable of withstanding the strong rays or the heat of the sun, as they require a cool, humid atmosphere the whole year round.

HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Grading of Fruit.—Growers in private establishments are perhaps not so concerned with the grading of fruit as those in the trade; but it may not be thought too early to deal with the matter. The grading of fruit is a very important and necessary work. Even for home consumption, small and scabby fruits should not be mixed with sound ones. The contact of diseased fruits in store is often responsible for considerable losses over extended periods. Fruits of clean and even size should be kept together. These may be stored in their varieties and sections, each section having being labelled on a card, which may be dropped or slid in a metal holder. Damaged fruits should be kept by themselves for immediate use. It is advisable to burn all small fruits that are badly attacked with scab.

Woolly Aphis.—Frequent attention is necessary to keep this pest in check, the increase of which is likely to go unnoticed, where the foliage is thick. Painting with methylated spirit is an effective remedy on the older wood. If the outer woolly covering is forced aside by hosing or hard syringing with water, an insecticide will kill the pests. Otherwise, this covering is practically a sure protection against any spray.

Watering.—Trees, especially on walls, must not be allowed to suffer from want of moisture, or the fruit will not swell properly. At this time of year one is apt to think that the roots are sufficiently moist after one good rain, but where a tree is bearing abundant foliage, it is surprising the amount of water carried to the outer diameter of the tree, leaving the roots nearer the trunk almost dry. The absorption of moisture by a wall in a hot position is also considerable. The unsuspected dryness of soil at the footings of the wall is often the cause of failures of wall fruits.

Stone Fruits.—Plums and other stone fruits are ripening, and those on wall trees should be protected from birds and wasps.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Annuals in Pots.—Seeds of annuals intended for spring flowering should be sown about the middle of the present month. They should be sown in pans or boxes according to the quantity required, standing the seed pans in cold frames, where they should be kept shaded until germination takes place. The seed should be sown thinly, and the seedlings should be pricked off before they become crowded. They are best transplanted into pans or boxes until they are large enough for transference singly into small pots, while some of the slender growing kinds may be grown three or four in a receptacle. To flower annuals successfully in pots they should be grown under perfectly cool and airy conditions at all times. In the immediate neighbourhood of London, through lack of sunshine and the frequency of fogs, it is very difficult to grow annuals succesfully, and at Kew we defer sowing until early in the New Year. The most useful annuals for this purpose are Clarkias, Godetias, Schizanthus, Mignonette, Nemesias and Antirrhinums, the intermediate varieties being best for this purpose. Collensia bicolor is also very pretty, also the tall branching Larkspurs. Scabiosa atropurpurea, of which there are many varieties, is very pretty and useful grown in this way.

Schizostylis coccinea Crimson Flag.—This beautiful plant, although more or less hardy in front of warm walls in the south and west, is very suited for the decoration of the cool greenhouse during autumn and early winter; for this purpose strong clumps may be lifted at this time and placed in six-inch pots. It is a useful subject for providing a supply of cut flowers. In Devonshire the plant is hardy in the open, a large bed providing ample supplies of cut flowers, a framework being erected to support a canvas covering, which is put over at night to protect the flowers from frost.

Bravoa geminiflora.—This pretty bulbous plant is a native of Mexico, and although more or less hardy in the south in sheltered positions at the foot of warm walls, is worthy of more general cultivation in pots in the colder parts of the country. It grows quite well in any good potting compost; and four bulbs may be placed in a 48-sized pot. It only requires the shelter of a cold frame until such time as it comes into flower. The bulbs may usually be purchased during the autumn or winter, and should be potted early in the New Year.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Hoeing.—Constant attention should be given to this work whenever the ground is dry enough, for at no season of the year do weeds grow faster than they do now, and to leave them to grow large means greatly increased labour and trouble later. Systematic hoeing between all growing crops will greatly help them to finish in a better condition. Where crops, such as Onions, Carrots, Beet, and Parsnips, are becoming matured and reaching full size, care should be taken not to damage them when hoeing between the rows. Keep down all weeds between growing plots of Broccoli, Savoys, etc., and draw a little soil up to the stems to help to support them.

Potatos.—Continue to lift Potatos as they become ready, which can be ascertained by the foliage becoming yellow and the tops dropping over. Dig a few roots, and, if the skin is firm on the tubers, they are ready for lifting. There is nothing gained by leaving them in the ground a day longer than is necessary. Lay the tubers on the floor of an open shed for a few days to allow them to dry before storing them, and turn them over on one or two occasions. Remove the tops as soon as all the tubers are harvested; any of the latter showing signs of disease should be taken away and burnt, and the ground roughly raked over and left in a tidy condition. Tubers required for seed purposes should be selected and laid on shallow trays to thoroughly ripen. The very smallest tubers and any damaged ones should be thrown out and used as pig food.

Radishes.—Seed of Radishes may still be sown in small batches if desired—either outside or in a skeleton frame where the plants may be well watered and protected from birds with old fish-net. Since the introduction of so many quickly maturing varieties, it has become less necessary to sow the winter varieties, such as Black Spanish or China Rose, but, if these are desired, they may be sown now in a sheltered position and treated as advised above.

Spinach.—Make a sowing of Spinach on a warm border to withstand the winter. Thin the young plants when they are large enough to handle, and dust them with old soot. Perpetual Spinach is a useful substitute, and the leaves should be kept picked regularly to ensure a fresh supply.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Ripe Grapes.—Where the greater number of bunches in any of the houses have been used, the remainder should be cut and stored in the Grape-room, or in a fairly dark room where sufficient warmth can be maintained to dispel the damp. The bunches should be cut with a good length of wood attached, and the end placed in bottles containing water; ordinary wine bottles are excellent for this purpose, and care must be taken to prevent the berries rubbing against the bottles. Examine the bunches occasionally, and remove any berries that show the least signs of decay; if this is neglected, the bunch will soon become disfigured and spoilt. When all the bunches of Grapes have been cleared, the vines may be syringed thoroughly to cleanse the foliage. The amount of air admitted may be increased gradually until full ventilation is afforded. The borders should be given a good soaking with water, if it is found necessary to do so.

Figs.—Fig trees in pots should be removed out-of-doors as soon as they are cleared of their fruits, to favour maturation and ripening of the growths which are intended to produce fruits next year. Any that are in small pots and need further root-room may be transferred to larger receptacles forthwith. The plants will soon make new roots if the work is done while the leaves are still hanging. With frequent applications of stimulating manures it is sur-

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prising how well and how long Fig trees continue to be fruitful in small pots. In potting or top-dressing Fig trees, lime rubble and bone-meal should be included in the compost. After the foliage has ripened and fallen the trees should be cleansed thoroughly of all insect pests preparatory to their removal—should severe weather occur early in the autumn—either to a suitable shed, or the Fig house, which should first be cleansed ready to receive the trees. Permanent trees should be rested as much as possible by affording them plenty of air both by day and night. All unnecessary growths should be removed in order that the air and sun may have free access to the growths. Where the trees are trained near roof-glass, it is advisable to allow the shoots to remain untied, unless the tips touch the glass, in which case they should be partially tied down to prevent injury by frost. By leaving the growths near the roof-glass they receive the full benefits of light and air, which are so necessary in the ripening process. Trees carrying a second crop should not be overcropped, otherwise the effect will be detrimental to the prospects of a good crop in the following season. So long as growth continues and the foliage remains healthy the roots should receive an adequate supply of water. After fruit-bearing ceases the amount of stimulants afforded should be gradually lessened, and feeding discontinued entirely when the leaves commence to change colour and ripen.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Colchicum autumnale.—With a view to having them in flower in autumn, bulbs of this pretty subject should be planted now, and a piece of grass-land is as good as any place in which to arrange a few simple groups. The kind of soil is practically immaterial. C. speciosum is a tall and large-flowered species, and well suited to a front place in the herbaceous border.

Two Late Clematis.—Clematis flammula and C. Viticella rubra bloom from about the third week in August well into September, and are particularly valuable at a time when Rambler Roses are over and most annual climbers past their best. Both those mentioned are small-flowered compared with the big Jackmanii type, now so well known; nevertheless, the flowers are freely produced on established plants, and a pillar or portion of a wall covered with them is an estimable addition to a flower garden at this season. The blooms of C. flammula are fragrant.

Celsia cretica.—This plant has flowered well with us, a few odd flowers still being apparent, in the open spaces of a shrubbery. In its early stages the leafy root-tufts much resemble Foxgloves in appearance, and the cultural requirements of the latter also suit the Celsia. Seedlings are easily obtained, and the best way to secure them—or at least as simple a way as any—is to allow a few plants to ripen their seed and disperse it where the plants have flowered, transplanting the seedlings later elsewhere, if desired. Celsia cretica is sometimes grown as a pot-plant for the cool house, but it is quite hardy and thoroughly suited to outside treatment; pre-eminently so in my experience.

Annuals.—It is a good plan to make an autumn sowing of a few of the strongest and most useful annuals, as, so treated, they flower considerably earlier than spring-sown seedlings. An ideal place to raise and winter the plants is on a warm, well-drained border consisting of light soil. The seed can be sown broadcast, or, as I prefer, in drills, and the seedlings left throughout the winter, transplanting them in spring to where they are to flower. The plants may be sown at this season in their permanent places, but few gardens will have such sites cleared yet. An alternative place for sowing in the case of cold soils is unheated frames filled with suitable soil. The lights should be kept off the frames except in the most inclement weather, for the plants should be grown as hardily as possible.

THE ALPINE GARDEN.

DEINANTHE COERULEA.

THIS somewhat uncommon plant, allied to the Saxifrages, is a subject well worth a place in a moist, but well-drained, corner where it will not get too much sun. Its broad-lobed, deeply divided leaves bear no little resemblance to those of a tuberous-rooted Begonia in their reddish colour and fleshy crispness, and they are fringed with a row of almost spiny hairs. The leaves attain a height of 8 inches or so, and the flowers form a loose cluster of remarkable beauty. The individual blooms are about one inch across, and the five rounded petals of a cool slaty-blue of most appealing loveliness, are centred with a ring of closely-set stamens of the same unusual tint. D. coerulea is not a difficult plant to cultivate in a free vegetable soil, and it is one of those which, once grown, are always grown. *A. T. J.*

FIG. 56.—POTENTILLA ALPESTRIS.

POTENTILLA ALPESTRIS.

THIS Potentilla (see Fig. 56) is one of a group of small-growing plants especially suited for the rock garden. It is very variable in habit, due to its wide distribution over the whole of Europe, and the many different situations in which it is found. P. alpestris is a low, tufted plant with woody stems, and tufts of leaves composed of five leaflets, having deeply serrated margins. The yellow flowers are produced on procumbent stems four inches to six inches long in the early summer. It is an easily grown plant, doing well in almost any situation in the rock garden, but it prefers a sunny place in well-drained, loamy soil. Propagation is effected by means of seeds sown in spring, or division of the old plants, either in autumn or early spring. A form with smaller leaves and flowers is P. a. var. baldensis, and there are others that are more straggling in habit. Suitable companions of the above, and belonging to the same genus, are P. aurea, P. nevadensis, and P. verna, all of dwarf habit and bearing yellow flowers. *W. I.*

ERODIUM CORSICUM.

THE soft, round, hoary foliage and delicately rose-coloured flowers of this plant are most showy, and it is admirably adapted for the rock garden, particularly in dry, sunny situations in a sandy soil. *W. Logan.*

THE BULB GARDEN.

PLANTING HARDY BULBS.

THE bulb season has returned, and with it the usual catalogues with their tempting offers of choice varieties of Narcissi, Tulips, Hyacinths, Crocuses, and many other scarcely less attractive subjects.

The purchasing of bulbs is frequently delayed, to the disappointment of the purchaser. The bulbs that ripen first come earliest to the market, and are usually of better quality than those that ripen later. Further, deterioration in store, although not rapid in the earlier part of the season, is, nevertheless, a factor, and it increases as the season advances. The growth which actually takes place in Crocus, Hyacinth, and Tulip bulbs while they are in the store affords sufficient proof that the store-room is not the place for them to pass the autumn in, however well they may have passed the time there in the later summer months since they were harvested. The best advice that can be given to those who would have a creditable display of bulbous flowers next spring is to buy early and plant early.

Hardy, spring-flowering bulbs are amongst the cheapest of garden plants; they produce a floral display of surpassing splendour if cultivated with reasonable skill, and the planter may indulge in the greatest variety without incurring an extravagant outlay.

Where geometric arrangements of beds are to be planted with bulbs, a few sorts will be preferable to many, but in borders a wider range of varieties may be employed. The choice of varieties is largely a matter of individual taste, but for a small formal garden a combination of yellow and scarlet flowers produces a brilliant effect.

One of the greatest recommendations of early bulbs for furnishing the formal garden is that their growth is completed before the season of summer bedding, and by the end of May the bulbs are so far ripe or ripening that lifting does not seriously harm them.

Apart from bedding schemes carried out with flowering bulbs, every garden offers great scope for the use of these plants in a variety of ways. Planted in quantity and variety in grass and in the more open spaces fringing the shrubbery, they are beautiful and attractive and a source of much pleasure. *W. Auton.*

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SHAKESPEARE'S PLANTS.

THIS recent addition* to the literature dealing with Elizabethan plant-lore, by Mr. Frederick G. Savage, of Stratford-upon-Avon, follows the same lines as the late Canon Ellacombe's well-known book, *The Plant-lore and Garden-craft of Shakespeare.* Though it deals with each plant in a separate chapter, alphabetical sequence has not been followed; but an excellent index is appended, which includes both the botanical names and the natural orders. The book is based upon 155 articles which appeared in the Stratford-upon-Avon *Herald* from 1909-16; and is illustrated by twelve interesting half-tones of scenes of local interest. It is evident that the author is a keen lover of Nature, and though he has woven into his book much that has but little direct bearing upon his subject, it is nevertheless very pleasant reading. His preface states that his notes have been collected "over the best part of half a century."

Although all direct reference to the authorship-controversy has been rightly excluded, the author is without doubt an ardent "Stratfordian," and cannot wholly disguise his personal convictions. Thus, on p. 77 we read: "Sir Francis Bacon, who, we freely admit, was possessed of a mighty philosophic intellect, ... "; followed on the next page by a somewhat prejudiced condemnation of the *Sylva Sylvarum.* Again, with reference to the lines:

> I know a bank whereon the wild thyme blows,
> Where oxlips and the nodding violet grows;
> Quite over-canopied with luscious woodbine,
> With sweet musk-roses, and with eglantine.

he chooses "the sequestered, gently-sloping bank of the Wilmcote Downs" as the place of inspiration. Might not the same be held of hundreds of other places in England? On p. 377, regarding some lines in *The Two Gentlemen of Verona,* he says, "I cannot help thinking that it pictures the river [Avon] by which he spent many thoughtful schoolboy hours"; though he admits "Shakespeare is the most difficult of all poets to localise"; and, one might add, the easiest to spend imaginative conjectures upon.

The number of plants mentioned by Shakespeare is about 150; yet between 2,000-3,000 were known to the herbalists of his time. His references to plants were necessarily tempered to the then average man's knowledge; and although they are always those of a highly-trained and acute observer, they cannot be taken as an indication of the number of plants known to him. Plants were to him some of the (often) most insignificant details in the great drama of human life that engaged his attention throughout the Plays; and were used as accessories or similes only as the occasion arose. If we find no mention of the Snowdrop, Foxglove, Cornflower, Lily-of-the-Valley, or other plants well known in his days, it is simply because either such plants failed to find a natural place in his story, or would have failed to make an immediate appeal to his audiences. Therefore, those who restrict a garden to the cultivation of the plants mentioned by Shakespeare, in the belief that they are including the plants commonly found in Elizabethan gardens, are greatly mistaken.

The compilation of a book of the kind at present under consideration naturally takes the form of a series of short chapters dealing individually with each plant; these forming, as it were, a series of pegs on which to hang a collection of apt quotations from old authors, interwoven with critical and informative notes. This the author has endeavoured to give; and, supplemented as it is by a wealth of miscellaneous information, the result is a very readable book. In a few cases, however, the information as to the dates of the introductions of some of the plants may be challenged, as, for instance, 1530 as the "earliest English notice of the cultivated Lettuce." Apart from the fact that it is found in the Anglo-Saxon herbals as "Lactuce," it appears in Alexander Neckam's *De naturis rerum,* written before 1217, as "Lettuce," to be grown in gardens; and in Ion Gardener's *The Feate of Gardening,* c. 1440, as "Letows." In the case of the Potato (mentioned only once by Shakespeare, in a play published in 1602), the old supposition, now held to be untenable, that they were "first brought into England by Sir John Hawkins in the year 1563," is quoted. Perhaps the most interesting point about introductions is a reference to L. W. Dillwyn's *Hortus Collinsonianus,* 1843, p. 60, as to the origin of the name Greengage. The full quotation is as follows: "I was on a visit to Sir William Gage, at Hengrave, near Bury; he was then near 70; he told me that he first brought over, from France, the *Grosse reine Claude,* and introduced it into England, and in compliment to him the Plum was called the Green Gage; this was about the year 1725. P. Collinson." As the Greengage was named "Reine Claude de Bavay" during the reign of Francis the First (1494-1547), in honour of his Queen, Claude de Bavay, it is difficult to believe that it did not find its way to England before the date implied by Peter Collinson. It would be interesting to know whether anyone has succeeded in identifying the "Reine Claude de Bavay" with any of the Plums mentioned by Elizabethan writers, either in print or MS. The Greengage is not mentioned by Shakespeare.

Among the many notes of horticultural interest, the following is well in keeping with the general tone of the book: "Horticulturists might with advantage take a lesson from some of our old-time cottage and farmhouse gardens, where flowers planted carelessly and without foresight as to colour blending yet produce a perfect artistic effect, impossible in the regular mathematical arrangement so noticeable in many places to-day." It is pleasant also to read of the quiet philanthropy of the unknown gentleman who every year sends hundreds of boxes of Sweet Violets, gathered by children, to blind institutions; but what will be said of the local chemist who practically exterminated the Henbane around Stratford-upon-Avon, so diligent was his search for materials to make hyoscyamine?

Whilst not wishing by carping criticisms to detract anything implied as to the freshness and interest of this book, it must be pointed out that it contains many minor errors, chiefly in the capitalisation of some of the specific names. Other points one would be glad to see corrected in a second edition are as follows:—p. 31, the story of Linnaeus falling on his knees before a Gorse bush in flower is now held by authorities to be a myth; p. 87, the story credited to Linnaeus of the doctor dying from his own prescription of Aconite leaves, after a patient had refused to take the medicine, is of doubtful authenticity, and in Dr. B. Daydon Jackson's opinion originated from an account published by Linnaeus's father-in-law, Dr. Johann Moraeus, of a fatal case of Aconite poisoning, where the plant was not taken on medical advice, but eaten by mistake as a salad; p. 318, The best portrait of Gerard is that in the 1597 edition of the *Herball,* which was badly copied on a smaller scale for the engraved title-page of the 1633 [36] edition; p. 407, *Bartholomaeus de Proprietatibus rerum* was not printed (!) in 1398, but only translated into English by John Trevisa at that date.

S. S.

FIG. 57.—ROMNEYA COULTERI AT THE BEECHES, HENLEY-ON-THAMES. (SEE PAGE 159.)

* *The Flora and Folklore of Shakespeare.* By F. G. Savage. E. J. Burrow and Co., Ltd., Cheltenham and London. 1923. 420 pp. Price 7s. 6d. nett

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THE ROSE GARDEN.

ROSE PAX.

Though this Rose has been growing here for three or four years, it is only this summer that it has decidedly impressed me as an acquisition for the garden. Perhaps it was the sudden heat wave we experienced in early July that revealed to me its merits as a decorative Rose. It was then that one became aware of its delicate but diffusive perfume.

This Rose was introduced in 1918 by the Rev. J. H. Pemberton, and being the year of the armistice it was a happy thought of his to christen it Pax. He has been the means of bringing out in recent years several varieties of a new type of garden Rose, the Perpetual Hybrid Musk; and Pax would seem to be his most successful introduction so far in this line, Moonlight, perhaps, taking second place, though I must confess I write with limited experience.

One of the distinguishing features of this class of Rose lies in its scent, which is derived from one of its wild parents, Rosa moschata, the White Musk Rose of the Himalayas. It is quite distinct from the familiar Damask or Tea scent, and disappointing to those unaware of its delicate nature.

It is not, as a rule, revealed to any extent by sniffing the flower, as the Musk and Tea odours are. In fact, I fancy the judgment of the majority on first smelling blooms of Pax would be to declare them as only faintly scented. But on a warm, still summer's evening, by taking a seat in the vicinity of this Rose or by sitting in a room with a bowl of it, one becomes conscious of its pervading odour. It is a scent difficult to describe. To the writer it is neither sweet nor aromatic—a subtle something which pleases and is never overpowering. Mr. Pemberton has referred to it as "a delicate and refined perfume, suggestive of Heather and Lime blossom." Perhaps some noses are more sensitive to it than others, and it may be that one's sense of smell has to become used to it to appreciate it. As Pax has often been mentioned as very fragrant, to prevent disappointment it is well for those who are not yet familar with this variety to know that its fragrance is of this elusive nature and may at times be not at all in evidence.

Though Pax is described as a pure white Rose this statement needs some qualification. The flower has not the snowy whiteness of, say, that of Frau Karl Druschki. It is rather of a milky whiteness and cream coloured before fully expanded. Its pale yellow bud makes quite a pleasing buttonhole for a dark coat. Though often referred to as semi-single, it usually has sufficient petals to merit the term semi-double. These are fairly stout in texture. The bloom when fully out reveals a fine ring of yellow stamens, surrounding a claret-coloured boss of stigmas. The variety is truly perpetual in character and rarely without flowers during the summer and autumn. These are borne in clusters with the individual flowers up to three inches or more in diameter. It has been described as a magnificent Rose, but I think the epithet delightful more aptly fits it.

This vigorous variety is difficult to place as to habit. It cannot strictly be defined as either a bedder, a climber, or a bush Rose. Perhaps the term semi-climber is most applicable. With me it throws up flowering shoots seven feet in height. Its floral wealth may possibly be displayed to the best advantage by training it to a trellis. Its foliage is bold, stout and glossy and resistant to mildew. In this part of the kingdom the wet-withstanding quality of a Rose is of much importance. Though Pax is not ideal in this respect, it is not unduly harmed by rain as to make it undesirable for gardens in the North-West of England.

In penning such notes on Roses let it be understood that the remarks do not necessarily apply to other parts of the country, especially those blessed with a drier and warmer climate. *J. P. Carlisle.*

TREES AND SHRUBS.

ROMNEYA COULTERI.

I enclose a photograph (Fig. 57), which I hope will convey to your readers a fair idea of the beauty of a group of Romneya Coulteri growing in the garden of H. Melville Simons, Esq., The Beeches, Harpsden, Henley-on-Thames. A very small specimen was planted in the autumn of 1917, and this has grown and spread until now the whole clump measures 10 ft. in diameter. Some of the stems measure 7 ft. in height, and the whole group has had as many as eighty flowers expanded at one time. The group is on a sloping bank, in heavy loam containing a fair proportion of lime. The site has a south-west aspect. The plants have had no protection since the original was given a good covering of ashes during the first winter. Another specimen planted on the level ground, has succeeded even better than the one illustrated, but is not in a good position for photographing. Not the least of the charm of Romneya Coulteri is the delicious fragrance emitted by its large white flowers—a fragrance noticeable at some considerable distance from the plants. *W. Oliver.*

A FINE EXAMPLE OF THE MAIDENHAIR TREE (GINKGO BILOBA).

The accompanying illustration (Fig. 58) shows a remarkably fine specimen of the Maidenhair tree, Ginkgo biloba, growing in the grounds of Englefield House, Reading, the residence of J. Hubert Benyon, Esq. The tree is about sixty-five feet high, and its branches have a spread of forty-five feet; the girth of the trunk at the base is eleven feet, and at six feet from the ground the girth is eight feet. This is probably one of the finest trees of its kind in this country. *A. B. Wadds.*

FIG. 53.—A FINE SPECIMEN OF GINKGO BILOBA AT ENGLEFIELD HOUSE GARDENS, READING.

PRUNUS PUDDUM.

A friend has very kindly secured for me some seeds of Prunus puddum from the highlands of Burma. I believe this Cherry to be very close to, if not identical with, P. campanulata of Macimowicz (*Bull. Acad. Sc., St. Petersburg*, XXIX.), a plant which has been described in America as one of the most valuable of Mr. Wilson's introduction into that country. This is indeed high praise, and apparently well deserved, if one may judge by the beautiful plate in Miyoshi's monograph on Japanese Cherries.

As its name suggests, the pendulous flowers are campanulate in form and of a deep rose-red colour. These are said to appear before the foliage (in southern Japan as early as February and March), the leaves being of a very pleasing bright, glossy green hue.

According to Wilson, P. campanulata was introduced into England by Messrs. Sander so long ago as 1899. It would be of interest to know if any of these plants are still in cultivation, and I would personally greatly appreciate any information on this point.

According to my friend, P. puddum can resist at least 5° of frost in its native country, which would suggest that it is capable of outdoor cultivation in the more favoured parts of Great Britain, although Mr. Bean tells me it has proved to be tender at Kew. *Collingwood Ingram, The Grange, Benenden, Kent.*

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INDOOR PLANTS.

INSECTIVOROUS PLANTS.

Insectivorous plants are amongst the most interesting members of the vegetable world, and one can derive much pleasure in watching the behaviour of the plants when they are trapping insects. The members include Sarracenia, Drosera, Pinguicula, Dionaea, Darlingtonia, Cephalotus, Heliamphora and Nepenthes, all of which, save the last, thrive under cool treatment in a glasshouse having a winter temperature about 40° to 45°. They need very little artificial heat in the summer, but a moist atmosphere is necessary to their requirements. The house or pit in which they are grown should be kept well moistened and shaded slightly from the mid-day sun. During the winter they should be afforded just sufficient water to keep the soil damp, for it should never be allowed to become dry. If a greenhouse is not available for the plants they will thrive well in a pit or frame, provided frost is kept from them and the temperature maintained about 40° to 45°.

Nepenthes require a stove temperature; they delight in hot, damp places where the atmosphere is heavily charged with moisture.

All insectivorous plants grow naturally in damp bogs, marshes, and similar situations where there is plenty of moisture.

Sarracenia, known as the American Pitcher-plant, has funnel-shaped leaves, which are radical and collected into tufts. The leaves or pitchers are of two forms, one having the lid standing erect, allowing rainwater to enter freely, as in S. purpurea, the other having the lid projecting over the mouth of the pitcher, thus preventing water from falling into it, as in S. variolaris. The under surface of the lid and the mouth of the pitcher are studded with honey-secreting glands forming the attractive surface for flies and other insects. The trapped insects are often so numerous that the pitchers become partially filled with their decomposed mass, and in such cases the pitchers may decay and be spoiled. The best method of preserving the pitchers in perfection is to stop the apertures with pieces of cotton-wool to prevent insects entering. The liquid product of decomposition is probably taken up by the roots, but in cultivation this is not necessary as the plants may, when well rooted, be given a little liquid manure once weekly or fortnightly. In the spring the plant sends up long, slender stalks each of which bears a solitary flower, the style terminating in an umbrella-like expansion.

S. Drummondii, S. flava, S. psittacina and S. purpurea may be cultivated in the bog garden, or on the rockery, where the soil is always moist; but the pitchers on outdoor plants do not develop so finely as when grown under glass. They should be protected from keen winds in severe weather.

Many fine hybrids have been raised from time to time and put into commerce. A few of the best and distinct species and hybrids are (species) S. Drummondii, S. psittacina, S. purpurea, S. flava, S. rubra and S. variolaris; (hybrids) melanorhoda, Chelsonii, Wrigleyana, Courtii, exoniensis and Swaniana; there are many others, but those enumerated are amongst the best.

The plants may be increased by seed or division in the spring. They should be grown in a mixture of fibrous peat and chopped, fresh Sphagnum moss, with a little charcoal and silver sand added.

Droseras, or Sundews, constitute a genus of small herbaceous plants inhabiting marshy and damp places in many parts of the world. They are easily distinguished by their leaves, which are clothed with glandular hairs that secrete a colourless, viscid fluid, giving them the appearance of being studded with dewdrops which look like little sparkling stars. When a fly alights on a leaf it is immediately entangled amongst the glands and soon dies. There is a large number of species of which the following are the most beautiful. D. rotundifolia, this is the well-known British Sundew which may be seen sparkling in the midday sun, growing amongst Sphagnum moss; D. capensis, a pretty little Sundew from S. Africa, with elongated leaves of a light-green colour to which the bright hairs form a pleasing contrast; D. dichotoma, a species from Australia, as curious as it is interesting. The leaves grow erect, attaining a height of from 12 inches to 18 inches, with a petiole as long as the blade. At the extremity of the petiole the leaf divides into four leaflets. This is a strong-growing species. D. spathulata is another Australian species with the habit of D. rotundifolia, but far surpassing that pretty plant in the rich colouring of the glandular hairs, from which the viscid fluid is freely secreted, and remains suspended on the points of the hairs like brilliant pearls; D. binata is similar in growth to D. dichotoma, but a much more slender-growing plant. The glands are redder in colour and more graceful. The Sundews may be increased by seeds and division.

Pinguicula, or Butterwort, requires similar treatment to Drosera, with the addition of keeping water in the saucer below the pot in which the plant is grown.

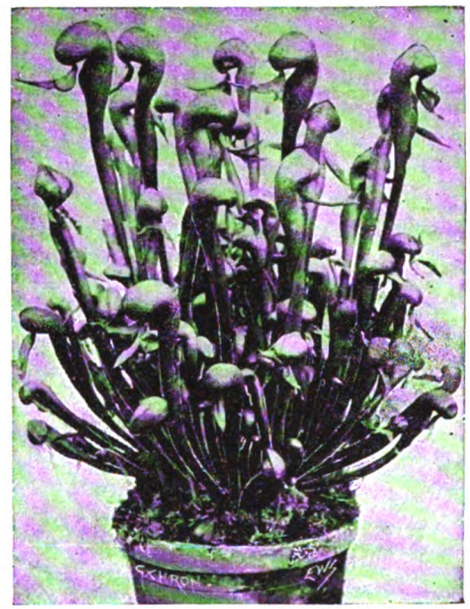

FIG. 59.—DARLINGTONIA CALIFORNICA.

Dionaea is popularly known as Venus's Flytrap. D. muscipula is a very interesting little plant which has received the name of "flytrap" from a curious trap-like formation on the edges of the two semi-circular lobes of the leaves, which are fringed with rigid hairs. Each lobe has three delicate hair-like organs on its inner surface, which, being sensitive, close the leaf immediately they are touched by an insect, or any light substance.

Darlingtonia californica (see Fig. 59) has erect pitchers rising spirally in dense, irregular clusters. The tops of the pitchers are turned over like an inverted boat, and in their mature state lose the crimson colour which is so conspicuous in the veins when they first appear.

Cephalotus follicularis is a very beautiful and interesting Australian Pitcher plant that may be termed stemless. It produces its pitchers of green and purple on petioles, or foot stalks about an inch in length, with freedom. The pitchers are about 1 inch to 1½ inch in length and furnished with two parallel wings in front and two oblique ones on the sides, all of which are ciliated. The lid, which covers the mouth of the pitcher, leaves but a small aperture, is regularly furrowed and very hairy.

Heliamphora nutans (see Fig. 60), allied to Sarracenia, is a very rare plant introduced from British Guiana by Messrs. James Veitch and Sons of Chelsea, and flowered by them for the first time in 1889. It differs from Sarracenia in having several flowers, which are destitute of a corolla, on a scape. The colour of the flower is pale rose.

The plant is increased by division and seed and may be grown in similar soil to the other insectivorous plants. All these interesting plants may be cultivated easily with very little labour or expense. *John Heal, V.M.H.*

LACHENALIAS.

These are charming subjects for the cool greenhouse, and succeed under the same treatment as given to Nerines; only it is best to repot the plants every year in a compost consisting of good loam, leaf-mould and dried cow manure with sand added.

The plants are best grown in 48-sized pots, or in pans six or seven inches in diameter; some growers favour basket cultivation for them, but I do not think their habit suits them for growing in baskets.

The small bulbs should be placed separately in pans or boxes and grown on for next year. There are several species, but those most commonly cultivated are L. tricolor and its varieties, and L. Nelsonii, a garden hybrid and one of the prettiest of the race. *J. C.*

INDIAN CORRESPONDENCE.

GARDENERS' WAGES.

While sympathising with those who have been expressing their financial troubles recently in the *Gard. Chron.*, I cannot help thinking that some have forgotten the contract they made with their employer on engagement. While I have no sympathy with employers who starve their employees, it must be remembered that, after all, they are but human, and have the prevailing habit of always trying to obtain a good article at the lowest cost, especially if they are business men, and many refuse to go beyond the contract price until driven to it by cancellation of an agreement. All employers have not the same interest in gardens, and they vary considerably in their tastes, which require studying. If artistic, they are sure to be fond of flowers and artistic surroundings. If they are fond of racing and sport, they will like plenty of good fruit and vegetables, and have a keen desire to have everything better than their neighbours—a desire to win every time.

The coming of the motor-car has lessened the old interest in home life and gardens. Taxation has also killed a great deal of interest, but the genuine lover of nature and all things beautiful remains unaffected by either, and fortunate are they who have such a man for an employer. I am sure there are still many employers who are ever ready to reciprocate friendship and generous dealing when met half-way by the employee. Many gardeners gain advancement through a genuine love of their work, their unselfishness, tolerance, and forbearance, and their determination to please by growing everything to the highest possible standard, and by their knowledge of what not to do—I place plenty of emphasis on the latter. There have always been good, bad, and indifferent gardeners, and always will be; but good, wide-awake men seldom fail to make their mark, if not their fortune. It is as well to remember—and I speak from experience of over forty years—that money is not everything. I can look back with real pleasure to years I spent under ideal employers in England on a moderate salary of £100 and less.

It is a grand experience to be home, within easy reach of the best shows, to compare notes with one's neighbours, to get fond of the plants and trees, to make little pictures with them that never fail to attract, to hear expressions of delight and encouragement, and to live in a temperate climate amongst one's own countrymen, in a Christian country, a land noted for its justice, fairness, morality and truth—England. *George Burrows, Superintendent of State Gardens, Patiala, India.*

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MARKET FRUIT GARDEN.

The first half of August was hot and sunny, but after the 16th there were only two days without rain. On the 29th there was a strong gale, which brought down a great deal of fruit; and the temperature during the latter part of the month was often unseasonably low. The total rainfall amounted to 2.31 in., which is not excessive for August; but the low temperature and lack of sunshine retarded the ripening of fruit. Weeds grew apace, and opportunities for effective cultivation were few. Thus the season continues to be thoroughly unfavourable for fruit-growing.

Plums and Apples.

The crops of Plums and Apples are proving even more disappointing than was anticipated. Rivers' Early Prolific Plums, for instance, which hardly ever fail me, yielded 148 half-sieves, as compared with 907 last year; and Czar gave 56 half-sieves against 333. Unfortunately prices, though good, were not high enough to compensate for the lack of quantity, this being due to the heavy imports of Continental Plums, the French crops being of exceptionally good quality this year. I look forward, however, to better fortune with the later varieties, as prices are rising with the decline of imports. There are light crops of Pond's Seedling and President to be picked; but I have quite full yields of Victoria and Monarch.

I find that the way to make the most of such a light crop is to pick over several times to catch the fruit when fully ripe, and send to market in chip baskets holding 7 lb. The fruit then sells for dessert for a good deal more than if packed in half-sieves. In a season of plen- it is more important to pick as early as possible, when the fruit is coloured but still firm.

The Apple crop is still more disappointing. Even where the yield appears to be fair on the trees, the crop when picked does not bulk well, owing to the big proportion of small fruit. Some of the cooking varieties, such as Lord Derby, Warner's King and Royal Jubilee, have been exceptions; and such fruit of good size has sold very well. But the dessert varieties are very short, and of rough appearance, though the flavour, for some reason or other, is unusually good. Beauty of Bath, generally a strong feature with me, was very scarce; Worcester Pearmain is small and scabby; and Cox's Orange Pippin will hardly be worth talking about.

The Apples are being marketed as quickly as possible, as prices are probably now at their highest level. There are big crops in Canada and the United States; and the growers know that there is a shortage in this country, and are starting shipments early. There were Californian Apples on the London market at the end of August. This year home-grown Apples have had the market to themselves for a few weeks only.

Retailers' Profits.

Retailers were let off lightly in the report of the Departmental Committee on the Distribution of Fruit and Vegetables. As much of my fruit goes to a neighbouring town, I am able to keep an eye on the shops, and compare the prices at which they offer it to the public with the prices which they have to pay the commission salesman. Chip baskets containing 7 lb. net of Plums realised 4s. 6d. each gross. This is a good price and I do not complain of it; but I thought that the retailers would sell the baskets intact to the public with, say, a shilling margin. Instead of this they sold the fruit at 1s. (and even 1s. 2d.) per lb., thus clearing 4½d. per lb., or 2s. 5d. per basket. Rivers' Early Prolific Plums were sold to the shops, at one time, at 10s. per half-sieve of 28 lb., which works out at 4¼d. per lb. These were offered to the public at 7d. per lb., equal to 16s. 4d. per half-sieve, a margin of 6s. 4d. Worcester Pearmain Apples sold wholesale at 9s. 6d. per half-sieve of 20 lb., or 5¾d. per lb., were retailed at 9d. per lb., leaving a margin of 3¼d. per lb., or 5s. 6d. per half-sieve. The retailer's excuse would be that much fruit goes bad on his hands, and that there is loss on weighing out in small amounts. I contend that, even if we allow for this, the retailer is still getting an unfair share of the profit. As a matter of fact, there could be little waste with this fruit, if any, because it was all most carefully graded for size and quality. I do not complain of the prices I received, which were good; but I do resent the retailer taking an unfair share, and at the same time restricting output.

Bush Fruit Farms.

I believe that the growers who have done best this year are the specialists in bush fruits, who are mostly small holders. The heaviest crops of Black Currants have been grown by cultivators of a few acres; and the specialists in big dessert gooseberries have done well. Fungous diseases are making it almost impossible to grow satisfactory crops of such subjects on rough-and-ready lines between orchard trees. Bush fruit culture must pass more and more into the hands of small growers, who give the crops special attention and do most of their cultivation by hand. Those who think of taking up fruit-growing for a living might be well advised to establish bush fruit farms instead of adding to the acreage under orchard trees, which already threatens to become too extensive.

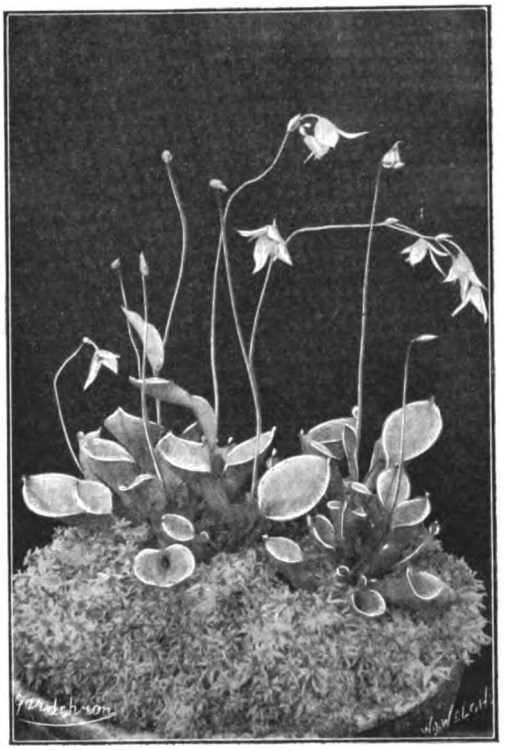

FIG. 60.—HELIAMPHORA NUTANS (SEE P. 160).

Wasps and Aphides.

In seasons when aphides are unusually troublesome, we are generally told by naturalists that it is because we kill off their natural enemies the wasps. This year we have had both aphides and wasps in plenty, and it cannot be said that the wasps have suppressed the aphides to any noticeable extent. They came too late to do much good in this direction, and they are in themselves a serious plague, because of the fruit they spoil. Nests have been numerous and very strong. I have destroyed a great many. At the beginning of the season I used carbon bisulphide, which answered very well provided that the entrance to the nest led downwards, so that the heavy gas could penetrate. In the side of a bank it is not so certain in results. I have now gone back to cyanide of potassium. One does not care to have this about, on account of its very poisonous nature, but it appears to be the most satisfactory wasp-destroyer. A small lump can be dropped into the entrance to the nest, or a solution can be made and used on wads of cotton-wool; and it does not matter whether the work be done by day or night.

Staking Young Trees.

A gale like that experienced during August finds out faults in the staking and tying of young trees. If the binding material has become rotten it parts, and the stem is soon damaged against the top of the stake. If the stake snaps the tree is blown over and the root-hold loosened. The best stakes I have used are made from Sweet Chestnut poles, with the ends pointed and the part that is to be driven into the ground coated with creosote, which gives a longer life than tar. For tying I like thick, soft cord, known locally as hay cord. This is passed round twice so as to enclose both tree and stake, the tree being held away from the stake a few inches. The ends of the cord are then brought round between the tree and stake, twisted round the strands of cord several times, and tied. This forms a cushion of cord (including the knot) which serves to keep the tree away from the stake, and yet holds it securely. The job is easy to do, but difficult to describe.

Half-Cultivated Orchards.

So far I am satisfied with the method of half-cultivation adopted in the older plantations this year. The alleys between the rows of trees are cultivated by horse-drawn implements, but a strip about 6 ft. wide on which the trees actually stand, is left under grass instead of being hoed by hand as hitherto. The grass is cut twice in the season and allowed to rot where it lies. The saving of labour as against clean cultivation over the whole area is very considerable, and I hope that results will be better than if the orchard were grassed down entirely. I read in a contemporary that this method of half-cultivation is quite recognised in Canada, where it is called the sod strip method. I am glad to learn that one of the benefits which I hoped to gain from it, the higher colouring of the fruit as compared with that grown under clean cultivation, is secured in Canada. In that country, however, a cover crop is sown on the cultivated strips in July, and ploughed under in spring, thus acting as a substitute for organic manures. *Market Grower.*

LOCAL PLUMS.

Anyone visiting a fruit market in Worcestershire—Evesham or Pershore—in September would see a predominance of that Plum which is common to the county and is known as the Yellow Egg or Pershore. It is one of the commonest of Plums—in many private gardens it is not represented at all—and yet it is one of the most valuable. If Worcestershire fruit-growers were asked what they think about it they would admit the merits of Prolific, Czar, Monarch and the rest, deplore the devastation caused amongst Victoria by silver leaf, but they would sing loudest of all the praises of the native Yellow Egg Plums, which fill the baskets and pay the rent. Last year there was a glut of Plums and one heard stories of tons of Pershores that were never picked but rotted on the ground. This statement is not denied, but in spite of it probably Pershore realised more money than any other variety, because it has two markets—green and ripe—and the yield per tree was enormous.

This is admittedly a bad Plum year, yet in the Worcestershire markets there are more Pershore Plums than any other sort, which confirms the local contention that "Egg" Plums bear when other varieties fail, and growers who are fortunate in having a crop have nothing to complain of as regards the price. The vitality of the tree, too, is extraordinary. It does not grow very big, and consequently the Pershore Plum trees are planted closely together; if the variety cropped less heavily it would probably be more robust. In the early part of this summer the Pershore Plum trees presented a pitiable appearance. The leaves which in the first place were curled and crippled through aphis, afterwards turned brown, and the trees looked as though they had been scorced by fire. It seemed as though they could not recover and

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must die, but the aphis departed, a new crop of leaves appeared, and in addition to now looking fresh and healthy, many of the trees that suffered severely have brought fair crops of fruit to maturity.

It is no exaggeration to say that the Egg Plum is an institution of great commercial importance in Worcestershire. Indeed, one might go further and claim that the development of the important fruit-growing industry in the county is due more to the Pershore Plum than anything else. Nature originated it in the district which bears its name, and while there are now Red Pershore and Purple Egg Plums, I do not think the yellow-fruited parent is likely to be superseded. Propagation is an easy matter, as trees throw up suckers from the roots to such an extent as to become a nuisance, and these suckers are removed and transplanted to make future trees. In short, the story of the Pershore Plum is also the story of the growth of the fruit-growing industry in Worcestershire, with one factor added, namely, the "Evesham custom" as it is applied to the tenure of market gardens and fruit plantations, and gives a security that farmers cannot be said to enjoy. No wonder that Worcestershire folk think a lot of their native Plum, because if Nature had never introduced it and the Evesham custom respecting land tenure had not been devised, the county, confined to agriculture, would never have been as productive and prosperous as it is to-day.

In the adjoining county of Gloucestershire, in the orchard lands along the Severn Vale, there is another local Plum which, if not so famous as the Pershore, owing to the fact that it has not been known so long, is eagerly sought after in September in the fruit markets at Gloucester and Grange Court. The Plum I refer to is the Blaisdon Red, named after the little village on the borders of the Forest of Dean, where it originated as one of Nature's accidents less than a century ago. The story goes that an Apricot tree grew on a farmhouse wall at Blaisdon, and as Apricots often do, the tree died. A Plum shoot, however, grew up from the root, and it was left probably more by accident than design until it bore fruit. The tree threw up more suckers, and, little by little, trees of Blaisdon Red were planted first in the village and then in surrounding parishes until now there are thousands of trees in the Severn Vale, while the number increases every year. This story of the origin of Blaisdon Red may or may not be strictly true, but it is accepted for the want of a better—there could hardly be a prettier. Now as to the effect that act of Nature has had on this particular part of Gloucestershire. In the first place the Plum trees, costing little or nothing beyond the labour of planting, have brought considerable grist to the mills of farmers and small holders. They have brought profit to land that returned very little revenue before, and have more than doubled the capital value of such land. If there is a hardier or more vigorous Plum than Blaisdon Red I have yet to see it, and it has the merit, not enjoyed by many varieties, of thriving on grass land. In colour the Plum is red, oval in shape, it travels well and is not affected by wet weather. Last year there was a glut of Blaisdon Red, prices ruled low, and some crops were not picked, but the big trees bear such heavy burdens that I question whether under glut conditions any other variety paid as well as this did

This season the story is different. By comparison with last year, Blaisdon Red Plums are scarce, but orchards here and there have yielded fruits, and the shortage is reflected in the prices realised. For jam-making and bottling, Blaisdon Red is highly favoured, but with the present state of the jam trade and the price of sugar it may be as well perhaps that crops are not heavy this year. When it is realised how the Blaisdon Red Plum has almost created an industry one cannot help thinking how that first tree of it raised by accident, so to say, might easily have been destroyed; consequently its preservation has proved a blessing to farmers and fruit-growers in the Severn Vale and the borders of the Forest of Dean.

Concerning both the Plums I have referred to some people talk pessimistically about too many Pershores and too many Blaisdon Reds being planted, but there need be no fear of this if the methods of distribution are looked after and improved. We are not likely to grow more Plums in the country than the population can consume, provided the producer and the consumer can be brought closer together and there is also a considerable fall in the price of sugar. Even last year, when Plums were rotting under the trees in Gloucestershire, there were people who could not obtain them, and railway companies were paid more for carrying the fruit from one part of the country to another than the growers obtained for producing it. *G. H. H.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(Sèe Tables and Summaries, Ante, pp. 71-76.)

(*Continued from page* 149.)

ENGLAND, S.

KENT.—Fruit crops generally are under the average, no doubt owing to cold nights and east winds when the trees were blooming, and these damp nights were accompanied by very low temperature. Our soil overlies chalk. *John Thomas Shann, Betteshanger Park Gardens, Eastry, Dover.*

——Never had fruit trees looked more promising than in the spring of this year, the orchards being sheets of bloom, but a cold and unusually sunless spring brought many evils in its train, and in many cases the fruit trees have rarely looked worse. Aphis on Apples and Cherries made a filthy deposit on the foliage, and where spraying was not carried out the growth was crippled and the trees look most unhealthy. Though almost sunless, little rain fell in June, consequently the trees got no natural cleansing, and the abnormal heat wave which set in early in July found most things unprepared, and the grower has, in many instances, had a very bad season. Strawberries, which looked especially promising at one time, were stunted and starved by the drought and cold nights, and did not develop properly. *J. G. Weston*, 30, *North Street, Ashford.*

MIDDLESEX.—Peaches are good and the trees healthy. Apples are a plentiful crop, notwithstanding early in the season the leaves suffered very much through frost and cold nights, also insects. Pear trees failed to bloom, consequently we have no Pears. Plums at one time promised well, but the tiny fruits dropped wholesale and left only a moderate quantity to mature—and the same remarks applies to Cherries. Gooseberries were very good, but Raspberries and Currants were poor; Strawberries were satisfactory. I attribute this to placing a slight covering of straw over the flowers during the frosty nights that we experienced when the blossoms were expanded. The soil here is light and porous. *H. Markham, Wrotham Park Gardens, Barnet.*

——The promise of a wonderful year for fruit has unfortunately not been fulfilled. Pear trees in general developed little blossom, although some sorts, Pitmaston Duchess, Duchess d'Angoulême, Gratioli de Jersey, in particular, were heavily laden, but none of it set. Plums were a fine sight when in flower, and much of the blossom seemed to set only to fall later. Apples, Raspberries and Strawberries are the only satisfactory fruits. Aphis of all kinds have been a positive plague. Morello Cherries were crippled and the fruit dropped, although the trees had been repeatedly washed. Altogether it is a very discouraging year for fruit. *Geo. H. Head, Fulweil Park Gardens, Twickenham.*

SURREY.—The fruit crops generally in this district are very poor. In places there is a medium crop of Apples. At Catton, such kinds as King of the Pippins and Wealthy are good average crops. Bramley's Seedling is also fruiting well, excepting on the young trees. Pears are nearly a complete failure. Plums are scarce. Victoria trees on walls are bearing a fair crop, but we have only a very few Gages. Cherries were very scarce. Peaches and Nectarines are both bad crops. Apricots set well, but the fruit dropped during the stoning period. *J. Collier, Catton Park Gardens, Reigate.*

——The fruit prospects in this neighbourhood are generally poor, there being only about one-third the usual crops. Pears are a failure. Apples developed plenty of blossom, which gave good hopes, but the preceding year had been most unfavourable to the ripening of the wood. This, with swarms of all kinds of pests, marred our hopes for a good fruit harvest. For miles round these gardens the foliage of many fruit trees is completely riddled by insects. Black Currants suffered in a similar manner. Strawberries have been small and of poor quality. Gooseberries, Red Currants and Raspberries were all heavy crops of fine quality. Our soil is heavy Sussex clay. *F. Jordan, Ford Manor Gardens, Lingfield.*

——With the exception of Pears, the various fruits blossomed freely, but the very unfavourable weather conditions of early summer greatly hindered the development of the fruits. Much of the Plum blossom was damaged by frost or by cold wind. Gooseberries were a heavy crop, and the quality seemed to be above that of recent years. Strawberries gave early promise of good crops but finished badly, as also have Raspberries. *Alan N. Rawes, R.H.S. Gardens, Wisley, Ripley.*

——The fruit crops are very disappointing. Pears, Plums and Damsons are all absolute failures. The trees were covered with blossom, and during that period we had three severe frosts registering 12°, which was 4° higher than in any of the winter months. Apples are a poor crop, but the quality is good. Strawberries were abundant, the size and quantity of the fruits being easily a record, although the ripening period commenced a fortnight later than usual. Our soil is very light and porous, resting on chalk. *H. Prince, Polesden Lacey Gardens, Dorking.*

SUSSEX.—There was every prospect of good fruit crops here until the beginning of May, when we had several sharp frosts and fierce gales until nearly the end of June. I do not remember a worse May and June; it was very disheartening to see most crops at a standstill for so long through cold. Of small fruits Gooseberry were an average number, and very good. Strawberries were also satisfactory, but all kinds of Currants were under the average yield and of bad quality. Raspberries were an average crop. *H. Cook, Glynde Place Gardens, Glynde.*

——Orchard trees generally, with the exception of Pears, blossomed profusely, and in many cases a satisfactory crop of fruit set; but this has since been thinned severely by adverse weather, insect pests, and diseases. A large proportion of Apples will be small and scabby. Amongst bush fruits Gooseberries and Red Currants were heavy crops, Black Currants moderate, and Raspberries light. Strawberries had a prolonged season, and were of good quality. The season is remarkable for the slow development of fruit and the prevalence of pests and diseases. *E. M. Bear, Mayham Down, Hailsham.*

——We have the lightest crops of Apples and Pears at Gravetye for many years, which may be due to various causes, such as the extraordinary crops borne in the previous year, and lack of sunshine during the latter half of 1922. Many Pear trees failed to produce flowers, yet trees of a few sorts were conspicuous during the flowering season, and have set good crops of fruit. Trees of Apple Lane's Prince Albert flowered very late and were a mass of bloom, but scarcely any of the flowers set. Codlin Apples are a heavy crop, and an occasional tree of Bramley's Seedling is loaded. There are, however, many trees without fruit. All fruit trees, and especially Plums, suffered severely from aphis and caterpillar, and while a tree here and there of the latter carries a good crop, many are barren. Small fruits were plentiful and good; Raspberries decidedly so. *Ernest Markham, Gravetye Manor Gardens, East Grinstead.*

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HOME CORRESPONDENCE.

British Bulbs—or Dutch?—The bulb season having arrived, the "trade" is in its usual panic about the wiles of the wicked Dutchmen. Members of the H.T.A. have circulated a reprint from *Truth* warning gardeners of the dangers of buying their bulbs abroad. This sort of propaganda is futile, and likely to defeat the very object it sets out to achieve for British firms, because commonsense will lead any reader of this pamphlet to detect the motives of prejudice, selfishness and unfairness which underlie it. I hold no brief for unfair foreign competition, but many cultivators of bulbs have purchased their requirements from abroad for years, and will continue to do so, from Dutch houses of repute, and in cases where they have been disappointed by questionable suppliers they will try elsewhere. Only, they will study bulb advertisements with greater caution and place their orders against those announcements from which they derive confidence. The right way to get at the British buyer is to convince him, through advertising, of the better service and guarantees he secures by purchasing his bulbs in this country, instead of leaving advertising initiative to the foreigner. The gardening papers are refusing hundreds of pounds worth of advertising business every autumn from Dutch firms in order to placate the British trader; business which is only passed on to the daily press. This sacrifice on the part of horticultural journals is not, however, rewarded by the support of the majority of bulb firms in this country, whose one-sided position cannot for long remain tenable. If they call upon the gardening Press to restrict the foreigner, they must see that there is some justification for it, as well as an alternative, otherwise the Press must be allowed that free hand which the dailies exercise. After all, is there not such a thing as the freedom of the Press? *A. J. G. Surrey.*

Pelargonium Rollison's Unique.—Until I read Mr. Lynch's most interesting notes (p. 84), this old favourite greenhouse plant had quite gone out of my memory. What memories are conjured up by the name! Rollison's, of Tooting; Mileham, the Orchid grower; Shelstone, the soft-wooded grower and traveller. With what pride we were shown the well-grown Vandas by the former, and the fine trained specimens of Mrs. Pollock, Star of India and other tricolor Pelargoniums, then in the heights of their fame! The Ericas and other hard-wooded plants were also well grown and shown by this noted firm. Pelargonium Rollison's Unique, with its grey, woolly foliage, which sets off the purple flowers, was a great favourite at that time, for cultivation in baskets, for trailing over the conservatory stage, or training up a wall indoors or out; it was always attractive. It is pleasing to know that it has not entirely gone out of cultivation. *C. Orchard, Smoglands, Bembridge, I.O.W.*

Bokhara Clover.—I have read with interest and pleasure Messrs. Wm. Power and Co.'s letter *re* the above on p. 136 of *The Gardeners' Chronicle* for September 1. Having handled the original variety for more than fifty years and seen the plant growing in three different Continents (including eight European countries and the United States from the Atlantic to the Pacific) for fodder and for bees, I felt, and still feel, justified in expressing the opinion I did respecting its value and use. Messrs. Power are, I doubt not, more fully equipped than I am to appraise its merit for culture in Ireland, but the crops that have come under my notice in England under good and bad soil and cultivation have only given the most meagre support to the grotesque statements in favour of Bokhara Clover contained in the newspaper article with which my letter was chiefly concerned. Such statements as "which contains the secret of England's independence of foreign meat supplies, and may change the course of Britain's economic history" may mislead credulous farmers not well posted in these matters, and ought, in my opinion, to be thoroughly exposed. I know the plant is well adapted for bees, because I have many times seen it demonstrated on a very large scale, and there is a market for an unlimited amount of honey at a reasonable price. But as a forage crop, unless the land really will not grow anything better, I still assert that the farmer will be well advised to neglect it and devote his attention to such portions of his farm as will produce even small crops of Lucerne, Berseem or other crops of tried and proved value. I did not for a moment think of comparing it with Swede, Mangel or Cabbage. *S. B. D.*

The Runner Bean.—I am greatly indebted to Mr. C. Capp, of the Old Abbey Gardens, Leiston, and K., Dublin, for their interesting and, I think, important communications on the advantages of cropping from two, three and even seven year old plants of Runner Beans (see p. 121, August 25). Runner Beans are often preferred to French or Kidney Beans, and there is no small advantage in obtaining early crops. Of this there is now good evidence, but it is not always done, even where there could be no difficulty about it. I think I could say this for at least one gardener in Cornwall. With reference to Torquay, I find by inquiry that one market grower, while aware of the earlier crop to be obtained from plants that have come through the winter, is unable to benefit because he requires the ground for another crop. The difficulty, however, is apparently removed by Mr. Capp's plan of taking up and storing the roots. It is a plan that might, perhaps, be often adopted. I have heard also from another grower, who mentions the larger crop to be obtained the second year, but he also refers to the difficulty of sparing the requisite ground. My finest Bean of last year's sowing, obediently twining on a string against a wall, though under the worst conditions of poor soil and light, is now twelve feet high with good foliage, and has flowers or buds at all the joints nearly to the base, but it is evidently unable to bear fruit. If I had the opportunity I should certainly be tempted to try an experiment with some plants against a wall in good soil and exposure, perhaps in the spaces between fruit trees. *R. Irwin Lynch.*

SOCIETIES.

NATIONAL DAHLIA.

SEPTEMBER 5.—The National Dahlia Society is to be congratulated on the success of the Society's annual show, which was held in the R.H.S. Hall, Westminster, on this date. A week previously the devastating gale, which raged over the country, had damaged so many plants that the expectations of a good show were damped considerably. But under the influence of more genial weather the plants revived and produced sufficient flowers to make an exceedingly interesting display. Some of the trade growers found themselves unable to bring representative collections, but others were in a more fortunate position. The general quality of the blooms was high, and in many cases the competition was good. The new classes, which the committee had arranged with the object of encouraging the purely amateur grower who tends his garden unaided, proved to be very successful and attracted a gratifying number of entries.

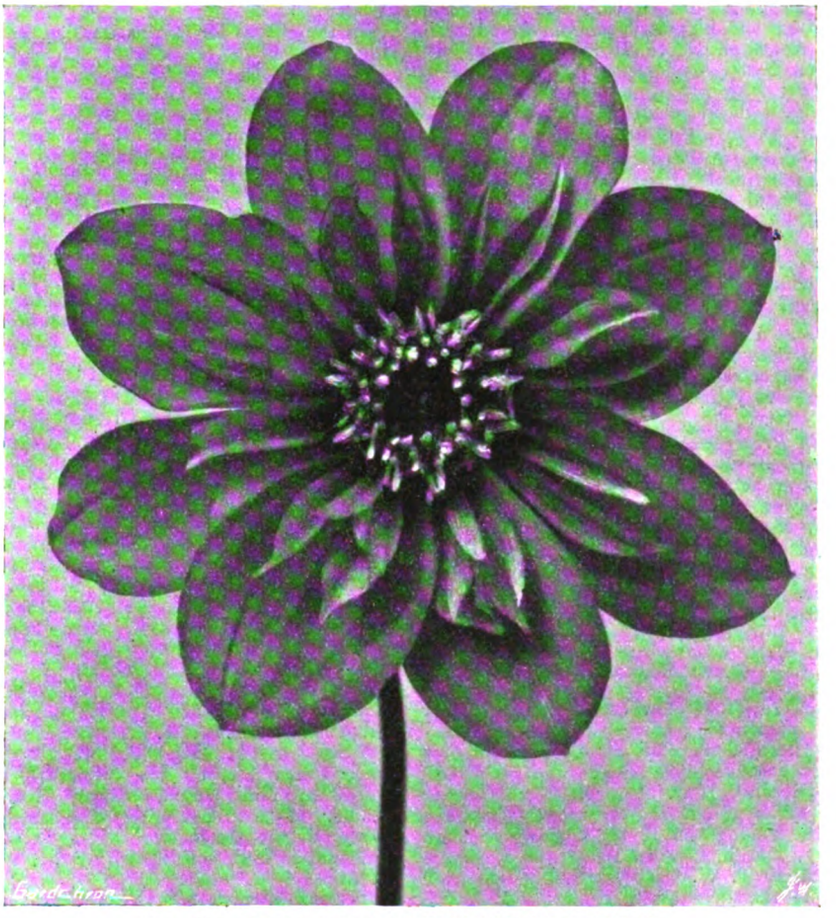

FIG. 61.—NEW COLLERETTE DAHLIA MRS. PERRY.

NEW DAHLIAS.

The Joint Dahlia Committee of the R.H.S. and the N.D.S. which sat at 2 p.m., found no fewer than 43 seedlings awaiting judgment, and selected the ten following novelties for trial at Wisley:—

Thomas Ewbank (see Fig. 55).—A Paeony-flowered variety, coloured Geranium-scarlet in the centre, passing to rose at the tips and the outer florets, a pretty combination of colouring. The florets are quilled and are almost pointed at the tips. The stems are very dark in colour and of a stiff, wiry nature, so that the bloom is held well erect. Shown by Mr. A. J. COBB, University College Gardens, Reading.

Mrs. Perry (see Fig. 61).—A very fine collerette variety of good form, and somewhat of a new break, for the segments forming the collar lie almost flat against the florets. The colour of both the florets and collar is light crimson. Shown by Messrs. W. TRESEDER, LTD.

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Thomas Want.—A Cactus variety of the large exhibition type, the flower measuring eight inches across. The florets, which are a beautiful shade of coral red, incurve toward the centre and the edges are rolled back, forming more or less fluted segments.

Zebra.—A compact exhibition Cactus variety with white florets striped and spotted with deep crimson. In this case also the florets are incurved toward the centre and rolled back at the edges. The flower stem is stout and stiff, a desirable quality in the Cactus type of flower. These three varieties were shown by Messrs. STREDWICK AND SON.

Victory.—A large decorative variety of rosy-mauve colour, with a dull fawn centre. The blooms are developed on fine, stiff stems.

Amun Rar.—A decorative variety of the largest size; the biggest bloom measured nine inches across each way. It is a very shapely flower and has a good centre. The colour is pale apricot with a rosy suffusion, the central florets being a darker shade. Shown by Mr. H. WOOLMAN, Shirley, Birmingham.

Little Jenny.—A charming single variety of very attractive colouring. There is a ring of crimson around the golden centre, and this is succeeded by saffron yellow, which passes to pale rosy-pink at the tips of the florets. The whole flower seems to carry a delicate sheen or bloom, which greatly enhances its beauty. Shown by Messrs. TRESEDER, LTD.

Defiance.—A miniature Paeony-flowered variety of deep reddish-orange colour. Judging by the number of buds carried by the growths the plant is very free blooming and an excellent garden variety.

Nutfield Priory.—A miniature Paeony variety of pale orange colour on a gold ground, the base of the florets being wholly yellow. It is a companion flower to the above. Both these were shown by Messrs. J. CHEAL AND SONS.

Vie la France.—Another Paeony-flowered variety, but of deep, clear crimson colour. The stems are very dark, almost black, and the foliage also is very dark. Shown by Mr. A. J. COBB.

OPEN CLASSES.

Messrs. W. TRESEDER, LTD., were alone in the two classes for show and fancy Dahlias, but they were deservedly awarded both first prizes for excellent collections. Of their 24 blooms, distinct, Mr. Chamberlain, Charles Wood, Warrior and Mrs. Sanders were the very best, while among the 12 we selected Duchess of Albany, Merlin, Charles Wood and a beautiful sport from T. W. GIRDLESTONE, as being of much more than average merit.

In the classes for show Cactus varieties, Messrs. J. STREDWICK AND SON were, as usual, pre-eminent. They were awarded the first prizes for (a) 18 varieties, six blooms of each; (b) 24 blooms, distinct; and (c) six blooms, distinct. Of the many good varieties staged, the following were of outstanding merit: Fellows Martin, Silverhill Park, Mrs. A. T. Barnes, Mammoth Supreme, Gloriosa, Highwayman and Lucien. The best 12 Cactus varieties, shown on boards, were displayed by Mr. H. WOOLMAN, who included superb blooms of Abbotsford, Meridian, Mammoth and Miss C. A. Gilliatt.

The first prize for 12 vases of Cactus varieties was awarded to Messrs. J. CHEAL AND SONS for a very beautiful collection of decorative varieties of such sorts as Queen of Pinks and Mrs. H. B. Brandt. They were also first in the classes for (a) six miniature Cactus varieties; (b) 24 Pompon varieties; (c) 12 Pompon varieties; (d) 24 varieties of Single Dahlias; (e) six varieties, large Paeony-flowered; (f) six varieties, small Paeony-flowered; and (g) both classes for Collerettes. Of the last-named they had well-formed, typical specimens of Scarlet Queen, Vera, Henri Farman, Mrs. J. Courtold and Miss Short. Amongst the Pompons, Daisy, Irene, Silver Queen and Regulus, of those on wire frames, were daintily beautiful, while the vases of Girlie, Electra, Daisy and Gwyn were particularly charming in their formal shape and lovely colouring. Marie, Leon and Kitty were delightful examples of the show singles. The Paeony-flowered varieties included Ethel May, Yellow Prince (large), Leonie Cobb, Rosie and Hector (small).

Among the six varieties of Large Decoratives so well shown by Mr. H. WOOLMAN, were magnificent vases of President Wilson, Futurity and Fireflame.

AMATEURS' CLASSES.

The general quality of the blooms in the amateurs' section was particularly good, and was continued in the new classes for amateurs who do not employ paid assistance in their gardens. The principal amateur prize-winners were: Mrs. GUINNESS, Mr. W. J. CRAMP, Mr. A. T. BARNES, Mr. A. BROWN, Mr. A. F. TOFIELD, Mr. M. HOWARD and Mr. S. H. WHITE.

In the classes for Cactus Dahlias the outstanding varieties were Saffron, Abbotsford, Mrs. Harvey, Edith Page, Canary, Miss Stredwick, Sidney Jones and Edgar S. Jackson. The Pompons in the amateurs' section were the best of their type in the show, and the tiny, perfectly formed blooms were of such varieties as Glow, Bacchus and Sunset.

The decorative classes were very popular and added materially to the attractions of the exhibition. Mrs. A. R. BIDE won both first prizes in the dinner table and the basket classes with artistic arrangements. Mr. FRED. TRESEDER won first prizes with boldly arranged vases and bowls of Dahlias, which were greatly admired.

TRADE GROUPS.

The large collections of Dahlias so well arranged by the principal trade growers were magnificent displays. Messrs. CARTER, PAGE AND CO. filled a very large space with an up-to-date collection of all types, though we believe the judges considered only the regulation 30 feet run of this exhibit when making awards. They had big stands of Coronation, a scarlet miniature Cactus; Our Annie, small decorative; Sweet Briar; Masterpiece, a broad-petalled Cactus of pale lavender colouring; Winter Queen, white decorative; Mr. Dressel-Huys, soft shell-pink Decorative and Pothos, a blue Decorative (Large Gold Medal).

In a smaller collection of exceedingly fresh and perfectly formed blooms, arranged with great skill, Mr. J. T. WEST included a surprising variety: Magnet, Pink Pearl, Abundance and Willia, of the miniature decorative varieties, and Olivia, Vixen, Sparkler and Gallus of the charming miniature Paeony-flowered, are the names of only a few of the splendid sorts so well shown by Mr. West (Gold Medal).

A very attractive style of arrangement was adopted by Messrs. JARMAN AND CO., whose elegant baskets contained beautiful blooms, such as Joyce Goddard, an orange and scarlet Cactus; Rose Supreme, and Royal Standard (Silver-Gilt Medal).

Messrs. J. CHEAL AND SONS added materially to the group they showed on the previous day, and included such varieties as Cassandra, Harold, La France, Lorna and, amongst the Star varieties, Surrey Star, Lowfield Star, Coral Star and Horley Star. A basket of Coltness Gem well illustrated the value of this dwarf variety for bedding purposes, and the adjoining basket of Mincio was even brighter (Silver-Gilt Medal).

Near the door Mr. CHAS. TURNER arranged a small collection of very good varieties (Silver Medal). The CENTRAL GARDENS SUPPLIES associated their Dahlias with Gypsophila paniculata and foliage, and by so doing made a very attractive display as well as showing good Dahlias (Silver Medal). At various points around the hall there were miscellaneous collections which added to the interest of the show and especially pleased those of the visitors who do not attend the fortnightly meetings. The National Dahlia Society made awards of medals to these groups, the chief of which were Messrs. SUTTON AND SONS, Gold Medal for Montbretias; Messrs. KELWAY AND SONS and Messrs. R. H. BATH, LTD., Silver-Gilt Medals, both for Gladioli.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL.

SEPTEMBER 5-8.—The second annual show under the auspices of the Corporation of the City of Glasgow and the Glasgow and West of Scotland Horticultural Society was held in the Kelvin Hall, Glasgow, on these dates. This show has become one of great importance, and it is well worthy of the dignity of the second city of the Empire. It is satisfactory to know that in a great industrial city like Glasgow a flower show of such magnitude can be held so successfully. The entries numbered 3,456, being an increase over last year of more than 300, and at the close of the show on Saturday evening we were informed that the attendance of the public had been most gratifying to the promoters.

The quality of the competitive exhibits was of a very high order of merit, vegetables being especially fine. Fruit was not up to the high standard attained at last year's show, as the climatic conditions over Scotland generally have been of an adverse character, yet the results collectively were good. Sweet Peas were staged in grand condition, and several authorities on this flower who were present declared that the finest examples are seen at the Glasgow shows. The vases shown by Mr. JAMES PAUL, Killearn, were stated to be the finest seen this year at any of the leading exhibitions. Roses were not so fine as usual, but in all other classes the exhibits were of splendid quality. The sum of £1,500 was offered in prize money, and, in addition, there were many valuable cups and other trophies as well as medals. There were 381 classes in all. One of the most important was for a rock or rock and water garden, arranged on the floor level in a space of 30 feet by 15 feet, to be viewed from the front only. There were four prizes of £40, £30, £20, and £10 respectively. The first prize was easily won by Messrs. OLIVER AND HUNTER, Moniaive, Dumfriesshire, for an artistic and natural piece of rock and water work. The plants employed were in keeping with the high order of the design of the garden.

For a group of stove and greenhouse plants arranged for effect on the floor, and to occupy a circle 20 feet in diameter, similar prizes were offered as for the rock gardens. In addition the Corporation of the City of Glasgow Challenge Cup went to the winner of the first prize. This was secured by Mr. W. A. HOLMES, West End Nurseries, Chesterfield, for a highly decorative arrangement of foliage and flowering plants; the second prize was won by Mr. T. M. PEICH, Highfield Nursery, Great Horton, Bradford, and the third by W. COATS, Esq., Paisley (gr. Mr. Peter McQuarrie). For a group of Liliums, arranged on the floor to occupy a circle of 9 feet in diameter, Mr. T. M. PETCH excelled with finely grown specimens. Mr. A. T. HARRISON, Maybole, Ayrshire, was the leading winner in the class for six pots of perpetual-flowering Carnations. Mr. JAMES TEMPLETON was the principal winner in the classes for pot Palms. In the class for three stove or greenhouse plants, Mr. JOHN WELSH, Glasgow, was placed first, and Mr. JAMES TEMPLETON gained premier honours for three ornamental foliage plants. He was also first for three Dracaenas. W. COATS, Esq., Paisley (gr. Mr. P. McQuarrie) led in the classes for 12 varieties of plants suitable for table decoration, and he was also first in the class for Crotons. Sir JOHN REID, Ascot, Bute (gr. Mr. I. Davidson), was a prominent winner in the classes for pot plants. In all there were 44 classes in this section. Some very finely grown examples were shown in nearly every class by amateurs and gardeners.

There were twenty classes for Roses, the principal one for a collection of cut Roses, artistically arranged, to occupy a space of 15 feet by 6 feet. There were four entries. The first prize, which included the Eastwood Challenge Cup, was won by Mr. THOMAS ROBINSON, Porchester Nurseries, Nottingham. He staged a fine lot of beautifully coloured flowers. Messrs. B. MCGREDY AND SON, Portadown, were second; Messrs. ALLAN, Norwich, third

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and Mr. E. J. HICKS, Twyford, fourth. Messrs. T. SMITH AND SONS, Stranraer, were winners in the class for six baskets of decorative Roses. In the class for 48 blooms, distinct varieties, Messrs. HUGH DICKSON, LTD., Belfast, were first, whilst Messrs. D. AND W. CROALL, Broughty Ferry, led in the class for 24 blooms. The other principal prizewinners in the Rose classes were Mr. LAWRENCE BLACK, Fife; Mr. JOHN PROSSER, Newton Mearns; and Mr. DONALD MURCHISON, Glasgow.

VISCOUNTESS COWDRAY, Dunecht, Aberdeenshire (gr. Mr. W. Smith), was the leading exhibitor in the class for a collection of Sweet Peas, artistically arranged to occupy a space of 15 feet by 6 feet. Mr. JAMES PAUL, Killearn, was an easy winner in the class for 24 vases of Sweet Peas, and Mr. JOHN SMELLIE, Helensburgh was first for 12 vases. These two exhibitors secured the majority of the prizes in the other classes for Sweet Peas.

In the other classes for cut flowers mention may be made of the exhibit of Mr. C. ENGELMANN, Saffron Walden, which secured first place in the class for a collection of perpetual-flowering Carnations. Messrs. TORRANCE AND HOPKINS, Busby, were first for a similar collection of Border Carnations. Early flowering Chrysanthemums were a particularly strong class; Messrs. TORRANCE AND HOPKINS led in the class for a collection. Other leading prizewinners were Mr. CLAUDE JENKINS, Glasgow; Mr. THOMAS NELSON, Rutherglen; and Mr. W. P. BLYTH, Busby.

In the section for cut herbaceous flowers the entries were numerous, and all of remarkably high quality. Dahlias were exceptionally fine. Mr. PETER BAUCHOPE, Alexandria; Mr. HUGH BONE, Girvan; and Mr. JOHN RICHARDSON, Polmont, were the principal winners for hardy herbaceous flowers. Mr. CLAUDE JENKINS, Glasgow, was a notable winner in the Dahlia classes. One of the finest classes in the show was that for twelve 10 inch vases, three spikes in each, of Gladioli. Messrs. GEO. MAIN AND SON, Prestwick, Ayrshire, were first for noble examples of this flower. They also led in the smaller class for six vases. There were many classes for Pentstemons, Antirrhinums, Phloxes, Asters, Stocks, Begonias, etc., and also for Pansies and Violas. Competition was particularly keen in the latter classes, and Mr. A. OLLAN, Campbelltown, was a leading prize-taker.

The decorative classes were an important feature of the show, there being 18 entries in the class for a decorated dinner table, 8 feet by 4 feet. The first prize was secured by Miss NELLIE GIBSON, Welbeck Abbey, Worksop, for a somewhat heavy arrangement of choice Orchids. The second place went to Mrs. LITHGOW, Langbank (gr. Mr. L. Davidson), for a display of Gloriosa and Lady Pirrie Roses. Third prize was won by Mrs. RUSSELL, Newton Mearns, for a delightful arrangement of single Roses. The varieties were Irish Elegance and Old Gold. R. J. DUNLOP, Esq., Barskimming, Mauchline (gr. Mr. J. Currie), was placed fourth, with a most graceful decoration of red Spiraeas and Asparagus. Mr. GEORGE REID, Dundee; Mr. W. PAULANE, Alexandria; and Miss MARGARET SMELLIE, Helensburgh, were other prominent winners in the decorative classes.

FRUIT.

For a decorative fruit table, the collection to consist of 24 dishes of fruit, in not fewer than nine distinct kinds, the premier prize and Challenge Cup was awarded to EARL BALFOUR, Whittingehame, East Lothian (gr. Mr. George Anderson), for a choice collection. The Grapes were Black Hamburgh, Cooper's Black, Muscat of Alexandria, Madresfield Court, and Appley Towers; Peaches, Apples, Pears, and Melons were also very fine. The decorations used were red Carnations and Gypsophila. The second prize was awarded to WALTER CURRIE, Esq., Castle Leran, Gourock (gr. Mr. C. Trail). The Grapes in the first collection received 85 points, and in the second 80½ points. Mr. D. CAMPBELL, Dumfries, excelled for a collection of 12 dishes of fruit, and Mr. FRANK G. DUNBAR won in the class for six dishes.

The classes for Grapes were keenly contested. For eight bunches Mr. S. GORDON, Whauphill, secured premier honours with finely finished bunches, and Mr. W. J. BUCHANAN, Alloa House Gardens, Alloa, led for four bunches. There were 70 classes in the fruit section.

VEGETABLES.

The vegetable classes at Glasgow are always keenly contested, and they are notable for the supreme excellence of the exhibits. For a collection in which a first prize of £10 was offered, leading place was taken by Mr. JOHN GRAY, an amateur gardener, Uddingston. The same exhibitor won, in keen competition, leading honours for the two next most important collections, including the Lord MacLay Challenge Cup. In the class for a collection open to amateurs only, first prize was won by Mr. JOSEPH DEVOY, Stranraer. There were over 80 classes for vegetables. The principal winners were Mr. J. DEVOY; Mr. ROBERT GRIGOR, Dumfries; Messrs. W. MURRAY AND SON, Polmont; and Mr. JAS. McGHEE, Houston.

NON-COMPETITIVE EXHIBITS.

Non-competitive exhibits were very numerous, and we only detail the leading and most important.

The largest exhibit in the show was staged by THE CORPORATION OF GLASGOW, per Mr. MATTHEWS, the Director of Parks and Gardens. This secured a Gold Medal and special appreciation. Large Gold Medals were awarded to Messrs. DOBBIE AND CO., LTD., Edinburgh, for Roses, Sweet Peas, and Dahlias; Messrs. AUSTIN AND MCASLAN, Glasgow, for vegetables; Messrs. KENT AND BRYDON, Darlington, for a rock garden; Mr. MAXWELL M. HART, Glasgow, for a rock garden; Messrs. CHARLESWORTH AND CO., Haywards Heath, for Orchids; and Messrs. L. R. RUSSELL, LTD., Richmond, Surrey, for flowering plants.

Gold Medals were awarded to Messrs. AUSTIN AND MCASLAN, for Conifers; Messrs. BLACKMORE AND LANGDON, Bath, for Begonias; CARSE OF GOWRIE NURSERY CO., Errol, for fruit; Messrs. STORRIE AND STORRIE, Glencarse, for fruit; Mr. H. N. ELLISON, West Bromwich, for Ferns; Messrs. KERR AND CO., Glasgow, for vegetables; Mr. WILLIAM LEIGHTON, Glasgow, for flowers; Mr. THOMAS SMITH, Newry, for shrubs; Messrs. SANDER AND SON, St. Albans, for Orchids; Messrs. THYNE AND SON, Dundee, for flowers.

Silver Medals were awarded to Messrs. BAKERS, Wolverhampton, for hardy herbaceous flowers; Messrs. DANIELS BROS., LTD., Norwich, for Black Currants; Messrs. JOHN FORBES, LTD., Hawick, for hardy herbaceous flowers; Messrs. I. HOUSE AND SON, Bristol, for Scabious; Messrs. LEARMONT, HUNTER AND KING, LTD., Dumfries, for fruit; Mr. D. MCLEOD, Manchester, for Orchids; Mr. W. WELLS, Junr., Merstham, for herbaceous flowers; and Mr. C. T. YOUNG, Glasgow, for Dahlias.

ROYAL OXFORDSHIRE HORTICULTURAL.

THE annual show of the above Society was held on the 29th and 30th ult. Rain fell almost incessantly on the first day; the second day, however, was fine, and there was a good number of visitors.

Mrs. G. H. MORRELL again displayed a non-competitive collection of choice plants from her famous gardens, and her gardener, Mr. A. Gibson, is to be congratulated on setting up such a graceful group. Mr. JOHN JOHNSON, of Garsington, staged an effective bank of hardy perennials.

Messrs. ALLWOOD BROS., Haywards Heath, had on view a splendid display of choice Carnations, a few of the best varieties being Wivelsfield Apricot, Benora, and Edward Allwood.

A beautiful exhibit of Roses was staged by Mr. GEORGE PRINCE, the most noticeable sorts being Padre, Mme. Butterfly, Emma Wright, Mrs. Oakley Fisher, and Hadley, the last being a very sweet scented variety. Another choice exhibit of Roses was staged by Mr. J. MATTOCK, of Headington.

Messrs. ISAAC HOUSE AND SON, Bristol, had an effective arrangement of perennial Scabious. Mr. JOHN WALKER, of Thame, exhibited a collection of Dahlias, the most notable sorts being President Wilson, Ebor and Sydney Jones.

Although the season in this locality has not been one of the best for vegetables, some good specimens were staged. Mrs. LESSING won the first prize in Messrs. Sutton and Sons' class. Mr. A. E. BRADSHAW took premier honours in Messrs. H. Smart and Sons' class, with superb produce, and his gardener, Mr. R. Wadham, is to be congratulated upon the fine exhibit. Mrs. LESSING was awarded the second, and Mr. W. JACOBS the third prize.

Messrs. WEST AND SON had on view a varied collection of garden sundries. Mr. HENRY DREW, Longworth, exhibited a choice collection of Roses. Messrs. BLACKMORE AND LANGDON showed a choice group of Phloxes, Delphinium and Begonia blooms.

The miscellaneous groups of plants were the best ever seen at this show. Mrs. LESSING, of Kingston House, won the first prize, Mr. T. H. ROSE the second, and Messrs. WEST AND SON the third.

Table decorations are another pleasing feature at this show. Mr. G. E. COUSINS was awarded first prize.

Fruit was fairly well shown. Black and white Grapes exhibited by Mr. A. S. B. TULL, were very fine in both bunch and berry.

Obituary.

William Douglas.—We deeply regret to announce the death of Mr. William Douglas, Easter Duddingston, Portobello, one of the most able and experienced market gardeners in Scotland. His land, of which he was proprietor, was notable for its fertility and the marvellous crops which it was capable of producing. The land was kept in perfect order, and Mr. Douglas was recognised as one of the best cultivators in the country. He grew his own strains of Cabbages, Leeks, Celery, Turnips, Beet, etc., and these were very carefully selected every esason. His grounds were regarded as a model of what a market garden should be. Mr. Douglas came in contact with a wide circle of seed merchants through Messrs. Dobbie and Co.'s annual Potato trials being carried out on land leased from him. He took a keen interest in these trials, and was always delighted to meet officials and trade visitors to them, who in their turn much appreciated his shrewd observations. The funeral took place on the 3rd inst., at Portobello cemetery, and was largely attended by a representative assembly of market gardeners, seedsmen, and others connected with agriculture and horticulture. Mr. Douglas had a serious operation two years ago from which he never recovered.

TRADE NOTE.

THE Ministry of Agriculture desires to inform growers and exporters of Potatos that following representations made to the Argentine Government as to the difficulty of procuring the entry of Potatos from this country into the Argentine Republic, revised regulations have now been issued by that Government which will allow the importation of selected Potatos grown in this country. These regulations provide that each consignment of Potatos imported into the Argentine must be accompanied by two certificates, one certifying that the land on which the Potatos were grown is satisfactory, and the other certifying that the Potatos have been inspected and found free from injurious diseases. The latter certificate must be issued at least

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one month after the date of the certificate relating to the land.

The Ministry is prepared to arrange on application for the necessary inspections in the case of Potatos grown in England and Wales which are intended for export to the Argentine. In order to comply with the regulations, early application should be made to the Ministry so that an inspection may be carried out at the time of lifting the Potatos. A further examination immediately prior to shipping will also be necessary. A fee at the rate of £2 2s. per day, with a minimum of £1 1s. is payable for the services of an inspector.

ANSWERS TO CORRESPONDENTS.

CAT TAIL.—*G. P.* We cannot identify the weed by the name you give, but if you will send us a specimen we will endeavour to advise you as to the best means of eradicating the plant.

FAILURE WITH TREE SEEDS.—*J. R. C.* Seeds of Hawthorn, Holly and Yew should be gathered when ripe, mixed with damp sand or ashes, and buried in the ground until the following spring, taking care to protect them from mice. It will take two, or even three, years before all the seeds germinate. Seeds of Laurel, Hazel, Cherry and Plum should be mixed with dry sand, and stored in a cool, dry place until spring. These should all germinate the first year. Mice are the greatest enemies of all these seeds.

NAMES OF PLANTS: *T. H.* 1, Hoya carnosa: 2, Stephanotis floribunda.—*Japonica.* Ceanothus Gloire de Versailles.—*S. B.* Flowering shoot, Calycanthus floridus; fruiting shoot, Cydonia japonica.—*B. A.* 1, Lythrum Salicaria; 2 Sidalcea malvaeflora.—*H. M.* Probably Tiarella cordifolia.—*F. B.* Not recognised; send specimens to a Rose specialist.—*E. B.* Double-flowered Bramble.—*X. Y. Z* Momordica Charantia.

NIGHT SOIL.—*Angmering.* The material in your earth closets would have but little manurial value and the disinfectant you have employed might prove injurious to plants. If you have an out-of-the-way place in the garden where it could be placed in a heap and mixed with plenty of dry soil, the harmful effect of the disinfectant might disappear in time, and you could then spread it over the vegetable quarters in the autumn and dig it deeply in the soil.

SCUM ON LAKE: *A. H.* Bordeaux mixture sprayed on to the surface of the lake will destroy green scum, but the operation should be repeated after several weeks, if necessary Use the mixture at about half the usual strength to commence with, so that the aquatic plants may not be injured. The operation, if carried out carefully, will not harm the goldfish that are present in the water.

SOOT ON LAWNS: *F. J. B.* Soot is a nitrogenous fertiliser and would therefore encourage the growth of grasses, but at the same time it would encourage the growth of lawn weeds and to some extent of Clover also. We believe Achillea may be dyed by means of the aniline dyes, obtainable through most oil and colour merchants.

TOMATOS WITH HARD, YELLOW PATCHES: *H. E. M.* and *M. E. C.-B.* The hard, yellow base of your Tomatos is not due to organic disease. It is generally attributed to a lack of potash in the soil, and you will be well advised to use wood-ash freely in the potting compost for your Tomatos. You might try an application of soluble potash to your present crop, say sulphate of potash, and in order to render it soluble as quickly as possible you should place the sulphate of potash in boiling water and allow it to cool before applying it to the roots.

Communications Received.—A. M. F.—F. W. K.—A. A.—D. S.—W. C.—F. C.—J. H.—J. B. D. P.—A. T. J.

MARKETS.

COVENT GARDEN, Tuesday, September 11, 1923.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples—		
James Grieve ½ bus.	3 6–	6 0
special	7 0–	10 0
Worcester Pearmain, best ½ bus.	4 6–	5 6
2nd	2 0–	3 0
Miller's Seedling, best ½ bus.	4 6–	5 0
2nd	2 0–	3 0
Lady Sudeley, ½ bus.	2 6–	4 0
—Lord Derby, bushel	5 0–	7 0
—Lord Suffield	5 0–	7 0
—Grenadier bus.	5 0–	7 0
—Warner's King	5 0–	7 6
—Tyrolean	10 0–	15 0
Bananas singles	11 0–	25 0
—doubles	20 0–	22 6
Blackberries lb.	– –	0 6
cultivated ,,	0 8–	0 9
Figs, doz.	4 0–	8 0
Grapes—		
—Alicante	1 3–	2 6
—Belgian	1 3–	1 6
—Cannon Hall	3 0–	6 0
—Hamburgh	1 3–	2 0
—English Muscat	2 6–	6 0
Grape Fruit—		
—South Africa	18 0–	20 0
—Jamaica	30 0–	35 0
Lemons—		
—Murcia, case	16 0–	20 0
—Messina, case	18 0–	22 0
—Naples	18 0–	24 0
Melons, English and Guernsey, each	1 0–	4 0
—Cantaloupe	2 6–	5 0
Nectarines, doz. Special	12 0–	18 0
Best	6 0–	9 0
Nuts—		
—Cobs	0 0–	1 0
Oranges—		
—South African Navels	16 0–	22 0
—Seedling	16 0–	22 0
Peaches—		
—English, doz. Special	12 0–	24 0
Best	6 0–	9 0
Pears—		
—French, Williams' crates	12 0–	16 0
Pines, each	2 0–	4 6
Plums—		
—English Victoria	10 0–	15 0
—Monarch	10 0–	12 0
—Pond's Seedling	9 0–	12 0
—Bush	6 0–	6 6
—Continental	3 0–	6 0
—Damson	9 0–	10 0

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Beans, outdoor—		
—Scarlets, ½ sieve	6 0–	7 0
—French Beans	0 7–	0 9
Beets—		
—New, doz. bun.	3 0–	4 0
Cabbage, doz.	2 6–	3 0
Carrots cwt.	8 0–	10 0
Cauliflower, doz.	4 0–	7 0
Cucumber, flat	10 0–	16 0
Maize, dozen	4 0–	6 0
Marrows, doz.	3 0–	4 0
Mushrooms—		
—Forced, lb.	1 6–	2 9
—Field	0 6–	1 0
Onions, Valencian, case	9 0–	10 6
—Dutch	5 9–	6 0
—English	8 0–	10 0
Peas, bushel	15 0–	20 0
Potatos, cwt.	5 0–	9 0
Radishes, doz.	1 0–	1 6
Tomatos—		
—English Pink	7 0–	8 0
—Pink and White	7 6–	8 0
—White	6 0–	6 6
—Blue	6 0–	6 6
—Guernsey	6 0–	7 0
—Dutch	5 0–	6 0
Turnips cwt.	8 0–	9 0

REMARKS.—The demand during the past week has been rather indifferent. Consignments of English Worcester Pearmain Apples have been heavy, and the necessity of clearing, as well as increased shipments from abroad, brought about lower values. At the moment of writing a better tendency is noticeable. Large green cooking Apples are much wanted, but medium-sized and small Apples are a slow trade. Pears are scarce and much in request. Grapes from all sources sell well. Melons are not going out very freely. Peaches of the best grades are a good trade, but others are difficult to clear. The Orange trade is fairly steady, but that for Lemons would improve with fine weather. Tomatos have not been plentiful, and prices quoted are much firmer. Cucumbers show little or no variation in price. The increased arrivals of field Mushrooms have not much affected the price of forced Mushrooms, except in the case of broilers.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz.	10 0–	18 0
—elegans	10 0–	12 0
Aralia Sieboldii	10 0–	12 0
Araucarias	30 0–	48 0
Asparagus plumosus	12 0–	15 0
—Sprengeri	12 0–	18 0
Aspidistra, green	48 0–	72 0
Asplenium, per doz.	12 0–	18 0
—32's	24 0–	30 0
—nidus	12 0–	15 0
Cacti, per tray, 12's, 15's	5 0–	7 0
Chrysanthemums —white, doz.	15 0–	18 0
—pink ,, ,,	18 0–	21 0
—bronze ,, ,,	18 0–	12 0
Crotons, per doz.	30 0–	42 0
Cyrtomium	10 0–	15 0
Heather white	15 0–	18 0
,, ,, 60's	6 0–	8 0
Hydrangeas —paniculata, ea.	3 6–	4 6
white & pink, doz.	15 0–	24 0
Lilium longiflorum, each	2 6–	3 6
—speciosum album, each	3 6–	4 0
—speciosum, rubrum, each	3 0–	3 6
Marguerites, per doz.	15 0–	18 0
Nephrolepis, in variety	12 0–	18 0
—32's	24 0–	36 0
Palms, Kentia	24 0–	30 0
—60's	15 0–	18 0
—Cocos	24 0–	36 0
Pteris, in variety	12 0–	21 0
—large 60's	5 0–	6 0
—small	4 0–	4 6
—72's, per tray of 15's	3 6–	4 0

REMARKS.—Flowering plants consist mostly of Chrysanthemums in 48 sized pots. These meet with a ready demand, and the supplies are not sufficient for present requirements. A few Asters are obtainable, but their prices are high. There is a fairly good supply of Ferns of various sizes, and a good selection. Palms are less plentiful. A few good plants of Crotons are on offer. Kochias are also good in 48 sized pots. A few plants of Cinerarias are the newest subjects on sale. Trade in general is quiet.

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum decorum, doz. bun.	12 0–	15 0
—cuneatum, per doz. bun.	8 0–	10 0
Asparagus plumosus, per bun. long trails, 6's	4 0–	5 0
med. sprays	2 6–	3 6
short ,,	1 0–	1 6
—Sprengeri, per bun. long sprays	2 6–	3 0
med. ,,	1 3–	1 6
short ,,	0 9–	1 0
Asters, per doz. bunches —white	6 0–	9 0
—coloured	5 0–	8 0
Carnations per doz. blooms	3 0–	4 6
Chrysanthemum, per doz blooms —white, ,,	3 6–	8 0
—yellow ,,	5 0–	7 0
—bronze ,,	2 6–	5 0
—pink ,,	4 0–	6 0
spray per doz. bun.	15 0–	30 0
Croton leaves, var., per bun.	2 6–	4 0
Gardenias, 12's, per box	6 0–	8 0
18's, per box	–	6 0
Fern, French per doz. bun.	1 0–	1 3
Forget-me-not per doz. bun.	4 0–	6 0
Heather, white per doz. bun.	9 0–	12 0
Lilium longiflorum long per doz.	4 6–	5 0
short ,, ,,	5 0–	6 0
Lily of the Valley, per doz. bun.	24 0–	36 0
Orchids, per doz. —Cattleyas	24 0–	30 0
—Cypripediums		
Pelargonium, per doz. bunch, double scarlet	–	6 6
Physalis per doz. bun.	15 0–	18 0
Roses, per doz. blooms— —Melody	2 0–	3 6
—Ophelia	2 0–	4 0
Smilax, per doz. trails	5 0	–6 0
Stephanotis, per 72 pips	3 6–	4 0
Stock, —white per doz. bun	9 0–	12 0
Sweet Sultan, white, per doz. bun	4 0–	6 0
—mauve, per doz. bun.	4 0–	6 0
—yellow, per doz. bun.	5 0–	6 0
Violas, per doz bun.	1 6–	2 0

REMARKS.—General conditions were more favourable for the week-end trade. Chrysanthemums are arriving in larger quantities, disbudded blooms being most plentiful and much improved in quality; good blooms of yellow, pink, and bronze sorts are now on sale. Amongst "spray" Chrysanthemums white is still short, bronze being the best on the market at the present time, yellow and pink being rather poor in quality, but there should be a further improvement during the next few days, with a gradual fall in prices. Carnations are of very medium quality, but Roses show a general improvement in quality. Gladioli are somewhat shorter, and already show signs of finishing. Similar remarks apply to Statices and Gypsophila. The quantities of good Asters are below present requirements, and their prices remain firm. Michaelmas Daisies are now making their first appearance, the variety King George (dark blue) being good in quality. Physalis is now at its best condition, and prices are more normal. Choice white blooms include Gardenias, Lapagerias, Lily-of-the-Valley, Stephanotis, and a little white Bouvardia. Small consignments of Arums (Richardias) are now arriving.

GARDENING APPOINTMENTS.

Mr. Cyril Harding, late General Secretary of The British Gardeners' Association, has been appointed British and Colonial representative for the firm of J. P. HARTMANN, Ghent.

Mr. W. G. Sims, for the past four and a half years Gardener-Bailiff to Col. ASHLEY, M.P., The Grove, Stanmore, Middlesex, and previously to joining the army Gardener for six years to Sir HENRY HOARE, Bart., Stourhead, Zeals, Wiltshire, as Gardener-Bailiff to Sir ARTHUR WHINNEY, Lee Place, Charlbury, Oxon. (Thanks for 2/6 for R.G.O.F. Box.—EDS.)

Mr. James Elson, for the past ten years (including three and a half years with H.M. Forces) Foreman at Lowther Castle, Penrith, Cumberland, and previously at Petworth Park, Sussex, and Stanford Hall, Loughborough, Leicestershire, as Gardener to Captain M. P. JONES, Llannerch Park, St. Asaph, North Wales. (Thanks for 2/6 for R.G.O.F. Box.—EDS.)

Mr. William M'Guffog, recently Gardener to C. E. GALBRAITH, Esq., The Barony, Dumfriesshire, and formerly Gardener to the late COUNTESS OF SELKIRK, Balmae, Kirkcudbright, as Gardener to Mrs. KENWICK, Mabie, Kirkcudbrightshire.

Mr. John Melrose, recently gardener to E. W. HOPE-JOHNSTONE, Esq., Rachills, Lockerbie, Dumfries-shire, and formerly gardener to SIR CHARLES HOPE-DUNBAR, St. Mary's Isle, Kirkcudbright, as gardener to E. PERRINS, Esq., Ardross Castle, Ross-shire.

CATALOGUES RECEIVED.

GEORGE BUNYARD AND CO., LTD., Maidstone.—Roses.

F. G. WOODCOCK, Drum Hill, Walmer, Kent.—Sweet Peas.

H. H. MAW AND SON, Friarwood Nurseries, Pontefract.—Greenhouse, Hardy and Bedding Plants.

Bulbs.

CLIBRANS, LTD., Altrincham.

D. G. PURDIE, 6, Waterloo Street, Glasgow.

SAMUEL FINNEY AND CO., LTD., 20, Grainger Street, Newcastle-on-Tyne.

H. N. ELLISON, West Bromwich.

AUSTIN AND MCASLAN, Glasgow.

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THE
Gardeners' Chronicle

No. 1917.—SATURDAY, SEPT. 22, 1923.

CONTENTS.

Cherries, the pollination of 177
Cultural memorandum—
Root pruning ... 176
Daffodils, notes on some of the newer ... 173
Fruit crops, remarks on the condition of the ... 176
"Gardeners' Chronicle," seventy-five years ago 168
Hardy flower border—
An effective border ... 169
Anemone ranunculoides 169
Horticultural Education Association 168
Island of Lewis, the future of the ... 167
London's second tour to Scotland 172
Orchid notes and gleanings—
Laelio-Cattleya Morryth 171
New hybrid Orchids 171
Pateman, Mr. T., presentation to 167
Pelargonium Bollison's Unique 177
Potato awarded a Gold Medal, new 167
Public parks and gardens—
Battersea Park ... 175
Rose garden, the—
Pot Roses 169
Rose Mme. Colette Martinet 169
Shrubs at Malonya, Czechoslovakia, a garden of evergreen ... 172
Societies—
Royal Caledonian Horticultural ... 179
Royal Horticultural 177
Trees and shrubs—
Magnolia stellata ... 174
Week's work, the ... 170

ILLUSTRATIONS.

Battersea Park, flower beds at 174, 175
Members of the Horticultural Education Association at Wisley gardens 168
Narcissus beauty of Radnor, 171; Jessie 173
Rose Orleans as a pot specimen, dwarf Polyantha ... 169

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 54.9°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, September 19, 10 a.m.: Bar., 30.0; temp., 58°. Weather—Showery.

Apple Canker.

The influence of climate on the distribution and extent of plant diseases is well illustrated in the case of canker—the disease of Apples due to the fungus Nectria galligena. As is the case with Phytophthora infestans, the fungus responsible for late blight in Potatos, the canker fungus flourishes and does most damage in wet districts and seasons. This disease is more prevalent in the west than in the east of England—the rainfall map giving, indeed, a fair indication of its intensity—and it is yet more general in Ireland where the weather is wetter even than in the West of England. Direct experiment made some years ago confirms these facts. Pot trees of Apples (Allington Pippin and Lord Suffield) affected with the canker fungus and overwatered took the disease more readily and suffered from it more severely than did plants of these varieties grown in pots under drier conditions. Experiments designed to ascertain whether spraying is a means of preventing infection have been carried out during the past few years at Long Ashton*. The results, as perhaps might have been expected, are by no means conclusive. In a previous report the result of spraying with Burgundy mixture was not unencouraging. Equal numbers of branches of Apple which had previously been inoculated with the fungus were sprayed and unsprayed. Subsequent examination showed that in the case of the unsprayed branches there were five hundred canker infections, whereas in the sprayed there were only one hundred and seventy-nine. In the following year, 1920, a hundred branches were selected, twenty on each of five trees; all were inoculated with the canker fungus and half were sprayed. The number of infections which appeared in 1921 was but small in either case, but it is somewhat disconcerting to find that the balance favoured the unsprayed branches. The investigation, however, showed incidentally the great importance of adequate surgical treatment for canker. Cankers imperfectly cut out tended to reappear, and hence the advice is given that when cutting out cankered branches the operator should take care to cut right back to clean wood. Having regard to the climatic influence on canker, it would seem that it would pay the grower well to exercise great care in the choice of a site and to secure well drained land for his orchard. In the case of established orchards he should endeavour, in wet districts, to improve drainage by all means in his power, and probably also, in the case of heavy land, to use surface rooting stocks. The number of sprays which mycologists and entomologists are apt to recommend for the numerous pests of the orchard is becoming too great for the orchardist's purse and patience. Indeed, it is not surprising to find that some fruit growers are beginning to abandon spraying altogether. For our part, we confess to surprise that this should be so, but neither we nor anyone else can say whether or not they are right. What is wanted very much is an experimental orchard where trees are planted under reasonably favourable conditions, so that the economic side of spraying might be investigated. There are, in fact, two distinct problems which ought to be investigated, and investigated separately. One of these problems is: Given a good average climate and suitable soil, careful and thorough cultivation and a proper choice of varieties, is spraying profitable or not? The other question is: What spray routine is best calculated to keep down the common pests in orchards which are not situated in places most congenial to fruit production? In the latter case, we think that a composite spray of lead arsenate, lime sulphur and a little nicotine is calculated to go far toward keeping orchards clean. Needless to say, in a year such as this, it would have failed, and in our experience did fail to check aphis on Plum. Exceptional seasons, no doubt, will demand exceptional remedies, but for our part we doubt whether any spray would have controlled this year's attack of aphis unless it had been done just at the moment when the pests were making their appearance.

* "Canker Control Trials," by S. P. Wiltshire. *Annual Report*, Agricultural and Horticultural Research Station, Long Ashton, Bristol, 1921.

Presentation to Mr. T. Pateman.—On the occasion of Mr. T. Pateman leaving the gardens at The Node, Knebworth, in the district of Welwyn, to take charge of Sir Charles Nall-Cain's garden and estate at Brocket Hall, Hatfield, members of Knebworth Parish Church presented him on Monday last with a beautiful inlaid mahogany clock inscribed as follows: "Presented by subscription in 1923 to Thomas Pateman. In grateful recognition of his voluntary services as a member of the choir and bell-ringer for thirty-seven years." The presentation was made by the Countess of Lytton, who said Mr. Pateman would be missed both by the members of the church and by horticulturists, but they had the satisfaction of knowing that he had not removed far from their midst and they hoped to see him frequently with them in the future.

The Future of the Island of Lewis.—In connection with Lord Leverhulme's decision, in view of the failure of his scheme to develop on industrial lines the Island of Lewis, which he purchased for that purpose, to make it over to the inhabitants, a meeting of the local authorities concerned was held at Stornoway on September 3, when Viscount Leverhulme made known to them his decision. Among other observations, Lord Leverhulme said he would be grateful if the trustees would turn part of the grounds round Stornoway Castle into a public park, named the "Lady Lever Park," after his late wife, who was with him in 1884 when he made his first visit to the island.

Box Hill Preservation.—The Editor of *Country Life* writes that he has "very great pleasure and satisfaction in announcing the success of the Box Hill Fund. The solicitors for the National Trust have instructions to draw up the deeds of purchase. It is impossible to give the exact figures because subscriptions are still coming in and some of the lists are not yet closed, but at present a total of about £7,500 has been subscribed. It is hoped to raise this sum by another £1,000, as the upkeep of a large estate, such as the Box Hill property has now become, involves a considerable expense. For this happy outcome of the movement thanks are due in the first place to those members of the general public, who, in spite of the difficulties of the time, have generously subscribed according to their means, and particular thanks must be accorded to 'G. H. O.,' the anonymous donor who started the fund with a subscription of £1,000, and, according to his promise, has closed it with an equal sum. In the next place acknowledgment is cordially made to our Press contemporaries, who have generously given both space and trouble to the furtherance of the cause. Among these, particular thanks are due to the efforts of *The Gardeners' Chronicle*."

Forcing by Means of Hot-water Springs.—France, poor in coal but rich in water power, is seriously studying the question of the electrification of her railways, and in a paper read at the Academy of Sciences, M. Dybowski raised the question whether her numerous hot mineral springs might not be utilised for forcing vegetable products. An experiment has been made, he pointed out, in the South of France, where such springs abound. At Prechacq (Landes), water at 63 deg. (145 deg. Fahr.) was obtained by boring, and conveyed in covered conduits to a twenty-five acre plot more than a mile away. Here greenhouses were constructed, each an acre in extent, for forcing fruit and vegetables Speaking, of course, from a purely scientific standpoint, M. Dybowski did not give commercial figures, but he pointed out that in principle springs must have a minimum temperature of 60 deg. C. (140 deg. Fahr.), with an ample supply, to be of practical service. Wooden conduits best retained the heat, but a loss of at least 2 deg. Fahr. per mile was inevitable. Basing his calculations on a loss of 25 deg. C. (75 deg. Fahr.), he calculated that a spring giving ten gallons per minute (at 140 deg. Fahr.) gave calorific results equal to burning a ton of coal, and concluded that where hot springs abound and markets are available, the experiment might be extended with good results.

New Potato Awarded a Gold Medal.—Lord Derby's Gold Medal offered in the Ormskirk Potato trials for the finest new variety immune to Wart Disease has been awarded to Messrs. Sutton and Sons' new late variety, Ben Cruachan, a very prolific, white, round Potato of excellent quality.

Imperial Fruit Show.—Further particulars of this important fruit show, which will be held in the Belle Vue Gardens, Manchester, on October 26 to November 3, are sent by the secretary. Practically all space allotted for trade exhibits at the exhibition has now been taken. A silver cup, valued at £50, presented by George Swift, Esq., J.P., will be awarded to the best trade exhibit in the show. Several special features have been and are being arranged. The Federation of British Growers have taken a large stand, and are arranging for part of it to be used for Apple tasting. Different varieties of Apples will be cut into slices and placed on plates or other suitable receptacles, clearly marked with the name of

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the variety. Visitors to the show will be at liberty to taste samples of the varieties offered free of charge. An Apple packing competition has been arranged to be run concurrently with the Apple packing demonstration. There are two classes—one for boys and girls of 18 years of age and under and one for those over 18 years of age. Prizes of £3, £2, and £1 will be awarded in each class. Other special features are still in course of organisation, including a table dressing competition for Manchester hotels (fruit and flowers only to be used), a guessing competition of the number and weight of Apples in various commercial packages, open to all visitors. The National Federation of Fruit and Potato Trades Association is again undertaking the organisation of a special cooling demonstration, showing the various ways of cooling fruit and Potatos. Special trains for the fruit growing districts are being arranged. The Wisbech Fruit Growers' Association is proposing to run a one-day excursion from Cambridge, picking up the Wisbech growers at March.

it were insufficient, in the light of present knowledge, and indicated some of the more suitable lines of attack. Professor Quanjer, of the Dutch Institute for Plant Pathology, said that in these "virus" diseases the attack was usually general in the whole tissues, whereas in most diseases due to fungi, bacteria, eelworms, or insects the seat of trouble was localised. It was probable that the virus was spread through the phloem system. This hypothesis had been confirmed by various kinds of experimental evidence, including the grafting of phloem tissue from diseased to healthy plants. The carriers of infection were almost certainly aphides sucking the phloem in some Potato diseases and similar diseases of other plants. The curly top of Beet was spread by leaf-hoppers. In Tobacco and Cucumber mosaic disease, where infection could easily be spread by means of the juice, biting insects acted as carriers. There was much evidence that diseases of the "virus" group, in the case of Potatos, spread more in warm climates and

various mildew plants on Peas, Beans, Peaches, Vines, Onions, and attributed to the fungi, strengthens this opinion with all the force which can be derived from popular belief in the history of common phenomena. To this Mr. Berkeley adds much evidence derived from microscopical observation and other careful scientific research. His papers on these subjects in our own columns and in the *Journal of the Horticultural Society*, demand the most attentive consideration. A passage in the latter work (Vol. 1, p. 23) may be taken as an exposition of the views entertained by this distinguished naturalist. "The decay" (in the Potato), writes Mr. Berkeley, "is the consequence of the presence of the mould, and not the mould of decay. It is not the habit of the allied species to prey on decayed or decaying matter, but to produce decay—a fact which is of the first importance. Though so many other species have this habit, these have not. The plant then becomes unhealthy in consequence of the presence of the mould, which feeds upon its juices and prevents the elabora-

MEMBERS OF THE HORTICULTURAL EDUCATION ASSOCIATION AT WISLEY GARDENS, ON THE 14TH INST.

Virus Diseases in Plants.—At the meeting of the British Association on the 18th inst. in a joint discussion held by the Botanical and Agricultural Sections, it was stated that the so-called virus diseases of plants caused great devastation. Mr. T. Whitehead said that leaf-roll, crinkle, and stipple-streak were probably the most serious of the Potato virus diseases in this country. Leaf-roll alone had resulted in losses of 55 and 51 per cent. of the crops in 1921 and 1922 respectively. Leaf-roll did not appear to lessen the size of the tubers, but it diminished their numbers by one-half. The effect on the yield was not seen in the year of attack, but only in the crop from infected tubers. The selection of healthy plants, elimination of "rogues," and early lifting appeared to be the simplest practical ameliorative measures. Dr. Paul Murphy said that recent researches were tending to show that several of these obscure maladies, classed as "virus diseases," and hitherto set down to old age, or unfavourable environmental or cultural conditions, were really infectious diseases, to be compared with some of the most serious infections of men and animals. He dealt in particular with "curl" of Potatos, indicated that the old measures of combating sheltered localities, which also were more favourable to the aphides and green-fly generally.

Horticultural Education Association. — The eighteenth annual meeting and conference of this Association was held on the 13th and 14th inst. On the second day the members visited the Royal Horticultural Society's Gardens at Wisley, where they were received by the director, Mr. F. J. Chittenden, V.M.H., and under his guidance inspected the trial grounds, etc. The photograph shows the members assembled at the entrance to the laboratory, in which they were entertained to luncheon. After luncheon, the controller of horticulture, Mr. W. G. Lobjoit, O.B.E., who is seen in the centre of the group, delivered an address.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Fungi the cause of disease.* The Rev. Mr. Berkeley, than whom there is no higher living authority, advocates the opinion that fungi are the cause of disease, and assigns the injury produced of late years in the Potato to their attacks. The notorious mischief connected with the presence in Corn of smut (Uredo segetum) and the foetid Bunt (Uredo caries), of

tion of nutritive sap in the leaves, while it obstructs the admission of air and the emission of perspiration. The stem is thus overcharged with moisture, and eventually rots, while every source of nutriment is cut off from the half-ripe tubers. It would be as reasonable to say, with our knowledge of the nature and habits of the cereal fungi, that bunt, or mildew, or the other allied diseases which affect Corn, are the consequence and not the causes of disease. In favourable seasons they are not developed; in unfavourable seasons they spread like wildfire; in one sense, therefore, the atmospheric conditions are the cause, but merely as they stimulate into action the latent pest. The immediate cause of disease is the fungus which preys upon the tissues of the Corn." *Gard. Chron., September* 16, 1848.

Appointments for the Ensuing Week.—Wednesday, September 26: Mitcham, Tooting and District Horticultural Society's meeting. Thursday, September 27: Royal Botanic Society's meeting; Wargrave and District Gardeners' Society's meeting. Friday, September 28: Carluke Chrysanthemum Society's show. Saturday, September 29: Finchley Chrysanthemum Society's show.

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THE ROSE GARDEN.

ROSE MME. COLETTE MARTINET.

It is not often that a new Rose of distinct merit fails to catch the public eye. If it does so, then it is likely to be of Continental rather than of British origin. Rose Mme. Colette Martinet was raised at Lyons and was introduced by M. Pernet-Ducher in 1915. Any new variety sent out by him naturally deserves attention, and this variety was at first in demand, but seems quickly to have gone out of favour. I wonder why. In the National Rose Society's *Select List of Roses*, 1917 edition,* Mme. Colette Martinet occurs in the section devoted to some recent Roses, and is there described as a fine new H.T. Rose, copper coloured, vigorous and suitable for garden, bedding or pot. It does not appear at all in the Society's 1921 edition. Then I have before me a nurseryman's catalogue of four years ago, in which this variety is mentioned as "a new Rose that has undoubtedly come to stay." Yet two years later it had dropped out of his list!

From my experience of this Rose I am inclined to compare it for general use with that well-known variety, Mme. Ravary, a creation also of M. Pernet-Ducher. The two Roses are not identical, but as representing the yellow bedding hybrid Tea, the one may be weighed against the other, and taking all points into consideration I think Mme. C. Martinet outweighs Mme. Ravary. In these days of Pernetiana yellow Roses, the origin of which we owe also to the great French hybridist, the yellow H.T. may appear to some *de trop*. But the two types are quite distinct. The H.T's may be spoken of as coppery yellows, while the Pernetianas give us clear and definite yellows, approaching to that of the Daffodil. There is, of course, at present a great run on the Pernetiana yellows, especially since the weakly Rayon d'Or has been succeeded by such good growers as Mrs. Wemyss Quin, Golden Emblem and Christine. But the coppery yellows have a charm of their own. They have a fuller and sweeter perfume, and blend better, I think, with the red H.T.'s.

Now let us see how Mme. Colette Martinet compares with Mme. Ravary as an all-round garden Rose. The bloom of Mme. Ravary in its half-open state and when exhibiting its best colour is exquisite and not equalled by that of the other Rose. But in the expanded state Mme. Martinet is to be preferred; it is fuller, more pointed, keeps its colour better and lasts twice as long in a vase. Mme. Ravary has, however, a stouter petal. Both are equally fragrant and both stand the rain quite well. They have strong flower stems, but that of Mme. Martinet is the stiffer of the two. A conspicuous fault of yellow H.T. Roses is the lack of colour in their late blooms. Mme. Ravary is a great offender in this respect. Its autumn flowers are apt to lose all their charm of colour and to appear only of a dirty white. Mme. C. Martinet is distinctly less disappointing in this respect. As regards constitution there is little to choose. Mme. Martinet is somewhat taller in growth—an advantage—as Ravary is at times rather too dwarf. I have a suspicion that Mme. Martinet may be more sensitive to frost. Both appear equally resistant to mildew. Mme. Ravary has perhaps a slightly larger and thicker leaf.

Consequently from my experience Mme. Colette Martinet would seem worthy of further trial, especially in the north-west of England. Of course, if Mme. Ravary and the like are considered to have been ousted by the Pernetiana yellows, then Mme. Martinet must be reckoned a back number as well: but I think there is room in the Rose garden for both kinds of yellows, and I fancy in the cooler parts of Britain the yellow H.T's will give more bloom during the season than the Pernetianas.

It would be interesting to know how the yellow H.T. Mrs. Frank Bray compares with the above two Roses. I have had no experience of this variety. It was formerly included in the N.R.S.'s *Select List of Roses*. *J. P., Carlisle.*

* This edition is unfortunately not dated, but I find on reference to the *Rose Annual* that it must have been published in 1917.

POT ROSES.

Roses in pots that have been stood out-of-doors all the summer should now be attended to. If they are in good condition all that is necessary is to turn them out of their pots to see that the drainage is perfect, remove some of the top soil and substitute a top-dressing consisting of a fairly heavy loam enriched with the addition of a six-inch potful of bone meal to every bushel of soil and sufficient coarse sand to render the compost porous. Plants in a bad condition at the roots will, of course, require to be repotted, using a similar compost to that advised for top-dressing. For their sizes Roses require fairly large pots, as they need a large root run; climbing varieties in pots require the same treatment, staking and tying them securely. The pots should then be plunged to the rims in a bed of coal ashes in an open position out-of-doors until such time as they are required for forcing. The best of the dwarf polyantha Roses are excellent for pot cultivation, as they flower profusely over a long period. Young plants that were flowered in 48-sized pots last season should be shifted into six or seven-inch pots, in which they will make fine specimens. The stock may easily be kept at a sufficient number by inserting a batch of cuttings each year, lining them in out-of-doors towards the end of October. Cuttings of this nature inserted last year have made good plants and are ready for lifting and placing in 48-sized pots during the latter half of October. Potted at that time they become well established at the roots and are ready for use during the following spring. Some of the best varieties for this purpose are Coral Cluster, Orleans (see Fig. 62), Red Orleans, Mrs. Cutbush, Edith Cavell, and E. Thornton. This class of Rose is very useful for conservatory and house decoration, and should be grown largely in private establishments for the purpose. *C.*

FIG. 62.—DWARF POLYANTHA ROSE ORLEANS AS A POT SPECIMEN.

HARDY FLOWER BORDER.

ANEMONE RANUNCULOIDES.

This pretty little Wood Anemone is a native of some districts of Great Britain, although not at all common. It has pleasing leaves and small, golden yellow flowers, rather smaller than those of A. nemorosa, our native white Wood Anemone. For planting in a moist and rather shady part of the garden, in soil of loam and leaf-mould, with or without the addition of a little sand, it is excellent. Still prettier is a paler coloured variety, as yet scarce, named A. ranunculoides pallida or sulfurea, which, when it has spread into a little mass, is very attractive indeed. There is a rare old variety with double, golden yellow flowers, called A. ranunculoides fl. pl. It is rarely offered in catalogues, but is an interesting and pretty flower, which I have grown satisfactorily under the partial shade of a deciduous tree. Roots of these Anemones may be purchased in autumn and should be planted as soon as possible about an inch deep. A. ranunculoides and its varieties are quite hardy. *S. Arnott.*

AN EFFECTIVE BORDER.

A most effective border I recently saw consisted of a planting of various orange, terra-cotta and crimson flowers, with no particular design in its formation, but evidently only for colour effect. The plants used were clumps of Tritoma uvaria grandiflora planted five feet apart, with large clumps of Montbretia crocosmaeflora George Davidson just a little in front, a belting of orange and terra-cotta Antirrhinums, and an edging of Viola Maggie Mott. The plants had as a background a dark green Holly hedge. The effect of the border under a setting sun was indeed dazzling. *W. Logan.*

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The Week's Work.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Evergreen Shrubs.—Between now and the end of October is a good period in which to remove evergreen shrubs or make new plantings of the same, the ground being still warm, while the atmospheric conditions are gradually cooling, and, generally, increasing in humidity. On the assumption that the shrubs may occupy the position for a long time, the site should be dug deeply, and any materials thought necessary incorporated at the same time. In making a new shrubbery the practice is sometimes followed of planting more closely than should be adopted to obtain an early "clothed" effect. The method has its value, and where it finds acceptance the best positions should be given to those plants it is wished to make permanent, while the supernumeraries might well be of a less valuable character and such as may be removed easily when signs of crowding are apparent.

Laurus nobilis.—In planting evergreens, a specimen or two of the Sweet Bay might be included, if the soil is drained and the site protected from the coldest winds by other shrubs. Usually one finds the Bay planted in or near to the kitchen garden, for the reason, presumably, that a few leaves are occasionally required for culinary purposes. These could, however, be gathered just as well from trees in the pleasure ground, while the latter place would be enriched by the inclusion of the fragrant foliage.

Violas and Pinks.—Where the dividing of the old roots of such plants as Violas and Pinks is contemplated, the plants will recover more quickly if the work is done now, while the soil still retains much of its summer warmth, and small, young shoots have a few rootlets. Separated thus early, such plants have a great advantage over those divided in spring. The soil for the Violas should be moderately rich, and if on the heavy side, lightened by the free addition of leaf-mould. Rooted cuttings of both these plants may be inserted where they are to bloom next year, but should there be any doubt about the well-being of the Violas in winter, let them remain where they are until the spring.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

The Early Peach House.—This house is generally utilised for storing tender plants from out-of-doors until the time comes to make preparations for starting the trees. The foliage, when nearly matured, may be detached by lightly brushing the shoots in an upward direction with a new Birch broom. Any trees that require attention at the roots should receive such attention before all the leaves have dropped, as the formation of new roots takes place quickly when a certain amount of foliage still remains. If the tree is in an unhealthy state owing to an unsuitable rooting medium, it may be given a fresh lease of life by carefully lifting and preserving the roots, and renewing the border with good loam of a medium character, to which is added sufficient old mortar rubble, broken plaster, wood ashes or burnt refuse to ensure perfect drainage. Peaches and Nectarines require plenty of water when in active growth, and a free passage of moisture through the soil is essential or the latter may become sour, more particularly if liquid manure from the farmyard is used in watering. When replacing the tree, lay out the roots at different levels up to within six inches of the surface, and not deeper than eighteen inches. Any thong-like roots should be notched at intervals, inserting a small stone or piece of other hard material to keep the cut open. Bunches of fibrous roots will eventually form at the notched parts, to the material benefit of the tree. The soil should be made quite firm and watered thoroughly, this completing the operation.

Root-pruning and Planting.—Trees with a tendency to grossness may be root pruned. Lift the tree, notch the strong roots, which are generally bare of fibrous roots, and replant them, using a little fresh soil where it is not necessary to entirely renew the border. If it is necessary to bring in a tree from out-of-doors, do so at the earliest opportunity after the foliage begins to fall; in the case of a large tree every care should be taken to preserve the roots in good condition, and any damaged ones should be cut back with a sharp knife to a sound part. When the work of planting is finished, give the roots a good soaking with water to thoroughly moisten the soil, and syringe the tree frequently to keep the foliage fresh. Shade should be afforded the tree if the weather is bright and sunny.

Pruning the Trees and Cleansing the House.—If the house is not immediately required for plant storage, as soon as the leaves are removed the trees may be pruned, the glass and woodwork cleansed, and the walls limewashed. If insect pests have been troublesome, dress the trees with paraffin emulsion, and in bad cases a second application may be necessary. For slight attacks, hot water applied at a temperature of 150° will be a suitable remedy. After the trees have been trained the surface soil should be removed from the border, disturbing the roots as little as possible, substituting good turfy loam mixed with a sprinkling of old mortar rubble and wood ash. Old-established trees may be dressed on the bared surface with a suitable artificial manure and covered with fresh soil. The house should be ventilated freely for some weeks to come.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Beetroot.—The roots of the first and second crops of Beets should by now be up and stored under the same conditions as advised for Carrots; but the main crop, if the roots are not quite matured, may be left in the ground till October: in no case should they be allowed to become large and coarse.

Cauliflower.—Carefully examine all Cauliflower plants that are "turning in," and cover the curds with the foliage to preserve the colour. If the heads are maturing too fast, pull the plants up with as much soil attached to the roots as possible, and heel them in under a north wall, where they will keep fresh for a considerable time. Make a sowing of two or three varieties in a cold frame in which the seedlings will withstand the winter, and when large enough prick them out fairly closely together, and keep the soil stirred between them. The rooting medium should not be too rich, otherwise the plants will grow too large. These, if wintered carefully, and kept as hardy as possible, will make fine plants for putting out in March, and will produce far finer heads than those sown in January or February. Magnum, Purity and Walcheren are three good varieties for this purpose.

Carrots.—The main crop of Carrots may now be lifted, and the tops cut off about 2 inches from the roots. Handle them carefully, or they will not keep well; they are best stored outside, provided heavy rains can be kept from them and the position is not too damp. Failing this, store them in sand in an open shed, leaving the tops just showing. Young carrots growing in frames should be thinned slightly and the frames kept close to favour quick growth. See that the plants do not suffer for want of water: one is apt to think watering is not necessary when much rain is falling outside, as is usual in the late autumn.

HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Labelling.—Now is a suitable time to label fruit trees, as, just before the removal of the crop, the form of the fruits enables many sorts to be identified. Labelling, apart from other uses, is of great educational value, not only to the younger men learning their profession, but to visitors in a garden. If it is necessary to use staples as a means of attachment to large trunks, they should be examined periodically, in order to see that the bark does not grow over them. When of convenient height copper wire should be used for attaching labels loosely to a branch. There does not yet seem to be a light, weather-resisting label obtainable at a moderate price; a label upon which the name will stand out clearly, yet will be economical by allowing the old name to be rubbed off, as in the case of the "Ivorine" label," for repeated use, is greatly needed. Acid writing on zinc labels often becomes difficult to decipher. On established trees the lead inset label is the most permanent type that can be used. It will now be a good opportunity to note trees consistently unfruitful, or for some reason or other need replacing by better varieties. Such can be removed at the first opportunity, and fresh soil added, or the soil entirely changed and allowed to settle before the new trees are ready for planting.

Preparations for Planting.—It is a commendable practice to start lifting trees soon after the crop is gathered provided the trees have been well watered a few days previously. With the fall of the leaves transplanted trees make good root-hold before the ground gets chilled. Materials that may be required, such as broken bricks for drainage and lime-rubble for mixing with the soil, should be got in readiness for planting operations.

General Remarks.—Young stock raised by budding some time since should be regularly examined, and the ground kept free from weeds. Soft fleshed Apples, such as Ecklinville Seedling, may need protection from birds. If they are very troublesome it is an advantage to gather early Apples a little under ripe, as they finish off quickly on trays. There are indications that next season's Apple crop will be a good one. Continue to make a vigorous attack on all weeds before heavy rains set in. Nothing looks worse in a garden than large areas of fruit plantations covered with weeds all the winter. Strawberry plants should now be making good progress. Those that appear sickly may be attacked by eelworm, and should be destroyed by burning.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Azaleas.—Plants of the indicum section of Azaleas that have been stood out-of-doors during the summer—although they do not take any harm from a few degrees of frost—should now be placed indoors, a perfectly cool, unheated house being best for this purpose. When housed they may be kept at rest until such time as they are required for forcing, for which purpose the earlier-flowering varieties should be selected. As such plants were started early last season, their growth naturally was completed early; they are also, for this reason, in better condition for early forcing. The small red obtusum variety, sometimes known as calyciflora, is very useful for this purpose, as it may easily be had in flower at Christmas.

Coleus.—Cuttings of Coleus should now be rooted, as young plants winter much better and occupy only a little space in the houses. A few stock pots afford a ready means of increase early in the New Year. This advice also applies to many other soft-wooded stove and greenhouse plants that are used for summer decorative work.

Hydrangeas.—Early-rooted batches of Hydrangeas in 48-sized pots should be stood in cold frames, where they should be exposed freely to

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the weather, except during times of frost, which might damage the flower buds. Plants rooted early in the New Year are now flowering, thus extending the season of this useful plant.

Oxalis floribunda.—Of the many species of Oxalis, O. floribunda is one of the most useful for conservatory and greenhouse decoration. Plants that have been dried off should now be turned out of their pots, and the largest roots selected for repotting, 6-inch pots being a suitable-sized receptacle. The Oxalis also makes a splendid basket plant, and the white variety is equally useful and beautiful for this purpose. The plant will grow well in any good potting compost. In common with many South African plants of this class, O. floribunda grows quite well in a cold frame from which frost can be excluded, and may remain in the frames until it comes into flower.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Epiphronitis Veitchii.—Like many other hybrid Orchids with parents greatly differing in habit, this Epiphronitis is not one of the best growers with many, whilst with others it makes fine specimens and produces large heads of its bright scarlet flowers. When seen in this condition it is a most delightful plant, and worthy of all the care and attention necessary to produce it at its best. The present is a very suitable time to attend to any potting or propagating that is necessary to maintain or increase the stock. Constant propagation is the only means of keeping a healthy stock of rare and difficult Orchids, and young plants have much more vigour than older ones. This plant is constantly producing aerial side shoots from the old stems, and by the continued making up of young plants from this source, and the division of the older plants a good stock may soon be obtained. In dividing the old plants, it should always be remembered that the old, rootless stems should be removed. Many attempt to grow this Orchid in too much warmth, yet it is one of those plants which delight in an even temperature the whole year round. It should be grown in the warmer end of the cool house during the summer, and the cooler end of the intermediate house during the winter. At no season should this Orchid be subjected to a dry treatment, but at all seasons afforded a fairly moist and humid position, and be syringed freely on all favourable occasions. It is best grown in small, well drained pots, and stood on a damp surface, where, generally, the overhead syringings will be sufficient to keep it in a healthy and growing condition. The plants should be examined from time to time to see that none is suffering for the want of water, as if allowed to become dry they will soon be infested with thrips and other insect pests. The compost should consist of peat, A1 fibre, and Sphagnum moss in equal parts; the potting should be done rather firmly.

Epidendrum.—Members of the scandent section of Epidendrum are very effective, lasting in flower for a long period. Although the flower heads on some plants may still be good, it is advisable to thoroughly overhaul the plants each year to maintain young healthy stock. It is desirable from time to time to cut back some of the strong growths that have produced flowers, to within six inches of the base. The best results are attained by not allowing any aerial growths to develop, encouraging those only which come from the base. When the aerial growths are kept removed, the basal growths develop more freely, and it is from these that the best heads of flowers are obtained. These Orchids are not very particular as regards compost, and will succeed in any open, fibrous material, placed in pots according to the size of the plants. They should be grown in a light position in the Cattleya house, where they may be syringed freely overhead. They may also be planted out against walls, where they often do remarkably well, and produce good material for use as cut blooms.

ORCHID NOTES AND GLEANINGS.

LAELIO-CATTLEYA MORVYTH.

A GRAND inflorescence of three blooms, each measuring eight inches across the petals, of Laelio-Cattleya Morvyth, is sent by Mr. H. G. Alexander, Orchid grower to Lt.-Col. Sir Geo. L. Holford, K.C.V.O., Westonbirt. It results from a cross between Messrs. McBean's variety of L.-C. St. Gothard (C. Hardyana × L.-C. Gottoiana), and the Westonbirt L.-C. Lustre (C. Luddemanniana × L.-C. callistoglossa), which has been such a good agent in the raising of other beautiful hybrids.

The sepals and petals are light rosy-mauve, the silver-white ground showing at the bases of the segments and in a delicate veining on the petals.

Cattleya Luddemanniana sets the form of the lip, which has a tubular base expanding in front to a broad, crimped lobe of ruby-purple colour, the medium area being tinged with orange and the base striped with yellow on a reddish-purple ground. The side lobes of the lip are blush-white in the interior and light mauve on the outside.

STENOGLOTTIS LONGIFOLIA.

AT the meeting of the Royal Horticultural Society on the 4th inst., Messrs. Stuart Low and Co. showed several specimens of this pretty member of the Natal Ophrydeae, which experience has proved that everyone with a greenhouse can grow and flower successfully, the flowers lasting in succession about three months. S. longifolia bears narrow leaves with undulate margins and produces its flower spikes freely, each about one foot high and furnished on the upper part with pretty mauve flowers. The plant may be increased by division. The only other species in cultivation is S. fimbriata, which is of smaller stature, but equal in beauty, its flower spikes being produced from rosette-like crowns, the leaves having bands and spotting of dark purple. *J. O'B.*

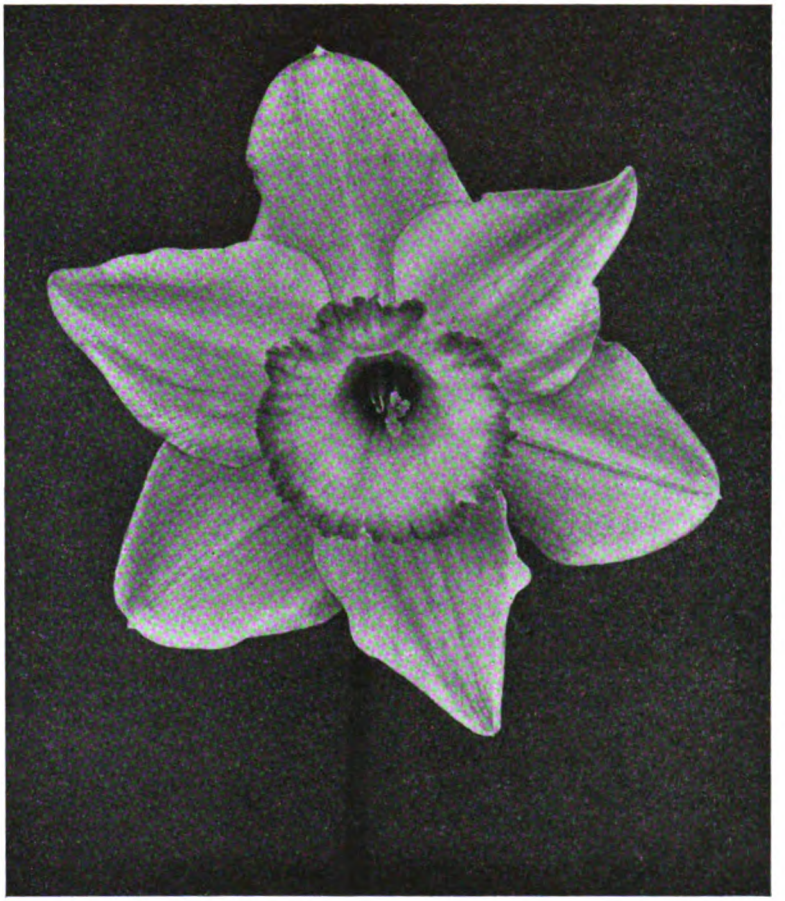

FIG. 63.—NARCISSUS BEAUTY OF RADNOR (SEE P. 174).

NEW HYBRID ORCHIDS.

(*Continued from August 11, 1923, page 84.*)

Name	Parentage.	Exhibitor.
Brasso-Cattleya Gallieni	B.-C. Marne × C. Dowiana aurea	Maron.
Brasso-Cattleya Maisie	C. Iris × B.-C. Ilene	Flory & Black.
Brasso-Laelio-Cattleya Shrewsbury	B.-L.-C. Veitchii × C. Rex	Sanders.
Cattleya Draco	Dupreana × Enid	McBean.
Cattleya Lilian Sander	Gaskelliana alba × Intertexta Juliettæ	Sanders.
Cattleya Meteor	Comet × Dowiana	Sanders.
Cattleya Queen Venus	Venus × Queen of Sheba	Sanders.
Cattleya Tagus	Rhoda × King George	Flory & Black.
Laelio-Cattleya Eleganta	L.-C. elegans × C. Atalanta	C. J. Lucas, Esq.
Laelio-Cattleya Epic	L.-C. Epicasta × C. Lord Rothschild	Sanders.
Laelio-Cattleya J. G. Apcar	L.-C. Geoffrey × L. purpurata	C. J. Lucas, Esq.
Laelio-Cattleya Nanon	L.-C. Ivanhoe × C. Dowiana	Cowan.
Laelio-Cattleya oxfordensis	L.-C. callistoglossa × C. Tityus	Pantia Ralli, Esq.
Laelio-Cattleya Vega	L.-C. Soulange × L.-C. Rubens	McBean.
Odontioda Cromer	Joan × Charlesworthii	Charlesworth.
Odontioda Eunice	Oda. Joan × Odm. percultum	Charlesworth.
Odontioda Mabel	Bradshawiae × Joan	Charlesworth.
Odontioda Rene	Oda. Brewii × Odm. Prince Albert	Charlesworth.
Odontioda Vanessa	Odm. Louise × Oda. Charlesworthii	Charlesworth.
Odontoglossum Antrim	Thais × eximium	E. R. Ashton, Esq.

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LOUDON'S SECOND TOUR TO SCOTLAND.

LOUDON made three journeys through England and part of Scotland. It is to the second that these notes refer as being of the greatest interest on account of the detailed notes left by himself, supplemented by those of his newly wedded wife. They left Bayswater together on April 24, 1831, and returned in September, being called back from Paisley to attend the sick bed of his mother, who survived only six weeks longer. Loudon gives a graphic account of many gardens, but those form only a part of the matters of which he took notice, the whole furnishing a most interesting survey of the economic conditions prevailing at that time. The first stage, if it may be so called, was to Manchester, but he remained six weeks at Birmingham, during which time he laid out the Botanic Gardens at Edgbaston. The rest of the time was occupied in viewing gardens and nurseries *en route* and travelling the intermediate distances. More than one hundred private gardens and nurseries come under purview, the better known being Stowe, Moorpark, Warwick Castle, Coombe Abbey, Enville, Hagley, Leasomes, reminiscent of Shenstone, Trentham, Haddon Hall and Chatsworth. He notes a severe frost on May 7 which destroyed blossom and young shoots of shrubs, Ash trees and Coniferae also suffering severely; Potatos were cut to the ground. In 1819 there was a frost almost as destructive. He remarks of Stowe that the garden was, owing to reduction of hands, very badly kept, and that at Warwick Castle in even worse condition. The greenhouses there were covered at this time with opaque roofs. Of Trentham it is stated that forced and wall fruits were fine, and good order was evident in the management. Alton Towers had been rebuilt in 1811 and ever since hundreds of workmen had been employed on the grounds. The Earl of Shrewsbury, who had died a few years previously, was his own landscape gardener. As a result the whole place was "one of the most singular anomalies to be met with in England." It was kept in perfect order, a staff of women being employed continually picking up or gathering leaves, removing withered flowers, etc. They were on certain occasions clothed in Swiss garments, adding thereby to the picturesqueness of the scene. Loudon characteristically remarks that the farmer and gardener Lunn "is the only Protestant gardener we ever heard of who turned Catholic." Chatsworth is described as an unsatisfactory place. Loudon disliked a herbaceous border that was edged with grass cut vandyke-wise. Nor was he pleased with the heating of new glass structures which Paxton effected by means of flues. But one thing did receive his entire approbation—that house, grounds and gardens were open free to the public every day. Of the gardens visited most were being worked with a reduced number of men; though this applied to the larger estates rather than to places of small extent. At Chatsworth there were 24 men to 12 acres. The parsonage garden of Offchurch, Bury, for instance, was "eminently beautiful," and it was doubly interesting on account of the incumbent being the Rev. Matthew Wise, a descendant of Wise, the nurseryman, of Brompton Park. Horace Walpole, in a letter, mentions meeting Wise himself when a very old man; his son was a clergyman, and the above-named may have been a great grandson. Of the many nurseries he inspected, that of Cullis, Leamington, contained the best indoor plants; Pope, Handsworth, the best collection of herbaceous plants; and Lowe, Wolverhampton, good forest trees and shrubs, besides being the best kept nursery "between Edinburgh and London." Mist, a market gardener near Birmingham, who trenched to a depth of four feet, was celebrated for Strawberries and Asparagus, while the "best hothouse builder in Britain" was Mr. Jones, of the same city. The superintendent of Manchester Botanic Garden informed Loudon that he had lived when a journeyman gardener "in the wretched stoke-holes of the Comte de Vaude's garden at Bayswater, and read there in the winter evenings by the light of a furnace door." There are other instances of a similar kind given, such as that of young men having to sit up half the night to attend to flue-heated structures. But it was not uncommon in my young days to have to sit up to 1 a.m. to stoke boilers during frosts in January. At Wombourne our traveller found Potatos being forced by the spontaneous combustion of coal in old coal mines underneath. He was greatly astonished at the backward condition of agriculture in this stage of his journey. His remarks, indeed, thereanent are almost incredible. The next stage of the journey was via Chester and Liverpool to Dumfries, leaving Manchester on July 1, and inspecting on the route about 100 gardens, nurseries, etc., nurseries being much more numerous in the north of England than in the south. Some of the more noteworthy places visited were Vale Royal, Eaton Hall, Croxteth Park, Knowsley, Lathom, Levens Hall, Netherby and the residences of the poets Wordsworth and Southey, as also the villa occupied by "Christopher North" of the *Noctes Ambrosianae*.

Eaton is stated to have been very ill-kept, Grass and Clover growing on the lawns for hay production, and the shrubberies overrun with weeds. The indoor fruit at Knowsley was equal in quality to that grown at Trentham, and at Tatton Park it was equally fine, the gardens there being kept in first-rate order. At Levens, Loudon found the gardens as they had existed since the time they had been laid out in the reign of James I., the famous clipt Yews being of a later date than that of Loudon's visit. It is pleasant to know that Rydal Mount, the residence of Wordsworth, was kept in perfect order. Nothing is said of his neighbour's (Professor Wilson), but we know from other sources that he was proud of his garden. The only nurseries he saw worth commending were those respectively of Messrs. F. and J. Dickson, Chester, and Mr. Skirving, Walton, near Liverpool, "two most complete nurseries." It was at Chester that Mr. Loudon first saw Paxton's *Horticultural Register*, which with other cheap publications reduced the £750 income then produced from the *Gardeners' Magazine*, to almost nothing at the death of its proprietor. The travellers on entering Scotland by way of Langholm would have been stranded owing to a fair had not a proprietor in the vicinity taken them into his house. Later they stayed at Closeburn, Jardine Hall, Munches, and other country seats in Dumfriesshire, and at Ayr and Kilmarnock Mr. Loudon was invited to public dinners given in his honour. In nurseries at Ayr he found many rare plants "reckoned rare and valuable in the London nurseries." And in one "many very rare" herbaceous plants. At this period Coniferae were a glut and were either being burned or sold at the low price of 6d. per 1,000. Of the general up-keep of gardens it is stated that Grass on lawns was badly kept, but kitchen gardens were kept "with more care and neatness than they are in England." Not a single weed could be found in them. On the other hand, wall trees were generally ill-cropped if at all.

Concerning particular residences Loudon was greatly impressed by the grandeur of Drumlanrig, formerly called Queensberry House. It was here, as Gilpin relates, that in hewing terraces out of the whin-stone rock a workman could carry away in his apron the result of his labour during the day. At St. Mary's Isle our author found abundant crops of Grapes and Peaches, the vine border not having been stirred for 28 years. Of the other residences mentioned nothing worthy of notice occurs, probably on account of his hurried departure for home. But it is to be gathered that gardens in the west of Scotland were sadly deficient in labour, and gardeners were as a whole considerably harassed in making ends meet. Their cottages, too, were very deficient in comfort, some of these being of only two apartments, and, of course, those of the working men were even worse. He especially mentions those on the estate of Logan which were "built of turf, or mud, or stones or of a mixture of all three," reminding one of Burns's "auld clay biggin'." Wages were as low as 5s. the week. The long account of this journey, of which the above gives only a few extracts, abounds with information regarding a great variety of subjects, and propositions for the betterment of the less fortunate classes of the community, which are only now in many cases being put into practice. *R. P. Brotherston.*

A GARDEN OF EVERGREEN SHRUBS AT MALONYA, CZECHOSLOVAKIA.

THE new Czechoslovak republic can boast of two famous gardens of which no counterpart is to be found anywhere else in Central Europe, viz., the park of Count Ernst Silva Tarouca at Pruhonice, near Prague, and the evergreen gardens of Count Istvan Ambrózy-Migazzi, at Malonya, district of Nyitra, Slovakia. Before the war Malonya belonged to Hungary, and Count Ambrózy is a well-known Hungarian. Of both parks there seems to be very little, if anything, known in England. Having had the good fortune to be well acquainted with both gentlemen, I wish to draw the attention of readers of *The Gardeners' Chronicle* to those two gardens. In the present note I shall deal with Malonya.

More than 30 years ago Count Istvan Ambrózy became interested in the use of evergreens suitable to be planted in the open. He started with Prunus Laurocerasus schipkaensis, the Cherry-laurel from the Balkans, that has proved hardy in almost every part of Central Europe, and is next to the large-leaved Rhododendron the best evergreen, broad-leaved shrub for Continental parks and gardens. In the *Yearbook* of the German Dendrological Society, of 1921, Count Ambrózy gives a vivid account of his experiences at Malonya. It is by no means a favoured place for gardening. The soil is very poor; the endemic trees are Quercus Cerris and Q. sessiliflora, with a scanty undergrowth. The climate is rather hot in the summer, while the temperature falls as low as 22.5° Celsius in a normal winter. Nevertheless, Count Ambrózy succeeded in creating a paradise of evergreens and half-evergreens, consisting of between 600 and 700 forms of broad-leaved trees and shrubs and Conifers. As he states in an important contribution to the illustrated handbook, *Unsere Freiland-Laubgehölze*, edited by Count Silva Tarouca and myself, of which a short account was given in *Gard. Chron.*, p. 127, he tried to match the English gardens, and to prove that many broad-leaved evergreens are perfectly hardy on the Continent when planted and cared for in the right way. It is a great pity that Malonya is such an out-of-the-way place, otherwise no traveller interested in outdoor gardening should go from Prague or Vienna to Budapest without stopping at Nové Zamky and paying a visit to Malonya, near Vieska Tekovska, on the railway line to Topolcianky.

When driving from the very small station to the castle upon the hill nobody would think of the possibility of finding there such a thing as a park for the most part formed out of evergreens. But as soon as the visitor comes near to the house a large terrace appears surrounded by a broad, deep green hedge of Cherry-laurel growing luxuriantly in the full sun. At the entrance to the castle, tall, tree-like bushes of Schipka Laurel, Japanese Euonymus, Ilex Aquifolium, Elaeagnus pungens, Phillyrea decora, Prunus lusitanica, Aucuba, and other well-known evergreens, surprise him by their healthy growth. The walls are covered with Pyracantha coccinea, P. crenata, varieties of Euonymus radicans, Rosa Banksiae and other climbers with conspicuous

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flowers or fruits. Deciduous shrubs are, of course, used too, as for instance Jasminum nudiflorum and J. primulinum, several Loniceras, Bignonia radicans, Forsythias and others. At almost every time of the year there are flowering or fruiting shrubs in the immediate vicinity of the castle. The number of hardy herbaceous perennials, including bulbs, is countless. I can only mention the most noticeable of the broad-leaved woody plants, and must omit reference to Conifers.

Of broad-leaved evergreens next to the Cherry Laurels many forms of Ilex Aquifolium constitute the undergrowth of the main parts of the park. Besides large groups of Mahonias (Mahonia Aquifolium, M. repens and their hybrids as well as M. Bealei, wrongly known as M. japonica), there are such evergreen Barberries as Berberis Julianae, B. Hookeri, B. Gagnepainii, B. acuminata and other Chinese species. There are also Cistus laurifolius, different evergreen Cotoneasters (C. Franchetii, C. Henryi, C. pannosa, etc.), Daphne Laureola, Daphniphyllum, half-evergreen Ligustrums, Mahoberberis Neubertii and its variety ilicifolia, Osmanthus Aquifolium and its varieties, Quercus hispanica and its varieties known as Q. fulhamensis and Q. Lucombeana, Q. Ambrozyana, a hybrid Oak between Q. Cerris and Q. suber, Phillyrea glabra, Rhamnus Alaternus, Ruscus aculeatus, R. hypoglossum, several species of Sarcococca, Skimmias, Stranvaesia Davidiana and its var. undulata, Umbellularia californica, some evergreen Vacciniums, and last, but not least, the beautiful Chinese Viburnums, such as V. rhytidophyllum, V. Davidii and V. utile.

The grounds are covered with all forms of Vinca major, and especially V. minor. Besides, there is to be seen in broad patches Pachysandra terminalis, as well as P. procumbens, two excellent evergreens for almost every soil and situation. Lonicera pileata, too, is well adapted to cover the ground, but is likely to be cut down by severe frost. It should be planted on a slightly elevated position on account of its marvellously coloured blue fruits, which, unfortunately, are too much hidden under the leaves. Lonicera nitida looks so much like a Myrtle that it is frequently used on the Continent to replace Myrtus communis, which was introduced in great quantities from Italy before the war. Berberis buxifolia nana, Bruckenthalia, Bryanthus, Calluna, several Ericas, Dryas, Iberis semperflorens, Loiseleuria, Pachystima, and Polygala Chamaebuxus form dense mats, and are grown wherever there is a suitable place. One of the finest plants to make a deep green covering is Cotoneaster Dammeri, of which the lucid, red berries remain untouched by frost and birds until the spring. Gaultheria Shallon is thriving well, even in rather poor soil.

The different species and forms of Hedera are, of course, to be seen in a most luxuriant state. They climb to the tops of trees, and cover the ground as well as walls or rocks. Besides the Cherry Laurels and the countless forms of Ilex Aquifolium, we find large thickets of Phillyrea decora, usually known as P. Vilmoriniana, and of the loosely branched, large-leaved Photinia glabra. The bluish-white undersides of the fine leaves of Daphniphyllum macropodum contrast well with the dark green of the surrounding plants. Other good evergreens of a height of more than one metre are Berberis Julianae, probably the best evergreen species of the genus from Central China which has been introduced by Wilson; Berberis acuminata, B. Gagnepainii, Cotoneaster Henryi, C. salicifolia floccosa, and Ulmus parvifolia. Of smaller evergreens, Cistus laurifolius does remarkably well. The dark hue of its leaves strikes a distinct note in the landscape. Viburnum utile is an excellent spring-flowering shrub with very odoriferous flowers. There are other species, too, of this valuable genus of flowers which have a most agreeable scent, including Viburnum Carlesii.

In several places in this park different species of hardy Bamboos play a great part in the forming of characteristic scenes. Like almost all the evergreens, they need good nourishment; Arundinaria nitida and Phyllostachys aurea may be cited among the best.

In a very sheltered place, protected by hedge-like plantings of Thuyas and other Conifers, a great surprise awaits the visitor: a group of healthy Camellia japonica, flowering every spring. The shrubs are up to three metres tall; they are the only ones I have ever met with unprotected in the open air in Central Europe. In the skilful planting and very careful cultivation of such plants that hitherto have been regarded as useful for greenhouses only Count Istvan Ambrózy has shown his genius. With the aid of his excellent head gardener, Misak, his difficult tasks have been accomplished with often surprising success.

In the English climate, of course, it is easy to create such an evergreen garden. But in Central Europe nobody, so far as I am aware, has ever made the attempt to use evergreens upon such a large scale and under such unfavourable conditions of soil and climate. Unfortunately, the war put an end to Count Ambrózy's great work. He had to leave his beloved Malonya, and is now living on a small estate in Western Hungary. Mr. Misak, his head gardener, has the park in his keeping, and, as I had the opportunity of observing on my several visits to Malonya within the last two years, everything is done to preserve, so far as possible, the main features of this unique garden. However, as the plantations become older, they will need careful thinning, and no park of this kind will ever prosper without the guiding hand of the master who created it. Malonya is one of the few memorable works of landscape gardening on modern lines. It would be a great loss, not only to Czecho-Slovakia, but to landscape architecture, if Malonya should fall into decay. *Camillo Schneider, Charlottenburg, Germany.*

NOTES ON SOME OF THE NEWER DAFFODILS.

HAVING been asked to write a few notes on the newer Daffodils, I have taken out my pocket-book, hunted up the annual report of the Midland Daffodil Society, and set about my somewhat difficult task. The chief difficulty lies in the fact that one's notes taken at R.H.S. and other meetings are generally very sketchy, owing to want of time; at least, mine are. There is so much to do, to see and to talk about at these meetings that the day is soon gone, and one has to make off to St. Pancras for the 123-mile journey home. The following is the list compiled. I have no doubt some good things have been missed, but that is inevitable. Even a Joseph Jacob or a Guy L. Wilson will sometimes miss good things, dazed, no doubt, by the wealth of fine flowers spread before their admiring gaze.

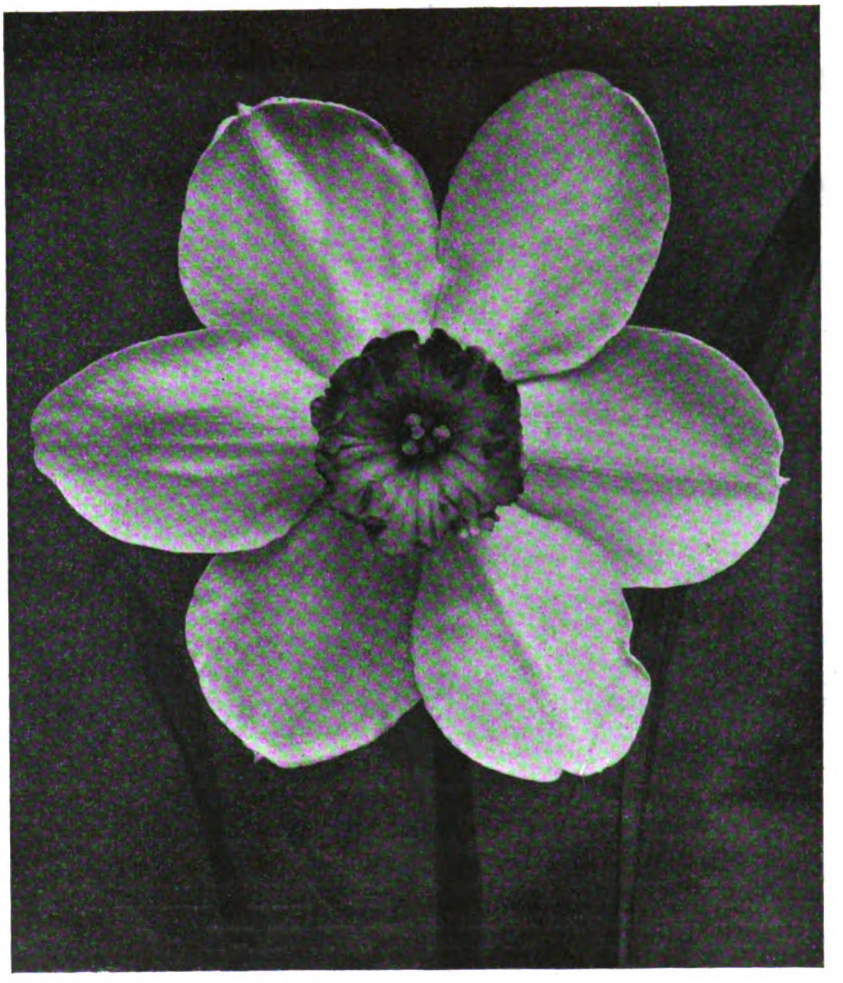

FIG. 64.—NARCISSUS JESSIE.

WHITE DAME.—A really white trumpet Daffodil. A beautiful flower, and only eclipsed by Beersheba, which it much resembles. Raised by Mr. Guy L. Wilson. A.M., R.H.S.

GOLDEN PEDESTAL.—A giant Incomparabilis variety of perfect form, uniform bright rich yellow, very flat and smooth perianth. A.M., R.H.S. Shown by J. L. Richardson, Waterford.

HONEY BOY.—A distinct yellow trumpet variety, uniform deep lemon yellow, medium-sized flower, smooth perianth. Raised by Mr. Guy L. Wilson. A.M., Mid. Daff. Soc.

EVEREST.—A very perfectly formed white trumpet variety. Shown by Donard Nursery Co. A.M., R.H.S.

MAGNOLIA.—A large Giant Leedsii, of good form, segments slightly pointed. I think it is one of Mr. Engleheart's productions. Exhibited by Mr. G. Monro.

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ROBERT BERKLEY.—Another very fine white trumpet variety, a beautifully formed flower, with perfect poise. A.M., R.H.S. Shown by Mrs. Berkley.

VENETIA (5a).—A lovely photo of this very pretty triandrus hybrid is reproduced in the report of the Midland Daffodil Society for 1923. Exhibited by Mr. W. B. Cranfield. I fancy it has had an A.M., R.H.S., but am not sure.

FIRETAIL (3b).—This is one of the very finest of red-eyed Narcissi that has ever been raised. It has been a long time coming into its own, but has now had every award open to a new variety, getting the coveted F.C.C. when exhibited by Mr. Chapman and others last year. It is a very late variety, with a very long stem; flower large and flat, segments creamy white, eye nearly flat and deep crimson throughout. Raised by Mr. Crosfield.

SILVER SALVER.—An exquisite little Leedsii variety of the Moonbeam type; flat, well rounded white perianth, with flat eye of flower of perfect form, eye large, with deep edging of crimson. One of the very best. A.M., R.H.S. Shown by Messrs. J. R. Pearson and Sons.

DINTON RED EYE.—Again one of Mr. Engleheart's productions, and may be shortly described as a much improved Horace. A.M., R.H.S.

WIDE WING.—A Poeticus variety with great, broad segments of almost leathery substance, a very fine late Poeticus. A.M., R.H.S. Exhibited by Rev. G. H. Engleheart.

HELEN O'HARA.—A very fine pale bi-color Daffodil, with a long stalk. A.M., R.H.S. Exhibited by Mr. Richardson, Waterford.

DAINTY MAID.—A small, neat and very pretty flat-eyed Leedsii variety. A.M., R.H.S. Shown by the Welsh Bulb Farms.

BEERSHEBA.—I think there is no doubt that this is the finest of the many white trumpet Daffodils in existence. It is much larger than any of the old favourites, holds its head up well, is really white, and has a long stalk.

FIG. 65.—BED OF FICUS PLANTS OVER A GROUND OF ANTHERICUM LILIASTRUM, INTERSPERSED WITH IRESINES, IN BATTERSEA PARK (SEE P. 175).

palest lemon yellow. Exhibited by Mr. Chapman. A.M., R.H.S.

GREAT DANE.—A large trumpet Daffodil of Emperor colouring; a large, well-formed flower. Shown by Messrs. Barr and Sons. A.M., R.H.S.

GOLDEN EMPRESS.—A moderately large trumpet Daffodil, perfect in form and a uniform bright clear yellow. A.M., R.H.S. Shown by Messrs. Barr and Sons.

FORTUNE.—This is perhaps the most sensational Daffodil which has appeared for many years. It is a Giant Incomparabilis, of faultless form and poise. The perfectly flat perianth is pale yellow. The large Sir Watkin-like cup is orange red. The flower stalks are from 21 to 27 inches long, and the plant is very robust and very early flowering. Received a preliminary award at the hands of the R.H.S. Daffodil Committee. Exhibited by Mr. Chapman.

BEAUTY OF RADNOR (2b).—This (Fig. 63) is very like Bernardini in outline, but the cup is of a wonderful ochreous pink colouring. Quite distinct, and a great favourite of mine. Exhibited by Dr. Lower, of Presteign. A.M., R.H.S.

RED RIM.—One of Mr. Engleheart's choicest Poet's Narcissi; might be described as an improved John Masefield. A.M., R.H.S.

JOHN MASEFIELD.—Another of Mr. Engleheart's Poeticus varieties. A well rounded Raised by Rev. G. H. Engleheart. Preliminary award, R.H.S. Exhibited by Messrs. J. R. Pearson and Sons.

OPERA (4a).—This is a very dainty and attractive flower, and very close to a Poeticus. The perianth is pure white and well formed, the greeny-yellow eye has a Poeticus edging of bright red. A.M., Mid. Daff. Soc. Shown by Mr. W. B. Cranfield.

BRIMSTONE.—A large trumpet Daffodil of unique colouring. The flower is a uniform deep citron yellow. I thought it the most distinct trumpet variety exhibited at Birmingham in 1923. Preliminary award. Exhibited by Mr. W. B. Cranfield.

TENEDOS.—I think this is the finest and most distinct of all the Giant Leedsii sorts, and this is saying much, for the class is very well represented. The flower is very large, of fine form, well balanced and of good pose. The white segments are broad and overlapping, but pointed at the tips, giving the flower a star-like appearance. When well established the plant gives a great crop of bloom on very tall stems. The bulbs are of large size, and increase freely. When fully out the whole flower is white. A.M., Mid. Daff. Soc. Exhibited by Mr. Guy L. Wilson.

MOIRA O'NEILL.—A most beautiful pale bi-color trumpet variety, of largest size, but without a trace of coarseness. The plant is extremely vigorous, having leaves broader than those of Emperor; very long in the stalk. Raised by Rev. G. H. Engleheart.

JESSIE (3b).—A very lovely flower (Fig. 64). Well formed white perianth, 5 inches across; cup well expanded, yellow, with curiously variegated red edge. The flower seems to me a much improved Challenger, and a beautiful portrait of it is to be seen in the *Report* of the Midland Daffodil Society for 1923. Raised and shown by Mr. J. Mallender.

GRAND OPERA.—This is quoted as a Poeticus in Mid. Daff. Soc. report, but I think it is not a pure Poeticus; however, Poeticus or whatever it may be, it is a very remarkable flower. The flower is large, over 3½ inches across the perianth, which is pure white and well formed; the Poeticus-like eye is coloured deep red. Raised and shown by Mr. Herbert Chapman.

PURITAN MAIDEN.—This is one of my own raising, so I must not sing its praises too loudly. It is a 4a of Trumpet proportions. A medium-sized flower, with pure white perianth; cup (or trumpet) cream on opening, passing to white. The charm of the flower lies in its perfect balance and pose, and wax-like appearance. A.M., R.H.S.

LADY PRIMROSE.—A very fine pale bicolor trumpet; segments very broad and flat, creamy white; trumpet slightly bell-mouthed, soft, full Primrose. Fine for either garden or exhibition. Raised by Rev. G. H. Engleheart. Well shown by the Donard Nursery Co.

MARSHLIGHT.—A much improved Lucifer; the cup is very deeply stained with red. It is a much better grower than Lucifer, with abundant dark green foliage.

SCARLET QUEEN (2b).—One of the late Mrs. R. O. Backhouse's good things. The wide perianth is creamy white, while the flattish cup is of the brightest orange-scarlet.

SUNSET GLOW.—Another of the same class by the same raiser. Perianth pale yellow, cup wide, shallow, and of a distinct shade of bright orange.

ZILLAH (2b).—Yet another form from the same source, and a very attractive flower; segments broad and imbricated, creamy white; cup large and rather spreading, yellow, deeply edged bright orange-scarlet. A good strong plant.

MRS. LOWER.—A pure white trumpet Daffodil, with a tinge of green. A very lovely flower. Raised and exhibited by Dr. Lower, of Presteign.

In conclusion, I would say that this seems to be a season for large bulbs. A two-year bulb (or clump of bulbs) of Moira O'Neill weighed 1 lb. ¾ oz., while some of the Poeticus bulbs lifted here have been so large that one could hardly believe them to be true Poeticus. *J. Duncan, Pearson Lowdham, Nottinghamshire.*

TREES AND SHRUBS.

MAGNOLIA STELLATA.

ALL the members of this family are fine, handsome subjects and the species under notice is no exception. It does not grow so tall as some, only reaching a height of four to six feet. It has small, waxy white flowers, and has the advantage of being very free flowering, which cannot be said of some other varieties. The tree flowers in March and April; the blooms are about four inches across and star-shaped. It forms a dense bush and the foliage is a beautiful light green. The flowers are sometimes marred by early spring frosts, but in an open season it is an object of great beauty. A bed of this Magnolia planted in a sheltered position is a fine sight when the trees are in full bloom, and the flowers are sweetly scented. This Magnolia is much used for pot cultivation; it is one of the best of shrubs for the front row of the shrubbery and should not be omitted when forming a new plantation of mixed shrubs. *R. V. Thatcher, Carlton Park Gardens, Market Harborough.*

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PUBLIC PARKS AND GARDENS.

BATTERSEA PARK.

THE public parks of London, which are celebrated the world over for their extent and beauty, fall into two main groups—those known as the Royal parks, belonging to the Crown, and the municipal parks of the London County Council. Hyde Park occupies the chief place amongst the Royal parks, and Battersea takes pride of position amongst those belonging to the municipal authority. The latter is the largest park in the South of London, and has an area of nearly two hundred acres. The whole of the south-western side is bounded by the Thames, and adjacent to the river is one of the finest waterside promenades in London, forming a broad roadway over half a mile long by the Embankment lined with beautiful trees. When the park was formed, the land was a swampy waste; how valuable an asset public parks and gardens become in time is well exemplified in this large London public garden, for the site nowadays would realise an immense sum of money as building land. The park was laid out by John Gibson, and it was he who designed the two most famous features of the park from a gardening point of view, namely, the famous sub-tropical garden and the section known as the Peninsula and Wilderness. The greater part of the area of the park is utilised for sports, and there are playing-grounds for cricket, tennis, bowling, netball, football, and other outdoor games, as well as a cinder track for racing and lakes and ponds for boating. In common with the other London parks, the one at Battersea suffered much damage during the war through its occupation by the military, and also by neglect owing to lack of labour, but on visiting it now one would never imagine that any interruption in its normal upkeep had taken place. The renewal of turf and reconstruction generally has thrown an immense amount of work on the staff, under the able direction of Mr. Frank Wright, the superintendent, who, it is interesting to record, started work in these gardens as a young man and has passed on through successive posts until he has come to occupy the proud position of superintendent of the chief of the L.C.C. parks and open spaces.

A very large open area where the turf was destroyed by the military has been converted into a new cricket ground. The fine sward presents a perfectly level surface, and exemplifies how well a lawn or playing-ground may be raised from grass seed, provided it is allowed a reasonable time to become established.

The trees and shrubs in this immense park constitute one of its chief features, and there are places in it where the visitor would imagine himself to be miles from any large town, whereas Battersea and the district are amongst the most densely populated areas of London. Some of the beautiful sylvan character of this park may be seen in the photograph reproduced in Fig. 66, especially when looking above and beyond the belt of shrubs at the base of the tall Elms.

There is a very fine avenue in the centre of the park planted with Plane trees; each tree is a model in shape, and the whole avenue has an imposing appearance. In the centre of this avenue is the bandstand, the ground around which is very prettily laid out. The Planes in the avenue were substituted for Elms, which, owing to their age and dangerous habit of shedding large branches, were undesirable where large numbers of the public congregate.

Our special purpose in visiting the park was to inspect the sub-tropical gardens; most readers are aware that the sub-tropical gardens at Battersea Park have long been regarded as amongst the finest of their kind in any public garden in the country, for John Gibson was a master hand at his craft, and he in turn was succeeded by superintendents as capable. His immediate successor was Mr. Rogers, who maintained the flower garden, including the sub-tropical garden, in the height of perfection, and he in turn was followed by other capable men, including Mr. Copper, Mr. J. Rogers, and lastly Mr. Frank Wright, who took charge in 1921.

In order to supply the large quantity of material used for bedding and to house the many plants of a tender nature employed in the sub-tropical garden, a considerable amount of glass has been erected in a secluded spot near the main or west gate. There are large glasshouses for the housing of Palms, Dracaenas, and the like used for plunging in the lawns and in the beds and borders, and smaller houses for the propagation of bedding plants. This part of the park is a great attraction in the Chrysanthemum season, when one of the largest houses is filled with Chrysanthemums and thrown open to the public. Already the propagation of such things as Pelargoniums, Fuchsias, Heliotropes, etc., had been commenced at the time of our visit in late August, and the large number of frames and glasshouses filled with these plants afforded some little idea of the immense number used for the ornamentation of the flower beds and borders in summer.

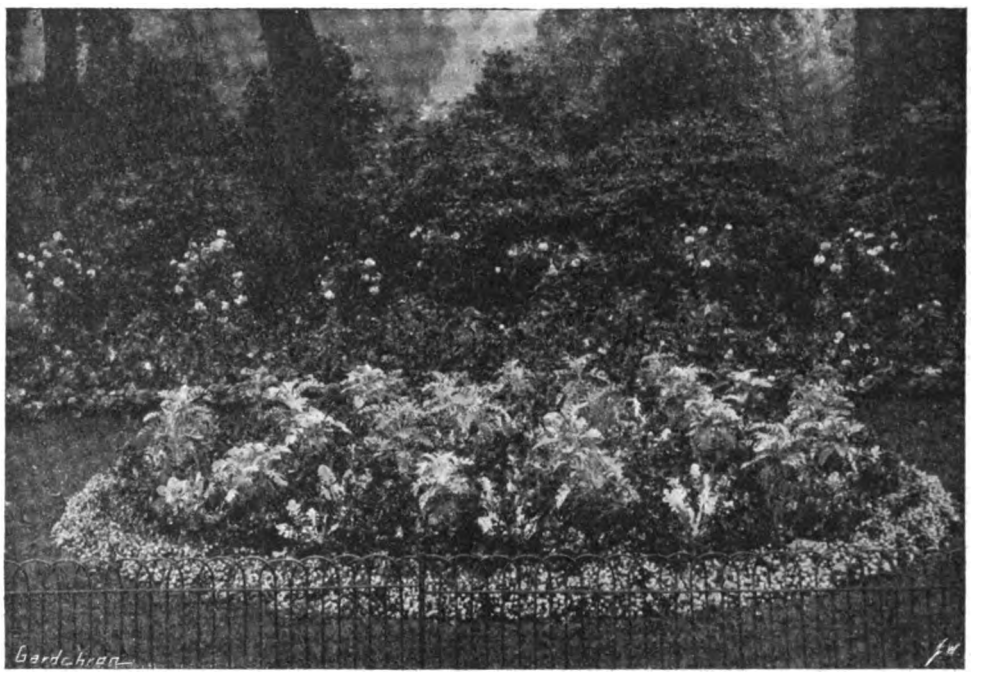

FIG. 66.—BED OF BEGONIAS INTERSPERSED WITH TALL PLANTS OF CINERARIA MARITIMA, AND EDGED WITH BLUE LOBELIA AND WHITE ALYSSUM, IN BATTERSEA PARK.

There is a very pretty border near the main entrance, furnished with standards of Coleus Sunray, with dwarfer plants of a golden-leaved Coleus interplanted with Abutilons in variety, Artemisia, Centaurea candidissima, and Albizzia lophantha. Near this part of the park is the famous old English garden, in which the visitor may imagine himself in the garden of a beautiful country estate. The centre of attraction is a Lily pool and water fountain, and in the pool are growing big clumps of Nymphaeas. Arranged all around, in the old English style, is a series of beds planted with such old favourites as Roses, Petunias, Fuchsias, and Violas, whilst some are entirely devoted to hardy herbaceous plants. The paths in this garden lead through pergolas and arches furnished with Roses, species of Vitis, Polygonum Baldschuanicum, and other climbing plants. So popular is this little enclosed garden, that the authorities have decided to enlarge it by throwing into it the part known as the botanic garden, where material is drawn upon for use in the teaching of botany, etc.

The principal flower beds are to be found in the sub-tropical garden, where fewer plants of a sub-tropical nature have been utilised this year than usual, for the weather was so unfavourable to the removal of tender Palms, etc., out-of-doors in the spring that Mr. Wright decided to wait no longer for fine weather, but completed the beds with a general variety of bedding subjects. Some of the most successful of the beds are those planted with Coleus. One circular bed, which is very effective, has red Coleus massed with standards of C. Verschaffeltii interspersed, but the best is the one with Coleus in panels of various colours with the dark variety Verschaffeltii in the centre and as an edging. Other beds are planted as follows:—The bed illustrated in Fig. 65 is furnished with tall plants of Ficus over a ground of Anthericum Liliastrum, amongst which are placed here and there plants of a red-leaved Iresine. The handsome-leaved plants in the background are Ailanthus glandulosus, and the variegated shrubs beneath them, Acer Negundo. The bed shown in Fig. 66 has a ground of Begonia semperflorens, freely interspersed with tall plants of Cineraria maritima, and edged with blue Lobelia bordered with white Alyssum. In the shrubbery border may be seen tall standards of New Salmon Ivy-leaved Pelargonium, above dwarfer plants of the older Mme. Crousse variety.

Other interesting beds in this part of the park are planted as follow:—Standard Pelargoniums with Veronica Andersonii variegata and Marguerites; Coleus with Lady Plymouth Pelargonium and big plants of Abutilon; the semi-double pale pink and red Dr. Weldeman Fuchsias with standards of Fuchsia Charming, which has deeper-coloured blooms; standard Fuchsias of Mrs. G. Palmer variety in association with the dwarfer Fairlight, a variety of the Ballet Girl type, but superior; Heliotrope with an edging of Ageratum, this bed being especially planted to provide perfume; Ophiopogan Jaburan with bush specimens of Iresine and the feathery-leaved Albizzia lophantha; Fuchsia Golden Treasure and F. gracilis interspersed with small pyramidal Junipers. These are only a few of the many pretty beds noticed in the sub-tropical garden, and the flowers, with the different tones of green foliage of the various trees and shrubs, together with the cool green sward, make a composition in harmony that excels in beauty and effect.

THE Parks Committee of Glasgow Corporation has recommended the appointment of Mr. William Besant, curator of Kelvingrove Park, as assistant director of parks. The recommendation was originally made by a special subcommittee on the reorganisation of the Parks Department. Mr. Besant is a younger brother of Mr. Besant, of Glasnevin Botanic Gardens.

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CULTURAL MEMORANDUM.

ROOT PRUNING.

Root pruning is a practice about which there is considerable controversy, but under certain conditions it may prove of the greatest value in changing the disposition of over luxuriant trees to form wood growth into a disposition to form fruit buds.

It does not always ensure the ends for which it is resorted to. In some instances the wrong time is chosen for the operation, in others it is conducted in an injurious manner, while not infrequently it is adopted without sufficient reason in direct opposition to the old adage, "let well alone." In all cases where fruit trees are making a fair promise of fruitfulness, root pruning should not be undertaken, as it is more likely to prove harmful than beneficial. It does happen sometimes, however, that in places where the climate is eminently favourable to fruit production the trees make an excessive amount of growth, and in such cases judicious root pruning may bring them to a bearing state.

The season for root pruning should not be deferred until after the fall of the leaf; a better time for the operation is as soon as the growth of the season is completed and while the trees still retain their foliage. Several advantages accrue from carrying out the work during late September and October, and completing it before the fall of the leaf. In the first place any check given now will tend to the ripening of buds already formed, but which might start into growth and be lost in the event of the autumn proving warm and moist. Further, the soil is now sufficiently warm to promote a speedy healing of the wounds the pruning will occasion and the production of surface fibres from the cut ends of the fleshy roots, these fibrous roots being the very aid that the trees require to induce a condition of fruitfulness. Finally, it is usually much easier to carry out the work now than later, when unfavourable weather conditions may cause weeks or months to elapse before an opportunity occurs.

It should be remembered that the principal object of the pruner should be to discourage the formation of deep tap roots, which go far down into cold clay or wet gravel, and encourage the formation of an abundance of surface fibrous roots that will always be benefited by the influence of light and air. It should therefore be clearly understood that hacking and chopping of the roots is not to be desired. Clean cuts heal quickly and the roots when healed soon develop fibres, while bruised roots die back and foster disease. Such roots, therefore, as are injured by the spade should be trimmed cleanly by means of a sharp knife.

It is usually good practice to prune the roots on one side of the tree only in the one year, and to complete the work on the other side the next. In any case a trench should be opened at a sufficient distance from the tree to leave untouched a large mass of soil immediately surrounding the stem. When the thick and far-extending roots have been cut through all the prunings should be carefully collected and removed. In the process of filling up the trench good, turfy loam with a liberal addition of lime rubble and coarse bone-meal should be used, to encourage the production of a dense mass of fibrous roots.

It is a common mistake to suppose that a poor soil is the best to use in place of that taken out of the trench, the error being founded on the consideration that excessive luxuriance implies the existence of an excess of nourishment in the soil, whereas it may imply a deficiency of suitable food for the production of fruit and an excess of that required for the growth of stem and branch. Frequently trees grow freely in a wet soil, and in many cases where fruit trees make much growth and bear little fruit drainage may be needed much more than root pruning. Those contemplating planting fruit trees this autumn where the soil is known to be of a wet nature would do well to plant on slight mounds. This is often done with a view to restricting wood growth and inducing fruitfulness. *W. Auton, Pyrford Court Gardens, Woking.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante, pp. 71-76.)

(*Continued from page* 162).

ENGLAND, S.

WILTSHIRE.—The fruit crops are very disappointing. Apple trees blossomed profusely, but a late frost during May destroyed a large quantity of the blossom, particularly on bush trees; standards flowering at the same time escaped injury, and are carrying good crops. Pears are very scarce. Peaches and Nectarines are thin crops. Gooseberries were plentiful and of excellent quality. Strawberries suffered from the dry summer, although we had plenty of berries, but they were very soon over. King George and Givon's Late Prolific withstood the drought best, and furnished some excellent fruits. Red Currants and Loganberries were both good, but Black Currants were a thin crop and of poor quality. Plums promised well, but a good deal of the fruits dropped. Nuts are a failure; the bushes had plenty of female flowers, but no catkins. *J. Yandell, The Manor Gardens, Ramsbury.*

ENGLAND, N.W.

CUMBERLAND.—Apples, Pears and Plums are all failures—four Apple trees, Washington, Gladstone, James Grieve and Ribston Pippin enjoying the shelter of a wall from a series of east, north-east, and northerly winds, alone escaped injury. Pears on walls are also a total failure. On April 19 we had 10° of frost, and on the 23rd of the same month 12°, followed by the winds in question. Strawberries were our most plentiful fruit, but dry weather made the Strawberry season short. Climatic conditions of the autumn of 1922 and the spring of 1923 are, I think, responsible for the fruit deficiencies of the present year. Our soil is a fairly heavy loam, resting on sandy gravel. *J. Service, Holme Hill Gardens, Dalston.*

——Apples, Pears, Plums, Cherries and Black Currants, also Peaches, Nectarines and Apricots are practically all failures in this district. Gooseberries, Red Currants and Strawberries were good crops, but very late. It is the worst season I can remember, spring and early summer being wet and sunless. The soil is of a heavy, tenacious nature, but I think the cold north-east winds caused the failure of the fruit crops, also the wet, sunless autumn of 1922 prevented the ripening of the fruit buds. *James Tait, Justicetown Gardens, Carlisle.*

LANCASHIRE.—Continual frosts in May practically ruined the fruit crops. Pears and Plum trees set no fruit. Apple trees and Gooseberry bushes set a fair number of fruits, but eventually shed most of them. The Apple crop is the worst I have had for over 50 years, and in all my experience in these gardens I never remember such a complete failure of the fruit crops. The frosts were followed by a plague of aphis, and most of the trees are only now making clean, healthy growth. *W. Upjohn, Hall Gardens, Worsley.*

WESTMORLAND.—We did not expect good crops owing to the unripened state of last year's wood. Apples, Pears and Plums were weak in blooming, and the bloom that did develop was injured by severe weather in May; in consequence fruit is very scarce, but the foliage is clean and healthy. Gooseberries and Currants were bumper crops, and Strawberries were good, but ripened later than usual. The soil is a gravelly loam. *W. A. Miller, Underley, Kirkby Lonsdale.*

——All orchard trees showed signs of last season's dull, cold weather, with the result that little or no bloom developed on Apples and Pears. I never saw foliage so free from insect pests. Bush fruits and Strawberries were very late in ripening. The soil here is heavy in texture, on a clay subsoil, and the gardens are 760 ft. above sea level. *James Jeffrey, Lowther Gardens, Penrith.*

ENGLAND, S.W.

CORNWALL.—I doubt if the fruit crops in this district have been quite so bad during recent years. No frost was registered on any two consecutive days for the whole winter. During the latter half of 1922 we experienced a dismal, wet time, with little or no sunshine. The spring of this year was characterised by one long, low temperature with only occasional bursts of sunshine, and this continued until midsummer. During the time when most of the fruit trees were in blossom we had frequent showers of hail; not heavy, but small hail accompanied by rain and strong, cold winds. When pruning I found the wood as soft as cheese, and when the blossom opened it neither had strength nor substance to give me any hope of a fruitful year. *Harry Williams, Tolvean Gardens, Redruth.*

DEVONSHIRE.—Apple trees bloomed freely, but the fruits failed to set through lack of rain, I think. Pear trees developed very little blossom; we had good crops of Pears the last two years. Plums, Cherries and Peaches are very much under the average yield. Black Currants were the worst of small fruits. Silverleaf is again prevalent on some Plum trees. *G. Sleep, Hartland Abbey Gardens, N. Devon.*

SOMERSETSHIRE.—The fruit crops are under average. Some Apple trees have fairly good crops, but the majority of them are without fruit. Pears are a failure, except for a few scantily placed fruits on the ends of shoots. Plums, on the contrary, are an average crop, but Damsons are not so numerous as last year. Cherry trees flowered finely, but dropped their fruit considerably; some Morello Cherry trees had fair crops. Peaches are a good average crop. Some sorts of Nectarine cast a good many fruits. Apricots were unhappy in the early spring, but the trees have since recovered. Bush fruits were again very good, Black and Red Currants and Gooseberries especially; Strawberries, too, have had good crops, late ones doing well. We had a poor spring and early summer, cold winds were constant, sunshine lacking, rain wanted: I am inclined to think, however, that lack of sunshine last summer has much to do with the poor crops of fruit this season. The most serious disease hereabout is the silvering of fruit trees, and I notice in some gardens that Apples are now getting silver leaf somewhat, which is much to be regretted. *James Glasheen, Hestercombe Gardens, Taunton.*

——All fruit trees, excepting Pears, flowered well, but owing to cold winds and wet weather the fruits failed to set. There are a few isolated trees here and there in the garden and orchard which are bearing fair crops, but, on the whole, 1923 is a lean year for fruit in this district. Everything suffered from drought in early summer, although we had a very wet spring. June only gave us .53 inches of rain, and barely 2 inches fell in May, when rain is mostly needed. Our soil is a red loam, overlying shale on a northern slope. *Grigor Roy, Halswell park Gardens, Bridgwater.*

GLOUCESTERSHIRE.—It is a very disappointing fruit year. Pears are a complete failure: the trees produced scarcely any blossom. Plums flowered freely and appeared to set fruit, but the crop was completely ruined and the trees were rendered almost leafless by persistent attacks of aphis. Only a few varieties of Apples are carrying medium crops of fruit. Apricots are practically nil. Cherries were a very thin crop, whilst there is a good sprinkling of fruit on Peaches and Nectarines. Strawberries were good and up to the average, and Gooseberries were abundant. Currants and Raspberries were fairly plentiful, but the latter needed rain badly. *Frank J. Clark, Westonbirt Gardens, Tetbury.*

——So far as we are concerned in these gardens, this is a very lean year for fruit. Pear trees, all of which bore heavy crops last year, are looking very well, being clean and without pests, but they have no fruit. There is scarcely any fruit on Apple or Plum trees. These bore heavy crops last year, and were badly attacked with caterpillar and aphis; some trees were almost stripped bare of foliage. May was a bad month for spraying here on account of high winds. This season I am more convinced than ever that gardeners should prepare for spraying by having their sprayers and insecticides ready to deal with the first raids of fruit tree pests. *John Banting, Tortworth Gardens, Falfield.*

(*To be continued.*)

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HOME CORRESPONDENCE.

Pelargonium Rollison's Unique.—While interest rests upon this plant, may I ask the attention of readers to the point of its flowering in two colours? Beyond my own remark nothing has been said about this, and yet its occurrence must have been noticed by a good many. I have been disappointed that my own plant has not presented the phenomenon, and I have begun to wonder whether it is possible to strike from a cutting that could not produce it. What precisely does it mean? There would be great interest, I believe, if someone would send a branch from which both colours proceed to some scientific authority, perhaps to a meeting of the Scientific Committee of the Royal Horticultural Society (it may now be late for this year perhaps). From the fact that the second colour may be waited for with some hope of seeing it, I have thought that something more than a mere sport is in question. There is a considerable amount of interest in the dual composition of a plant. What indeed is the nature of a sport? Is it something that separates out, or can it be said to originate *de novo*? Consideration of the subject by no means ends with these questions, and there would be great interest in an account of the various happenings. *R. Irwin Lynch, V.M.H.*

Pollination of Cherries.—Miss M. B. Crane, of the John Innes Horticultural Institution, asks in *Gard. Chron.*, September 8, for further information as to the Cherry to which I referred on page 120, under the name of Knight's Black. Miss Crane's experiments have been carried out so very carefully and with such forethought that I think my own experiments only tend to confirm those which she has already conducted. I have little doubt that the variety of Cherry to which I referred under the heading of Knight's Black was undoubtedly wrongly named, and probably was Bohemian Black Bigarreau. Unfortunately, the large standard tree which I used for my experiments was badly attacked by the disease generally referred to as "die back," and was grubbed up and burned last autumn. The fruits, which were large, were very even and regular in their outline, and the stalks were only about one inch in length. The stones were roundish and medium-sized. These three points are, I believe, characteristic of the Bohemian Black, whilst I find that the fruit of Knight's true Early Black is generally irregular and uneven on its surface. The stalks of this variety also are generally between one-and-a-half and two inches long, and the stones are also rather rounder and generally on the small side. I myself have been considerably puzzled by Knight's Early Black fertilising Early Rivers; but I have little doubt that Miss Crane has solved the problem in her most interesting letter. *Enthusiast.*

Cotoneaster frigida.—I do not understand Mr. White's note about Cotoneaster frigida on page 146. He describes it as having "a large crop of red berries shortly to turn black." We have here many large plants of this species, between thirty and forty feet high, and I have never known the scarlet berries to turn black. These berries must vary in flavour on different trees, for the birds devour the fruit on some trees so soon as it is ripe, but leave it to hang through the winter on others. Having had to cut down some large C. frigida, I sent some logs to three different makers of golf clubs. They all agreed in pronouncing the wood to be the best material for club heads they had ever handled. *Herbert Maxwell, Monreith.*

——Your correspondent, Mr. J. E. White, states that "Cotoneaster frigida has a large crop of red berries shortly to turn black." As I doubt whether there is a black C. frigida, possibly he has, through inadvertence, confused it with C. Bacillaris, a Himalayan species which grows quite as tall, but more pendent in habit, and bears purplish-black fruits copiously. Many seedlings and young plants are to be found in the vicinity of old and established bushy trees. Both are strong growers and may be commended for planting for effect on the margins of tree clumps, side of rides, in spinneys, along banks of streams and still water, or even as solitary specimens. From a utilitarian purpose plants may be grown for providing material suitable to use as stakes, such as stack thatching pegs, and for horticultural use as packing stakes, and supports for plants in general. For this purpose, when the plants are well established they should be cut down yearly or in alternate years, and certain growths left to strengthen according to requirements—a practice much in use with Hazels. They are therefore a good substitute for Bamboos, and although not so durable, they are nevertheless more natural and less rigid and appear better as supports to plants in show houses than Bamboo canes. *C. F. C.*

St. Cuthbert's Cole.—I have pleasure in supplying the data on which I conclude that St. Cuthbert's Cole is identical with Cuthertdole, Cutbertill, Sea Dock, Seehock, Brank ursine and Althaea officinalis. But, firstly, it may be stated for the information of those who are unacquainted with the *Dictionary of English Plant Names* that St. Cuthbert's Cole and Seehock are not included among the names in that valuable book of references. To make the matter as clear as possible, it is important to understand that Acanthus (mollis) is first stated to have been cultivated in England in 1548, under its common name, Branke ursine. It is also important to know that a plant celebrated for its medicinal properties and which for any reason was not cultivated in England, had a native plant substituted for it and was known by this name. Aristolochia and Zedoary are instances. So it happened likewise with Brank ursine. Its emollient properties were known, and the native plant that possessed similar properties was Althaea officinalis, which naturally received the name. On the Continent, strangely enough, Hieracleum Spondylium was Branca ursina. It will be seen from the few abstracts which follow that Acanthus mollis could not be the plant referred to, but that Althaea officinalis conforms, from the locale it prefers—sea marshes. "Sea docke is Branke ursine"; "Branca ursina a(ngli)ce, sedokke"; "Branca ursina herbaest, an(glice) seehock." The last is sufficient of itself to prove the plant to be Althaea officinalis. With regard to St. Cuthbert's Cole, the following references will suffice to show that it is the same plant. "*Caulus Sti. Kutherti respice in malua.*" On referring to "malua" we find "*Malva silvestris—altea idem., anglice merch malue, caulis Sancti Cutberti—idem.,*" and, lastly, "*Eviscus altea idem—anglice, Seynt Cuthertscole.*" With this compare the badly-spelled Cutbertdole which Gerarde probably wrote, not from a book but from hearing.

(Will readers kindly note that by a slip of the pen Duchess of Sutherland (page 136) was written for Lady Scarborough.) *R. P. Brotherston.*

Hardiness of Cobaea scandens.—As an instance of the mild winter of 1922-3 and our temperate climate, I have here some four or five plants of the greenhouse climber Cobaea scandens that have withstood last winter out-of-doors without any protection whatever, and have been flowering this season for a long time. Have any of your readers a similar experience? *C. Orchard, The Cottage, Smoglands, Bembridge, I.W.*

Grease-Banding.—The present is the best time to apply grease-bands to fruit trees, and the work may be done easily, expeditiously and proficiently by girls and women. In the case of half-standard and standard trees the band should be placed around the stem at a distance of three to four feet from the ground, tying it securely at the top and bottom. Smear the band with a thin coating of the grease composition, using a thin, flat piece of wood to apply it. A width of about four inches should be greased, leaving the top and bottom of the band quite clear. Allow the wrapper to remain on the tree until July. Amongst the various larvae now ascending the trees are those of the winter moth, the March moth, the mottled umber moth, and, later in the season, the Codlin moth. The bands will also catch many other insects that are migrating to the trees. *Pomona.*

SOCIETIES.

ROYAL HORTICULTURAL.

SEPTEMBER 18.—There was a beautiful exhibition in connection with the fortnightly meeting held on Tuesday last in the Society's Hall, Vincent Square, Westminster. The full capacity of the building was taxed to hold the exhibits, some being staged in the Orchid annexe. Late summer and autumn flowers, such as Dahlias, Chrysanthemums, Gladioli, Roses and Montbretias were shown in big masses, whilst miscellaneous groups and hardy border flowers also contributed to a brilliant display. There were a few Orchids, several collections of Carnations and a very attractive group of Liliums. Two excellent groups of pot fruit trees were exhibited by Messrs. T. Rivers and Son and Mr. J. C. Allgrove respectively.

Three new Orchids received Awards of Merit and four novelties each received a similar award in the floral section.

A new Apple named George Neal was given an Award of Merit, following an inspection of the tree by a sub-committee of the Fruit and Vegetable Committee. Mr. H. J. Jones added to his long list of successes in being awarded a Gold Medal for a superb group of Dahlias.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson (assistant secretary), H. T. Pitt, J. E. Shill, H. G. Alexander, C. J. Lucas, Arthur Dye, Fred. K. Sander, E. R. Ashton, Pantia Ralli, J. Wilson Potter and R. Brooman White.

AWARDS OF MERIT.

Cypripedium Godefroyae leucochilum Gatton Park var., from Sir JEREMIAH COLMAN, Bt., Gatton Park (gr. Mr. Collier). A very fine form of the section which approaches C. bellatulum in colour, and in the present instance in size and shape. The large dorsal sepal and broad, extended petals are white with a heavy veining of deep claret-purple extending to the margin. The lip is white and unspotted, except for a few slight dots.

Laelio-Cattleya Aureole var. Renown (*C. Iris* × *L.-C. luminosa*), from PANTIA RALLI, Esq., Ashtead Park (Orchid grower, Mr. Farnes). A very distinct addition to the class and one of the brightest. The sepals and petals are clear chrome yellow; the lip is ruby-purple with a narrow, yellow margin and lines at the base.

Vuylstekeara Medea (*Odontioda Zenobia* × *Miltonia Charlesworthii*), from Messrs. CHARLESWORTH AND Co., Haywards Heath. A pretty novelty shown with its first flowers. The flower has the Miltonia shape, but the colour is derived from the Odontioda parent. The little plant bore a spike of several flowers. The sepals and petals are deep ruby-claret, the base of the lip being of the same colour and the pink front densely spotted with purple, there being blotches in the centre.

GROUPS.

Messrs. SANDERS were awarded a Silver Flora Medal for a very pretty group rich in good plants. At the back of the group were splendid specimens of the true Oncidium Marshallianum which this firm has been fortunate in introducing lately, with noble branched spikes of yellow flowers. Laelio-Cattleyas and Cattleyas, including a fine form of C. Thebes and white and coloured C. Hardyana, were well shown, and among species noted were the beautiful Miltonia spectabile conspicua of the same class as their M. s. extraria recently certificated, and two pans of their fine type of Cypripedium Godefroyae.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), was awarded a Silver Banksian Medal for an interesting group in which Brasso-Cattleya Corallina, with very large, mauve flowers, and the brilliantly coloured Sophro-Laelio-Cattleya Isabella were prominent. The species shown included the pretty Chondrorhyncha Chestertonii, Brassia Lawrenceana longissima, the singular Bulbophyllum barbi-

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gerum, and the elegant Cirrhopetalum gracilimum.

Messrs. STUART LOW AND Co., Jarvisbrook, Sussex, were awarded a Silver Banksian Medal for a small group of showy hybrids, among which fine yellow Brasso-Laelio-Cattleya Thyone Joyce Hanmer, forms of Cattleya Hardyana and other showy hybrids were well displayed. The pretty Miltonia Binotii, a natural hybrid between candida and Regnellii, was well shown. The fine old species were represented by well-flowered Odontoglossum grande in several good specimens, forms of Cattleya Dowiana, the curious little Sigmatostalix radicans, Laelia Dayana delicata, white with purple lip; and other rare species.

OTHER EXHIBITS.

Sir JEREMIAH COLMAN, Bt., sent a basket of several of his elegant Spathoglottis Zebrina (Fortunei × plicata), the plants bearing over forty spikes, with flowers varying from white to yellow and light rose as the progeny approached either parent, but the majority of the blooms were yellow. Baron BRUNO SCHRÖDER, The Dell Park, Englefield Green (gr. Mr. J. E. Shill), showed a noble spike of Laelio-Cattleya Golden Glow (L.-C. luminosa × C. Venus), with eight rich yellow flowers with velvety crimson lips.

Messrs. CHARLESWORTH AND Co., Haywards Heath, showed a finely grown selection of hybrids, including Cattleya Hesta excelsa with a five-flowered spike of white flowers with a purple lip.

Messrs. COWAN AND Co., Southgate, staged some fine hybrids, including a grand form of their Laelio-Cattleya Nanon, Brasso-Laelio-Cattleya Muriel, with immense rosy-lilac flowers; two forms of Cattleya Thebes with very dissimilar flowers; Laelio-Cattleya Hassallii alba, one of the finest of white-petalled Laelio-Cattleyas, Cattleya Desdemona and good C. Hardyana alba.

Floral Committee.

Present: Messrs. H. B. May (chairman)) H. R. Darlington, H. J. Jones, Geo. Harrow, J. B. Riding, W. B. Gingell, W. Howe, S. Morris, Donald Allan, H. Dickson, D. B. Crane, J. F. McLeod, Reginald Cory, R. C. Notcutt, A. Turner, J. W. Barr, W. B. Cranfield, C. R. Fielder, C. Pearson, W. G. Baker, G. Loder, E. A. Bowles and W. D. Cartwright.

AWARDS OF MERIT.

Kniphofia Royal Standard.—A very graceful spike of medium size. The upper portion is composed of deep coral coloured flower buds which, when fully expanded, become Primrose-yellow. Shown by Mr. M. PRICHARD.

Montbretia Jessie.—The flowers are of rather more than medium size, rounded and slightly inclined to be cupped. The centre of the bloom is yellow, and this colour is freely stippled with orange on the remaining third of the petals. The exterior is heavily flushed. Shown by Mr. S. MORRIS.

M. The Princess.—Another very beautiful variety, which differs from the foregoing in that the yellow zone is marked with crimson lake and the outer portion of the petals is deep orange coloured. Also shown by Mr. S. MORRIS.

Pyrus earlhamensis.—A fruiting branch bearing several "Apples" of irregular size was shown. These fruits were highly coloured, but not more so than on many cider Apples, now to be seen in quantity in Devonshire. The flesh of the fruits is also highly coloured. Shown by Mr. S. MORRIS.

New Dahlias.

The Joint Dahlia Committee found a large number of seedling Dahlias awaiting inspection and selected the following for trial at Wisley next year. It was made clear that none of the novelties would be considered unless the senders undertook to forward plants to the trial grounds next spring.

Gwynne.—A small Paeony-flowered variety which is almost a single. It is of rich velvety crimson colour with a darker centre.

Thursa.—A small Decorative bloom with pointed florets and of deep scarlet colour.

Violetta.—A Paeony-flowered variety of rather more than medium size and bright mauve colouring.

Emblem.—This is a well-formed Decorative variety of rosy mauve colouring with a few golden yellow lines along and at the tips of the florets.

Sylpe.—A large Paeony-flowered variety of sparkling blush lavender colour. The above were shown by Messrs J. BURRELL AND SONS.

Nero.—A richly coloured Pompon Dahlia of perfect form and rich crimson maroon colour. Shown by Messrs. J. CHEAL AND SONS.

Reading Star.—A very showy and highly decorative Star variety of rich crimson colour with the florets tipped with maroon. Shown by the UNIVERSITY COLLEGE GARDENS, Reading.

Snowdrift.—A large Cactus Dahlia of perfect exhibition shape. When first open the florets are a good white, but they soon become discoloured. This and the two following varieties were shown by Mr. H. SHOESMITH.

Lenny.—This is a medium-sized Decorative variety. The florets are of thin texture, but it is a very pretty flower of pale yellow colour regularly flushed with rosy-purple.

Winnie Hardy.—A very Decorative Cactus variety of medium size and beautiful incurving florets. The colour is a deep rosy mauve, lightly tipped with gold.

Lydia.—This is a rather large Star Dahlia of clear Primrose-yellow colour. Shown by Mr. CHAS. TURNER.

Dot.—A small Collerette. The roundish white ray florets are margined with deep crimson on the lower half, and this colour alternates with white on the short quills. This and the following varieties were shown by Messrs. J. STREDWICK AND SON.

Rocket.—A large Cactus variety with narrow florets of rosy mauve colour and a paler centre.

Magpie.—A large Decorative variety made up with broad florets of velvety crimson colouring tipped with white.

Phosphorus.—A very large Single of bold appearance, with slightly rolled florets and of yellow colour.

Beacon.—A Decorative variety with the appearance of a coarse Cactus. The colouring is magenta-crimson. It has very long stems.

Vera.—A medium-sized Decorative variety of compact habit. The scarlet florets are flushed with crimson and have white tips.

Rector.—A mauve flushed Decorative variety of large size with a few chocolate spots. An uncommon but not very beautiful flower.

L. Hancock.—A large flattish Decorative variety with broad, thin florets of pale scarlet colour lightly flushed with crimson.

Mrs. E. G. Cant.—A well set-up Decorative variety of pale orange-buff colouring, which becomes flushed with age. It is somewhat star-shaped.

Lucien.—A very good, large Decorative variety of Primrose-yellow colour.

Polar Bear.—A large Decorative variety of excellent form, with pure white florets. Shown by the Hon. VICARY GIBBS (gr., Mr. E. Beckett).

GROUPS.

Dahlias were again shown in considerable quantity, and, generally, of high quality. Just inside the entrance Mr. H. J. JONES set up a very large collection, though not quite with his accustomed skill—there was an unfortunate division between the tall stands of large Decorative and Paeony-flowered varieties intermixed with Pompons and the lower masses of bloom. But the group included a great many varieties of decorative appearance and it made a very attractive show (Gold Medal).

Messrs. CARTER, PAGE AND Co. had a very fresh collection of Dahlias on the opposite side of the hall, and while this included nearly all of the types, it was particularly strong in the Decorative and Cactus sections. Of the former, Prince of Wales, Fireman and The Prince were very attractive, whilst of the latter, Masterpiece, Fireflare and White Queen were especially noteworthy. They also showed many excellent small Decorative and Paeony-flowered varieties (Silver Flora Medal). Messrs. J. CHEAL AND SONS included many valuable varieties of their numerous Star Dahlias, and also of the dainty Pompons in their collection. Of the latter Ruby, claret-coloured, Darkest of All, Bacchus, wine-red, Nerissa and Girlie, mauve shades, were very delightful. Their Singles were also perfect in form and colouring (Silver Flora Medal).

A very fresh collection was arranged by Mr. J. T. WEST, and in this the highly decorative miniature Paeony-flowered types were very prominent. Of these we were impressed by Rainbow, Floss, Blue Coat and Lovely, while Arthur Twitchett and Mrs. C. A. Gillatt, of the Cactus varieties, were also splendid examples (Silver Flora Medal). Mr. J. B. RIDING had a prettily arranged little group in which there were many excellent Collerettes as well as other types. The Collerettes included Giant of Lyons, Tweed, Iona, M. Poirier, Ulva and Regularity (Silver Banksian Medal).

A fresh and bright collection of Dahlias was contributed by Mr. CHAS. TURNER. His large Paeony-flowered varieties, such as Coralie, Christine, King Harold and Phidias were exceedingly beautiful (Silver Banksian Medal). A small collection of very meritorious seedlings was exhibited from the UNIVERSITY COLLEGE GARDENS, Reading, and included Vive la France, Thos. Ewbank and Reading Star, which are to be grown for trial at Wisley next year (Silver Banksian Medal). Mr. H. WOOLMAN included Dahlias with early-flowering Chrysanthemums (Silver Banksian Medal).

Montbretias of especial merit were arranged by Mr. S. MORRIS, and these included, besides several exceedingly beautiful seedlings, His Majesty, Joan of Arc, Pamela and James Coey (Silver-Gilt Banksian Medal).

In a corner space Messrs. JAMES CARTER AND Co. arranged a large and very charming group of Lilium speciosum and the variety album (Silver Flora Medal).

Gladioli were again shown in considerable quantity by Messrs. KELWAY AND SON. Their excellent large-flowered varieties included King of Gladioli, Flame of War, Gunn, Sir M. Hicks-Beach and Prince Ito, while they also staged many good Primulinus hybrids (Silver Flora Medal). Messrs. R. H. BATH, LTD., had many Gladioli with Delphiniums. The former were chiefly of such good Primulinus hybrids as Brilliance, Prince of Wales, White Giant, Corry and Red Emperor (Silver-Gilt Banksian Medal). Mr. A. EDWARDS showed a good collection of Primulinus hybrids (Bronze Flora Medal); while Messrs. LOWE AND GIBSON included Orange Brilliant, Ulrica, Zanthia and Fire Queen amongst their very beautiful Primulinus hybrids, and also staged excellent examples of the large-flowered type (Silver Flora Medal).

Carnations were extensively shown by Messrs. ALLWOOD BROS., who had two exhibits. One included many vases of Dianthus Allwoodii, and in the other there were good stands of George Allwood, a sweetly scented soft pink bloom with serrate edges; Edward Allwood, brilliant red, Wivelsfield, claret and Laddie (Silver Flora Medal). Mr. C. ENGELMANN had a number of very useful commercial varieties, which may be relied upon to bloom freely, and these included Cupid, Topsy and Salmon Enchantress (Silver Banksian Medal). Messrs. STUART LOW AND Co. associated such Carnations as Eileen Low, Red Ensign, Winter Glow and Lord Lambourne with Roses (Bronze Flora Medal).

Seasonable border flowers were staged in generous quantities by many growers. Messrs. HARKNESS AND SONS had a very bright display of Kniphofias, Liliums, Gladioli, Phlox and the yellow Gaillardia E. J. Anderton (Silver Flora Medal). Messrs. ISAAC HOUSE AND SON showed good blooms of their Scabious (Silver Flora Medal). In a corner space Mr. ERNEST BALLARD set up such Michaelmas Daisies as Little Boy Blue, Lavender and Pioneer (Silver Banksian Medal). Messrs. MAXWELL AND BEALE built a pleasing little rockery and furnished it with Ericas and other flowers (Silver Banksian Medal).

A great many Kniphofias at the back of Mr. M. PRICHARD's collection were very effective, and drew attention to the quantities of other flowers (Silver Banksian Medal). Mr.

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F. C. WOOD had an artistic vase of the purple Pentstemon Kellermannii, and foliage of Prunus Pissardii, and also included Pentstemon Newbury Gem, Physalis Franchettii and Lobelia cardinalis in an interesting collection (Silver Banksian Medal). Mr. G. G. WHITELEGG showed a tasteful group of Delphiniums, Gladioli, Kniphofias and other seasonable border flowers (Silver Banksian Medal).

Liatris pycnostachya, many Michaelmas Daisies and Blue Gentians were prominent in an exhibit by Mr. W. WELLS, JUNR. (Silver Banksian Medal). Messrs. W. CUTBUSH AND SONS had a collection of named Pentstemons (Bronze Flora Medal). Messrs. REAMSBOTTOM AND Co. showed blooms of St. Brigid Anemones (Bronze Flora Medal).

Excellent Violas were set up by Messrs. WM. ARTINDALE AND SON (Silver-gilt Banksian Medal), and Mr. H. GANDELL (Silver Banksian Medal). The former also showed Gladioli and The Rocket Kniphofia. Mr. T. CARLILE had especially good Delphiniums and Kniphofias (Silver Flora Medal). THE CENTRAL GARDEN SUPPLIES showed Roses and hardy border flowers. Mr. B. PINNEY had Violets and Asters. Messrs. RICH AND Co. showed border flowers, and Mr. J. KLINKERT had a collection of Topiary specimens.

In the annexe Mr. L. R. RUSSELL arranged a very good collection of well flowered Clematis. The garden varieties included Ville de Lyon, Jackmanii superba, Madame Jules Correvon and Mrs. Spencer Castle, and they also had a couple of plants of the interesting Clematis tangutica obtusinscula, bearing its uncommon pendulous little yellow flowers (Silver Banksian Medal).

Roses, no doubt in anticipation of the Autumn Rose show, were staged by Messrs. WM. PAUL AND SON, Messrs. WHEATCROFT BROS., and the Rev. J. H. PEMBERTON (Silver Flora Medals).

Fruit and Vegetable Committee.

Present: Messrs. J. Cheal (in the chair), W. Lobjoit, P. C. M. Veitch, Geo. F. Tinley, S. B. Dicks, W. F. Giles, G. Reynolds, E. Neal, T. Pateman, John Basham, J. C. Allgrove, Geo. Keif, H. Markham, W. Bates, W. H. Divers, E. A. Bunyard and A. N. Rawes.

AWARD OF MERIT.

Apple George Neal.—This is a dual-purpose Apple, as it may be used either for dessert or culinary purposes, although it would probably be classed as a cooking sort. It is a fine-looking Apple, somewhat of the shape of Lane's Prince Albert, and was discovered growing in a cottage garden at Oxford. The original tree has a stem six feet tall and a head eighteen feet in diameter. A sub-committee was appointed to inspect the tree and their report stated that it was very healthy and well set with fruit spurs, also that younger trees were bearing well and had made young wood of moderate growth with a reddish bark. The mid-rib of the leaf is also tinted red. The late Rev. W. Wilks tested the variety and reported favourably on its cooking qualities. The variety was also recommended for inclusion in the trial of commercial varieties at Wisley. The season is September. Shown by Messrs. R. NEAL AND SONS, Wandsworth.

GROUPS.

Messrs. T. RIVERS AND SONS were awarded a Silver-Gilt Hogg Medal for a collection of pot fruit trees. They showed Plums principally, but included a few Peaches and Figs. The Plums are exceptionally well grown and fruited, and included such sorts as Coe's Golden Drop, Coe's Violet, President, Rivers' Late Orange, Grand Duke, White Magnum Bonum and Late Orange, the last with fruits of remarkably large size. Trees of Princess of Wales, Sea Eagle and Lady Palmerston Peaches were also fruiting finely, while a few small pot Figs added variety to the collection.

A somewhat similar exhibit was staged by Mr. J. C. ALLGROVE, who was awarded a Silver Hogg Medal. He made a feature of his new Allgrove's Superb Plum, which is a coloured form of Jefferson. Both bush and espalier trees of this and other Plums were shown, the most notable varieties being Early Transparent Gage, Jefferson and Victoria. Espalier trees of Crimson Galande Peach were finely cropped. At either end of the exhibit were included plants of Rubus laciniata bearing a profusion of berries.

ROYAL CALEDONIAN HORTICULTURAL.

September 12 and 13.—The autumn show of this society was held in the Waverley Market, Edinburgh, on these dates. Unfortunately, the weather completely broke down on the second day, and this affected the takings at the gates so much that they were about £80 less than last year, which, however, was a record year since those preceding the war. The entries in the competitive classes were nearly fifty per cent. fewer than last year, the deficit being almost wholly in the fruit and vegetable classes. The Grapes especially were poor in quality, and there was also a great falling off in the quality of the hardy fruits, owing to the bad season. The traders' exhibits were, however, considerably in excess of those of last year, and the show was, on the whole, an excellent one. The Edinburgh and District Garden Allotments Federation again held their annual exhibition in connection with the show.

GARDENERS AND AMATEURS.

Fruit.—In the class for a table of twelve dishes of fruit, decorated, there was only one entry, EARL BALFOUR, K.T., Whitingehame, East Lothian (gr Mr. G. F. Anderson), who was awarded the first prize, consisting of £5 5s., with the Laird and Dickson special prize of silver plate, to be won three times. The fruits shown were Grapes, Muscat of Alexandria and Madresfield Court; Peaches, Bellegarde and Dymond; Nectarines, Humboldt and Newton; Melons, Royal Sovereign and Superlative; Apples, Emperor Alexander and Rival; Pears, Souvenir de Congres and Williams' Bon Chrêtien.

In the class for eight bunches of Grapes, not fewer than four varieties, and not more than two bunches of any variety, there were two entrants, and the first prize, £4 and a gold badge, with the Thomson Challenge Trophy, to be won three times, was awarded to EARL BALFOUR, who obtained 60 points out of a possible 72. The second prize was awarded to Sir MICHAEL NAIRN, Bart., Dysart House, Fife (gr. Mr. J. F. Stewart), who obtained 45 points out of a possible of 70. The points awarded to Earl Balfour's bunches were:—

	Maximum Points.	Points Awarded.
1. Appley Towers	8	7
2. Appley Towers	8	7
3. Muscat of Alexandria	10	9
4. Muscat of Alexandria	10	8
5. Black Hamburgh	9	7
6. Black Hamburgh	9	8
7. Madresfield Court	9	7
8. Madresfield Court	9	7
	72	60

In the other Grape classes EARL BALFOUR was placed first for two bunches of Muscat of Alexandria, one bunch of Black Hamburgh, one bunch of Alicante, one bunch of Madresfield Court, and one bunch of Appley Towers. The EARL OF STRATHMORE, Glamis Castle, Forfar (gr. Mr. D. M'Innes) excelled in the class for four bunches of Grapes, distinct varieties, and for two bunches of Black Hamburgh; WM. CREE, Esq., Kailzie, Peebles (gr. D. Sharpe), showed the best single bunch of Muscat of Alexandria, and Mr. A. M'KINVEN the best bunch of Gros Colman.

LADY DUNDAS OF ARNISTON (gr. Mr. R. Mackenzie) was placed first for a green-fleshed Melon; the EARL OF STAIR, Oxenfoord, Midlothian (gr. Mr. A. C. Scott) for a scarlet-fleshed Melon; Mr. A. M'QUEEN, Dalkeith Gardens, for twelve Figs; Mr. WM. AITCHISON, Thurston Gardens, East Lothian, for six Peaches; EARL BALFOUR, for six Nectarines, and also for twelve purple Plums; FRANK J. USHER, Esq., Dunglass, East Lothian (gr. Mr. J. Notman), for twelve Apricots, twelve red Plums, a collection of dessert Plums, and a collection of culinary Plums.

For Apples and other fruits from plants permanently planted in the open air, ripe or unripe, except dessert Apples grown in Scotland, LADY ASKEW ROBERTSON, Ladykirk, Norham (gr. Mr. G. Little), excelled in the class for a collection of six varieties of Apples, five of each, and in the single-dish classes, six fruits of each kind, for the variety Lord Grosvenor. Mr. J. M'KENZIE, Lochend Gardens, Dunbar, was placed first for a collection of twelve varieties of Apples, five of each, grown in Scotland; J. J. BELL IRVING, Esq., Makerston, Kelso (gr. Mr. R. Auldjo), was placed first for six dessert Apples (ripe), grown in Scotland, for six fruits of James Grieve, and for six fruits of any dessert Apple. In the other single-dish classes, six fruits of each, EARL BALFOUR excelled for Grenadier and Lane's Prince Albert; FRANK USHER, Esq., for Lord Derby, Lord Suffield, Warner's King and Bramley's Seedling; Mr. J. P. REID, Aberlady, East Lothian, for Newton Wonder, Stirling Castle, and for any other variety not included in the list. VISCOUNT NOVAR, Raith, Fife (gr. Mr. D. M'Lean), was placed first for Worcester Pearmain; Mr. J. LAW, Dirleton, East Lothian, for Irish Peach; J. R. DALE, Esq., Seacliff, North Berwick (gr. Mr. N, Pattie), for Ecklinville Seedling and Golden Spire; and Mr. T. NICHOL, Earlston, for Peasgood's Nonesuch.

Mr. J. MACKENZIE, Lochend, Dunbar, obtained first prize for a collection of Pears grown in Scotland, in six varieties, four fruits of each. In the single-dish classes, six fruits, grown in Scotland, Mrs. ASKEW ROBERTSON excelled for Beurré d'Amanlis and Durondeau; J. R. DALE, Esq., for Jargonelle; and FRANK USHER, Esq., for Louise Bonne of Jersey.

PLANTS.—In these classes the first prizes were awarded as follow: Nine dwarf Ferns, Mr. J. MACKENZIE, Newbridge, West Lothian; three tuberous-rooted Begonias, single flowered, Mr. P. REID, Kirkcaldy; two tuberous-rooted Begonias, single and double flowered, Mrs. J. CAMPBELL, Dolphinton, Peebles (gr. Mr. W. Howieson); two Fuchsias, Mr. P. REID; one Fuchsia, A. DRYBROUGH, Esq., Gogarbank, Midlothian (gr. Mr. A. Findlay), and two Coleus, Mr. P. REID.

CUT FLOWERS.—The winners of the first prizes were: Twelve vases of Phloxes not fewer than eight varieties, three spikes in a vase, Mrs. REID, Thomanean, Milanthort (gr. J. Pearson); twelve Gladioli, not fewer than nine varieties, and also six Gladioli, distinct, Mr. D. WHITELAW, Laurencekirk; six bunches of collerette Dahlias, Mr. C. JENKINS, Cambuslang; twelve bunches of Sweet Peas, Mr. J. C. ROBERTSON, Stranraer; six bunches of Sweet Peas, Mr. G. ELLIOT, Hawick.

In the Rose classes, Mrs. RUSSELL, Newton Mearns, excelled for twenty-four blooms, not fewer than eighteen varieties; twelve H.T. blooms, distinct; a vase of six scarlet or crimson Roses, and also for a vase of six white Roses. Mrs. REID, Lauriston Castle, was placed first for a vase of six pink Roses; Sir BASIL MONTGOMERY, Kinross House, was first for six vases in six varieties, and one vase of Roses. Mr. J. PATERSON, Pumpherston, West Lothian, excelled in the class for twelve Fancy Pansies, Mr. H. ROBERTSON, Kelty, in that for twelve show Pansies, and Mr. J. NELSON, Dalkeith, for twelve bunches of Violas. VISCOUNT NOVAR was placed first for one vase of a white early-flowering Chrysanthemum, one vase of a yellow variety, and for one vase of any other colour of early-flowering Chrysanthemum not specified in the list. Mrs. ANDERSON, Auchterarder excelled for the vase of crimson-coloured Chrysanthemums. J. A. HOOD, Esq., Lasswade (gr. N. Leyden), was placed first for one vase of Michaelmas Daisies. SIR BASIL MONTGOMERY for three vases of Montbretia and six vases of Annuals. Mrs. ASKEW ROBERTSON for

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four bunches of Antirrhinums; J. G. STEWART, Esq., Lasswade (gr. Mr. J. Mackay), for twelve Marigolds (French and African); Lt.-Col. T. G. M'LEAN, Melrose (gr. J. Stewart); Mr. P. F. BAUCHOP, Alexandria, for eighteen vases of hardy cut flowers, and J. DUNCAN, Esq., North Berwick (gr. H. Rutherford), for six blooms of double Begonias.

OPEN CLASSES.

Cut Flowers.—For a display of single and double Chrysanthemums on a table 12 feet by 5 feet, decorated with other plants, etc., Mrs. BOASE, Binrock, Dundee (gr. J. Beats), won the first prize, to which is also attached the Edinburgh Cup for Chrysanthemum cut blooms (to be won three times). The first prize for twelve vases of early-flowering Chrysanthemum cut blooms, disbudded, in not fewer than six varieties, which includes the Scottish Challenge Cup for cut blooms, was won by Mr. C. JENKINS, Cambuslang. Mrs. RUSSELL, Newton Mearns, was placed first for a dinner table, 10 feet by 5 feet, decorated with Roses.

Messrs. G. MAIR AND SONS, Prestwick, gained first honours for twenty-four spikes of Gladioli. In the Rose classes Messrs. H. DICKSON AND SONS, LTD., Belfast, excelled for thirty-six Roses, distinct; Mr. R. C. FERGUSON, Dunfermline, for eighteen Roses, distinct; Messrs. ADAMS AND CARMYLE, Aberdeen, for twelve red or crimson roses; Messrs. D. AND W. CROLL, Dundee, for twelve blooms of any pink Rose; Messrs. T. SMITH AND SONS, Stranraer, for twelve white Roses, and also for six baskets of Roses; Messrs. J. FAIRLEY AND Co., Cairneyhill, Fife, for twelve vases in twelve varieties, and also for six vases of garden or decorative Roses; and Mr. W. FERGUSON, Dunfermline, for twelve vases of garden or decorative Roses.

VEGETABLES.—For a collection of twelve kinds of vegetables Mr. J. GRAY, Uddingston, who had 58 points out of a possible of 76, was placed first, Earl BALFOUR being second, and Mrs. BOASE third. In the single-dish classes Mr. GRAY also excelled for Leeks and long Carrots, and the following were the other winners of the first prizes in these classes:—J. A. HOOD, Esq., Lasswade, for Cucumbers; Mr. R. MASON, Lanark, for Tomatos and Lettuce; Mr. R. A. GRIGOR, Dumfries, for Peas; Earl BALFOUR for French Beans and Cauliflower; Mrs. REID, Lauriston Castle, for Broad Beans, Cabbages, and Celery; Mr. P. LAWRIE, Kirknewton, for Savoys; Mr. N. FORREST, Biggar, for Kale, yellow Turnips and white Turnips; Mr. C. JENKINS for Beet and Parsnips; Mrs. ANDERSON, Auchterarder, for stump-rooted Carrots; Col. HEYWOOD LONSDALE, Shavington Hall, Market Drayton (gr. J. Mills), for Onions (the largest bulbs were approximately eighteen inches in circumference); Mr. DARLING, Edinburgh, for twelve Potatoes; Mr. R. W. E. COWPER, **Gogar House, Midlothian** (gr. R. W. Dingwall), for six Potatos; and J. J. BELL IRVING, Esq., Makerston, for twelve kidney Potatos and also for twelve round Potatos.

The silver cup presented by Messrs. J. W. Scarlett, J.P., and T. A. Scarlett, J.P., for the best exhibit in the vegetable section for collections in the Garden Allotments Federation was awarded for the year to Mr. W. KENNEDY, Liberton (South Craig Association). Mr. KENNEDY also won the silver medal for the best individual exhibit in the section.

NON-COMPETITIVE EXHIBITS.

The following awards were made to trade groups:—

Gold Medals and Special Appreciations.—To Messrs. AUSTIN AND M'ASLAN, Glasgow, for vegetables and flowers; Messrs. DOBBIE AND Co., LTD., Edinburgh, for Dahlias, Roses, Sweet Peas, etc.; Mr. THOS. ROBINSON, Nottingham, for Roses; Messrs. L. R. RUSSELL, LTD., Richmond, for foliage plants, Clematis; etc.; Messrs. STORRIE AND STORRIE, Glencarse, for fruit trees, etc.; Messrs. Sutton and Sons, Reading, for vegetables and cut flowers.

Gold Medals.—To Messrs. JOHN FORBES (HAWICK), LTD., for Antirrhinums, Phloxes, Pentstemons, etc.; Mr. DAVID KING, Murrayfield, Edinburgh, for rock garden.

Silver-Gilt Medals.—To Messrs, CUNNINGHAM, FRASER AND Co., Edinburgh, for herbaceous flowers; Messrs. ISAAC HOUSE AND SON, Westbury-on-Trym, for perennial Scabious; Mr. W. WELLS, Jr., Merstham, for herbaceous flowers.

Silver Medals.—To the CARSE OF GOWRIE NURSERY Co., Errol, for hardy fruit; Messrs. DICKSONS AND Co., Edinburgh, for Roses; Messrs. DOBBIE AND Co., LTD., Edinburgh, for Fuchsias; Mr. JOHN DOWNIE, Edinburgh, for Liliums, Gladioli, etc.; Mr. H. N. ELLISON, West Bromwich, for Ferns; Messrs. LAIRD AND DICKSON, Edinburgh, for Alpines; Messrs. TILLIE, WHYTE AND Co., Edinburgh, for vegetables, etc

Bronze Medals.—Messrs. BAKERS, Codsall, for a model garden and cut flowers; Mr. F. J. BELL, Whitley Bay, for Violas; Mr. W. BUNN, Malvern, for Cactus-flowered Geranium Fascination; Mr. E. J. PARSONS, Worcester, for Worcester Berry, etc.; Mr. LAWRIE, Carnwath, for Begonias.

AWARDS TO NOVELTIES.

First-class Certificate.—Fancy Pansy Mrs. Andrew Frater, exhibited by Mr. ANDREW FRATER, Kirkliston.

Awards of Merit.—Chrysanthemum Alex. A. M'Alpine (Goldfinch × White Masse), exhibited by Mr. ALEX. M'ALPINE, Braidfield, Tolcross, Glasgow; *Chrysanthemum Mary Colvin*, exhibited by Messrs. THYNE AND SON, Dundee; *Chrysanthemum Nellie Webber*, exhibited by Messrs. WEBBER AND SONS, Plymouth; *Collerette Dahlias Betty and Helen*, exhibited by Messrs. TORRANCE AND HOPKINS, Busby; *Collerette Dahlia Gleneagles*, and *Cactus Dahlia Glen Morangie*, exhibited by Messrs. DOBBIE AND Co., LTD., Edinburgh; *Fancy Pansy Dryden M'Coll* and *Viola Helen B. Sutherland*, exhibited by Mr. HUGH M'COLL, Preston House, Linlithgow.

ANSWERS TO CORRESPONDENTS.

CLUB ROOT: *E. E.* Club root may be eradicated from the soil by digging in in the autumn a heavy dressing of quicklime (¾ to 1 lb. per square yard). Lime, bone-meal, steamed bone flower, or basic slag may be used in the same way.

SOIL FOR EXAMINATION: *D. T.* The soil seems to be of a rather harsh nature, but we cannot undertake to analyse it. If you are a Fellow of the Royal Horticultural Society, you may send a sample for analysis to Dr. J. A. Voelcker, R.H.S. Gardens, Wisley, Surrey.

SPRAY FOR GRAPES.—*T. M.* We have no knowledge of the specific you mention, but if, as you state, it was tested at Wisley in 1919, you should write to the director there for particulars.

STEPHANOTIS IN FRUIT: *D. S.* Although the Stephanotis does not fruit freely under cultivation in this country, there are many records of it having done so, and such instances have been referred to from time to time in these columns.

VINE AND PEACH TREE: *F. A. S.* There is no necessity for the expense of building a brick wall. Prune the trees as soon as they are cleared of fruit, and root-prune them in September, or not later than October. It is useless to remove the rank growths without checking the gross roots. Take out a trench in a half-circle in front of each tree, about five feet from the stem, and work to within three feet of the stem and well underneath; remove strong roots pointing downwards and shorten back other gross roots, but take care of all fibrous roots and lay these horizontally from two to four inches below the surface. When filling in add lime rubble and burnt ash, with a good sprinkling of bone meal. Make the border firm as the work proceeds and thoroughly water the soil on two or three occasions. Syringe the trees to prevent flagging, and afford shade for a short time until the roots become active again.

Communications Received. — S. A. — E. M. — G. A. G.—T. T. L.—L. G. D.—F. W. B.—R. E. M.—G. J. W.—D. S. F.

MARKETS.

COVENT GARDEN, Tuesday, September 18, 1923.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples—		
James Grieve ½ bus.	3 6	6 0
special	7 0	10 0
Worcester Pearmain, special	7 0	8 6
best ½ bus.	4 6	5 6
2nd, ,,	2 0	3 0
—Lord Derby, bushel	5 0	7 0
—Lord Suffield	5 0	7 0
—Grenadier bus.	5 0	7 0
—Warner's King	5 0	7 6
—Tyrolean	10 0	15 0
Californian—		
—Gravenstein	16 0	18 0
Bananas singles	14 0	25 0
—doubles	20 0	22 6
Blackberries lb.	0 2½	0 4
cultivated ,,	0 6	0 8
Figs, doz.	4 0	8 0
Grapes—		
—Alicante	1 3	2 6
—Belgian	1 3	1 6
—Cannon Hall	3 0	6 0
—Hamburgh	1 3	2 0
—English Muscat	2 0	6 0
Grape Fruit—		
—South Africa	15 0	18 0
—Jamaica	30 0	35 0
Lemons—		
—Murcia, case	16 0	20 0
—Messina, case	15 0	16 0
—Naples	18 0	24 0
Melons, English and Guernsey, each	1 0	4 0
—Cantaloupe	2 6	5 0
Nectarines, doz.		
Special	12 0	18 0
Best	6 0	9 0
Nuts—		
—Cobs	0 0	1 0
Oranges—		
—South African Navels	18 0	22 6
—Seedling	18 0	21 0
Peaches—		
—English, doz.		
Special	12 0	24 0
Best	6 0	9 0
Pears—half		
—Duchess Pitaston	6 0	8 0
—Hessell	6 0	8 0
—Dr. Jules Guyot	6 0	8 0
Calefornian		
—B. Hardy	30 0	32 0
—½ case	16 0	— —
Pines, each	2 0	4 6
Plums—		
—English Victoria	15 0	18 0
—Monarch	10 0	12 0
—Pond's Seedling	10 0	14 0
—Rush	6 6	7 0
—Continental	3 0	6 0
—Damson	9 0	10 0

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Beans, outdoor—		
—Scarlets, bushel	6 0	8 0
—French Beans	0 4	0 6
Beets—		
—New, doz. bun.	3 0	4 0
Cabbage, doz.	1 0	2 0
Carrots cwt.	6 0	8 0
Cauliflower, doz.	3 0	5 0
Cucumber, flat	10 0	14 0
Maize, dozen	4 0	5 0
Marrows, doz.	3 0	4 0
Mushrooms—		
—Forced, lb.	1 6	2 9
—Field	0 6	1 0
Onions, Valencian, case	9 0	10 6
—Dutch	5 9	8 0
—English	8 0	10 0
Peas, bushel	18 0	20 0
Potatos, cwt.	5 0	9 0
Radishes, doz.	1 0	1 6
Tomatos—		
—English Pink	3 6	4 6
—Pink and White	3 0	5 0
—White	3 0	3 6
—Blue	3 0	3 6
—Guernsey	3 0	3 6
—Dutch	2 0	3 0
Turnips cwt.	8 0	9 0

REMARKS.—The general demand has been fairly brisk during the past week, and prices have been steady. English Apples, mainly Worcester Pearmain variety, have been a feature, and although the quantities marketed have been large, their value held firm. At the time of writing prospects point to higher figures being realised. Although Plums have been scanty, there has been a fair quantity of Monarch variety, and prices obtained must have been satisfactory to the growers. Large cookers are not plentiful, and continue in demand. Rather more Apples have arrived from the Continent, as well as from America, and the first consignment from Nova Scotia is due to arrive. Choice fruits such as Grapes, Peaches, Nectarines, Figs and Melons are quoted lower, the demand being slow and supplies heavier. Tomatos have fallen considerably in value, arrivals from all sources being heavy. Cucumbers are not quite such a firm trade. Field Mushrooms are plentiful. Scarlet Runners and Dwarf Beans are both cheaper. A few forced new Potatos from Guernsey as well as some home-grown tubers are on the market, but sales are difficult to arrange at a satisfactory price. Green vegetables are plentiful and cheap. The Potato trade is steady at level rates.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz.	10 0	18 0
—elegans	10 0	12 0
Aralia Sieboldii	10 0	12 0
Araucarias	30 0	48 0
Asparagus plumosus	12 0	15 0
—Sprengeri	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Cacti, per tray, 12's, 15's	5 0	7 0
Chrysanthemums		
—white, doz.	15 0	18 0
—pink ,, ,,	18 0	21 0
—bronze ,, ,,	18 0	12 0
Crotons, per doz.	30 0	42 0
Cyrtomium	10 0	15 0
Heather white	15 0	18 0
,, ,, 60's	6 0	8 0
Hydrangeas white, doz.	18 0	24 0
Lilium longiflorum, each	2 6	3 6
—speciosum album, each	3 6	4 0
—speciosum, rubrum, each	3 0	3 6
Nephrolepis, in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	24 0	30 0
—60's	15 0	18 0
—Cocos	24 0	36 0
Pteris, in variety	12 0	21 0
—large 60's	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's	3 6	4 0

GARDENING APPOINTMENT.

Mr. J. F. Lewis, for one year and eight months Gardener to LORD MANNERS, Avon Tyrrell, nr. Christchurch, Hampshire, as Gardener to Col. PHILIPPI, Crawley Court, Crawley, near Winchester.

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THE
Gardeners' Chronicle
No. 1918.—SATURDAY, SEPT. 29, 1923.

CONTENTS.

Alpine garden, the—
Campanula pumila Perry's Pigmy ... 185
Gentiana Farreri ... 185
Anderson, Mr. R., presentation to 181
Bulb garden, the—
Milla uniflora ... 187
Tulipa biflora ... 187
Calceolaria Scarlet Beauty 189
Flower border, the hardy—
Heuchera 185
Physostegia 185
Fruit crops, remarks on the condition of the... 190
Fungus foray, autumn 182
"Gardeners' Chronicle" seventy-five years ago 182
Gloxinias and Streptocarpus 191
Indoor plants—
Mimulus cardinalis ... 186
International Horticultural Conference at Amsterdam 181, 191
Lambourne, the late Lady 181
Natsopa Convalescent Home and its gardens 186
Orchid notes and gleanings—
Disas 186
Palms of the Riviera ... 189
Parks and gardens, public 185
Pelargonium Rollison's Unique 191
Plant Exports to Egypt 182
Pomological congress at Strassburg 190
Rose garden, the—
Rose Wichuraiana ... 187
Three new Roses ... 187
Rose trial Garden at Wisley 181
Societies—
Bermondsey Flower show 192
Dutch and Dutch-Indian Horticultural 193
Hove Horticultural... 193
National Rose ... 191
Royal Caledonian Horticultural ... 193
Royal Horticultural... 193
United Horticultural Benefit and Provident 193
Trees and shrubs—
Cercidophyllum japonicum 183
Phygelius capensis ... 183
The Climbing Honeysuckles 183
Yokohama Nursery Co., the 181
Ward's, Mr. Kingdon, seventh expedition in Asia 188
Week's work, the ... 184
Weston, Mr. J. G. ... 182

ILLUSTRATIONS.

Calceolaria Scarlet Beauty 189
Gentiana Farreri in a Perthshire garden 185
Lonicera Periclymenum var. belgica 183
Rose Betty Hulton 187
Taron, the descent to the 188
Weston, Mr. J. G., portrait of 182

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 53.2°.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, September 26, 10 a.m.; Bar., 30.3; temp., 63°. Weather—Overcast.

International Horticultural Congress at Amsterdam.

When the President and Council of the Royal Netherlands Horticultural and Botanical Society considered what method they should adopt to mark the jubilee of the society they hit upon the happy idea of celebrating this auspicious event by holding an International Horticultural Congress at Amsterdam, and to combine therewith tours to the principal centres of horticultural interest in the country, together with a few social functions. We understand that the president of the society, Jonkheer G. F. van Tets, was chiefly responsible for the general idea of the Congress, and it was largely due to his genius and geniality that the events followed each other in admirable sequence for a whole week. Jonkheer van Tets is one of the most prominent amateur horticulturists in Holland, consequently his interest in the proceedings and his knowledge of the subjects dealt with, coupled with his ability as a linguist, placed him in the happy position of being able to converse on horticultural and botanical matters with all comers. The Council of the Royal Netherlands Horticultural Society provided a very extensive and attractive programme, and this was carried out in practically every detail over the period commencing on Monday, September 17, and concluding on Sunday, September 23. The chief organiser was Dr. M. J. Sirks, of Wageningen, who acted as Congress secretary, and with whom were associated Jonkheer O. A. W. Repelaer, and Jonkheer C. Dedel. Dr. Sirks has a perfect genius for organisation, and we have nothing but the greatest admiration for his work throughout the Congress. He made arrangements for hotel accommodation for all the foreign guests, and by means of literature and tickets made everything easy for all visitors; he even arranged for the transfer of luggage from Amsterdam to The Hague and from The Hague to Arnhem. The tickets included those admitting the Congress delegates to the Zoological and Botanical Gardens, the Palace, Rembrandt's House, Lees Museum, and the horticultural exhibition. On page 191 we publish the full programme, *pour l'encourager les autres*. Educational interest was always kept in the foreground whether at the four sessions of the Congress or during the tours to Boskoop, Haarlem, Lisse, Aalsmeer, Rotterdam, Deist and Wageningen, but the social interest was not lacking; indeed, delightful hospitality was extended with gracious freedom everywhere, and as the programme was carried out with the amazing accuracy of a first class time table, and devolved no responsibility on the part of delegates—except that of keeping to time—there were ample opportunities for the horticulturists and botanists, representing twenty-two countries, to become acquainted with each other, and this we consider was one of the finest features of the Congress, because scientific, business and social intercourse widens the outlook and tends to produce those friendships which make for the peace, stability and happiness of the world. In the words of the Burgomaster of Amsterdam in his address of welcome, "Reconstruction is the pass word of the present time, restoration of the international relations; restoration also of co-operation between the nations is that which the world needs beyond anything else, and it is this very aim the present Congress has in view to reinforce the existing ties and to enter into new relations by discussing questions of horticulture and botany." Many of the papers read at the Congress and a large number of speeches at the various functions were in English; indeed, the highest compliments possible were paid to the British representatives, including presentation to Her Majesty Queen Wilhelmina at the Huis ten Bosch, The Hague. In these circumstances it was unfortunate that Prof. R. C. Punnet, of Cambridge, and Mr. F. J. Chittenden, of Wisley, were unable to attend and read the papers they had promised, consequently the Royal Horticultural Society was not officially represented. However, a telegram of congratulation was received by the President of the Dutch Society from the Council and President of the R.H.S. during the progress of the banquet on September 20. The British representatives included Mr. H. V. Taylor, Deputy Controller of Horticulture, Prof. W. Bateson, Miss Pellew, Mr. M. B. Crane and Mr. J. R. Chittenden, from the John Innes Horticultural Institute; Miss E. R. Saunders and Mr. C. Wright, from Cambridge; Mr. R. G. Hatton, from East Malling; Mr. J. Harrison, jun., President of the Chamber of Horticulture; Mr. G. W. Leak (Wisbech), Mr. C. Engelmann (Saffron Walden), Mr. F. G. Tresder (Cardiff), Mr. G. F. Dickson (Newtownards), Mr. Chas. H. Curtis (*Gardeners' Chronicle*), Mr. H. H. Wardle, Mr. J. S. Brunton and Mr. Thos. Want. The countries represented at the Congress were Holland, Belgium, France, Germany, Denmark, Czecho-Slovakia, Sweden, Austria, Finland, Poland, Hungary, Switzerland, Norway, Italy, Brazil, United States of America, India, Australia, Canada, South Africa, Ireland and England.

Some particulars of the exhibition held by the Amsterdam section of the Royal Netherlands Horticultural and Botanical Society are given on page 193, and we hope in subsequent issues to refer further to the conference proceedings.

Presentation to Mr. Robert Anderson.—A deputation representing employees in the Phœnix Park, and other amenities under the Board of Public Works, with which Mr. Anderson has been connected as Superintendent for the past 24 years, with some friends, waited on him at Whitefields, the Park Superintendent's residence, on the 20th inst., to present him and Mrs. Anderson with a handsome silver tea equipment on the occasion of his retirement. The following inscribed address accompanied the testimonial, "Dear Mr. Anderson, in asking you to accept the Silver Tray, Tea Service, etc., on the occasion of retiring from your onerous post as Superintendent of the Phœnix Park, as a small token of the high esteem your regime of twenty-four years has won from us, we, the undersigned employees and friends wish to convey to you and Mrs. Anderson our most earnest and sincere wishes that you may both enjoy health, happiness and every blessing." The address was inscribed with the names of 169 subscribers, and in thanking them through the deputation Mr. Anderson gracefully acknowledged the happy relations and good feeling that have marked his tenure of office.

The Yokohama Nursery Company.—Great anxiety has been felt by those connected with the Yokohama Nursery Co. in this country, which has an agency in Kingsway, London, under the management of Mr. A. Dimmock, as to the fate of the staff and nursery in Japan. We are glad, however, to know that a cable has been received stating that the staff is safe, but that the buildings and stocks, as might be expected, are seriously damaged. The cable also stated that "shipments of bulbs, etc., will be made as soon as navigation opens again."

The late Lady Lambourne.—The many friends of Lord Lambourne will be grieved to learn of the death of Lady Lambourne, which occurred on the 22nd inst., at their Essex residence, Bishop's Hall, Romford. Lady Lambourne's death may be traced to an accident last July, when she slipped and broke her thigh. She was the daughter of the late Sir John Ralph Milbanke-Huskisson, eighth Baronet, formerly of His Majesty's Diplomatic Service. She shared in common her husband's love of flowers and gardening, and was especially fond of Souvenir de la Malmaison Carnations, which are a speciality of the Bishop's Hall Gardens.

Rose Trial Garden at Wisley.—The new Rose trial garden started at Wisley by the Royal Horticultural Society this year has made good progress, and plans for its further development are in hand. The Director will be pleased to send entry forms for new varieties to raisers or introducers on receipt of a postcard stating the number required. The plants (six of each) should reach the Director by November 30.

Forestry and Unemployment.—The Forestry Commissioners state that a limited amount of money has been placed at their disposal as forestry grants for the relief of unemployment. In the case of local authorities a free grant amounting to approximately 60 per cent. of the labour bill will be obtainable for every acre planted. Grants for the preparation of ground for planting and for scrub-clearing will also be available. As regards private individuals, up to £3 may be paid for every acre planted; up to £3 per acre may be paid for land prepared for planting at a later date; and a grant, which may be additional to either of the above, of up to £2 per acre will be available where standing scrub growth has to be removed before planting. The regulations governing the grants are on the same general lines as last winter. Forms of application can be obtained from the Assistant

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four bunches of Antirrhinums; J. G. STEWART, Esq., Lasswade (gr. Mr. J. Mackay), for twelve Marigolds (French and African); Lt.-Col. T. G. M'LEAN, Melrose (gr. J. Stewart); Mr. P. F. BAUCHOP, Alexandria, for eighteen vases of hardy cut flowers, and J. DUNCAN, Esq., North Berwick (gr. H. Rutherford), for six blooms of double Begonias.

OPEN CLASSES.

Cut Flowers.—For a display of single and double Chrysanthemums on a table 12 feet by 5 feet, decorated with other plants, etc., Mrs. BOASE, Binrock, Dundee (gr. J. Beats), won the first prize, to which is also attached the Edinburgh Cup for Chrysanthemum cut blooms (to be won three times). The first prize for twelve vases of early-flowering Chrysanthemum cut blooms, disbudded, in not fewer than six varieties, which includes the Scottish Challenge Cup for cut blooms, was won by Mr. C. JENKINS, Cambuslang. Mrs. RUSSELL, Newton Mearns, was placed first for a dinner table, 10 feet by 5 feet, decorated with Roses.

Messrs. G. MAIR AND SONS, Prestwick, gained first honours for twenty-four spikes of Gladioli. In the Rose classes Messrs. H. DICKSON AND SONS, LTD., Belfast, excelled for thirty-six Roses, distinct; Mr. R. C. FERGUSON, Dunfermline, for eighteen Roses, distinct; Messrs. ADAMS AND CARMYLE, Aberdeen, for twelve red or crimson roses; Messrs. D. AND W. CROLL, Dundee, for twelve blooms of any pink Rose; Messrs. T. SMITH AND SONS, Stranraer, for twelve white Roses, and also for six baskets of Roses; Messrs. J. FAIRLEY AND CO., Cairneyhill, Fife, for twelve vases in twelve varieties, and also for six vases of garden or decorative Roses; and Mr. W. FERGUSON, Dunfermline, for twelve vases of garden or decorative Roses.

VEGETABLES.—For a collection of twelve kinds of vegetables Mr. J. GRAY, Uddingston, who had 58 points out of a possible of 76, was placed first, Earl BALFOUR being second, and Mrs. BOASE third. In the single-dish classes Mr. GRAY also excelled for Leeks and long Carrots, and the following were the other winners of the first prizes in these classes:—J. A. HOOD, Esq., Lasswade, for Cucumbers; Mr. R. MASON, Lanark, for Tomatos and Lettuce; Mr. R. A. GRIGOR, Dumfries, for Peas; Earl BALFOUR for French Beans and Cauliflower; Mrs. REID, Lauriston Castle, for Broad Beans, Cabbages, and Celery; Mr. P. LAWRIE, Kirknewton, for Savoys; Mr. N. FORREST, Biggar, for Kale, yellow Turnips and white Turnips; Mr. C. JENKINS for Beet and Parsnips; Mrs. ANDERSON, Auchterarder, for stump-rooted Carrots; Col. HEYWOOD LONSDALE, Shavington Hall, Market Drayton (gr. J. Mills), for Onions (the largest bulbs were approximately eighteen inches in circumference); Mr. DARLING, Edinburgh, for twelve Potatoes; Mr. R. W. E. COWPER, **Gogar House, Midlothian** (gr. R. W. Dingwall), for six Potatos; and J. J. BELL IRVING, Esq., Makerston, for twelve kidney Potatos and also for twelve round Potatos.

The silver cup presented by Messrs. J. W. Scarlett, J.P., and T. A. Scarlett, J.P., for the best exhibit in the vegetable section for collections in the Garden Allotments Federation was awarded for the year to Mr. W. KENNEDY, Liberton (South Craig Association). Mr. KENNEDY also won the silver medal for the best individual exhibit in the section.

NON-COMPETITIVE EXHIBITS.

The following awards were made to trade groups:—

Gold Medals and Special Appreciations.—To Messrs. AUSTIN AND M'ASLAN, Glasgow, for vegetables and flowers; Messrs. DOBBIE AND CO., LTD., Edinburgh, for Dahlias, Roses, Sweet Peas, etc.; Mr. THOS. ROBINSON, Nottingham, for Roses; Messrs. L. R. RUSSELL, LTD., Richmond, for foliage plants, Clematis; etc.; Messrs. STORRIE AND STORRIE, Glencarse, for fruit trees, etc.; Messrs. Sutton and Sons, Reading, for vegetables and cut flowers.

Gold Medals.—To Messrs. JOHN FORBES (HAWICK), LTD., for Antirrhinums, Phloxes, Pentstemons, etc.; Mr. DAVID KING, Murrayfield, Edinburgh, for rock garden.

Silver-Gilt Medals.—To Messrs. CUNNINGHAM, FRASER AND CO., Edinburgh, for herbaceous flowers; Messrs. ISAAC HOUSE AND SON, Westbury-on-Trym, for perennial Scabious; Mr. W. WELLS, Jr., Merstham, for herbaceous flowers.

Silver Medals.—To the CARSE OF GOWRIE NURSERY CO., Errol, for hardy fruit; Messrs. DICKSONS AND CO., Edinburgh, for Roses; Messrs. DOBBIE AND CO., LTD., Edinburgh, for Fuchsias; Mr. JOHN DOWNIE, Edinburgh, for Liliums, Gladioli, etc.; Mr. H. N. ELLISON, West Bromwich, for Ferns; Messrs. LAIRD AND DICKSON, Edinburgh, for Alpines; Messrs. TILLIE, WHYTE AND CO., Edinburgh, for vegetables, etc

Bronze Medals.—Messrs. BAKERS, Codsall, for a model garden and cut flowers; Mr. F. J. BELL, Whitley Bay, for Violas; Mr. W. BUNN, Malvern, for Cactus-flowered Geranium Fascination; Mr. E. J. PARSONS, Worcester, for Worcester Berry, etc.; Mr. LAWRIE, Carnwath, for Begonias.

AWARDS TO NOVELTIES.

First-class Certificate.—Fancy Pansy Mrs. Andrew Frater, exhibited by Mr. ANDREW FRATER, Kirkliston.

Awards of Merit.—Chrysanthemum Alex. A. M'Alpine (Goldfinch × White Masse), exhibited by Mr. ALEX. M'ALPINE, Braidfield, Tolcross, Glasgow; *Chrysanthemum Mary Colvin*, exhibited by Messrs. THYNE AND SON, Dundee; *Chrysanthemum Nellie Webber*, exhibited by Messrs. WEBBER AND SONS, Plymouth; *Collerette Dahlias Betty and Helen*, exhibited by Messrs. TORRANCE AND HOPKINS, Busby; *Collerette Dahlia Gleneagles*, and *Cactus Dahlia Glen Morangie*, exhibited by Messrs. DOBBIE AND CO., LTD., Edinburgh; *Fancy Pansy Dryden M'Coll* and *Viola Helen B. Sutherland*, exhibited by Mr. HUGH M'COLL, Preston House, Linlithgow.

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MARKETS.

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special ...	7 0–	10 0
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2nd. ,,	2 0–	3 0
—Lord Derby, bushel ...	5 0–	7 0
—Lord Suffield	5 0–	7 0
—Grenadier bus.	5 0–	7 0
—Warner's King	5 0–	7 6
—Tyrolean ...	10 0–	15 0
Californian—		
—Gravenstein...	16 0–	18 0
Bananas singles	14 0–	25 0
—doubles ...	20 0–	22 6
Blackberries lb.	0 2½–	0 4
cultivated ,,	0 6–	0 8
Figs, doz. ...	4 0–	8 0
Grapes—		
—Alicante ...	1 3–	2 6
—Belgian ...	1 3–	1 6
—Cannon Hall...	3 0–	6 0
—Hamburgh ...	1 3–	2 0
—EnglishMuscat	2 0–	6 0
Grape Fruit—		
—South Africa	15 0–	18 0
—Jamaica ...	30 0–	35 0
Lemons—		
—Murcia, case...	16 0–	20 0
—Messina, case	15 0–	16 0
—Naples ...	18 0–	24 0

	s. d.	s. d.
Melons, English and Guernsey, each	1 0–	4 0
—Cantaloupe ...	2 6–	5 0
Nectarines, doz.		
Special ...	12 0–	18 0
Best	6 0–	9 0
Nuts—		
—Cobs	0 0–	1 0
Oranges—		
—South African Navels ...	18 0–	22 6
—Seedling ...	18 0–	24 0
Peaches—		
—English, doz.		
Special ...	12 0–	24 0
Best	6 0–	9 0
Pears—half		
—Duchess Pitaston ...	6 0–	8 0
—Hessell ...	6 0–	8 0
—Dr.JulesGuyot	6 0–	8 0
Californian		
—B. Hardy ...	30 0	32 0
—½ case ...	16 0–	– –
Pines, each ...	2 0–	4 6
Plums—		
—English Victoria ...	15 0–	18 0
—Monarch ...	10 0–	12 0
—Pond's Seedling ...	10 0–	14 0
—Bush ...	6 6–	7 0
—Continental ...	3 0–	6 0
—Damson ...	9 0–	10 0

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Beans, outdoor—		
—Scarlets, bu-hel	6 0–	8 0
—French Beans	0 4–	0 6
Beets—		
—New, doz. bun.	3 0–	4 0
Cabbage, doz. ...	1 0–	2 0
Carrots cwt. ...	6 0–	8 0
Cauliflower, doz.	3 0–	5 0
Cucumber, flat	10 0–	14 0
Maize, dozen ...	4 0–	5 0
Marrows, doz. ...	3 0–	4 0
Mushrooms—		
—Forced, lb. ...	1 6–	2 9
—Field ...	0 6–	1 0

	s. d.	s. d.
Onions, Valencian, case ...	9 0–	10 6
—Dutch ...	5 0–	6 0
—English ...	8 0–	10 0
Peas, bushel ...	18 0–	0 0
Potatos, cwt. ...	5 0–	9 0
Radishes, doz....	1 0–	1 6
Tomatos—		
—English Pink	3 6–	4 6
—Pink and White	3 0–	5 0
—White ...	3 0–	3 –
—Blue ...	3 0–	3 6
—Guernsey ...	3 0–	3 6
—Dutch ...	2 0–	3 0
Turnips cwt. ...	8 0–	9 0

REMARKS.—The general demand has been fairly brisk during the past week, and prices have been steady. English Apples, mainly Worcester Pearmain variety, have been a feature, and although the quantities marketed have been large, their value held firm. At the time of writing prospects point to higher figures being realised. Although Plums have been scanty, there has been a fair quantity of Monarch variety, and prices obtained must have been satisfactory to the growers. Large cookers are not plentiful, and continue in demand. Rather more Apples have arrived from the Continent, as well as from America, and the first consignment from Nova Scotia is due to arrive. Choice fruits such as Grapes, Peaches, Nectarines, Figs and Melons are quoted lower, the demand being slow and supplies heavier. Tomatos have fallen considerably in value, arrivals from all sources being heavy. Cucumbers are not quite such a firm trade. Field Mushrooms are plentiful. Scarlet Runners and Dwarf Beans are both cheaper. A few forced new Potatos from Guernsey as well as some home-grown tubers are on the market, but sales are difficult to arrange at a satisfactory price. Green vegetables are plentiful and cheap. The Potato trade is steady at level rates.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz. ..	10 0–	18 0
—elegans ..	10 0–	12 0
Aralia Sieboldii..	10 0–	12 0
Araucarias ..	30 0–	48 0
Asparagus plumosus ..	12 0–	15 0
—Sprengeri ..	12 0–	18 0
Aspidistra, green	48 0–	72 0
Asplenium, per doz.	12 0–	18 0
—32's	24 0–	30 0
—nidus	12 0–	15 0
Cacti, per tray, 12's, 15's ..	5 0–	7 0
Chrysanthemums —white, doz, ..	15 0–	18 0
—pink ,, ,,	18 0–	21 0
—bronze ,, ,,	18 0–	12 0
Crotons, per doz.	30 0–	42 0
Cyrtomium ..	10 0–	15 0

	s. d.	s. d.
Heather white ..	15 0–	18 0
,, ,, 60's	6 0–	8 0
Hydrangeas white, doz....	18 0–	24 0
Lilium longiflorum, each	2 6–	3 6
—speciosum album, each ...	3 6–	4 0
—speciosum, rubrum, each	3 0–	3 6
Nephrolepis, in variety ..	12 0–	18 0
—32's	24 0–	36 0
Palms, Kentia ..	24 0–	30 0
—60's	15 0–	18 0
—Cocos ..	24 0–	36 0
Pteris, in variety	12 0–	21 0
—large 60's ..	5 0–	6 0
—small	4 0–	4 6
—72's, per tray of 15's .	3 6–	4 0

GARDENING APPOINTMENT.

Mr. J. F. Lewis, for one year and eight months Gardener to LORD MANNERS, Avon Tyrrell, nr. Christchurch, Hampshire, as Gardener to C. PHILIPPI, Crawley Court, Crawley, near Winchester.

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THE
Gardeners' Chronicle
No. 1918.—*SATURDAY, SEPT.* 29, 1923.

CONTENTS.

Alpine garden, the—
Campanula pumila Perry's Pigmy ... 185
Gentiana Farreri ... 185
Anderson, Mr. R., presentation to 181
Bulb garden, the—
Milla uniflora ... 187
Tulipa biflora ... 187
Calceolaria Scarlet Beauty 189
Flower border, the hardy—
Heuchera 185
Physostegia 185
Fruit crops, remarks on the condition of the... 190
Fungus foray, autumn 182
"Gardeners' Chronicle" seventy-five years ago 182
Gloxinias and Streptocarpus 191
Indoor plants—
Mimulus cardinalis ... 186
International Horticultural Conference at Amsterdam 181, 191
Lambourne, the late Lady 181
Natsopa Convalescent Home and its gardens 186
Orchid notes and gleanings—
Disas 186
Palms of the Riviera ... 189
Parks and gardens, public 185
Pelargonium Rollison's Unique 191
Plant Exports to Egypt 182
Pomological congress at Strassburg 190
Rose garden, the—
Rose Wichuraiana ... 187
Three new Roses ... 187
Rose trial Garden at Wisley 181
Societies—
Bermondsey Flower show 192
Dutch and Dutch-Indian Horticultural 193
Hove Horticultural... 193
National Rose ... 191
Royal Caledonian Horticultural ... 193
Royal Horticultural... 193
United Horticultural Benefit and Provident 193
Trees and shrubs—
Cercidophyllum japonicum 183
Phygelius capensis ... 183
The Climbing Honeysuckles 183
Yokohama Nursery Co., the 181
Ward's, Mr. Kingdon, seventh expedition in Asia 188
Week's work, the ... 184
Weston, Mr. J. G. ... 182

ILLUSTRATIONS.

Calceolaria Scarlet Beauty 189
Gentiana Farreri in a Perthshire garden 185
Lonicera Periclymenum var. belgica 183
Rose Betty Hulton 187
Taron, the descent to the 188
Weston, Mr. J. G., portrait of 182

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 53.2°.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, September 26, 10 a.m.; Bar., 30.3; temp., 63°. Weather—Overcast.

International Horticultural Congress at Amsterdam.

When the President and Council of the Royal Netherlands Horticultural and Botanical Society considered what method they should adopt to mark the jubilee of the society they hit upon the happy idea of celebrating this auspicious event by holding an International Horticultural Congress at Amsterdam, and to combine therewith tours to the principal centres of horticultural interest in the country, together with a few social functions. We understand that the president of the society, Jonkheer G. F. van Tets, was chiefly responsible for the general idea of the Congress, and it was largely due to his genius and geniality that the events followed each other in admirable sequence for a whole week. Jonkheer van Tets is one of the most prominent amateur horticulturists in Holland, consequently his interest in the proceedings and his knowledge of the subjects dealt with, coupled with his ability as a linguist, placed him in the happy position of being able to converse on horticultural and botanical matters with all comers. The Council of the Royal Netherlands Horticultural Society provided a very extensive and attractive programme, and this was carried out in practically every detail over the period commencing on Monday, September 17, and concluding on Sunday, September 23. The chief organiser was Dr. M. J. Sirks, of Wageningen, who acted as Congress secretary, and with whom were associated Jonkheer O. A. W. Repelaer, and Jonkheer C. Dedel. Dr. Sirks has a perfect genius for organisation, and we have nothing but the greatest admiration for his work throughout the Congress. He made arrangements for hotel accommodation for all the foreign guests, and by means of literature and tickets made everything easy for all visitors; he even arranged for the transfer of luggage from Amsterdam to The Hague and from The Hague to Arnhem. The tickets included those admitting the Congress delegates to the Zoological and Botanical Gardens, the Palace, Rembrandt's House, Lees Museum, and the horticultural exhibition. On page 191 we publish the full programme, *pour l'encourager les autres*. Educational interest was always kept in the foreground whether at the four sessions of the Congress or during the tours to Boskoop, Haarlem, Lisse, Aalsmeer, Rotterdam, Deist and Wageningen, but the social interest was not lacking; indeed, delightful hospitality was extended with gracious freedom everywhere, and as the programme was carried out with the amazing accuracy of a first class time table, and devolved no responsibility on the part of delegates—except that of keeping to time—there were ample opportunities for the horticulturists and botanists, representing twenty-two countries, to become acquainted with each other, and this we consider was one of the finest features of the Congress, because scientific, business and social intercourse widens the outlook and tends to produce those friendships which make for the peace, stability and happiness of the world. In the words of the Burgomaster of Amsterdam in his address of welcome, "Reconstruction is the pass word of the present time, restoration of the international relations; restoration also of co-operation between the nations is that which the world needs beyond anything else, and it is this very aim the present Congress has in view to reinforce the existing ties and to enter into new relations by discussing questions of horticulture and botany." Many of the papers read at the Congress and a large number of speeches at the various functions were in English; indeed, the highest compliments possible were paid to the British representatives, including presentation to Her Majesty Queen Wilhelmina at the Huis ten Bosch, The Hague. In these circumstances it was unfortunate that Prof. R. C. Punnet, of Cambridge, and Mr. F. J. Chittenden, of Wisley, were unable to attend and read the papers they had promised, consequently the Royal Horticultural Society was not officially represented. However, a telegram of congratulation was received by the President of the Dutch Society from the Council and President of the R.H.S. during the progress of the banquet on September 20. The British representatives included Mr. H. V. Taylor, Deputy Controller of Horticulture, Prof. W. Bateson, Miss Pellew, Mr. M. B. Crane and Mr. J. R. Chittenden, from the John Innes Horticultural Institute; Miss E. R. Saunders and Mr. C. Wright, from Cambridge; Mr. R. G. Hatton, from East Malling; Mr. J. Harrison, jun., President of the Chamber of Horticulture; Mr. G. W. Leak (Wisbech), Mr. C. Engelmann (Saffron Walden), Mr. F. G. Tresder (Cardiff), Mr. G. F. Dickson (Newtownards), Mr. Chas. H. Curtis (*Gardeners' Chronicle*), Mr. H. H. Wardle, Mr. J. S. Brunton and Mr. Thos. Want. The countries represented at the Congress were Holland, Belgium, France, Germany, Denmark, Czecho-Slovakia, Sweden, Austria, Finland, Poland, Hungary, Switzerland, Norway, Italy, Brazil, United States of America, India, Australia, Canada, South Africa, Ireland and England.

Some particulars of the exhibition held by the Amsterdam section of the Royal Netherlands Horticultural and Botanical Society are given on page 193, and we hope in subsequent issues to refer further to the conference proceedings.

Presentation to Mr. Robert Anderson.—A deputation representing employees in the Phœnix Park, and other amenities under the Board of Public Works, with which Mr. Anderson has been connected as Superintendent for the past 24 years, with some friends, waited on him at Whitefields, the Park Superintendent's residence, on the 20th inst., to present him and Mrs. Anderson with a handsome silver tea equipment on the occasion of his retirement. The following inscribed address accompanied the testimonial, "Dear Mr. Anderson, in asking you to accept the Silver Tray, Tea Service, etc., on the occasion of retiring from your onerous post as Superintendent of the Phœnix Park, as a small token of the high esteem your regime of twenty-four years has won from us, we, the undersigned employees and friends wish to convey to you and Mrs. Anderson our most earnest and sincere wishes that you may both enjoy health, happiness and every blessing." The address was inscribed with the names of 169 subscribers, and in thanking them through the deputation Mr. Anderson gracefully acknowledged the happy relations and good feeling that have marked his tenure of office.

The Yokohama Nursery Company.—Great anxiety has been felt by those connected with the Yokohama Nursery Co. in this country, which has an agency in Kingsway, London, under the management of Mr. A. Dimmock, as to the fate of the staff and nursery in Japan. We are glad, however, to know that a cable has been received stating that the staff is safe, but that the buildings and stocks, as might be expected, are seriously damaged. The cable also stated that "shipments of bulbs, etc., will be made as soon as navigation opens again."

The late Lady Lambourne.—The many friends of Lord Lambourne will be grieved to learn of the death of Lady Lambourne, which occurred on the 22nd inst., at their Essex residence, Bishop's Hall, Romford. Lady Lambourne's death may be traced to an accident last July, when she slipped and broke her thigh. She was the daughter of the late Sir John Ralph Milbanke-Huskisson, eighth Baronet, formerly of His Majesty's Diplomatic Service. She shared in common her husband's love of flowers and gardening, and was especially fond of Souvenir de la Malmaison Carnations, which are a speciality of the Bishop's Hall Gardens.

Rose Trial Garden at Wisley.—The new Rose trial garden started at Wisley by the Royal Horticultural Society this year has made good progress, and plans for its further development are in hand. The Director will be pleased to send entry forms for new varieties to raisers or introducers on receipt of a post-card stating the number required. The plants (six of each) should reach the Director by November 30.

Forestry and Unemployment.—The Forestry Commissioners state that a limited amount of money has been placed at their disposal as forestry grants for the relief of unemployment. In the case of local authorities a free grant amounting to approximately 60 per cent. of the labour bill will be obtainable for every acre planted. Grants for the preparation of ground for planting and for scrub-clearing will also be available. As regards private individuals, up to £3 may be paid for every acre planted; up to £3 per acre may be paid for land prepared for planting at a later date; and a grant, which may be additional to either of the above, of up to £2 per acre will be available where standing scrub growth has to be removed before planting. The regulations governing the grants are on the same general lines as last winter. Forms of application can be obtained from the Assistant

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Commissioner, Forestry Commission, 1, Whitehall, S.W.1, or from the Assistant Commissioner, Forestry Commission, 25, Drumsheugh Gardens, Edinburgh.

Honour to an American Rosarian.—The Society of American Florists and Ornamental Horticulturists have awarded their medal of honour to Mr. E. Guerney Hill, of Richmond, Indiana, for his work in raising new varieties of Roses. The variety America, which received the R.H.S. Award of Merit on August 21, was raised by Mr. Hill, who has also given us such beautiful Roses as Ophelia and Columbia. *Horticulture*, U.S.A., states that 75 per cent. of the Roses grown in America, including those flowering under glass, were originated by Mr. Hill.

Ken Wood.—It is hoped to add about eight acres of Ken Wood as an addition to the open space purchased through the efforts of the Ken Wood Preservation Council. The land will be handed over by Lord Mansfield in connection with a drainage scheme by which the drainage of the central portion of the estate will be connected with the Hampstead Borough Council's sewer at the Vale of Health. The original scheme was disapproved by the London County Council, but it is now proposed that permission shall be given to lay the sewer under the Heath, subject to conditions to protect the Heath from disfigurement, on the understanding that the belt of the famous woodland up to the sky-line facing Parliament Hill Fields shall be vested in the County Council, in order that it may be preserved as a Nature reserve. The area involved is nearly eight acres in extent, and, if the scheme is carried out, it is likely to facilitate steps for safeguarding the residue of the woodland A further condition is that Lord Mansfield shall waive any right to make roads through Ken Wood and the public open space to Fitzroy Park.

Autumn Fungus Foray.—The twenty-seventh autumn fungus foray arranged by the British Mycological Society commences to-day, Saturday, September 29, at Windsor. Virginia Water will be visited in the morning, and in the evening the annual meeting of the Society will be held at the White Hart Hotel, Windsor. An excursion will be arranged for Sunday afternoon, starting at 2.30. On Monday, October 1, Burnham Beeches will be visited, and in the evening Prof. O. V. Darbishire will deliver his presidential address. Brockhurst Woods and Stoke Common will be the hunting ground on Tuesday, and in the evening Mr. F. T. Brooks will read a paper on "Epidemic Plant Diseases." On the concluding day, Wednesday, October 3, the members will continue the foray in Black Park, Langley, and during the evening will listen to Mr. J. Ramsbottom's account of "An Unpublished Monograph on Discomycetes."

An Old Suburban Nursery Site.—Many of our readers will be sorry to learn that another link with the past is being broken, in the pulling down of the glasshouses, once so well known, of the Stanstead Nursery of Messrs. John Laing and Sons, Forest Hill, where Begonias were so well grown. Houses are to be built on the site, which is already surrounded by residences. The vineries, close by, another branch of this firm, still remain, owned by the busy firm of Furness Bros. At the top of the hill is another well-known range of glasshouses, the seed-growning nursery of Messrs. J. Carter and Co., of Raynes Park, but everywhere in this once busy nursery centre, housing schemes are driving growers farther afield.

Plant Exports to Egypt.—We learn that the Chamber of Horticulture has received information to the effect that the Egyptian Government has prohibited the importation into Egypt of plants when in pots. The reason given is that the Argentine ant may be imported in the soil. Growers whom this prohibition will affect are asked to communicate with the Chamber of Horticulture, 18, Bedford Square, W.C.1, as to whether there is any objection to the order, and if so, to what extent they will be affected.

Mr. J. G. Weston.—Mr. Weston's successes with choice hardy and indoor fruits at numerous exhibitions and his skill in the management of large gardens have earned for him a position of importance in the horticultural world. He commenced his gardening career at Latimer, Lord Chesham's seat in Buckinghamshire, under the late Mr. Alexander Donaldson, who in his day was a noted Grape grower. From Latimer, after a thorough training in all the departments, he went to Hatfield House Gardens, where he spent several years in the cultivation of indoor plants and Orchids under the late Mr. George Norman. His first position as foreman he held under the late Mr. T. Nutting, at Childwickbury, St. Albans, the residence of Sir Blundell Maple, and from thence he obtained the position of general foreman in Lord Rosebery's garden at Mentmore, a position he occupied for three and a half years. He then went to Messrs. Sanders' Orchid Nursery at St. Albans to gain experience among cool Orchids. Mr. Weston subsequently became head gardener to Viscount Duncannon at Bessborough, Co. Kilkenny. Here he proved his skill in no uncertain manner, and was fortunate in that the Viscountess Duncannon was an enthusiastic gardener. The considerable improvements he carried out at Bessborough formed the subject of an illustrated article in the *Gardeners' Chronicle* of May 24, 1904. After eight years at Bessborough he was appointed gardener at Eastwell Park, Ashford, Kent, and here he continued his successful career. An illustrated account of Eastwell Park and its splendid winter garden was given in the *Gardeners' Chronicle* of November 16 and 23, 1907. Mr. Weston is not only a skilful gardener, but he has the power of instructing others in the pleasantest possible manner, consequently he has acted as a horticultural lecturer on very many occasions, and notably during the war period, when he acted as the Royal Horticultural Society's special representative and lecturer in the county of Kent, in connection with the Society's Food Production Campaign. His first experience of writing for the press was in connection with a competition in the *Rural World* for an article on "Strawberry Cultivation." He was successful in winning the prize offered—nearly thirty years ago. He has contributed calendarial and other articles to the *Gardeners' Chronicle* over a long period, and has also written for other horticultural journals. Eastwell Park, unfortunately, as in the case of many other large estates, has fallen from its former high position, and its owner, Lord Gerard, has been compelled to give it up. The house now stands empty, and after the sale of the garden plants and effects in December, 1922, Mr. Weston left the estate, but is still living in Ashford. His services are in great demand as a judge at leading exhibitions in the country, and his services as a lecturer have been engaged by the Kent County Council. As further evidence of Mr. Weston's all-round ability, it may be added that he acted as one of the examiners in horticulture for the Royal Horticultural Society at Wisley this year, and also as examiner of the Swanley Horticultural College in 1922 and 1923. He is also a member of the R.H.S. Fruit and Vegetable Committee.

MR. J. G. WESTON.

National Chrysanthemum Society.—Raisers desirous of placing new Chrysanthemums before the N.C.S. Floral Committee on Monday, October 1, should stage them in the bandstand at Holland Park Rink, and not send them to the R.H.S. Hall, Westminster.

Appointments for the Ensuing Week.—Monday, October 1: National Chrysanthemum Society's Floral Committee meeting. Tuesday, October 2: Royal Horticultural Society's Committees meet at Holland Park Hall (3 days); Sevenoaks Gardeners' Chrysanthemum Society's meeting; Royal Caledonian Horticultural Society's meeting. Wednesday, October 3: Morley and District Paxton Society's meeting; Lewes and District Horticultural Society's meeting. Thursday, October 4: Manchester and North of England Orchid Society's meeting. Saturday, October 6: Blackburn and District Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Culture of Nelumbiums.* Walking through the garden of Mr. Van Houtte, at Ghent, last week, my attention was attracted by a large pit, amongst his cold frames, completely filled with Nelumbiums in the most luxuriant state of growth, and exhibiting amongst their leaves many more seed vessels than I could easily count. One bud alone, the last of the season, was about to expand; it was fully six, or perhaps eight, inches high, and I was informed would, when open, be at least ten inches across. The pit differed in nothing from its neighbours but that it had upright glass sides of about three feet, rising upon its brickwork of two feet high, and was formed to receive a glass roof, which was then removed. Mr. Van Houtte informed me that the species was Nelumbium caspicum, and that it was cultivated in summer by sun heat alone, without any assistance from bottom heat whatever; but that the roots were preserved in a hothouse in winter when dormant. The pit stands exposed to the utmost possible amount of light, and could be compared to nothing but a broad ditch glazed on both sides and completely overgrown with Nelumbiums. Its appearance was so remarkable that I cannot but wish such a pit might be devoted to them, either at Chiswick or Kew, where they could hardly fail to attract much attention. Mr. Van Houtte has found Nelumbium caspicum much easier to cultivate than N. speciosum, and much more ready to flower than N. luteum; of its prolificness in this respect there was abundant evidence. The seed vessels exhibited all their peculiarity of form, but the seeds did not appear as if they would ripen, indeed they were evidently abortive. Some years ago I found that N. speciosum grew much stronger in a pit close shut up and exposed to sun heat than I ever obtained it in a stove. But the plant having been accidentally destroyed in winter I had no opportunity of carrying on my experiment. Intense light is, I believe essential to its growth. *J. R., September* 10. *Gard. Chron., September* 23, 1848.

Publications Received.—*Trees and How to Grow Them.* By G. Clarke Nuttall. Cassell and Co., La Belle Sauvage, E.C.4. Price 7s. 6d. net. *British Earthworms and How to Identify Them.* By Hilderic Friend. The Epworth Press, 25-35, City Road, E.C.1. Price 1s. 6d. net.

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TREES AND SHRUBS.

THE CLIMBING HONEYSUCKLES.

THE word Honeysuckle always suggests fragrance, for there are no flowers quite so sweet, or more charming among hardy climbers. In number of species the bush Honeysuckles outnumber those of twining habit, though comparatively few of these are deserving of general planting in gardens. With the climbing species it is quite the opposite, their fragrance and beauty claiming hosts of admirers. The hardy climbing Honeysuckles are found in three continents, Europe, Asia and America. Taking the European species first, the most important is L. Periclymenum. In addition to being a native of Britain, it is a wild plant of northern Europe and extending into Asia. The wild form, with reddish buds and yellowish-white flowers, is well worthy of a place in gardens, but it is not much grown, being surpassed in beauty by several cultivated varieties. The best known of these is the variety belgica (Fig. 67), the Dutch Honeysuckle. It has purplish stems and purplish-red buds; the open flowers are yellow within. The variety serotina is popularly known in nurseries as the Late Dutch Honeysuckle, no doubt because it continues flowering late in the season. This has rich purple flower buds, the outside of the flowers when open contrasting pleasingly with the creamy-white interiors, which change to yellow with age. The variety quercina, or quercifolia, has, as the name suggests, leaves resembling those of the Oak.

L. Caprifolium is another European species. It is readily distinguished from L. Periclymenum by the uppermost pairs of leaves, which are united. It is a vigorous climber, deciduous, producing in June and July whorls of fragrant flowers that are yellowish-white tinged with pink. This Honeysuckle, or a form of it, is the one usually sold in nurseries as Early Dutch or Early Cream.

L. etrusca, the Italian Honeysuckle, is a native of the Mediterranean region, and requires the shelter of a warm wall, except in the favoured climate of the south and west. For large, cool and unheated greenhouses it may be described as an indispensable climber, producing long branching growths wreathed with pale yellow blossoms that are more or less suffused with red, especially at first, in late summer and autumn. The variety superba is an even more desirable form, and is the plant generally grown in preference to the type.

The best known of the Chinese and Japanese species is L. japonica and its varieties, which, being evergreen, are readily distinguished from the deciduous L. Periclymenum. It is of very vigorous and free growing habit, producing quantities of blossoms from June onwards. There are two distinct forms or varieties; the one known as flexuosa has creamy-white flowers, more or less tinted with red, whilst the var. Halliana has creamy-white blossoms changing with age to yellow. The variegated variety aureo-reticulata, with the leaves mottled and veined with yellow, is a very ornamental climber.

L. tragophylla is a Chinese Honeysuckle of free and rampant growth. This species is not very hardy, hence it should be planted against a sheltered wall or fence with plenty of space to ramble. It will then produce freely its long tubular yellow blossoms of the largest size.

L. Henryi is a vigorous evergreen Honeysuckle, first introduced by Mr. E. H. Wilson, from China, in 1908. It has purplish-red flowers, produced about midsummer, followed in autumn by purplish black fruits, which have a certain decorative value.

Among the climbing American species the most valuable is L. sempervirens. This is, however, a native of the south-eastern United States, and except in the mild climate of the south and west, should be grown in a greenhouse. The variety minor, with scarlet and yellow blossoms, is a particularly desirable climber for the greenhouse, being seldom without flowers.

The cultivation of Honeysuckles is simple; they thrive in most soils, with a preference for one which is on the light side, but rich and deeply cultivated. Select sunny positions for preference.

Their value to clothe walls, fences, arbours, arches and verandahs is too well known to need discussion. If it is intended to train Honeysuckles over trees, do not make the mistake of planting them near the tree trunks. Make the holes, and prepare the stations for planting out near the spread of the branches, where rain will reach the ground, supporting the growths with stout poles of good length till they reach the lower branches.

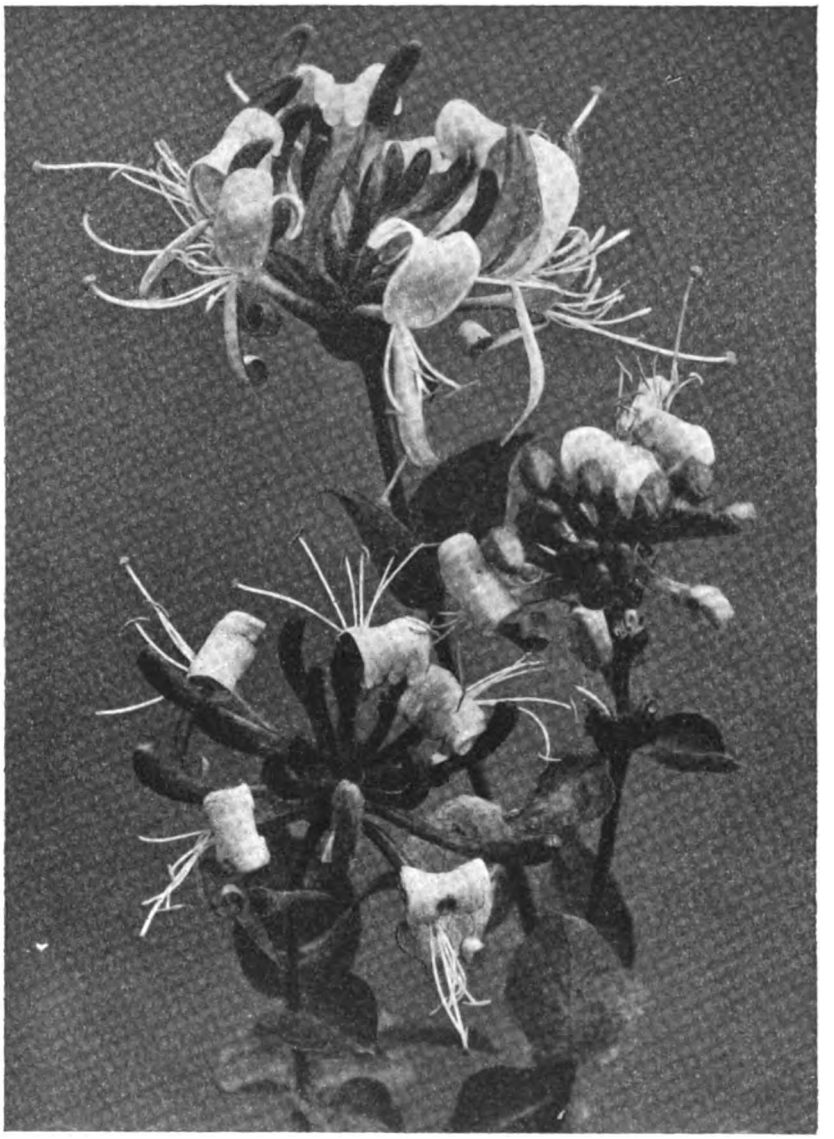

FIG. 67.—LONICERA PERICLYMENUM VAR. BELGICA : THE DUTCH HONEYSUCKLE.

Some attention must be given to thinning and pruning the shoots in early spring each year, otherwise the plants in time may become a tangled mass of growths. *A. O.*

PHYGELIUS CAPENSIS.

THOUGH a native of South Africa, the Cape Figwort—by which name P. capensis is familiarly known—is a shrub that will often thrive in localities where the planting of most half-hardy plants would be considered too risky. It does well near London, also at Kew, in parts of Scotland and throughout our westerly counties. Even when cut to the ground by frost it will frequently recover with extraordinary vigour and possibly flower the following summer.

P. capensis is allied to the Pentstemons, and in favoured places will make a loose-habited shrub up to 4—5 ft. in height. The opposite, ovate leaves vary considerably in length and width, and the flower spikes, which appear at the ends of the branches, may be anything from a few inches to 18 in. in length. These latter bear a profusion of bright scarlet tubular flowers, and as a succession will not infrequently be maintained from summer well into autumn this subject must be considered a valuable one where a late display of bold colour is desired. P. capensis enjoys a rich soil, but it is not usually fastidious, and although a good drought-resister, I find that it likes plenty of moisture during the growing season. *A. T. J.*

CERCIDOPHYLLUM JAPONICUM.

THIS is a rare, Japanese, deciduous shrub, and should be included in every collection, however limited in numbers. The plant grows in very symmetrical shape and the wood is fine and twiggy, but its great beauty lies in the small, heart-shaped leaves. These are a lovely soft green tinged with red, and almost transparent, in the spring. In the summer the foliage thickens in texture and the colour deepens, whilst towards autumn the leaves turn a lovely dark red, which lasts until frost comes or they drop naturally. Even in winter this Cercidophyllum is an attractive shrub, as its fine growth gives it a light, graceful appearance. It grows from 4 to 10 feet high or even more in a very suitable position. It does best in a warm, sunny spot where the wood gets well ripened and where there is little danger of the delicate leaves being injured by late spring frosts. *T.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Masdevallia.—The usual precautions against applying too much water to newly-potted plants until the new roots have freely entered the fresh compost are applicable in the case of Masdevallias. The smaller growing Masdevallias, both species and hybrids, comprise some interesting and beautiful plants, and as they require somewhat different treatment, they must not be classed with the more robust members of the genus. Too many failures with these plants may be traced to an excess of water at the roots, during the winter, and not sufficient air and moisture during the hot days of summer. No Orchid should have water applied to it in driblets, but should be watered copiously when it is dry, and then left until it becomes dry again.

General Remarks.—The season has arrived when attention must be given to the safe keeping of the plants through the winter. The most important detail to observe at this season is to maintain a proper balance of temperature, neither too hot nor too cold, with sufficient atmospheric moisture and air to prevent a stuffy condition in any of the houses. Localities differ as regards humidity, and even the position and structure of the houses must be taken into consideration, as these affect the general results. Sunshine should be allowed to reach the different plants according to their capacity of withstanding it. At one time it was considered good policy to withhold water from the plants over an extended period; in some cases this is beneficial and conducive to satisfactory growth and the production of flowers, but only in the case of certain species. In the majority of cases this treatment is too drastically followed, so that the plants shrivel and suffer; therefore care is necessary in the application and withholding of water to plants at this season. Ripening and consolidation of the growths can be effected without great fluctuations in temperature, and the effect of either extreme is injurious and should be avoided. Shading at this season can now almost be dispensed with; only newly potted plants, or those with thin, tender foliage will need it. At this season it is desirable to expose Orchids to as much light as possible, and give sufficient ventilation to prevent the sun scorching the foliage. This treatment consolidates, hardens and matures the pseudo-bulbs and growths, thus enabling the plants to pass through the winter without injury. Plants treated in this manner start into growth with much more vigour in the spring, produce finer growths, and with stronger growth proportionally finer flowers.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Spring Cabbage.—The main batch of this useful vegetable may now be planted, and there is no better site than an Onion bed from which the bulbs have been lifted. Not only will the soil be firm, but it is usually in good heart, and this combination will produce a fine crop with less tendency of the plants to bolt than if they were planted in light, loose soil. Plant in rows made eighteen inches apart, and allow a space of one foot between each plant in the rows. In the early spring draw every other Cabbage out, and make good any gaps there may be in the rows with these. Water the plants well and stir the ground on frequent occasions with the Dutch hoe.

Tomatos.—Remove some of the foliage from Tomato plants growing under glass and gather the fruits as fast as they become ripe. Do not overfeed the roots at this stage; instead of concentrated fertilisers, rather give them a top-dressing of soot and wood ash. This will cause the fruits to colour well and provide potash which these plants need. Also water only when moisture is needed, as over-watering is a cause of the fruit cracking; a little fire heat would be an advantage on wet, dull days. A pinch of seed may be sown to raise plants for early fruiting next spring, placing the seed pots in a warm house, and removing them to a shelf as soon as the seedlings appear. Best of All is a splendid variety for this purpose.

Mushrooms.—The Mushroom house should be cleansed thoroughly and the walls lime-washed. Fresh beds may then be made of horse droppings and short stable litter turned over several times until the required quality is obtained. When all the material is ready, wheel it into the house and spread it evenly and firmly, allowing it to remain until the heat has declined somewhat. Directions for spawning the beds were given in the Calendar for February 3.

Onions.—The main crops of this vegetable should be lifted carefully with a fork, and the bulbs laid out to dry thoroughly. If room is available in an open shed or a cold fruit house they may be dried indoors, as their keeping qualities are much impaired if they are not ripened properly. Large bulbs require to be lifted with extra care, taking every precaution not to bruise them. Lift these also with a fork and lay them on a dry, sunny border, and turn them over every day. Cover them at night with waterproof sheets, and when the tops have died down cut them off and remove the bulbs to the stage in a fruit house, placing them carefully on wood wool, or other soft material, where they will ripen perfectly.

Spinach.—Make a last sowing of this vegetable on a warm border, and thin the seedlings as soon as they are large enough to handle. Dust the plants with old soot and keep the soil hoed, working between the rows of this and the previously sown crops of Spinach.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Cucumbers.—Cucumbers growing in frames should have plenty of nourishment. Thin old and exhausted shoots and remove old leaves that are infested with red spider. New growths should be encouraged to develop for another month by top-dressing the roots with good loam and lime rubble. Thoroughly syringe the plants and close the frame early in the day. If artificial heat is available the plants will continue productive until the next batch comes into bearing. Plants intended for winter bearing should be set out early in the present month. The house or span-pit utilised for the purpose should be cleansed, including the glass both inside and outside. Syringe all walls and crevices with paraffin and water, whitewash the walls, and paint the woodwork if necessary. The compost should be prepared and turned over a few times before bringing it into the house. The compost should consist of loam free from wireworm, manure from a spent Mushroom bed, and old plaster rubble. The soil should be placed on a bed of fermenting material, either in the form of a ridge, or hillocks. Young and vigorous plants only should be chosen, and they should not be allowed to bear fruit until they are well established and have made good growth.

Peaches and Nectarines.—For planting in newly-erected houses the selection of varieties should be governed by the number of houses which may be started to maintain a continuous supply. If the number of houses is limited it is not advisable to plant too many of the earliest varieties in the early division; a selection of early, medium, or late varieties may be planted to continue the supply until the fruits in the successional house are ready to gather. The following Peaches and Nectarines are good forcing varieties and suitable for furnishing a succession of fruits:—Peaches: Duke of York, Hale's Early, Peregrine, Crimson Galande, Dymond and Bellegarde. Nectarines: Early Rivers, Lord Napier, Dryden, Stanwick Elruge, River's Orange, Humboldt, Pineapple, and Spenser. For a late house the following Peaches and Nectarines would provide a succession to the varieties above mentioned:—Peaches: Late Devonian, Barrington, and Princess of Wales. Nectarines: Milton and Victoria. If space permits some of the more recent introductions may be included with the older varieties. James Walker, Kestrel and Amsden June and Waterloo are also fine early Peaches, but the two last are liable to drop their buds when forced early. They both succeed much better if started slowly in February, or, better still, in March. Cardinal is a very fine early Nectarine, but is best grown in pots.

HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Apples.—Early varieties of Apples will now be ripening, and it may be necessary to gather soft-fleshed varieties, such as Ecklinville Seedling, early to obviate loss by birds. Other varieties, such as Worcester Pearmain, James Grieve, Irish Peach, and Lady Sudeley, may be gathered when they are ready. Our orchard trees of Bramley's Seedling are carrying heavy crops, in spite of recent wind storms which were responsible for many fallen fruits. It may be necessary to net choice fruits where it is possible to do so. White Transparent is an Apple which seems restricted to certain localities. It is useful either as a dessert or culinary Apple; it is one of the first of the season, a regular cropper, and does well on poor soil. The fruits should, however, be eaten soon after gathering, or the flavour may deteriorate. Although the variety Dumelow's Seedling, better known to some as Wellington, is one of the best cooking Apples for market, I find, like most growers, that the trees are very much subject to canker.

Nectarines.—The old variety, Elruge, is a very useful sort, being suitable for most situations. Humboldt follows in early September, and is succeeded by Pineapple, a variety which perhaps is not very hardy in some districts, but is of excellent flavour. The two last are yellow-fleshed varieties, and sought after when available.

Peaches.—For earliness, Hale's Early, Early Rivers and Duke of York are three good varieties, followed by Peregrine, Dymond and Violette Hâtive. The varieties Prince of Wales, Sea Eagle and Albatross are suitable as late sorts.

General Remarks.—The weather of the past few weeks has enabled fruit growers to destroy weeds in large areas. It may yet be possible to give the land another hoeing during the next month, to kill seedling weeds, which often make an appearance during the early autumn. Any arrears of summer pruning should be completed. Old orchard trees may be dealt with where crops allow. Surplus branches and dead wood should be removed. Any work which can be possibly done now will ease the labour at planting time. Fruit trays should be got in readiness, and repairs completed to necessary structures.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Oxalis purpurata (syn. O. Bowiei) and O. cernua.—The former is one of the largest flowered species, and a very beautiful plant for the greenhouse. It succeeds under similar treatment to that advised for O. floribunda. O. cernua is another pretty South African species, with yellow flowers, also useful for the greenhouse.

Pentapterygium serpens.—This beautiful and graceful greenhouse shrub is worthy of more general cultivation, as it produces its flowers in great profusion on the slender drooping shoots. It makes a fine specimen when grown in large pans, or planted out in a shallow bed with perfect drainage. It is an ideal plant for training on a back wall, where it will attain a height of 10 to 12 feet. It forms a large, swollen tuberous-like root-stock, which in this class of plant generally indicates a need for perfect drainage; in its native state it often grows in the forks of trees among decaying vegetable matter. The potting compost should consist of

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good fibrous peat with a little light loam, charcoal, and sand to render the mixture open and porous. The plant is easily propagated by means of cuttings inserted in pots of sandy peat and stood under a bell-glass in a cool house. They may be rooted at this season, or any time during spring and summer.

Chrysanthemums.—Early flowering varieties should now be taken indoors, as forward buds are apt to suffer from damp. The house should be kept fairly moist for a few days, as the plants are apt to suffer from the drier atmosphere; this applies to most plants that have stood out-of-doors for the summer months, and later been placed under glass.

Pycnostachys Dawei.—The main batch of this fine, blue, winter-flowering plant should now be in their flowering pots; the plants will be useful for standing in the conservatory beds. If cuttings are rooted this month, and pinched twice, they will make good specimens for furnishing the plant stages.

Coleus thyrsoideus.—This is another choice blue-flowered plant for winter, and may be given the same treatment as Pycnostachys, but it is by no means such an easy plant to cultivate successfully, and care is always necessary as regards ventilation and watering; but it is a subject that is worth some extra trouble to grow successfully.

Fuchsias.—If a few stock plants are partly cut back and placed in a warm house, they will soon develop shoots suitable for use as cuttings, which, if rooted during this month, and kept growing steadily during the winter, should, in six to nine months, make plants—according to the variety—some six to nine feet in height. The leading shoot should be grown without stopping, as the plants will develop lateral shoots, which should be pinched several times to ensure well-furnished specimens. Such plants, if fed freely, will remain in flower for a long time, and are invaluable for conservatory decoration during the summer and autumn.

THE FLOWER GARDEN.

By O. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Late Cuttings.—It is not wise to defer the taking of cuttings after this date, even of those hardier kinds usually left until last. Among such to be dealt with here are Agathaea coelestis, Calceolaria amplexicaulis, and a few Golden Gem Calceolarias, hardy Fuchsias, and Verbena venosa. All these will succeed in cold frames from which frost is excluded. Respecting the Verbena, although its unflowered tops will strike, it is far more satisfactory to propagate from its underground stems, which work can be done later when taking up the old roots to winter them in a frame. Cuttings of Salvia Pride of Zurich and S. patens may also be dealt with, if not yet inserted and the plants are still unfrosted. Violas were referred to in an earlier issue, but in some gardens the propagation of these flowers is left until the end of September. Another good plant worth remembering is Nepeta Mussinii, cuttings of which may be rooted under conditions as for Violas, or division of the roots may be resorted to if such plan will yield sufficient plants.

Special Plants.—Although there is always a natural reluctance to dismantle the flower garden, no undue risk should be taken with choice or special subjects, such as specimen Zonal Pelargoniums in tubs, or plants grown as standards, both productions taking more than ordinary time and care to replace if damaged.

Leycesteria formosa.—Where not already grown, a note should be made of this plant—the Nutmeg Shrub—for inclusion in this autumn's planting. It flowers early in September, and although not strictly showy, the plant is of much charm, while the late appearance of the flowers is so valuable because few other shrubs are in blossom now. The small white flowers are accompanied by numerous rosy-purple bracts, which add to their attractive appearance. The pruning of this plant should be done in spring.

PUBLIC PARKS AND GARDENS.

THE ultimate development of the site of the Aquarium at Brighton, which has been a subject of discussion by the local authorities for over a year, is still uncertain. The committee dealing with the matter is now considering a scheme submitted by the parks superintendent providing for a widening of the road and the conversion of the remainder of the site into "Italian" gardens, while the underground portion would be turned into a dance hall.

The City of Glasgow has purchased the Bankhead and other estates, comprising nearly six hundred acres, in connection with a town planning scheme. The majority of the land will be used for building purposes in connection with housing schemes contemplated by the Corporation, but a very considerable portion is to be reserved as a public park. The proposed park will have an area of about one hundred and seventy acres.

FIG. 68.—GENTIANA FARRERI IN A PERTHSHIRE GARDEN.

THE ALPINE GARDEN.

GENTIANA FARRERI.

I ENCLOSE a photograph (see Fig. 68) showing Gentiana Farreri growing in my garden at Glendevon, Perthshire. The Lilium growing with the Gentian is L. philippinense var formosanum. The Gentians were raised from seed three years ago, and you will see the plants have made good growth. I think one reason some people have difficulty in growing G. Farreri is that their plants have been raised from cuttings. Such plants are not nearly so healthy as those raised from seed. My plants ripen seed every year which, if sown in the spring will produce seedlings for planting out in July, to flower the following year. *A. H.*

CAMPANULA PUMILA PERRY'S PIGMY.

THIS is a diminutive form of Campanula pumila, growing only 3 inches high, with numerous small, bell-shaped flowers of a pretty soft blue shade. The plant is suitable for placing on a sunny rockery, and if put in masses soon forms a complete carpet, and is generally most effective in appearance. This miniature Campanula delights in sandy soil and a partially shaded situation. *W.*

HARDY FLOWER BORDER.

HEUCHERA.

THE Heucheras, which are known commonly as Alum Root or Coral Buds, are desirable rockery and border perennials of neat, compact and bushy habit, and of vigorous constitution, growing from 2 feet to 3 feet high. The plants form dense mounds of evergreen, leathery, green foliage during the summer, which assume towards autumn pretty tints much resembling the leaves of Galax aphylla. The plants are exceedingly ornamental subjects for many situations, and they flower from June to August and September. From the dense tufts of foliage arise numerous wiry, graceful, leafless flower stalks, carrying blooms of unusually effective tints of coral pink to coral scarlet, shades of rose to blood red, also pure white. The inflorescences are invaluable either as cut flowers or for effect in the rockery or to adorn the flower borders.

All the Heucheras are perfectly hardy and succeed admirably in well-drained, deeply-trenched, light soil, and in a sunny position. The following comprise some of the best species and varieties:—H. brizoides gracillima, with branching panicles of rich, rose-crimson flowers; 2 feet. H. b. gracillima alba, a variety with small, rosy white flowers, 2 feet. H. b. gracillima Perry's variety, a greatly improved form of the type, with flowers of a more brilliant crimson, arranged in loosely branching, elegant panicles, 2 ft. H. micrantha rosea, a plant with tall, branching, wiry stems, 2½ feet tall, covered with small, rose coloured flowers. H. sanguinea Pluie de Feu, a very free-flowering plant and remarkably effective, having graceful sprays of brilliant fiery-red flowers, 1½ to 2 feet. H. sanguinea splendens, with flowers of a rich coral scarlet, and very freely produced; 2 feet. H. sanguinea White Empress, a pretty white-flowered variety of neat dwarf habit; 1½ feet. H. Richardsonii, a handsome plant for any open situation, having large, bronzy, satin-like leaves, and quite as effective in winter as in the summer, on account of the lustrous dark crimson shade of the leaves. This plant is grown more for its foliage than the flowers, which are of a pale brownish colour. H. Rosamunde, a most effective and useful variety either for effect in the borders or for cutting. It bears numerous flower spikes with wiry stems, 2½ to 3 feet tall. The flowers are coloured coral pink. H. tiarelloides is a very pretty and useful hybrid for spring flowering, having neat tufts of bright green foliage, and clear, rosy-white coloured flowers.

PHYSOSTEGIA.

THIS is a hardy herbaceous plant of perennial duration, and remarkably interesting on account of the peculiar sensitiveness of its flowers, which may at will be placed in almost any position by a move of the fingers at right angles, and will remain where placed for some short time. It was introduced during the 17th century, and is a native of North America. When exhibited at a recent meeting of the Royal Horticultural Society it was described as the "Obedient Flower," and created a large amount of interest and something of a sensation on account of this peculiar sensitiveness of the flowers.

The Physostegias are of the easiest culture, delighting in any moderately rich soil, and may be planted with good effect in almost any sunny position, producing numerous, well-branched, stout spikes of pretty, tubular flowers in clustered racemes, and arranged in the four directions of the compass.

The varieties are well worth growing, and merit the best positions in the flower border, being especially effective when planted in groups of three, six or nine in a clump, from July to September. P. virginiana has bright pink, tubular flowers, and grows 3 feet to 4 feet tall. P. v. album has snow-white flowers, and grows only 2 feet tall. P. v. imbricatum (syn. speciosa) is more vigorous than the preceding, producing delicate rose-pink, tubular flowers, on stout stems, 4 feet to 5 feet tall. *W. L.*

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ORCHID NOTES AND GLEANINGS.

DISAS.

(*Concluded from p.* 147.)

If proof is wanted of the alertness of Orchid hybridists it may be found in the hybrid Disas, for scarcely had the two new arrivals, D. racemosa and D. tripetaloides, appeared in our gardens when they were freely used by crossing between themselves and with D. grandiflora. The facility with which hybrids were raised and the surprisingly quick time in which the seedlings developed into flowering plants gave an incentive to raising seedling Disas, both species and hybrids. From eighteen to twenty months from the date of sowing to flowering is the average time recorded for hybrid Disas. The seed ovaries mature quickly, and if the seeds are sown as soon as they mature the seedlings appear quickly and are soon ready for planting in store pans from which they should be removed and potted singly when large enough.

Disa Veitchii, the first hybrid Disa, was raised by Mr. Seden in the nurseries of Messrs. Jas. Veitch and Sons by crossing D. racemosa with the pollen of D. grandiflora. The first plant flowered in a little over twenty months from the sowing of the seed, and secured a First-Class Certificate at the Royal Horticultural Society's meeting in June, 1891. It is intermediate in size and more nearly approaches D. racemosa in form and colour, the hooded dorsal sepal, or galea, being almost circular in outline, light in colour and with a few rose markings; the showy lateral sepals are purplish rose. The same cross was raised at Kew and in the nurseries of Messrs. Backhouse at York. Disa kewensis was raised by Mr. Watson at Kew, the cross being D. grandiflora with the pollen of D. tripetaloides, the latter parent giving the form of the flower in a great degree. In colour it is rose-pink, lighter on the dorsal sepal, which has purple spotting derived from the pollen parent. The plant flowered in eighteen months from the sowing of the seed.

Disa Premier was first raised at Kew by crossing D. tripetaloides with D. Veitchii, thus continuing all the three species of the section It obtained a First-Class Certificate at the Royal Horticultural Society's meeting on October 10, 1893. The cross has been made both ways, and whilst some variation is seen in the flowers, all approach nearest to D. racemosa.

Disa langleyensis is a most interesting hybrid, combining the two newcomers, D. racemosa and D. tripetaloides. It was first flowered by Messrs. Jas. Veitch and Sons, who obtained an Award of Merit for it in May, 1894. The cross had also been raised at Kew and each of the parents had been used as seed-bearer. The result was, as usual, that the colour and size of D. racemosa predominated, although some of the seedlings opened nearly white, but assumed the light mauve tint when mature, and the light forms showed some of the spotting of D. tripetaloides.

Disa Diores variety Clio obtained an Award of Merit on August 23, 1898, and a First-Class Certificate on July 25, 1899, when shown by the raisers, Messrs. Jas. Veitch and Sons, who obtained it by crossing D. Veitchii with D grandiflora. It was at that time the largest of the hybrid Disas, with more of the red of D. grandiflora, but with a rounder dorsal sepal than that species.

Disa Luna, raised by Messrs. Veitch between D. racemosa and D. Veitchii (A.M., May 6, 1902), is a very free grower with bright mauve, lateral sepals and white or rose galea marked with purple on the inside. Messrs. Flory and Black, on taking over the Veitchian Orchid establishment at Langley, continued the work of raising these pretty hybrids, always striving for improved size and colour, and with good results

Disa Blackii, between D. grandiflora and D. Luna, was a good advance in 1915, well improved on in D. Italia (Blackii × grandiflora) in 1918, and recently in their showy D. Julia A. Stuckey (Italia × grandiflora), which, while closely approaching D. grandiflora in size, is of a reddish-crimson colour.

Other less known hybrid Disas are D. Elwesii (kewensis × Veitchii) and D. Watsonii (grandiflora × kewensis), raised at Kew; and the variety Stella.

Few plants have been subjected to such a variety of treatment as the Disas of the D. grandiflora section, and if we take that species as a guide it will be found that those who grow their Disas as greenhouse plants, and for a good period in the open garden after flowering, get the best results, while those who neglect the open-air treatment until it is prudent to give greenhouse shelter at the end of the summer and treat them as Orchid house subjects, fail. From the time the flower spikes commence until they are opening the flowers a cool, airy Orchid house is beneficial, but after flowering they require the open-air until frosts set in.

To recall some of the most successful growers of Disa grandiflora, I think of the stout brilliantly flowered specimens I have seen at the pretty homestead of the late Mr. Daniel Hill at Harrow, who grew his plants as open-air and cold greenhouse subjects, and they gave him one of his best gardening pleasures. The late Mr. Kingsmill at Stanmore had some of the finest D. grandiflora to be seen. His treatment was to grow them in the open-air and later in a cold frame protected from frost. The late Mr. Smee at Wallington treated them as garden plants except in winter, and most successful cultivators, including Mr. W. P. Burkinshaw, of Hessle, who grew D. grandiflora in quantity, followed on the same lines. Messrs. Backhouse, of York, had great success by planting them in a bed with a bottom of clinkers on the staging, the house being cool, but the ventilators were arranged to have the Disas practically in the open-air after flowering, and at other times when not too cold.

In the matter of hybrid Disas there is a tendency to give too much heat. The seedlings develop rapidly in a genial temperature, and until they flower it is right to afford warmth, but the mistake comes from continuing the warm treatment too long, and the result is that the root stock degenerates and the plants are lost. The hybrids should have the open-air change, as well as the species. The collapse of hybrids in many places comes, in some degree, in consequence of unsuitable material used for potting them. In some places Disas are grown in compost containing leaf-mould, or decayed leaves, a treatment which has proved disastrous with other genera of Orchids. Fibrous peat mixed with Sphagnum-moss and a sprinkling of sharp sand or grit, with a few pieces of charcoal or sandstone worked in during the potting, are the best rooting materials, and variations in the proportions of the ingredients are customary with different successful growers. A little loam fibre may be added. Free drainage and plenty of rain water where available are essential. Some growers use a proportion of manure, but it is better not to mix manure with the rooting material, although a little weak liquid prepared from cow dung may be beneficial to the plants during their period of active growth. Disas should not be dried off. *James O'Brien.*

INDOOR PLANTS.

MIMULUS CARDINALIS.

For the decoration of the cool greenhouse during the summer this old hardy perennial is usually treated as an annual, the seed being sown in gentle heat early in the year. Seedlings commence to flower in June, and, although individual plants flower satisfactorily in six-inch pots, a much finer effect is produced by growing three plants together and flowering them in eight-inch pots, using, for the final potting, a compost of two parts loam, one part leaf-soil, and one part well-rotted manure, with sand added.

Mimulus cardinalis responds to liberal treatment, and, when well grown, is from 2 feet to 3 feet high. The flowers are bright red in colour, with darker lines radiating from the centre, and they are elegantly poised on long peduncles, while the reflexed central lobes give the flowers an appearance distinct from other Mimulus. *Fred W Jeffery, Dalserf, N.B.*

NATSOPA CONVALESCENT HOME AND ITS GARDENS.

Natsopa, a word one may look for in vain in the dictionary, is, nevertheless, a word of weighty meaning and vast importance to thousands upon thousands of British workmen. It is the condensed title of the National Society of Operative Printers and Assistants. Let those who will raise argument over the merits or shortcomings of Trade Unionism; I am content to have made acquaintance with an establishment, the very existence of which proves that, at any rate, the Operative Printers and Assistants have other and nobler concerns in mind than strikes and disputes, for among their activities and achievements none can be finer than the establishment and maintenance of the Natsopa Convalescent Home as a memorial to 341 of their comrades who fell in the War.

Situated in an open and glorious spot just outside the quaint little township of Market Bosworth, Leicestershire, the Home stands high midst a bracing and health-giving air, overlooking a vast stretch of lovely country, the glory of the panoramic view alone being calculated to refresh and invigorate the weak and jaded, to whom the portals of the Home are wide open.

It is of the remarkable gardens surrounding Natsopa Convalescent Home I wish to write, and in several respects they justify the adjective remarkable. The gardens are new—in fact, in their infancy, as age in gardens must be reckoned, for their creation only dates back to February, 1920, and it was in May of the same year that the Home was opened by the late Lord Northcliffe, who in the largeness of his heart appreciated the value and nobility of the scheme of the Operative Printers.

When the site was taken over, it was just a tract of rough, unkempt hillside, and when one contemplates its beautifully verdant lawns and level terraces, the gracefully sweeping drive girt on either side by herbaceous borders aglow with brilliant colours, and the gay ramblers and beds of fragrant Roses, the transformation appeared even more remarkable to the horticulturist who knows what such work means than to the uninitiated who nevertheless admire.

Starting with the herbaceous borders, one is delighted with great masses of golden Heleniums and Solidagos, vivid Pentstemons in colonies, and a host of other choice perennials, to name the whole of which would be to compile a comprehensive catalogue. Ere one has completed a survey of the borders, he is constrained to journey a little farther, for the Northcliffe Memorial garden commands attention and is forcible in its appeal. It was but natural that the members of the Natsopa should erect a memorial to Lord Northcliffe, and the Northcliffe garden is as appropriate as it is beautiful in its conception The monument is a massive pillar of hewn granite, the approach being by means of stone-paved pathways forming a memorial cross, while the garden is composed of beds of beautiful Roses distributed over a wide circle of fine verdant turf. The whole is surrounded by massive pillars of rustic timber, up which Rambler and Wichuraiana Roses already climb with vigour and bloom with freedom, although the garden is entirely the work of this year, and the monument was unveiled on the last day of March.

Great credit is due to Mr. Wynn, who not only constructed the gardens and erected the monument, but has also planted and brought into fruition a plantation of 560 bush Apples, 560 Black Currants, a like number of Raspberries, and large batches of Strawberries and other small fruits, and now superintends the whole establishment of ten acres as well as the interior arrangements of the convalescent home. Vegetables are grown in vast quantities and of fine quality, and such produce as is not required for the immediate use of the guests of the Home is either sold or bottled and preserved for future use.

Closely adjacent to the gardens is the farm

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well stocked and well cropped, and here, too, is another beautiful garden, named the Lady Waring garden, out of compliment to the wife of Lord Waring, who has been a generous benefactor to the Home. Here, under the shade of noble trees, is a delightful water-garden, with aquatic plants on the surface of the pool and luxuriant marsh and bog plants around its margins. On the higher ground grow more herbaceous plants, and in spring the grass is bestrewn with Daffodils and Snowdrops, Primroses, and Anemones—a glorious and peaceful scene.

Altogether, the National Society of Operative Printers and Assistants is to be highly complimented upon the excellence of its Convalescent Home and its charming environment, and congratulated upon the remarkable progress it has made thus far. Other Trade Unions might well emulate the noble example of the Printers. *A. J. Macself.*

THE ROSE GARDEN.

THREE NEW ROSES.

SINCE the appearance of my contribution on the Rose season in Scotland (p. 67) several varieties of recent introduction that I was not in a position to describe or characterise, because they flowered very late in an extremely procrastinating season, have come prominently into bloom. Of these, perhaps the most distinctive in their aspect have been Florence Izzard, W. E. Wallace, and Mrs. Tom Smith, of which the last-mentioned was recently very conspicuous at the great Glasgow Exhibition. Florence Izzard, which had not been introduced by the raiser, Mr. McGredy, at the period when I acquired it, is a pure golden yellow, somewhat after the style of Mrs. Wemyss Quin, but on the whole, though less florally effusive, a larger and nobler flower. It may be said to combine the most gracious characteristics of Golden Emblem with the refined fragrance of the venerable Maréchal Niel. I have often wondered from what sources the famous French Rose, with its familiar martial name, derived its peculiarly fascinating odour, which is very similar to that of the distinguished representatives of Rosa Pernetiana, and their splendidly endowed derivatives of the Emerald Isle, which originally owed this fine attribute to the Persian Yellow, crossed with a beautiful hybrid Tea. Florence Izzard is one of the most perfect Roses of its special colour I have hitherto seen. Its formation is even finer than that of Golden Emblem hitherto regarded as almost incomparable. It is, according to my cultural experience, a vigorous grower (in these days a subject of great importance), and adequately floriferous. It has already found a very formidable rival in W. E. Wallace, raised in the Belmont Nurseries, near Belfast, a variety of great beauty, with luminous foliage, and flowers of faultless form, that open with quite remarkable facility. It may be regarded as one of Mr. Hugh Dickson's very finest creations, and that, in the light of their numbers and distinction, is saying much.

The variety Mrs. Tom Smith has already distinguished itself at Scottish floral exhibitions, where its size, its distinctive colour (carmine, exquisitely shaded with magenta), and its affluence of central petals, have made it a most attractive variety. Among Roses of recent origination it is assuredly a very important acquisition. *David R. Williamson.*

ROSA WICHURAIANA.

THIS is a first-rate Rose for covering dry, shelving banks, old walls, margins of shrubberies, and other places of the kind, for it is a rapid grower, often making shoots a dozen feet long in a season, and quickly forming a dense, prostrate mass of glossy evergreen foliage of a peculiarly fresh and cheerful green. R. Wichuraiana will, moreover, do well in quite poor soils. It is seldom affected by drought and revels in hot sunshine. The flowers, which are single, pure white, and about 2 in. across, are borne in abundant clusters in late August and September, and this is somewhat odd, since all the Wichuraiana varieties of the Dorothy Perkins set, and which are the progeny of this species, flower much earlier.

Though a native of Japan, R. Wichuraiana was introduced to this country from America in 1891. There is a very attractive variety with single red blossoms (said to be a hybrid between the species and Crimson Rambler), and we have a Rose with variegated leaves which also appears to be a form of the same thing. R. Wichuraiana is a naturally procumbent, or creeping, species, a fact which should be borne in mind when planting. It is quite hardy. *A. T. J.*

THE BULB GARDEN.

TULIPA BIFLORA.

WITH T. turkestanica, T. biflora has the distinction of producing several flowers on a stem, and biflora is rather a misnomer, as very frequently there are more than two blooms. It is an interesting plant, but it must be confessed that there are more beautiful Tulips, although not many which will bear from two to five flowers on a stem as biflora may do. These blooms, on stems six to nine inches high, are of a creamy white with a yellow centre and are usually tinged with green outside. The plant succeeds in the rock garden, and is more likely to be useful there than in the border. T. biflora comes from the Caucasus, and is hardy with us. *S. Arnott.*

FIG. 69.—ROSE BETTY HULTON. N.R.S. GOLD MEDAL, SEPTEMBER 20. SEE p. 191.

MILLA UNIFLORA.

THIS is a hardy bulb which was introduced from the Argentine some years ago, and is probably better known as Triteleia uniflora. It is a charming little thing, and bears a single star-shaped milky white flower, suffused with a tint of blue, on a fairly stout stem, at least strong enough to bear itself erect through the storms of spring. It grows with me some 6 or 8 inches high and flourishes well on the rockery with an almost absence of sunshine during the winter months.

Unfortunately it is almost useless as a cut flower, for although the bloom itself has a sweet Primrose-like scent, the stem, where cut, diffuses a pronounced aroma of Onions, which is disagreeable to many. The foliage and bulb have also this peculiarity wherever they may be bruised. The plant is well adapted for spring bedding, and makes a very bright and telling show in its season. It is not necessary to lift the bulbs after flowering; they may remain in the soil if it be light and well drained where they will take no harm and increase rapidly. They should, however, be taken up and replanted every few years, or they become too crowded.

The variety violacea is very similar to the foregoing, save that the flower has more of a pale blue shade, with a darker stripe down each petal. September and October are the best months in which to plant.

Milla uniflora is quite amenable to gentle forcing and will then bloom in January, a month or two earlier than in the open air. Sandy loam and leaf-mould make a good compost, and a dozen bulbs in a 6-inch pot, planted as soon as obtainable, will give a satisfactory result. Very little heat will be required, and if the plants are kept near the glass, strong, sturdy growth will result and a profusion of flowers be obtained. *T. D. T*

ALLIUM FLAVUM.

THIS species of Allium grows about a foot high. It has heads of pretty, small, bell-shaped flowers of rather nodding habit and of a pleasing yellow. It looks best on rockwork, and may be planted in a sunny place, to grow through a dwarf Mossy Saxifrage of the type of Guildford Seedling or S. Fergusoni. It proved perfectly hardy in sandy soil. *S.*

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. 21.—OVER THE GOMPA LA.

ON October 23 the minimum temperature was 22° F. At dawn a thin film of hoar frost covered everything. The cold delayed us somewhat, but we started at 9 a.m. under the most perfect conditions imaginable.

Scrambling through tangles of a prostrate Haematodes Rhododendron (not R. haematodes itself though; that is said to be confined to the Tali range) whose gaping, star-like capsules had shed their seeds (K.W. 5431), we emerged from the last patch of Fir forest into an immense arena. We were on the rim of a wide basin, at the very foot of the snow peak Half the basin was occupied by a glacier lake which discharged over the rim of the basin on our left by a stream which fell several hundred feet into the valley we had left the previous day. The other half was marsh. Immediately on our right, on the far side of the lake, rose a sheer cliff, perhaps 1,500 feet high, at the summit of which could be seen the edge of the glacier. It was the Gompa La itself.

We were on a well-marked ice-shelf at the head of the main valley, and straight ahead of us was a notch in the range—the pass. The rocks here were covered with dwarf Rhododendron The trailing stems of R. repens (K.W. 5417) were conspicuous amongst Salwenenses, Campylogynums and a twiggy Lapponicum; but in the marsh there were no Rhododendrons—no R. hippophaeoides, for instance, but Primula serratifolia, Pedicularis, Nomocharis, and unrecognisable things.

Ascending a moraine on our left, we climbed by a very steep ghyll, whose flanks were clothed with meadow to the pass. There were several notable plants here—all, of course, in fruit. What looked to be a splendid Nivalis Primula (K.W. 5640) was abundant. It grew a foot high. Equally abundant was an Omphalagramma Primula (K.W. 5461), and the third of the triumvirate was furnished by a Muscarioid, big enough and coarse enough for P. muscarioides itself (K.W. 5464).

And so we reached the summit of the Salween-Irrawaddy divide. On one side of us lay Burma, on the other side China, with a snow peak towering above us to act as boundary pillar. But, as a matter of fact, we could see very little of either Burma or China, only a welter of uninhabited mountains, cut to the bone in every direction. We were 7764 feet above the Salween bed, so that the Gompa La—that is, the pass—is only a few hundred feet below the Si La, over the Mekong-Salween divide. This conclusion agrees very well with the barometer readings on the two passes. From this we are forced to conclude that the snow peak, despite its large glaciers, can hardly exceed 17,000 feet altitude.

In order to get a better view, I ascended the

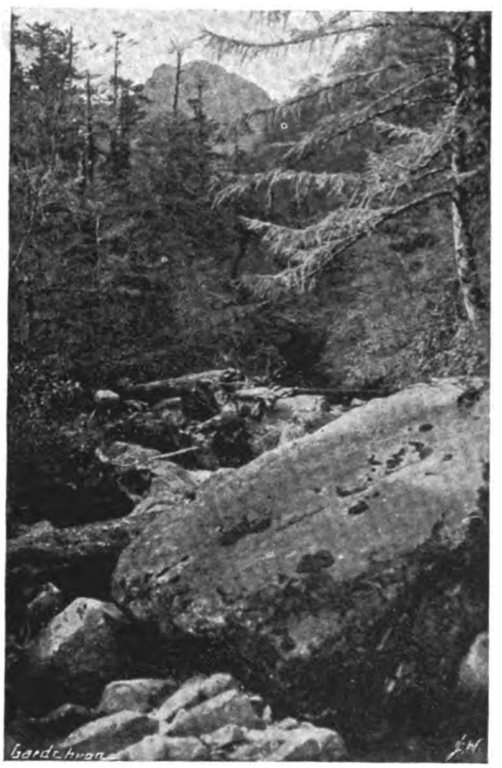

FIG. 70.—LARCHES, FIRS, BAMBOOS AND RHODODENDRONS ON THE DESCENT TO THE TARON.

steep ridge on my left, and from nearly 500 feet above the pass, photographed the Gompa La. (See *Gard.Chron*, August 18, Fig. 37.) The summit was certainly not more than 3,000 feet above the pass.

The streaming flanks of this ridge were absolutely sheeted with a small Primula (K.W. 5462), which must make a fine show in the summer; as this was the north flank, they would assuredly be buried under snow till the end of June. Where the ground was drier, broom and carpet Rhododendrons covered the rocks.

Descending from the pass, we traversed round the head of the valley on a southward course. Everywhere were signs of extensive glaciation. Presently we met clumps of Silver Fir again and more Rhododendrons, amongst which I remarked a Cephalanthum, very like R. cephalanthoides itself in general appearance; unless indeed it was one of the Anthopogons, a Himalayan series which is represented in China only by R. rufescens, one of Delavay's many discoveries. One had always to bear in mind that we were approaching more and more towards Sikkim relationships—as indeed it proved in the sequel.

When we halted for lunch we were able to see many snow peaks to the north, presumably near the Taron curve. Of the Taron gorge itself we could see nothing.

In front of us, but separated by a deep trough, was a lofty ridge which blocked the view westwards; it was connected to our ridge by a narrow, rocky bulkhead, the whole forming a capital H, but lying on its side, thus I We had to cross the bulkhead to the opposite ridge, and then either cross or turn it. We elected to turn it, and having straddled across the bulkhead, moved south down the valley, keeping, however, high up on the face of the mountain.

The men, indeed, knowing what was ahead, wished to remain at our camping-place for the night, saying that it was impossible to reach a camping-place that night if we went on. At least there was water and firewood here, though the place was bleak enough.

I allowed that the natives might know best, but firmly declined to halt here. Two previous attempts to cross the Gompa La had been baulked, and though we were now actually over the pass, I vowed I would never feel safe till the Taron was in sight. So on we went; and presently we were involved in a long and exasperating traverse over boulder screes. The slope faced south and there was little vegetation. The most exciting plant was the ghost of a small "Primulina" Meconopsis, with much longer and narrower capsules than those of the Si La species. It was scattered, but abundant, and I secured good seed. (K.W. 5463.) There were as many as half a dozen single-flowered scapes to each plant, from six to nine inches high. This Poppy was strictly confined to the granite screes. Other plants were Primula dryadifolia, Polygonum Griffithii, a few Saxifrages, Cassiope sp., Gaultheria and other odds and ends.

The sheltered slopes were thickly clad with a warm brushwood of Rhododendron, composed so far as one could see of four species only: R. sanguineum, R. repens, a Lapponicum and a Campylogynum. These slopes were very steep and the downward-sweeping stems of the Rhododendron brush made progress very arduous and in places dangerous.

At five o'clock we reached the end of the ridge and changed direction west again, halting half an hour later under the lee of the cliff. There was a ledge here with a steep slope below—just room to lie down. Unfortunately there was neither water nor firewood, and as our altitude was still over 13,000 feet, it was very cold at night. We were up and away early next morning, breakfastless. But in less than an hour we had turned the obstacle and saw below us the gorge of the Taron, with a wild confusion of mountains beyond. It was British Burma

We halted by a glacier lake for breakfast. The sun was over the range now, drenching us with warm, golden light. Northwards, not far away, we could count half a dozen snow peaks thrusting their heads out of the ruck.

After the morning meal we had a breakneck descent of 2,000 feet to a stream. This slope faced north, and the frozen ground was slippery with hoar frost; only the dense growth of Rhododendron saved us from many a fall. At the summit there were four species, all mixed up together, including the round, furry-leafed haematodes and a quaint species with brilliantly silvered leaves and small trusses of flowers arranged in an umbel, characters which we find in R. glaucum of Sikkim. Also the same rather pungent aroma. But R. glaucum has purple flowers, and in this species they are probably yellow (K.W. 5437).

As we descended to lower levels and warmer temperatures, other species appeared. The first bush or small tree was one of the Fortunei series, rather like R. decorum outwardly (K.W. 5457). With it was one of the Trichocladum Azaleas (seed is included in my lucky-dip packet, K.W. 5458-A), and larger forms of R. sanguineum. Finally we reached the stream and followed it down.

For a mile or two all went well. An obvious path traversed the dense thickets of Bamboo and Rhododendron which lined the stream. Amongst the latter were a Heliolepis and our

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17, July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, March 10, 24, April 7, 21, May 5, June 2, 23, July 7, 21, August 18, and September 1, 1923.

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old Barbatum friend, K.W. 5427, with Sanguineums and a much-gnarled tree with big leaves covered with a rusty orange wool (K.W. 5438). Whether this last is a Falconeri or not, I am unable to say; it certainly bears at least a superficial resemblance to R. arizelum.

Presently the grade of the valley increased and the stream tumbled amongst huge boulders. The mountains closed in, the right bank being furnished with dense forest. It was impossible to follow the stream down any further; the guides said there was a path up the cliff on the right, but it took us an hour's search to find it, and by that time it was too late to go on. So we camped in the bed of the torrent, nearly 4,000 feet below the Gompa La—about 9,600 feet absolute altitude.

The date was now October 25, the minimum temperature was 38° F. The morning was bright and cold when we started up the cliff, following an almost invisible path through the dense forest of Conifers and Rhododendron, and a few other things such as Larch, Oak and Euonymus. All the tree trunks were smothered in Moss and Ferns and small climbing plants.

The most conspicuous Rhododendron was one of the Grande series, like R. argenteum—a branched tree of twenty or thirty feet. There was also R. bullatum and, hanging in thirty-foot festoons from the boles of the great trees, R. Edgworthii; the same species, with beautiful ruddy orange capsules, was seen climbing up the granite cliffs like Ivy, rooting into the crevices (K.W. 5440).

On a bare granite wall facing south I found the remains of a wee Primula, shrivelled in the parching sunshine, and saved a few seeds (K.W. 5443) It appeared to belong to the Yunnanensis section. There were also plants of P. sonchifolia, or an allied form, on the shady rocks.

After ascending a thousand feet, we reached the crest of the spur and descending a little way through the forest, came out into the open sunshine again. Far below the foam gleamed white on a river. It was the Taron. *F. Kingdon Ward.*

PALMS OF THE RIVIERA.*

In my last article I mentioned Schinus molle, the Pepper tree (Faux Poivrier) as the most desirable shelter tree against cold, its spreading branches forming a most graceful roof above the more tender plants. All gardeners know the importance of planting at the same time all the trees, shrubs and other large plants, which are intended to live together on the same place, so that the different subjects may all start their development in a soil not yet full of the roots of their competitors. Therefore one cannot wait for the development of the Pepper trees until they are sufficiently large to shelter the tender plants, but all must be planted at the same time, and it is therefore of the greatest importance to know the size finally attained by the different Palms needing shelter in order that they may be planted in such a way that they shall have sufficient room for their full development. In the first few years more Pepper trees may be grown amongst the Palms than later, and the young Pepper trees will at once offer some protection to the tender Palms. Then, as the Pepper trees grow, those planted where finally there would be no need for them may be removed. Still, even when a great number of young Pepper trees are planted, say at only some two or three metres distance one from the other, it will be necessary sometimes to shelter the more tender of the young Palms during the first years by some other means.

A fairly simple method of protection which I have adopted largely, consists in a circle of strong wire across which is fixed another piece of wire in such a way that it forms an arc reaching about fifteen centimetres above the level of the circle, the circle of wire being supported by three or four legs made of very strong wire. On the circle is stitched a piece of cloth resting on the wire which crosses the circle, thus forming a low canopy. These shelters are very easily and quickly made, and in any size required. I usually make them with a circle of from one to one-and-a-half metre in diameter. The height of the legs varies according to the height of the plant to be protected. I fix a piece of cloth on the legs also as a protection against cold winds, but in any case always leaving the apparatus quite open to the south, as it is very necessary that the plant should receive the benefit of the sunshine in winter, without which these tender plants would not prosper or even survive. The need of shelter against cold hardly ever exists here on the Riviera, except in the night and early morning, therefore the apparatus may be taken away in the daytime and replaced in position in the evening, but where there is a large number of plants the shelter may be left in position day and night, and this is what I have mostly practised, and without inconvenience.

A well-known method of protecting young, tender plants is that of placing a thick layer of dry leaves or similar material around the base of the plant, and in this case also it would be advantageous to remove this material during the hours of sunshine, in order to allow the ground around the plant to be heated by the sun's rays, and replace the material around the plant as soon as the sunshine ceases. It must not be thought that these precautions are absolutely necessary, for very many Palms, provided they are not planted in open ground exposed to cold winds, will resist much cold, even when quite young, though they may suffer somewhat. As the Palms become well established their resistance becomes greater and danger of loss is lessened. I may draw attention to a fact often overlooked, namely, that stagnant, continually moist soil in winter is inimical to the well-being of tender plants, which under such conditions suffer particularly in periods of cold weather. I would therefore strongly advise the planting of such tender subjects in a very light, porous soil, which may be used when filling in the holes made for planting. Even heavy and repeated rains will then not do much harm, since stagnant water will not collect around the young roots. The hole in which this special soil is used should not be less than about one cubic-metre, in order that the plant may grow for several years in the prepared compost, and until it has become more resistant. *Dr. A. Robertson Proschowsky, Jardin d'Acclimatation Les Tropiques, Fabron, Nice, France.*

*The previous articles by Dr. Proschowsky were published in our issues for May 1, June 12, July 10, September 4, November 20, December 18, 1920; March 12, April 30, June 11, October 8, November 19, 1921; January 21, February 11, April 1, June 17, July 29, October 14, November 11, December 23, 1922; March 10 and May 5, 1923.

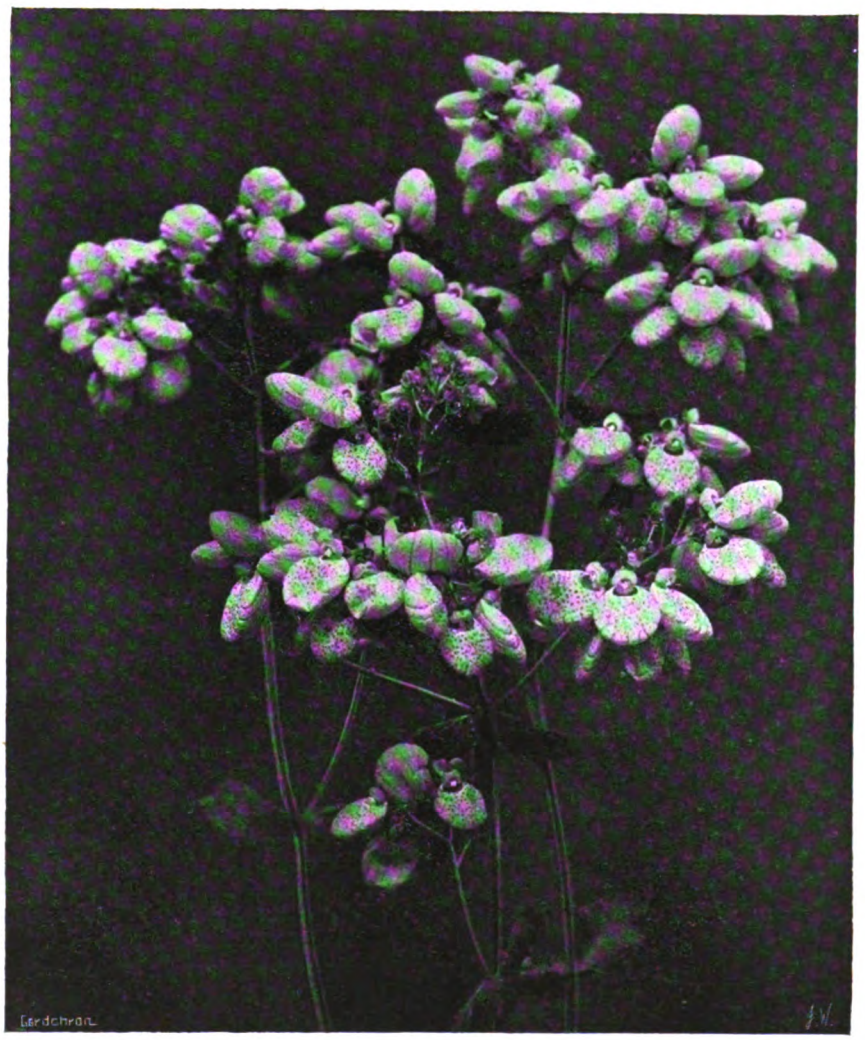

FIG. 71.—CALCEOLARIA SCARLET BEAUTY.

CALCEOLARIA SCARLET BEAUTY.

THE beautiful new Calceolaria illustrated in Fig. 71 was raised in the Botanic Gardens, Glasgow, from a cross made by the curator, Mr. Banks—the parents being C. integrifolia and C. herbacea. It was shown by Lord Lambourne at the meeting of the Royal Horticultural Society, on August 8 last, under the name Glasgow Beauty.

Mr. E. Matthews, Director of the Glasgow parks, informs us that Scarlet Beauty is one of four seedlings considered worthy of retaining. The other three are grown in the Botanic Gardens, and although not so striking as the one indicated in the photograph, are quite good for general purposes in greenhouses and conservatories. The variety illustrated is very free flowering, bearing numerous heads of orange-yellow flowers spotted with reddish-scarlet, a combination of colouring that is very effective.

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POMOLOGICAL CONGRESS AT STRASSBURG.

THE 59th Pomological Congress was held on September 7 and 8 at Strassburg, the beautiful capital of Alsace, more than 200 French and foreign growers being present.

The annual report of the Pomological Society was presented. The membership is now over a thousand, and it is hoped to make the work of the Society in the future of a greater importance and authority. Plans were discussed for improving the Journal published by the Society, for the better upkeep of the Sandar experimental garden, the publication of a popular catalogue of the best fruits, etc., and in order to provide funds for these purposes, the annual subscription was raised to twenty francs a year.

Of the fruits submitted to the Committee, Bigarreaux Noir d'Ecully and Souvenir des Carmes, and Peach Charles Ingouf, were accepted; Almond Bruantine, Pears Constant Lesueur and Directeur Tisserand, and Apple Reinette Schmitberger, were rejected.

Various subjects appeared on the programme of the Congress. In a discussion on Experimental Orchards for Fruit Culture: Their Objects and Organisation, speakers referred to the necessity for experimental gardens; many growers find it impossible to maintain trial grounds at their own expense, the cost since the war having become prohibitive. This task should devolve upon the various agricultural administrations, in collaboration with local societies. Experiments with manures, insecticides, and fungicides, for instance, should be carried out on a large scale. The congress passed a resolution to the effect that experimental orchards be established in various districts, under the direct control of the horticultural federations, and subsidised by the local agricultural administrations.

In a paper on the influence of altitude and climate in the cultivation of dessert fruits, it was said to be sometimes possible to grow in a favourable aspect, in a mountainous region, varieties of fruit trees which succeed only partially, or not at all, in general in the plains. M. Loiseau reported having seen, in the Alpes Maritimes, Apricot plantations giving regular and abundant harvests of good fruits, at altitudes varying from 800 to 900 metres, results which are far from being obtained in similar latitudes on ground at a lower level.

The question of determining causes of the fertility of trees and the quality of fruits was very fully discussed. The partisans of summer pruning for Apples and Pears, and its opponents, gave the best reasons for retaining their respective opinions, but on the whole the advocates of pruning had the best of the argument. With regard to the influence of the graft on the stock, it was said that double-grafting is employed, especially in the case of the Pear, to invigorate varieties of feeble growth. It is also found to induce quicker growth and development of the tree. In general, the intermediate graft is reduced to a stump without leaves 20 to 30 cm. in length, which does not develop further, and is able only to a very small degree to influence the final form of the variety. M. Passy remarked that it would be preferable, if possible, to preserve a leafy portion on this stump, which would serve to draw up the sap. Re-grafting has the further advantage of insuring a perfect junction in the case of varieties which do not take readily to the stock. In discussing the influence of scion on stock, a great divergence was reported when taking up young grafted trees; the Quince grafted with different varieties of Pears had a root system which varied according to the nature of the graft.

Dr. Chifflot gave details of recent observations made by him on the various diseases affecting fruit trees. A paper on a study of fruit tree cultivation and local varieties in Alsace showed that fruit-growing is very well developed in Alsace. In 1913 there were nearly eight million fruit trees in the province, of which 400,000 were stone fruits. Many of the roads are bordered with fruit trees. Metz produces great quantities of the Mirabella Plum. It was recalled that formerly in Alsace children were given fruit trees as rewards, to plant in their gardens.

After a number of agreeable meetings and social functions, the members of the Congress made some very interesting excursions in autocars to the different horticultural and fruit-growing centres in Alsace and Lorraine.

The next pomological congress, in 1924, will be held at Angers.

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante, pp. 71-76.)
(*Continued from page* 176.)

ENGLAND, S.W.

GLOUCESTERSHIRE.—The crops of Plums and Damsons are very light, and the trees have suffered severely through attacks of aphis and cold weather in early summer. Apples have also suffered, particularly in gardens and fruit plantations. There will be more Apples in grass orchards than were anticipated at one time, and trees growing under these conditions have not suffered so much through insect pests. Pears are practically a failure, and entirely so in the case of perry Pears in orchards. Red Currants and Gooseberries were both good crops, though many of the latter berrics were affected with American Gooseberry mildew. The Black Currant crop was considerably harmed by aphis, and the Strawberry crop by drought. On the whole it is a disappointing season for fruit, owing to cold, dry and sunless weather and severe attacks of pests. *G. H. Hollingworth, Shire Hall, Gloucester.*

HEREFORDSHIRE.—The frosts and cold north-easterly winds during the months of April and May ruined the blossoms of Apricot and Plum trees, which were a mass of flower in this district. Apple trees at one time looked promising for good crops, but the fruits failed to set. The amount of Peach and Pear blossom was very much below the average. *F. Roberts, Stoke Edith Park Gardens, Hereford.*

——Plum trees were a magnificent sight when in blossom, but the young leaf-buds were injured by cold and dry winds—followed by leaf curl and aphis, there being a kaleidoscopic change from masses of blossom to almost apparently dead trees. Mealy aphis appeared early in July and added to the damage. Apples are a very fair crop on some trees, especially such as did not bear much, or at all, last year. Various pests are numerous on the trees, especially caterpillars, and of maladies white mildew (Sphaerotheca) is prevalent. Orchard fruit is variable, but the yield is small. In the case of Pears both blossom and setting of fruit were very poor. In orchards Plum fruits are practically nil. Gooseberries, and Black and Red Currants yielded well, and the quality also was good. The setting of Strawberries was much affected by cold weather during the blossoming period. Grafts have not succeeded well, except against the shelter of walls, suggesting that temperature is the main cause of the trouble. *H. E. Durham, Dunclm, Hereford.*

SHROPSHIRE.—All fruit trees, with the exception of Pears, bloomed fairly well, but late spring frosts seriously affected the crops in exposed positions. Red and White Currants were plentiful, but Black Currants were much under the normal yield. Certain varieties of Plums are carrying fair crops. Most of the trees are clean and healthy after winter spraying. Our soil is a heavy, retentive loam and the natural drainage is good. *Roger F. Jones, Oteley Hall Gardens, Ellesmere.*

——The fruit crops are very disappointing. Most fruit trees flowered well with a good promise of fruit, but severe frosts and other adverse conditions followed. We especially suffered from severe drought and sunless weather in this district until the end of June, resulting in an almost total failure of the fruit crops. Severe attacks of aphis have also troubled us. The soil is a heavy, tenacious boulder clay, going down a very great depth, which makes a cold subsoil, and very difficult working surface soil, in which pests of all sorts abound. *E. F. Hazelton, Yeaton Peverey Gardens, Bomere Heath, Shrewsbury.*

WORCESTERSHIRE.—It is a most disastrous season for nearly every kind of hardy fruits, the worst I ever remember for upwards of half a century. Apples will come out best. The old Blenheim Pippin has a fairly good crop throughout this part of the country, the very opposite to last year. The cold sunless season favoured the most persistent attacks of aphis, which came in shoals of winged specimens in spite of any and every insecticide used, either by dipping or spraying. Many Plum trees were quite defoliated; the aphis appeared to attack Plums first, and as soon as this food became scarce, to migrate to other trees, and Hops also, hence Hop growers are always anxious as to the condition of Plum orchards, which are a breeding ground for aphis. *William Crump, V.M.H., Oakridge, Malvern Link.*

——The Apple crop promises fairly well, considering that insect pests have been most persistent. Plums, except Pershores, are very scarce—only where spraying has been followed up is there any fruit. Black Currants were a failure, but Gooseberries were a good crop. Strawberries were very plentiful, but the long spell of dry weather prevented them from developing. Our soil is a heavy loam, overlying clay, and owing to a wet winter we were unable to fully break up the lumpy ground. *Geo. H. Emmett, Hill Crest Gardens, Evesham.*

——The Apple crop is the worst we have had for several years, although the following varieties are carrying good crops: King of the Pippins, Lord Grosvenor, James Grieve, Worcester Pearmain, Lord Suffield, Charles Ross and Cellini Pippin. Many varieties are quite bare of fruits. The Pear crop is a total failure. Gooseberries were very plentiful, and Black Currants were also a good crop. *Ernest Avery, Finstall Park Gardens, Bromsgrove.*

——The majority of the fruit trees blossomed well. Plums blossomed profusely after carrying a record crop last year, but the late frosts did a great deal of harm. In exposed positions Gooseberries and Black Currants suffered greatly, but where the bushes were sheltered they had average crops. Pears are scarce. Apples are under the average, but early sorts cropped satisfactorily. Apricots were under the average, having failed to set in spite of protection. A few of the early Strawberries were caught by frost, and the crop would have been greatly improved had rain fallen. All fruits are feeling the effects of the drought. We had drying winds during April, and only two inches of rain during May and June. The soil is of a heavy nature, resting on gravel. *G. E. Roden, Overbury Court Gardens, Tewkesbury.*

——The fruit crops are the worst on record. Apple and Plum blossom was small, and the weather wet and cold at the time of blooming, whilst the trees were covered with blight in spite of washing. Pear trees did not bloom after carrying such a heavy crop last year. Gooseberries, Currants and Loganberries were all good crops. Raspberries and Strawberries were small owing to dry weather. I have never seen green and black aphides so plentiful; they attacked nearly everything in the gardens. Our soil is a stiff loam on clay. *C. A. Bayford, Davenham Gardens, Malvern.*

——The spring of 1923 proved disastrous to the fruit crops. Not only did "Winter sit in the lap of spring," but in the lap of summer also. Strong, dense and cold winds, moving with considerable speed from more than one point of the compass, did injury to the opening and tender leaves, and also to the petals of the flowers; and the low, icy temperature completed the destruction of their reproductive organs. The adverse conditions have caused serious injury to many trees, as well as to their crops of fruit. *James Udale, 7, Ombersley Road, Droitwich.*

(*To be continued.*)

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INTERNATIONAL HORTICULTURAL CONFERENCE AT AMSTERDAM.

In commemoration of its fiftieth anniversary, the Royal Netherlands Horticultural and Botanic Society held an International Horticultural Conference at Amsterdam on September 18 and 20, but, as a full programme of visits and hospitality was added, the proceedings, commencing with a reception on Monday, September 17, did not conclude until September 23. We do not remember any horticultural celebration of so interesting and varied a character, and for the sake of those who may have to make arrangements for a horticultural conference on international lines we append the programme:—

MONDAY, SEPTEMBER 17.

Reception of delegates and representatives in the rooms of the Restaurant Trianon at 8 p.m.

TUESDAY, SEPTEMBER 18.

First session of the Conference, at 9 a.m., in the University Building.

Opening address by the President of the Society, Jonkeer G. F. van Tets. Election of President and four Vice-Presidents for the Conference. Address by Vice-President M. Cayeux representing the Société Nationale d'Horticulture de France.

Papers by Dr. Johanna Westerdyke, of Baarn, on "Horticulture and Plant Diseases"; Mr. Ernst H. Krelage, of Haarlem, on "The Development of the Dahlia"; and Mr. K. C. van Nes, of Apeldoorn, on "The Care of the Beauties of Nature, and the Improvement of Landscape Scenery in Town Planning."

Lunch at the Krasnapolsky Restaurant.

Second session of the Conference at 1.30 p.m. Address by Vice-President Prof. Bateson. Papers by Mr. R. G. Hatton, of East Malling Research Station, Kent, on "The Influence of Root Stocks upon Fruit Trees"; Dr. O. Schindler, of Dresden, on a "Contribution to the Problem of the Root Stock in Fruit Trees"; Prof. L. Daniel, Rennes, on "Graft Hybrids."

Visit to the Netherlands and Netherlands-Indian Exhibition and Dahlia Show; reception by the officials.

Reception by the Burgomaster and Town Council of Amsterdam at the Maison Couturier from 8 p.m. to 10 p.m.

WEDNESDAY, SEPTEMBER 19.

Trip to Boskoop, starting at 8.15 a.m. for Gouda, thence by boat to Boskoop; group visits to various nurseries. Luncheon at the Hotel Neuf at 12.35. Departure at 1.45 by motor-cars to The Hague. Reception by Her Majesty Queen Wilhelmina at Huis ten Bosch at 3.40. Return to The Hague at 5.30, dinner, and then by train to Amsterdam.

THURSDAY, SEPTEMBER 20.

Third session of the Conference at 9 a.m. Opening address by Vice-President Dr. J. P. Lotsy. Papers by Prof. Bateson, John Innes Horticultural Institute, on "Root Sports"; Mr. E. Lierke, Berlin, on "The Influence of Manures upon the Quantity and Quality of Fruits and Vegetables"; Dr. E. Tschermak, Vienna, on "Some Hybrids between Species and Races in Primula."

Lunch at the Krasnapolsky Restaurant.

Fourth session of the Conference at 2 p.m. Opening address by Vice-President Dr. Tschermak. Papers by Mr. E. Furedi, of Budapest, on "Professional Horticultural Education in Hungary and the International Exchange of Pupils"; Mr. K. Dilling, of Zutphen, on "School Gardens"; and Dr. F. Oedewelt, Amsterdam, on "Allotment Gardens."

Thanks to contributors of papers and other helpers. Close of session.

Official dinner given by the Royal Netherlands Horticultural and Botanic Society at the Restaurant Trianon at 7 p.m.

FRIDAY, SEPTEMBER 21.

Excursion to Aalsmeer, Haarlem, and Lisse. Start from Amsterdam at 9 a.m.; arrival at Aalsmeer at 9.43 a.m.; inspection of Auction Flower Market and visits to various flower-growing nurseries. Light refreshments at 11.45.

Departure of special train to Haarlem at 12.15. Lunch at the Hotel Lion d'Or. Organ recital at St. Bavo Cathedral, given by the Haarlem Town Council.

Departure by motor-cars to Lisse at 2.30. Inspection of the State School for Bulb Growers or the State Phytopathological Laboratory. Departure by motor-cars to The Hague at 4 p.m. Arrival at The Hague at 5.30, where the Conference delegates found their luggage awaiting them in their rooms at the hotels assigned.

Reception by His Excellency the Minister for Home Affairs and Agriculture in the Salle des Chevaliers at 8 p.m.

SATURDAY, SEPTEMBER 22.

Excursion to Rotterdam and Hook of Holland. Departure from The Hague at 8.50 a.m. Special trams awaiting at Rotterdam to convey the party to the Maas Station. Departure by boat at 9.50 a.m. for a tour of the harbours of Rotterdam—offered by the Town Council of the city. Arrival at Parkkade at 11.50, and departure by boat to the Hook of Holland at 12 o'clock; luncheon on the boat. Arrival at The Hook at 2 p.m.; inspection of the loading of Dutch vegetables on the G.E.R. boats for England; inspection of various nurseries and the auction sale-rooms; refreshments offered by the Westland Union of Auction Societies. Departure at 4.45 by motor-cars to Loosduinen and The Hague; tour through the parks at The Hague.

SUNDAY, SEPTEMBER 23.

Excursion to Zeist, Wageningen, and Rosendaal, offered to foreign members only.

Departure from The Hague to Utrecht at 10.12 p.m.; by motor-cars to Zeist; visit to Jonkeer van Tets' home at Valchenbosch, where he entertained the party to lunch. Departure to Wageningen by motor-cars at 1.20 p.m. Inspection of the Arboretum and a State phytopathological exhibit at Wageningen. Departure for Rosendaal at 3.35 p.m. Tea given to the party at Rosendaal by Baron von Pallandt van Rosendaal, a vice-president of the Society.

Departure for Arnhem at 5.30; dinner at the Restaurant National.

End of programme.

HOME CORRESPONDENCE.

Gloxinias and Streptocarpus.—Dr. Wood's garden at Woolpit, Bury St. Edmunds, is not a very extensive one, and it is laid out in so formal a manner that those who admire the informality of Nature hold up their hands in horror at the sight; but it pleases its owner, and that is the essential thing after all. With a view to achieving the finest results, Mr. Lewis Coleby, the head gardener, concentrates on special features, and those of the present moment are Gloxinias, particularly in pure white, and Streptocarpus, in widely varied hues. The seeds of both were sown during the first week of March, and the plants, now in 3½-inch pots, are flowering freely, and creating a splendid effect. Out of doors the most brilliant picture lies in the flowers of a bright scarlet Pentstemon, which are richly gorgeous. All these are from Messrs. Sutton and Sons' strains, and they do infinite credit to that firm and to the gardener who has grown them so well. *Horace J. Wright.*

Pelargonium Rollison's Unique (see p. 177).—I believe that Prof. Bateson, of the John Innes' Institute, Merton, would be able to supply Mr. Lynch with the reason why this interesting Pelargonium produces two types of bloom, for, if my memory serves me right, he made investigations in the flowers of this plant some years ago. Mr. Beckett grows this beautiful Pelargonium for summer bedding at Aldenham House gardens, and perhaps he would be able to say if any of his plants have produced flowers of two colours. *T.*

SOCIETIES.

NATIONAL ROSE.

SEPTEMBER 20 AND 21.—The Autumn Show of the National Rose Society, which was held in the R.H.S. Hall, Westminster, on these dates, must have been embarrassingly successful to the enthusiastic Hon. Secretary (Mr. Courtney Page) and the Council. The staging capacity of the hall was taxed to its utmost, and before noon there was a goodly queue waiting admission. Throughout the day the hall was filled, and at times uncomfortably so, with enthusiastic rosarians. Generally on second days the attendance at flower shows is but moderate, but so late as 4 p.m. on the Friday the hall was filled with visitors. We understand that the National Rose Society will hold its Spring and Autumn Shows in the future in some more commodious place.

The general quality of the Roses was, in this notoriously poor "Rose Year," surprisingly high; thus has Nature compensated for the disappointing summer crop of blooms, and in almost every class the competition was very good. Most of the many thousands of blooms were of good size and shape, while their colouring was, in the case of many varieties, brilliantly beautiful. But it was remarked that their fragrance was, as a rule, but slight. In the nurserymen's classes there was a regrettable tendency to "dress" the exhibition varieties, which in every instance destroyed the character of the varieties without in the slightest degree improving the blooms.

Although there were over forty seedling Roses it cannot be said that there were any epoch-making varieties amongst them, but many of them have merits. Two Gold Medals and five Certificates of Merit were awarded.

GOLD MEDALS.

Betty Hulton (see Fig. 69).—A H.T. variety which in the bud state is very pretty and of good form, but the fully-expanded blooms are rather shapeless. The rich yellow colour is, however, very fascinating, and it is probably to this, with the variety's apparent freedom in flowering, together with the long, straight stalks, that it owes the premier award. It is of loose globular form, and the broad petals are occasionally flushed with pale orange-yellow. Shown by Messrs. ALEX. DICKSON AND SONS.

Shot Silk.—This H.T. Rosé of glowing colouring was also shown at the Summer Show at Regent's Park. It was illustrated in *Gard. Chron.*, July 7, Fig. 5. As is the case with its fellow Gold Medal variety, the form leaves much to be desired. When mature the blooms are roundish and of a beautiful cherry-red colour flushed with rose-pink. There is an attractive golden-yellow base to each petal. The foliage is good. Shown by Messrs. ALEX. DICKSON AND SONS.

CERTIFICATES OF MERIT.

Mabel Turner.—A shapely H.T. variety which may almost be described as a slightly paler and very pointed La France, but without its delicious perfume. It is very pointed conical in form, and the broad recurving petals show the silvery reverse. The foliage is clean and good and the blooms are borne on long, stout stems. Shown by Messrs. HUGH DICKSON, LTD.

Phyllis Bide.—An especially pretty Polyantha variety which freely bears good trusses of rather more than semi-double flowers of pale rose-pink colour broadly tipped with pale golden yellow. It also has good, clean foliage. Shown by Messrs. S. BIDE AND SONS.

Oliver Mee.—Another shapely H.T. Rose, fully double and flushed with Peach-pink on creamy ground. It is recommended for the garden and for exhibition purposes. Shown by Messrs. HUGH DICKSON, LTD.

Victor Waddilove.—A beautiful H.T. variety of good form, suitable for all purposes. It is of a bright pink shade of colour and has good stalks and small dark green foliage. Shown by Messrs. S. MCGREDY AND SON.

Aurora.—This new Rose might well be termed a deep primrose-yellow Nur Mahal, for it is also a Hybrid Musk variety and similar in shape

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and freedom of flowering. Shown by REV. J. H. PEMBERTON.

OTHER NEW ROSES.

The variety Margaret McGredy was generally expected to have been selected for an award, but somehow failed to impress the Committee In general appearance it may be described as being The Queen Alexandra Rose without the rich yellow reverse and with rather more scarlet in its colouring. Mrs. J. Heath is another H.T. variety of merit. It is of flattish shape and of cream yellow colour flushed with pink, especially in the centre of the blooms. Jane Boyd is a well-formed H.T. Rose of good size and golden buff colouring lightly overlaid with rosy-purple. It has small purplish foliage. Fanny Oppenheimer was the most brilliant Rose in the show and might well have received an award for its colour alone. It is also a free-flowering variety. This H.T. is of good form in the bud state, though rather loose when mature, but the petals are substantial and would apparently withstand bad weather. The brilliant cardinal colour is enhanced by golden-yellow at the base of the petals. Mrs. C. W. Edwards is a large, substantial, fully double H.T. Rose of good form in all stages, and of deep rose-pink colouring. Lady Sackville is the darkest of all the new Roses, but although small the blooms are solid and of lumpy appearance. It did not possess the rich fragrance usually associated with dark crimson maroon varieties. Mrs. S. Paton is a very beautiful rich rose-pink H.T. variety, suffused with golden-yellow on the reverse of the petals. Joan Waddilove might almost have been named Goldilove, for the golden reverse to the petals was very prominent and was lightly flushed with purplish rose-pink. It is a small garden variety. All the above were shown by Messrs. S. MCGREDY AND SON.

Sadie, shown by Mr. GEORGE PRINCE, an H.T. of creamy orange-apricot colouring, is a moderately fragrant variety and has very good foliage. Richard E. West is a good yellow-coloured H.T variety, fully double, and possesses good stems. George Mackereth is a velvety crimson H.T. variety of good form. This and the foregoing were shown by Messrs. ALEX. DICKSON AND SONS. Earl Beatty, a crimson H.T. of flattened shape and apparently very free-flowering, was shown by Messrs. CHAPLIN, BROS. Nur Mahal, shown by the REV. J. H. PEMBERTON, had already received a Certificate of Merit, and has been shown regularly during the summer. It is a free-flowering hybrid Musk Rose of light red colouring. J. G. Looymans is a good general purposes yellow H.T. variety, with its buds flushed with orange-yellow. Elvira Aramayo, a small, showy H.T. of Indian red colour, suffused with cerise, is a good bedding Rose. Mussolini, a round-shaped, fully double H.T., is flushed with Peach-pink and has a golden buff reverse. Alice is a very good dwarf Polyantha Rose bearing plenty of smallish flowers of old-fashioned Rose-pink colouring. The four above-named were shown by Messrs. D. PRIOR AND SON. Etoile d'Holland was found to have been distributed in 1921 and so was withdrawn. It is a beautiful and fragrant H.T. of rich crimson maroon colour, paler at the tips. The petals are substantial and have the characteristics of a good Rose for inclement weather. It was shown by Messrs. HENRY MORSE AND SONS. Lady Charmion, shown by Messrs. BEES, LTD., is a medium-sized rosy cerise H.T. of value as a garden variety.

GROUPS OF ROSES.

The large collections of representative cut Roses were a most valuable feature of the show. Not only did the exhibits in the larger class fill the staging along the whole length of the hall, but they overflowed into the body of the building. The general quality was so high that the judges recommended additional prizes, and even so, really meritorious collections were, perforce, unrewarded. The merits of the two leading displays were remarkably even and must have caused the judges considerable anxiety. The first prize was awarded to Mr. T. ROBINSON for an especially fresh collection which was arranged with considerable skill, though his association of colours was not quite so successful as that of the second prize exhibitor. But it more than made up for this in the lightness of the groundwork. Mr. Robinson had very beautiful stands of Emma Wright, Ophelia, Golden Emblem, Col. Oswald Fitzgerald and K. of K.

Richness of colour was also very noticeable in the blooms so well arranged by Messrs. S. MCGREDY AND SON, who were awarded the second prize. The tall stand of The Queen Alexandra Rose was dazzlingly beautiful and harmonised well with those of Los Angeles, Isobel and Lady Pirrie. At the ends of the collection there were fine masses of Golden Emblem and Christine. The third prize was awarded to Messrs. A. J and C. ALLEN for a very pleasing display. Messrs. CHAPLIN BROS., who were fourth, had effective arches of Mrs. Hy. Bowles with climbing Ophelia.

In the smaller group class Mr. GEORGE PRINCE was first with a remarkably fresh collection of high-class blooms. His chief varieties were Souv. de Claudius Pernet, Los Angeles and Mrs. George Shawyer. Mr. WALTER EASLEA, who was second in this strong class, included excellent vases of Melody, Mrs. Hy. Morse, Hoosier Beauty and James Walley. Mr. F. J. EDWARDS was third.

The same high quality obtained in the class for 18 distinct varieties where Messrs. A. WARNER AND SON were first. They had beautiful vases of Padre, C. V. Haworth, Golden Ophelia and Independence Day. Mr. F. SPOONER was second and he included Severine, Golden Ophelia and Golden Emblem. Messrs. J. JEFFRIES AND SON were third. The first prize 24 varieties of decorative Roses were staged by Mr. GEORGE LILLEY, who, in Marcia Stanhope, a pure white H.T. of medium size, had the most fragrant Rose in the show. Messrs. MATTOCK were second, and they had a good collection which included Lady Pirrie, Hadley and Padre.

Messrs. HUGH DICKSON, LTD., who were first with three baskets of exhibition Roses, showed J. G. Glassford, W. E. Wallace and Marjorie Bulkeley in great beauty. Mr. C. GREGORY was second. The best three baskets of decorative Roses were charming arrangements of Betty Uprichard, Lady Inchiquin and Lady Pirrie shown by Messrs. ALEX. DICKSON AND SONS. This was an especially good class, and the second prize exhibit by Messrs. CHAPLIN BROS. included lovely baskets of Ophelia and Golden Emblem. Messrs. LANE BROS. showed three delightful baskets of the dwarf Polyantha Roses Mrs. W. H. Cutbush, Jessie and Orleans, and won the first prize. Mr. ELISHA J. HICKS was second.

EXHIBITION ROSES.

The general quality of the Roses shown on boards was very high. The blooms were of good size and of fresh colouring, but, as we have previously suggested, much of their beauty was lost through "dressing."

In the premier class, which called for 24 blooms, distinct varieties, Messrs. HUGH DICKSON, LTD., were first with an exceedingly fresh and bright collection of such varieties as George Dickson, Lady Alice Stanley, Capt. Kilbee Stewart, H. V. Machin and Molly Bligh. The second prize blooms of Messrs. D. PRIOR AND SON were larger, but their collection rather lacked colour. Their best blooms were Mrs. George Norwood, George Dickson, J. G. Glassford and Mrs. J. H. Welch. Mr. J. PIGG was third.

The first prize exhibit of 18 varieties, shown by Mr. GEORGE PRINCE, was a remarkably good one. He included George Dickson, C. E. Shea, Admiration, Golden Emblem and Martha Drew. In the second prize collection of Messrs. F. SMITH AND SONS there was a perfect bloom of Gorgeous, the Silver Medal bloom of the Nurserymen's Classes. Messrs. G. LONGLEY AND SONS were third.

The high quality was not continued in the Tea and Noisette Class, which was only moderate. Mr. GEORGE PRINCE was first, and Messrs. D. PRIOR AND SONS were second.

AMATEURS' CLASSES.

Throughout these classes the competition was very good and in most instances the quality was exceedingly high. This was particularly so in the class for Tea and Noisette varieties, and here, as at the Regent's Park show, they easily eclipsed those of the trade growers. The first prize six blooms shown by Dr. HAYES, Dunster, were magnificent, and the very best were Maman Cochet, White Maman Cochet, Mrs. E. Mawley, and W. R. Smith. The REV. F. R. BURNSIDE, Great Stanbridge, who was first with nine blooms, had beautiful specimens of Alex. Hill Gray and Mrs. Foley Hobbs.

Mr. TURNBULL, Colchester, had the best 12 exhibition varieties, and included splendid blooms of E. M. Burnett, Constance Cassoon and Rev. F. Page Roberts. Mr. GULLIVER SPEIGHT, Market Harboro', the second prize-winner, had a magnificent specimen of George Dickson which was adjudged the Silver Medal bloom in the Amateurs' Classes. Mr. F. H. FIELDGATE, Colchester, showing such varieties as George Dickson, Augustus Hartmann and Mrs. Chas. Hunter, won first prize in the class for nine varieties. In the class for six varieties Mr. R. DE V. PRYOR, Hitchin, had an excellent collection of such varieties as Gorgeous, George Dickson and Mrs. J. Laing, and won the first prize. Mr. F. SPENCER, Harrow, had the best six blooms in the class for smaller growers, and Mr. C. CHAMBERS, also of Harrow, was first in the class for growers with gardens within ten miles of Charing Cross.

Mrs. BALFOUR, Oxford, was first with a lovely basket of Irish Elegance. Mr. G. MARRIOTT, who mixed Golden Emblem and Col. Oswald Fitzgerald, was first in the other basket class and he also had the best of many exhibits of six distinct varieties of decorative Roses.

ARTISTIC SECTION.

In the open classes the first prize dinner table decoration was a charming arrangement of melody by Mrs. TISDALL, Woodford Green. Miss MURIEL CANT, Colchester, was second, and Mrs. A. R BIDE, Farnham, was third. The best bowl of Roses was that of Golden Emblem arranged by Mr. W. R. APPLETON. In the Amateurs' Section Mrs. COURTNEY PAGE again won the first prize She had a delightful table of Ophelia. Mrs. A. D. RUFF, Sharnbrook, who used Melody very effectively, was second. Showing an artistic bowl of Melody, Mrs. COURTNEY PAGE was also first in another class.

THE CORY CUP.

The Cory Cup, which is offered for the best seedling Climbing Rose of the year, and has been open to competition at all three shows, was awarded to Allan Chandler, a lovely semi-double H.T. variety shown by Mr. GEORGE PRINCE. The flowers are of good size, of bright scarlet colour slightly suffused with velvety crimson and have a pleasing fragrance.

BERMONDSEY FLOWER SHOW.

THE municipal horticultural exhibition held in the Town Hall, Bermondsey, on Thursday, Friday, and Saturday, September 13-15, was a great success. This show was organised by a joint committee of the Bermondsey and Rotherhithe Horticultural Society and the Beautification Committee of the Bermondsey Borough Council.

The show was well arranged, and gave ample facilities for inspection of the exhibits. The largest exhibit was put up by the Gardens and Open Spaces Department of the Bermondsey Borough Council, consisting of a central group of plants backed up with numbers of Dahlias and other flowers, with a border of Violas and grass. Trade exhibits were staged by Messrs. BEES, LTD., of Liverpool, who staged Roses, Phloxes, and other hardy herbaceous plants in splendid variety. Messrs. WELLS, JUNIOR, Merstham, exhibited Delphiniums, Michaelmas Daisies, Lupins, and Helianthus in variety. Messrs. WILLIAM YANDELL, Castle Hill Nurseries, Maidenhead, exhibited a fine collection of Violas and Chrysanthemums. Messrs. J. CHEAL AND SONS, LTD., Crawley, showed Dahlias, including Star, Collerette, and Paeony varieties. Mr. AMOS PERRY, of Enfield, also made an effective show with Phloxes, Michaelmas Daisies, Heleniums, Pentstemons, and Kniphofias. Messrs. H. J. JONES, LTD.,

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Lewisham, staged Delphiniums, Hydrangeas, Ferns, and other foliage plants. Mr. MILLS, of Southwark Park Road, exhibited a fine assortment of Carnations and Chrysanthemums.

Competition in the vegetable classes was not so keen as usual, owing to the unfavourable season. Some excellent Onions, Beans, Tomatos, Vegetable Marrows, Carrots, and Parsnips were shown. The first prize collection of vegetables, from Mr. R. CHIVERALL, Dulwich, was excellent in every respect, and tastefully arranged. Mr. BUTCHER, Ford Road (the winner of the *Daily Telegraph* prize for the best garden in London), was second. Competition in the children's classes was very keen. Some very good specimens of plants, wild flowers, and bouquets were shown.

There were some splendid examples of window and pot plants, the competition in these classes being again keen. The Liliums were a feature, and a credit to any area.

Cut flowers and bouquets were well represented, and some excellent Dahlias, Antirrhinums, Carnations and Gladioli were shown.

There were three entries in the class for table decorations, and the task of deciding the prize-winner was not an easy one.

A feature of the show was the fine series of drawings and paintings exhibited from various schools. The paintings on silk were extremely praiseworthy, and called for a great deal of admiration. Handicraft exhibits were submitted from the Southwark and Bermondsey Day Continuation School.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE monthly meeting of this Society was held in the R.H.S. Hall, Westminster, on Monday, September 10, Mr. T. R. Butler in the chair. Three new members were elected. Two members withdrew interest from their deposits amounting to £4 19s. 4d., and two members over the age of 70 years withdrew the sum of £74 2s. 11d. from their deposit accounts; the sum of £8 10s. 8d. was passed for payment to the nominee of one deceased member residing abroad. The sick pay for the month on the private side was £58 8s. 3d., and on the State section £69 3s., whilst maternity claims amounted to £16. The Society's annual dinner will be held on November 1 at the Imperial Hotel, Russell Square, under the presidency of Sir William Lawrence; tickets for the dinner may be obtained from the secretary, Mr. A. C. Hill, 35, Alexandra Road, West Kensington Park, W.14.

ROYAL CALEDONIAN HORTICULTURAL.

SEPTEMBER 4.—The ordinary monthly meeting of this Society was held at 5, St. Andrew Square, Edinburgh, on this date, Mr. W. G. Pirie, vice-president, in the chair.

A paper, illustrated by lantern slides, on "The Coniferae and Their Uses," was read by Mr. A. D. Richardson. The descent of the Gymnosperms was traced in the fossil flora from Devonian times, when the Coniferae were represented by the highly organised Cordaites, the present-day representative of which is Ginkgo biloba, and their ancient origin was contrasted with that of the comparatively recent origin of the angiosperms, whose direct ancestors cannot be traced farther back than the Cretaceous formation. Their uses from the aesthetic and utilitarian aspects were also fully dealt with.

The exhibits were: Collection of Roses from MESSRS. DICKSONS AND CO., Edinburgh (a First-Class Certificate was awarded to a new dwarf Polyantha Rose, "Blush Orleans," in this collection); and a collection of Dahlias from MESSRS. DOBBIE AND CO., LTD., Edinburgh.

HOVE HORTICULTURAL AND ALLOTMENT HOLDERS.

THE annual exhibition of this Association was held in the Town Hall, Hove, on Wednesday and Thursday, the 12th and 13th inst. There were over six hundred exhibits, and the show generally was a great success. The opening ceremony was performed by the Mayor of Hove, Alderman W. Jago, J.P., who was accompanied by the Mayoress. Much of the success of these shows is due to Councillor Edward Bull, who is Chairman of the Association.

The Association's Challenge Cup presented by Sir A. R. Sargeant, J.P., for six distinct kinds of vegetables was won by Miss HENRY. Mr. A. E. MORRIS was placed second, and Mr. E. RIDLEY third. In the allotment holders' section the best six kinds of vegetables were shown by Mr. PRUDEN, and he was followed by Mr. W. DENDY. In Messrs. Tilly's class for a collection of six kinds of vegetables, Mr. PRUDEN was again successful. The best display of plants and flowers arranged on a space not exceeding ten feet by six feet, for which a silver challenge cup was presented by Mr. Bull, was shown by Mr. W. H. VOKINS, second Mr. G. PAGET.

Several excellent non-competitive exhibits were staged. The whole of the platform in the building was decorated by Messrs. W. BALCHIN AND SONS, LTD., whilst at the opposite end of the hall Messrs. Box, of Lindfield, made a big display of hardy flowers. Gold Medals presented by the Royal Horticultural Society were awarded to Messrs. CHARLESWORTH AND CO., Haywards Heath, for Orchids; Messrs. Box, Burgess Hill, for miscellaneous hardy plants; Messrs. W. BALCHIN AND SONS, LTD., Brighton and Hove, for floral displays, and Messrs. R. WALLACE AND CO., Tunbridge Wells, for Gladioli and herbaceous plants. Silver medals presented by the Royal Horticultural Society were awarded to Mr. F. WOOLARD, Brighton, for Roses, and Messrs. J. CHEAL AND SONS, Crawley, for Dahlias.

ROYAL HORTICULTURAL.

Trial of Dahlias at Wisley.

THE following awards have been made by the Royal Horticultural Society to Dahlias after trial at Wisley:—

Single Varieties.

AWARDS OF MERIT.

Mamie, sent by Messrs. J. CHEAL AND SONS; *F. Graham Bird*, sent by Mr. W. TRESEDER.

HIGHLY COMMENDED.

Nanno, sent by Mr. W. TRESEDER.

Mignon Single Variety.

AWARD OF MERIT.

Coltness Gem, sent by Mr. PURDIE.

Paeony Varieties.

AWARD OF MERIT.

Vesuvius, sent by Messrs. VELTHUYS AND SON.

HIGHLY COMMENDED.

Wake Up, sent by Mr. H. CARLEE.

Miniature Paeony Varieties.

AWARDS OF MERIT.

Peach, *Mac*, *Crimson Glow*, and *Denys*, all sent by Messrs. J. BURRELL AND CO.

HIGHLY COMMENDED.

Leonie Cobb, sent by Messrs. J. CHEAL AND SONS; *Leonie*, sent by Messrs. J. BURRELL AND CO.

Decorative Variety.

HIGHLY COMMENDED.

Protest, sent by Mr. D. WOOLLVEN.

Small Flowered Decorative Varieties.

AWARDS OF MERIT.

Raider, *Tipsy*, both sent by Messrs. J. BURRELL AND CO.; *Juweeltje*, sent by Mr. DEN OLDER.

Pompon Variety.

AWARD OF MERIT.

Glow, sent by Messrs. J. CHEAL AND SONS.

Star Varieties.

AWARD OF MERIT.

Gatton Star, sent by Messrs. J. CHEAL AND SONS.

HIGHLY COMMENDED.

Dorking Star and *Crimson Star*, both sent by Messrs. J. CHEAL AND SONS.

Camellia Variety.

AWARD OF MERIT.

Radium, sent by Mrs. P. THODAY.

Cactus Variety.

AWARD OF MERIT.

Jhr. G. van Tets, sent by Mr. KRIEST.

Small Flowered Cactus Variety.

AWARD OF MERIT.

Snowdrift, sent by Mr. C. TURNER.

Trial of Vegetable Marrows.

The following awards have been made to Vegetable Marrows after trial at Wisley:—

HIGHLY COMMENDED.

First of All, sent by Messrs. COOPER TABER AND CO.; *Long Green Running*, sent by Messrs. WATKINS AND SIMPSON; *Green Bush* sent as *Chusan Green*, sent by Messrs. BARR AND SONS; *Green Bush*, sent by Messrs. W. NUTTING AND SONS; *King's Acre Cream*, sent by Messrs. BARR AND SONS; *Moore's Cream Striped*, sent by Messrs. W. NUTTING AND SONS; *Rotherside Orange*, sent by Messrs. W. H. SIMPSON AND SONS.

COMMENDED.

Long White Smooth, *Long Island Bush*, both sent by Messrs. WATKINS AND SIMPSON; *Custard*, sent by Messrs. W. H. SIMPSON AND SONS.

Trial of Sweet Peas.

The following awards have been made by the Royal Horticultural Society to Sweet Peas after trial at Wisley:—

AWARDS OF MERIT.

Elsie, sent by Messrs. DOBBIE AND CO.; *Annie Ireland*, sent by Messrs. ALEX. DICKSON AND SONS; *Ryburgh Lemon Picotee*, sent by Messrs. A. STARK AND SON; *Butterfly Spencer*, sent by Messrs. A. STARK AND SON; *New Miriam Beaver*, sent by Messrs. R. VEITCH AND SON; *Mrs. H. Richards*, sent by Mr. W. J. UNWIN; *John Ingman*, sent by Messrs. BARR AND SONS; *Wild Rose*, sent by Mr. J. STEVENSON; *George Shawyer*, sent by Messrs. DOBBIE AND CO.; *Liberty*, sent by Mr. J. STEVENSON; *Pimpernel*, sent by Messrs. E. W. KING AND CO.; *Bunty*, sent by Messrs. A. IRELAND AND HITCHCOCK; *Illumination*, sent by Messrs. ATLEE BURPEE AND CO.; *Thos. Stevenson Improved*, sent by Messrs. C. MORSE; *Gloriosa*, sent by Messrs. TOOGOOD AND SONS, Messrs. R. VEITCH AND SON, and Messrs. DOBBIE AND CO.; *May Unwin*, sent by Mr. W. J. UNWIN; *Charming*, sent by Mr. J. STEVENSON; *Donald McNaughton*, sent by Mr. C. ELLIOTT; *Mascotte Scarlet*, sent by Messrs. R. VEITCH AND SON, Messrs. BARR AND CO., and Mr. W. HOLMES; *Hawlmark Scarlet*, sent by Messrs. CULLEN BROS.; *Mrs. C. P. Tomlin*, sent by Messrs. W. NUTTING AND SONS; *The Cardinal*, sent by Messrs. R. VEITCH AND SON.

HIGHLY COMMENDED.

Phyllis, sent by Messrs. ALEX. DICKSON AND SONS and Messrs. CULLEN BROS.; *Mary Rose*, sent by Messrs. DOBBIE AND CO.; *John Porter*, sent by Messrs. ALEX DICKSON AND SONS, Messrs. CULLEN BROS.; *Glitters*, sent by Messrs. ATLEE BURPEE AND CO.; *Tangerine Improved*, sent by Messrs. ALEX. DICKSON AND SONS, Messrs. R VEITCH AND SON, Messrs. IRELAND AND HITCHCOCK, and Messrs. DOBBIE AND CO.; *Royal Salute*, sent by Messrs. E. W. KING AND CO., and Messrs. J. K. KING AND SONS.

DUTCH AND DUTCH-INDIAN HORTICULTURAL EXHIBITION AND SPECIAL DAHLIA SHOW AT AMSTERDAM.

IN connection with the International Horticultural Conference at Amsterdam, the Amsterdam section of the Royal Netherlands Horticultural and Botanic Society arranged an extensive flower show in a large building in Ferdinand Bolstraat, from September 14 to September 23. At the same time, and in conjunction therewith, the Netherlands Dahlia Society held its exhibition.

The display was a very extensive one, in a building about three times the size of the R.H.S. Hall at Westminster, and its general arrangement was very pleasing, as is usual in the case of a Continental exhibition. But although the effect as a whole was very fine, and numerous exhibits were delightfully designed and carried out, there were many

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exhibits which fell very far short of British standards, both as regards quality and arrangement.

It would serve no useful purpose to report the exhibition in detail, therefore we shall confine our remarks to a few of the leading exhibits and some general impressions.

Dahlias were a great feature of the exhibition, and among the several sections represented the decorative varieties occupied the most space and were by far the most interesting and effective. Using the term in its broadest sense, it is not too much to state that the "decorative" Dahlias are at the moment the most popular and fashionable flowers in Holland. They were to be seen everywhere; in the shop windows of clothiers, hardware dealers, drapers, photographers, and others; in the rooms and windows of private dwellings; in hotels and restaurants; in the markets, florists' shops, and on the street-sellers' ornamental barrows; in parks and in gardens.

Mr. F. G. TRESEDER, Cardiff, was an exhibitor, and obtained a gold medal, but his display had lost its freshness when we saw it, owing to the long distance his flowers had to travel. Some of the largest and most attractive of Dahlia exhibits were those arranged by Mr. H. CARLEE, Heemstede; Mr. J. E. BALLEGO, Leiden; Mr. D. BRUIDEGOM, Baarn; Mr. F. NAGELS; Mr. P. MAJOOR, Baarn; Messrs. WAVEREN BROS., Hillegom; Mr. C. DIANEN, Rynsberg; and Mr. G. WOUTERS, Nykeirk. Among outstanding varieties were Artus, an upstanding, long-stemmed scarlet variety; the white Princess Juliana; the dark crimson Border Perfection, of fine form and large size; King of the Autumn, buff; Couronne d'Or, yellowish buff; Clothilde, deep yellow; Meisterstup, bluish mauve, a distinct advance towards the blue Dahlia, on Mr. Ballego's stand; Prince of Wales, a big decorative crimson; Yellow Perfection, rich yellow and of large size; and Harmonic, soft yellow.

British horticulture was represented also by Messrs. S. LOW AND CO., who had a small group of Orchids, in which we noted Cypripedium A. de Lairesse; Laelio-Cattleya St. George, L.-C. St. Gothard, Sophro-Cattleya Blackii and Oncidium Krameri. Messrs. SANDERS, St. Albans, contributed a larger group, wherein several specimens of the yellow Oncidium Marshallianum were very effective, arranged with Odontoglossum grande, Laelio-Cattleya Orundosi, Cattleya Acis, and other choice Orchids. A gold medal was awarded in each case.

Mr. C. W. MATTHES, Breukelen, arranged one of the finest groups of Odontoglossom grande we have ever seen; the plants were numerous, finely grown, and freely flowered; one variety had the yellow in the petals almost obliterated by the brown colour. The gold medal awarded was well deserved.

Mr. C. ENGELMANN, Saffron Walden, contributed a fine and large display of Carnations and secured the highest honours; the varieties showr were those familiar to British visitors to shows—Tarzan, Enchantress Supreme, Saffron, and others.

The display made by Messrs. C. E. VAN TUBERGEN was particularly pleasing; it was a little mossy dell with groups of Colchicum giganteum, C. autumnale, and C. Bornmuelleri; and little groups of the dwarf Begonia Flamboyant, a very pretty crimson-scarlet variety. There were dwarf late-flowering border flowers also arranged pleasingly, with a background of shrubs and tall flowers.

Messrs. LOM BROS. contributed a grand lot of Ferns, beautifully arranged; the principal sorts were Adiantum Farleyense Glory of Nordrecht and Nephrolepis Roosevelt var. plumosum.

A combination of the Westland growers, who cultivate fruit on an extensive scale, provided one of the largest exhibits in the show, and also one of the most wonderful, but, alas! not one of the handsomest. The splendid fruits were disposed on an almost flat surface, on white paper over cotton wool, and they were set out in formal fashion, mostly in semi-circles. The Grapes, fine bunches, were chiefly of the Muscat of Alexandria, Black Hamburgh, Lady Hutt, Alicante, Gros Colmar, and Emile Royal varieties; the most notable Pe rs were Pres. Roosevelt and Callebasse; and the best Apples were Salome, Emperor Alexander, Bismarck, Lane's Prince Albert, and Allington Pippin. In addition to these fruits there were dozens of netted and Canteloupe Melons, Tomatos, Capsicums, Plums, and Aubergines.

Another large, interesting, and beautiful exhibit was made by the Aalsmeer growers, and consisted almost entirely of huge vases of fine blooms of Mrs. Pulling and Rayonnante Chrysanthemums; the latter was represented by the ordinary pink variety and white and bronze forms.

In a display of fruits arranged by the PROVINCIAL COMMISSION, numerous very clean examples of Pears and Apples were displayed; among the former the fruits of Williams' Bon Chrêtien and Beurré Hardy attracted attention, while the principal Apples were Transparent de Croncels, Manks Codlin and Keswick Codlin; the fruits were packed in boxes, and the boxes of choice Pears were compartmented like egg-boxes. Some fruiting Vines in pots from another exhibitor were below British standards of quality.

Fifty boxes of fruits from Mr. J. A. HEUFF, Walstraten, were of good average quality, and indicated the varieties of Apples and Pears grown for market; the best Apples were Transparent de Croncels (a great favourite), Grenadier, Dutch Bellefleur, Cox's Pomona, and Cox's Orange Pippin; the best Pears Beurré d'Amanlis and Le Lectier. This was a well-packed collection.

Roses were displayed by several exhibitors, but, as a rule, the arrangements were too sparse to be really attractive. Messrs. GRATAMA made a feature of Ophelia in a big bowl. Messrs. KOSTER AND CO. exhibited Koster's Orleans; Corry Koster, orange; and Daisy, deep crimson, all dwarf polyantha varieties.

Mr. TEEUWSEN, Oosterbeek, contributed a Rose garden; instead of plants he used vases of flowers partly bedded in cocoanut fibre, but, while the idea was good, the effect was poor; plants of Golden Ophelia in flower, trained against a low trellis, provided the most charming picture in the display.

Coleuses were shown somewhat freely, reminding us of shows at home in bygone years; in some groups very large specimens with brightly coloured foliage were exhibited, and they attracted a great deal of attention. Similarly interesting were the fine examples of Dieffenbachias, Dracaenas, standards of Cissus discolor, pans of Selaginellas, and the trailing Rubus moluccanus, an attractive basket plant known in many gardens as R. reflexus, and formerly used with some freedom on the Continent in floral arrangements, because of its velvety green leaves. This exhibit was by Mr. PAUL MAY, Diest, who, we understand, is an amateur horticulturist. Messrs. LEMKER AND SONS contributed a few giant tree Ferns—Cyathea medullaris—big Nephrolepis and large Adiantums, while Messrs. HARTMAN, of Ghent, sent tall specimen Bays and Euonymus.

In a large case or small greenhouse the CURATOR OF THE AMSTERDAM BOTANIC SOCIETY exhibited a few Nepenthes, some excellent examples of the showy Macodes petola, Drosophyllum lutescens, Myrmecodia echinata, Dionaea muscipula, and a small set of Bertolonias. A gold medal was awarded.

Groups of good strains of Cyclamen, of Rex Begonias, and Primula obconia were disposed where their colouring harmonised with the surroundings, and these gave point to the general design of the show.

Exhibits from the Dutch-Indian colonies were large in extent and of great interest. Large beds of economic plants grown in Surinam, Java, Borneo, and New Guinea were planted, and behind these were large native-built huts or shops for the display and sale of fruits and roots imported from the Dutch East Indian possessions. Coffee, tea, Breadfruit, Citrons, Oranges, Bananas, Yams, cocoa, Granadillas, rubber, various fibres, Rice, Vanilla, Colocasia esculenta, Maize cobs, Palm nuts, and other subjects were displayed, usually in native receptacles, but in some instances in the cases as received.

TRADE NOTES.

THE Minister of Agriculture addressed the following letter to the Secretary of the National Farmers' Union of Scotland on September 3, in answer to correspondence on the question of the Agricultural Tribunal's recommendation that imports of foreign Potatos be permitted only under general licence.

"In reply to your letters of August 11 and 28 with regard to the import of foreign Potatos into this country, I would remind you that this question was very fully discussed at a deputation which I received on July 17 last of English and Scottish farmers and Potato growers, including Mr. Alexander Batchelor, the Vice-President of your Union, and, as I then explained, it would be impossible to secure the necessary Parliamentary sanction this year to your proposal for the restriction of imports of foreign Potatos. I then stated that the Cabinet had given the matter careful consideration and had decided not to propose legislation at the present time to empower the Government to prohibit the import of Potatos from overseas.

"With regard to the low prices realised for Potatos in 1922, while imports of Dutch Potatos may have caused the fall in prices last summer to have been more rapid than might otherwise have been the case, there can be no doubt that the main cause of the slump was the abnormal yield of home-grown Potatos. A total production of about 4,000,000 tons from the agricultural holdings of Great Britain is sufficient for the country's needs, whereas the total production last year was about 5,200,000 tons. The total imports from foreign countries into Great Britain and Ireland in 1922 were 171,500 tons, or only 3½ per cent. of the total production of Great Britain alone, and of these 98,000 tons were early Potatos from France and the Channel Isles which are not generally considered to be competitors with the home-grown crop. Only 35,800 tons came from Holland, and practically none came from that country after August, so that it cannot be seriously contended that imports from Holland kept prices at the very low level at which they remained throughout the season.

"Turning to this year it is true that the total imports up to date show an increase over 1922, but this has been entirely due to the large increase in imports of quite early Potatos from France and the Channel Isles; the imports from Holland have so far proved below the figures for the corresponding period last year. Whereas 7,274 tons arrived from France in the week ending August 4, the import in the week ending August 25 had declined to 452 tons, from which it may be presumed that the French supply is now practically exhausted and was of the early variety.

"In addition the area under Potatos for human consumption in Holland is officially reported to be 20 per cent. less than last year, while the yield per hectare is expected to be lower.

"The Dutch exchange also is against this country, and this in itself would have a deterrent effect in purchasing Potatos from Holland. In fact the imports from Holland up to date ought not to have had any appreciable effect on the price of the British new crop, unless, as has been suggested, growers have been frightened into taking lower prices by reports of large supplies of Dutch Potatos being available or likely to become available at a low price. It is significant that last week it was reported at Hull market, an important market for Dutch Potatos, that the supply was practically finished and that this week no quotations were given.

"In your letter of the 11th and the accompanying resolution it was suggested that growers were expecting serious losses again this year but the trend of prices up to date does not appear to confirm that contention. In the wholesale markets of England and Wales prices last

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week for first quality Potatos averaged £7 11s per ton for Duke of York and £7 16s. for Sharpe's Express, while King Edwards were £9 per ton, whereas in the corresponding week of last year average prices for the same varieties were £5 16s., £4 and £4 16s. 6d. per ton respectively.

"Similarly in Scotland wholesale prices realised in the week ending August 22 for first quality Potatos were from 70 to 100 per cent. higher than for the corresponding week last year, e.g., first earlies at Edinburgh and Glasgow were £7 and £6 13s. per ton respectively, and £4 and £3 5s. per ton in 1922. The free on rail prices to producers both in England and Scotland show an even larger increase over last year's figures, e.g., at Wisbech, King Edwards were making £7 to £7 10s. per ton f.o.r. for the week ending August 29, against £2 10s. to £3 a year ago, and these prices are rather higher than the prices for the previous week, while last year at the same time prices were still declining. In Edinburgh first earlies were quoted at £5 5s. to £6 per ton on rail, compared with £2 to £2 7s. 6d. per ton on rail at the same time in 1922. Again, Dutch Potatos which were only on offer in two markets, Bristol and London, last week were realising £7 to £7 10s. per ton, which is very little below the rate for the best British early varieties.

"A further important factor in the Potato situation is that the area under Potatos in Western Europe is generally lower than the area last year, while a lower yield is also anticipated. In England and Wales the acreage under Potatos has declined by over 94,000 acres (17 per cent.), and although the figures for Scotland are not yet available, it is thought that they will also show a decline.

"It has been suggested that, owing to the depreciated currency, German Potatos are reaching this country via Holland, consigned as Dutch, and that this might cause a serious depression of the British price. I have made inquiries on this point and find that the export of Potatos from Germany is entirely prohibited, so that there can be no question of any danger from such a source.

"In general I think that there is good reason to suppose that the fears of a serious loss again occurring in the Potato-growing industry this year are much exaggerated."

Ministry of Agriculture and Fisheries,
10, Whitehall Place, S.W.1.
September 12, 1923.

On the two Fridays, September 14 and 21, members of the nursery trade visited Messrs. Stuart Low and Co.' new nurseries at Jarvis-brook, Sussex, where the Orchids, Carnations, fruit trees and Roses were inspected. After a light lunch the itinerary included a 20-mile trip to the farms of upwards of 400 acres recently acquired by the firm for development, partly into nurseries, although fewer than 30 acres are yet planted with fruit stocks or growing maiden trees. Not the least interesting portion of the new nursery is a trial plantation of nearly every variety of fruit grown by the firm. Keen interest was displayed in a bed of the various fruit tree stocks standardised by East Malling, and although the firm have grown some of these for many years they now have established stool beds of stocks obtained from East Malling under their various numbers. Different Plum and Quince stocks are also grown in the same way. Tea at the Bull, Benenden, and another 20-miles motor run brought the parties to Tunbridge Wells in time to catch the 8 o'clock train to London.

NEW HORTICULTURAL INVENTIONS.

LATEST PATENT APPLICATIONS.

22567.—Martin, W. E.—Hose couplings. September 12.

22108.—Dudley, C. R.—Tree-planting implement. September 3.

22246.—Liesching, L. O.—Process for killing weeds, etc. September 4.

21579.—Bull, G. F.—Device for removing weeds or turf from lawns, etc. August 27.

21199.—Cator, R.—Device for securing plants, etc., to stakes, etc. August 22.

SPECIFICATIONS PUBLISHED THIS MONTH.

202,363.—Brown, C.—Spraying apparatus.

202,079.—Lee, F.—Supporting devices for growing Peas, Beans and the like.

203,275.—Morrison, A. M., and Morrison, A. R. I.—Appliances for use in transplanting or lining-out seedlings or transplants of forest trees and the like.

ABSTRACT PUBLISHED THIS MONTH.

Spray Producers. Patent No. 201396.—Mr. A. J. Fletcher, of Kentish Engineering Works, Maidstone, Kent, has invented an efficient nozzle for spraying apparatus, in which a whirling spray is produced. The sprayer is being manufactured particularly for use on fruit trees, etc. The tube through which the liquid is forced is provided at its outer end with an elbow-piece, in which is mounted a spraying-plate pressed towards the outlet by a spring. An ingenious device for adjusting the relative positions of the spraying disc and outlet in order to vary the character of the spray is provided.

This list is specially compiled for *The Gardeners' Chronicle* by Messrs. Rayner and Co., Regd. Patent Agents, of 5, Chancery Lane, London, from whom all information relating to Patents, Trade Marks and Designs can be obtained gratuitously.

Messrs. Rayner and Co. will obtain printed copies of the published specifications and abstract only, and forward on post free for the price of 1s. 6d. each.

THE WEATHER.

THE WEATHER IN AUGUST.

THIS formed the third consecutive wet August, and during the first three days, and from the 15th generally until the close, it was also remarkably stormy. Winds from either south, south-west or west prevailed during no fewer than 550 hours, their normal duration being exceeded by 190 hours. The daily range of temperature was therefore exceptionally small. During the quiet spell from the 4th to the 14th the weather was, however, mainly warmer than usual; but the latter part of the month was much cooler. Altogether, the mean temperature equalled 58.9°, or merely 0.3° below the average. There was also, fortunately, very little lack of sunshine, 175 hours being recorded, or only 6 fewer than the normal number. Visibility was particularly good, and ozone plentiful. Rain, however, fell on 22 days, or 6 more than usual, and the total amounted to 4.73 inches, which implies an excess of 1.17 inch. Strong gales occurred on the 3rd and 29th to 30th, and moderate ones on three other days. The onset of the principal storm was very remarkable; at 9 p.m., G.M.T., on the 29th, the wind rose from a dead calm to a mean velocity of 51 miles per hour, in a few minutes, and remained of gale force for 14 hours afterwards. Brief thunderstorms were experienced on the 21st, 22nd and 29th. Hail fell on the 22nd. There was no fog. *Joseph Baxendell, The Fernley Observatory, Southport.*

THE WEATHER IN SCOTLAND.

THE outstanding feature of the weather record for August was the exceptionally high rainfall, temperature and sunshine being practically normal. There were only 11 days entirely free from rain during the month, and never more than 3 of these successive. The total amount collected was 4.83 inches, of which 1.10 inch fell on the 20th—the wettest day. Bright sunshine made a record of 157.9 days, being an average of 5.1 hours per day, and a percentage of 33; there was no day in the month on which the sunshine card was unmarked. Barometric pressure was low, the mean being 29.86 inches, the highest 30.24 inches on the 14th, and the lowest 29.09 inches on the 21st.

The mean temperature was 57.5 degrees with a mean maximum of 65 degrees and a mean minimum of 50 degrees. The highest maximum was 76 degrees on the 13th, falling to 52 degrees at the end of the month, while the lowest minimum of 40 degrees was recorded for the 25th and 29th. On the grass, with a lowest of 37 degrees on the 25th, the mean minimum was 46 degrees; for the past 3 months there has been no ground frost—an exceptional feature. At 1 foot deep the soil temperature rose steadily from 57 degrees to 60, and then fell steadily to 55 degrees. Dew fell on 10 nights. The prevailing winds were from the west and south, frequently high, with a gale on the 21st.—JOHN DAVIDSON, *Director of Studies, the Training College Gardens, Mayfield, Dundee.*

GARDENING APPOINTMENT.

Mr. Cyril Sprackling, for the past three years and nine months Foreman at Crichel Gardens, Wimborne, Dorset, as Gardener to Captain H. C. NOEL, at Cutmose, Oakham, Rutland.

ANSWERS TO CORRESPONDENTS.

CORRESPONDENCE SCHOOL OF HORTICULTURE: *A. J. F.* The addresses of persons willing to coach horticultural students by correspondence may be found in our advertisement columns from time to time.

GARDENING APPOINTMENT: *L. D.* Seeing that you are fairly successful with the practical side of your profession, we advise you to attend some Polytechnic in which you could improve your education and scientific knowledge of gardening. With regard to employment at Kew, you should make application to the Curator for the necessary forms, and at the same time state your experience and qualifications.

GREEN SCUM ON HARD COURT: *J. G.* The green scum which is doubtless caused by the growth of an algae, appearing after rain, points to the court being insufficiently drained. During the winter you might open a trench or two with the object of draining the court. In the meantime you might get rid of the algae growth by the use of a weed killer or, as there is nothing that would be injured, one of the stronger acids, such as sulphuric acid or hydrochloric acid, might be used.

LIVERWORT ON LAWN: *M. M.* The black stuff you send is not a fungus but one of the thalloid Liverworts (Hepaticae), and allied to the Mosses, of which some was also sent in the box. Many of the Liverworts grow in woods and on heaths, but a few of them come into the garden and live in damp shady places. The reason for its jelly-like character in August is because it is one of the species which make their growth in summer, and the rain then made it gelatinous or greasy. The grass sent with it was very poor or weak, and no doubt the soil is sour. Newly slaked lime mixed with some sifted soil and used as a dressing in November and again early in March would correct the acidity of the soil and help the grass to grow. Though lime may not kill the spores, it is more likely to do so than a dressing of lawn sand, or one ounce of finely powdered sulphate of ammonia to the square yard would kill the Liverwort when it is young and fresh, before spores are produced. Either of these substances would also stimulate the grass. The drip from, and the shade of fruit trees favour the growth of Mosses and Liverworts. Frequent hoeing of the flower borders in dry weather would prevent the growth of these low members of the vegetable kingdom, because they must be attached to firm or compact soil in order to get the necessary moisture.

MELONS GROWING ONE-SIDED: *T. T.* The Melon fruit had only a very few seeds and scarcely any on the side that was malformed, pointing to imperfect fertilisation.

NAMES OF FRUITS: *A. J. S.* 1, Blenheim Pippin; 2, Yorkshire Greening; 3, Small's Admirable; 4, Golden Harvey (syn. Brandy Apple); 5, Lane's Prince Albert; 6, Newton Wonder; 7, Bismarck; 8, King of the Pippins.

NAMES OF PLANTS.—*Correspondent, Belfast.* 1, Cupressus Lawsoniana; 2, Thuya dolabrata; 3, Cupressus obtusa; 4, Cupressus Lawsoniana var.; 5 and 6, Thuya plicata; 7, Cupressus Lawsoniana var. densa gracilis; 8, Populus tremuloides; 9, Ruta graveolens; 10 and 11, not recognised; 12, Helxine Soleirolii. —*G. E. M. a*, Geranium striatum; *b*, probably *G. pratense*.—*G. J. W.* Campanula Portenschlagiana.—*G. S.* Statice tartarica. — *D. G.* Epilobium angustifolium. — *W. B. H.* Ammi majus.—*L. S. A.* Rumex Acetosella (Sheep Sorrel).—*H. H.* 1, Cotoneaster frigida; 2, C. Simonsii; 3, Thuya orientalis.—*Firs.* 1, Pinus excelsa; 2, Elaeagnus pungens var. variegata; 3, Cupressus pisifera var. squarrosa; 4, Abies Pinsapo; 5, Pinus muricata; 6, P. sylvestris; 7, Cedrus Deodara; 8, Cupressus Lawsoniana var. pendula gracilis.—*W. H. W.* 1, Olearia Haas-

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tii; 2, Anaphalis margaritacea; 3, Senecio tanguticus; 4, Aster acris; 5, Thalictrum minus; 6, Physostegia virginiana; 7, Lythrum Salicaria. *N. S.* Origanum majoranoides, closely allied to O. Majorana, but more silky and having smaller leaves. *H. F.* Datura Stramonium.—*F. W. B.* Eupatorium cannabinum (Hemp Agrimony).—*J. E. M.* We cannot undertake to name Roses; send specimens to a Rose grower.

PEACH LEAVES FALLING: *L. C. B.* The dried leaves you send have the appearance of being infested with red spider, which no doubt has accumulated during the ripening of the fruits and in the absence of syringing. In future directly the fruits are gathered, thoroughly spray the trees with a suitable insecticide, but endeavour to keep the leaves green so long as possible. Possibly the roots were allowed to become dry also.

RHODODENDRONS FOR SANDY SOIL: *D. D.* As the Rhododendron plants failed to succeed in your sandy soil, it will be necessary for you to prepare special soil for them. Take out a considerable amount of the sandy material and substitute a mixture of peat, leaf mould and good turfy loam. If you replant the long, straggling specimens, allow them to remain for a season and then cut them back, when they will probably break into growth at the base and make more shapely specimens.

SHANKING IN GRAPES: *E. A.* Without inspecting the borders we can only suggest that you have over-cropped the vines. In future crop the vines lightly, thin the bunches early and endeavour to obtain strong, well-ripened wood, cutting back the leading growth each season for a year or two to obtain strength in the vine.

STREET TREES: *Forest Trees.* There are numerous trees suitable for street planting, including the Plane, Poplar, Horse Chestnut, Lime, Mountain Ash, Acacia, White Beam, Ailanthus, Jersey and Cornish Elms, and Laburnum. With regard to mixing varieties, we know of a very attractive street which is planted with Golden Poplars and Prunus Pissardii arranged alternately, and another pretty combination in the same town is Silver Birch and Mountain Ash. The difficulty with mixed plantings is that one of the subjects is liable to grow more vigorously than the other. Horse Chestnut would be suitable for an avenue with little traffic, but we do not advise the planting of the Oaks you mention. The small flowering trees should be set about thirty-five feet apart, while the larger kinds need to be set from fifty to seventy feet apart. You will find an article on "Trees for Street Planting" in *Gard. Chron.* June 23, 1923, p. 352.

THE MARKING OF HARD TENNIS COURTS: *J. J.* The best method of marking out shale tennis courts in a satisfactory manner is undoubtedly a difficult question to decide, especially in public parks where so many different opinions exist among players. In the case of En-tout-Cas courts special tapes are generally provided for the purpose. Play-lines formed of wood on cement blocks are frequently used, but are not popular with expert players. The shale tennis courts in the Manchester parks are marked out with whitening just in the same way as grass courts. Whenever possible this is done with the ordinary type of tennis marker, but when this is not practicable, then it is done by hand by means of a garden line and a whitewash brush. Generally, if the shale on the play-lines is well damped before the whitening is applied, the grit will not pick up and a mechanical marker will do the work quickly and well. A new type of marker suitable for shale courts has recently been placed on the market. The wet whitening in this case is blown on to the play-lines by means of compressed air, instead of being laid on with a wheel, as is done by the ordinary marker. We have not had sufficient experience of this machine to be able to say whether or not it is likely to prove the success that its inventor anticipates.

Communications Received.—A. and B.—W. W.—W. B.—W. H. W.—W. H. A.—Pomona—W. M.—J. S. D.—E. M.—N. S. Kent—M. M.—L. G. D.

MARKETS.

COVENT GARDEN, Tuesday, September 25, 1923.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples—		
James Grieve ½ bus.	3 6– 7 6	
Worcester Pearmain, special	9 0–10 6	
best ½ bus.	7 0– 7 6	
2nd. ,,	3 0– 4 0	
—Lord Derby, bushel	5 0– 6 6	
—Warner's King	5 0– 7 6	
—Tyrolean	10 0–15 0	
Californian—		
—Stirling Castle	5 0– 6 0	
—Bramley's Seedling	5 0– 8 0	
—Lane's Prince Albert	5 0– 7 0	
—Gravenstein	14 0–16 0	
Bananas singles	14 0–25 0	
—doubles	20 0–22 6	
Blackberries lb.	0 4– 0 6	
cultivated ,,	0 6– 0 8	
Figs, doz.	4 0– 8 0	
Grapes—		
—Alicante	1 0– 2 0	
—Belgian	1 0– 1 6	
—Cannon Hall	2 6– 5 0	
—Hamburgh	0 9– 1 6	
—English Muscat	2 0– 5 0	
Grape Fruit—		
—South Africa	15 0–20 0	
—Jamaica	25 0–30 0	
Lemons—		
—Murcia, case	16 0–20 0	
—Messina, case	15 0–18 0	
—Naples	25 0–45 0	
Melons, English and Guernsey, each	1 0– 4 6	
—Cantaloupe	2 6– 5 0	
Nectarines, doz.		
Special	12 0–18 0	
Best	6 0– 9 0	
Nuts—		
—Cobs	0 10– 1 0	
—Walnuts, bag	14 0–15 0	
Oranges—		
—South African Navels	18 0–22 6	
—Seedling	18 0–24 0	
—Australian, case	25 0–30 0	
Peaches—		
—English, doz. Special	12 0–24 0	
Best	6 0– 9 0	
Pears—half		
—Fertility	8 6–10 6	
Beurre Capiamont Californian	8 6–10 6	
—Beurre Hardy	30 0 32 0	
—½ case	16 0– – –	
Pines, each	2 0– 4 6	
Plums—		
—English Victoria	15 0–18 0	
—Monarch	11 0–14 0	
—Pond's Seedling	15 0–18 0	
—Continental	5 0– 7 6	
—Damson	10 0–10 6	
—Californian	7 0–10 0	
—President	16 0–17 0	

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Beans, outdoor—		
—Scarlets, bushel	2 6– 3 6	
—French Beans	0 4– 0 6	
Beets—		
—New, doz. bun.	3 0– 4 0	
Cabbage, doz.	1 0– 2 0	
Carrots cwt.	7 0– 9 0	
Cauliflower, doz.	3 0– 5 0	
Celery, fan	1 6– 2 6	
Cucumber, flat	10 0–12 0	
Maize, dozen	2 0– 4 0	
Marrows, doz.	2 0– 3 0	
Mushrooms—		
—Forced, lb.	2 0– 3 0	
—Field	0 6– 1 0	
Onions, Valencian, case	9 0–10 6	
—Dutch	5 0– 6 0	
—English	8 0–10 0	
Peas, bushel	18 0–20 0	
Potatos, cwt.	5 0– 8 6	
Radishes, doz.	1 0– 1 6	
Spinach, ½ sieve	2 0– 2 6	
Sprouts, ½ bag.	4 6– 6 0	
Tomatos—		
—English Pink	3 0– 4 0	
—Pink and White	2 0– 4 0	
—White	2 0– 2 9	
—Blue	2 0– 3 0	
—Guernsey	2 0– 2 6	
—Dutch	1 3– 2 0	
Turnips cwt.	6 6– 7 6	

REMARKS.—Fair supplies of produce have been available during the past week, but with the exception of a firm inquiry for Worcester Pearmain Apples and Monarch Plums, the demand has only been moderate. Heavy shipments of Plums from California now arriving are probably too late to influence prices of the remainder of the English crop. Grapes have eased slightly in price, owing probably to increased consignments from Holland and Belgium; the value of Peaches, Melons and Figs remains at a fairly level rate. Large cooking Apples are a good trade, but the proportion of first-grade fruit arriving is small. Shipments of Apples from the Continent and America show an increase, and prices have receded slightly. The Tomato trade has been extremely slow, arrivals from all sources being heavy and the demand poor at almost any price. At the time of writing the prospects are brighter. Trade in Cucumbers has also been depressed, brought about probably by the large quantity of Tomatos on offer. Forced Mushrooms have been a bright feature, prices for these being firm. Beans and green vegetables have been abundant and cheap. Inquiries for Potatos are dull.

Plants in Pots, etc.; Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz.	10 0–18 0	
—elegans	10 0–12 0	
Aralia Sieboldii	10 0–12 0	
Araucarias	30 0–48 0	
Asparagus plumosus	12 0–15 0	
—Sprengeri	12 0–18 0	
Aspidistra, green	48 0–72 0	
Asplenium, per doz.	12 0–18 0	
—32's	24 0–30 0	
—nidus	12 0–15 0	
Cacti, per tray, 12's, 15's	5 0– 7 0	
Chrysanthemums —white, doz.	15 0–18 0	
—pink ,, ,,	18 0–21 0	
—bronze ,, ,,	18 0–12 0	
Crotons, per doz.	30 0–42 0	
Cyrtomium	10 0–15 0	
Erica gracilis, 48's per doz.	— —	
—60', per doz.	12 0–15 0	
—nivalis, 41's ,,	24 0–30 0	
,, 60's ,,	12 0–15 0	
Hydrangeas white, doz.	18 0–24 0	
Lilium longiflorum, each	2 6– 3 6	
—speciosum album, each	3 6– 4 0	
—speciosum, rubrum, each	3 0– 3 6	
Nephrolepis, in variety	12 0–18 0	
—32's	24 0–36 0	
Palms, Kentia	24 0–30 0	
—60's	15 0–18 0	
—Cocos	24 0–36 0	
Pteris, in variety	12 0–21 0	
—large 60's	5 0– 6 0	
—small	4 0– 4 6	
—72's, per tray of 15's	3 6– 4 0	
Solanums per doz	12 0–15 0	

REMARKS.—Ericas are making their first appearance, consisting of nivalis, white, mostly in sixtys and thumb pots; a few in forty-eight pots were on sale this morning. At present E. gracilis in small pots is the only coloured species offered for sale. Pot Chrysanthemums are more plentiful and finer in quality.

Out Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum decorum, doz. bun.	12 0–15 0	
—cuneatum, per doz. bun.	8 0–10 0	
Asparagus plumosus, per bun.		
long trails, 6's	4 0– 5 0	
med. sprays	2 6– 3 6	
short ,,	1 0– 1 6	
—Sprengeri, per bun.		
long sprays	2 6– 3 0	
med. ,,	1 3– 1 6	
short ,,	0 9– 1 0	
Asters, per doz. bunches		
—white	6 0– 9 0	
—coloured	5 0– 8 0	
Carnations per doz. blooms	3 0– 4 6	
Chrysanthemum, per doz blooms		
—white, ,,	2 6– 3 0	
—yellow ,,	3 0– 7 0	
—bronze ,,	2 6– 5 0	
—pink ,,	3 0– 6 0	
spray per doz. bun.	10 0–15 0	
Croton leaves, var., per bun.	2 6– 4 0	
Gardenias, per box	5 0– 7 0	
Fern, French per doz. bun.	1 0– 1 3	
Forget-me-not per doz. bun.	4 0– 6 0	
Heather, white per doz. bun.	9 0–12 0	
Lilium longiflorum long per doz.	6 6– 7 0	
short ,, ,,	4 0– 7 0	
Lilium lancifolum album, long, per doz. blooms	3 6– 4 6	
—short ,, ,,	3 0– 4 0	
—rubrum long, per doz. blooms	3 6– 4 0	
—short ,, ,,	2 6– 3 0	
Lily of the Valley, per doz. bun.	24 0–36 0	
Michaelmas daisies, var., per doz. bun.	4 0– 8 0	
Orchids, per doz.		
—Cattleyas	24 0–30 0	
—Cypripediums		
Pelargonium, per doz. bunch, double scarlet	– 6 6	
Physalis per doz. bun.	15 0–18 0	
Roses, per doz. blooms—		
—Melody	2 0– 3 6	
—Ophelia	2 0– 4 0	
Smilax, per doz. trails	3 6– 4 6	
Stephanotis, per 72 pips	4 0– 4 6	
Stock, —white per doz. bun	6 0– 8 0	
Sweet Sultan, white, per doz. bun.	3 0– 4 0	
—mauve, per doz. bun.	3 0– 4 0	
—yellow, per doz. bun.	5 0– 6 0	
Violets, per doz bun.	3 0– 5 0	

REMARKS.—Chrysanthemums have become the chief feature in this department, and numerous varieties are on sale. All disbudded blooms are in excellent conditions. A few exhibition blooms are also being offered. Although trade has not been very brisk during the past week, supplies of many subjects were insufficient for all requirements on Friday and Saturday last. Lilium longiflorum in particular, which has become suddenly short, experienced a big rise in prices, which has been maintained up to this morning. L. lancifolium is also selling freely at increased prices. Richardias (Arums) are arriving in better condition and receiving more attention from buyers. Carnations and Roses are gradually shortening in quantity; better quality blooms of the former are now on sale. Choice white blooms, such as Lapagerias, Stephanotis and Gardenias, are scarce. Small consignments of Lily-of-the-Valley are being sent from Holland, there being fewer of these flowers from home growers, the latter grown being preferred, as the quality is much finer. Michaelmas Daisies are making a good show, the variety King George receiving most attention. Single Violets are more plentiful and in much finer condition, the cooler weather being more suited to them. Physalis is arriving in first-class condition, and best quality spikes are soon cleared. There is a fine selection of autumn foliage, which is now in demand for harvest festivals.

SCHEDULES RECEIVED.

The Society of the Four Northern Counties Fruit Show and Congress.—Ninth fruit show and congress, to be held in the Market Hall, Durham City, on Wednesday and Thursday, October 10 and 11.—Secretary, Mr. A. Rawson, Western Lodge, Durham.

Brighton, Hove and Sussex Horticultural Society.—Chrysanthemum show, to be held in the Dome and Corn Exchange, Brighton, on Tuesday and Wednesday, November 6 and 7, 1923.—Secretary, Mr. H. J. Bingham, 60, Richmond Street, Queen's Park, Brighton.

CATALOGUES RECEIVED.

WM. CUTBUSH AND SON, LTD., Barnet Nurseries, Barnet.—Roses; Michaelmas Daisies.

SAMSONS, LTD., Kilmarnock.—Roses; Bulbs and Flower Roots.

MAYTHAM GARDENS, Rolvenden.—Herbaceous and Rock Plants, Shrubs, Climbers, etc.

G. H. PLANT AND CO., Chester.—Bulbs, Roses, Fruit Trees, etc.

FRANK CANT AND CO., Braiswick Rose Gardens, Colchester—Roses.

PAUL'S ROYAL NURSERIES, Waltham Cross.—Roses.

KING'S ACRE NURSERIES, LTD., Hereford.—Forest Trees, Conifers, etc.

GEO. PYNE, DENVER NURSERIES, Topsham, Devon—Fruits.

"PREMIER" SEED CO., LTD., Brighton.—Bulbs, Roses, Fruit Trees, etc.

Foreign.

V. LEMOINE AND SON, Rue du Montet, Nancy.—Greenhouse Plants, Shrubs, etc.

RIVOIRE PERE ET FILS, 16, Rue d'Algerie, Lyon.—Plant Noveltics.

ALESSANDRO SQUADRILLI, Naples, Italy.—New Plants.

VILMORIN-ANDRIEUX ET CIE, 4, Quai de la Megisserie, Paris.—Plants, Bulbs, Strawberries, etc.

USINE DU VEXIN, 8, Rue Claude-Decan, Paris.—Horticultural Buildings, etc

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THE
Gardeners' Chronicle
No. 1919.—SATURDAY, OCTOBER 6, 1923.

CONTENTS.

Allotments Bill, new ... 198
Bewley, Dr. W. F. ... 198
Books, notices of—
The Flower Lover's Guide to the Gardens of Hampton Court 206
Bulb garden, the—
Autumn-flowering Lilies 199
Dahlia, the development of the 204
Fruit crops, remarks on the condition of the 206
Fungous pests, the advance of knowledge of 197
"Gardeners' Chronicle" seventy-five years ago 199
Hardy flower border—
Kirengeshoma palmata 203
Sidalcea Listeri ... 203
Imperial Fruit Show Conferences 197
Lathyrus ordoratus zeylanicus 201
Obituary—
Wm. Coomber ... 212
Orchid notes and gleanings—
Flowers from Rosslyn 203
Laelio-Cattleya Sargon, Westonbirt variety 203
Leptotes bicolor ... 203
Plants new or noteworthy—
Notes on East African plants 205
R.H.S. Dinner... ... 198
Scotland, garden notes from S.W. 202
Societies—
Royal Horticultural 207
Sweet Pea The President Harding ... 201
Sweet Pea trials in 1924 198
Trees and shrubs—
Brooms of late summer 206
Caryopteris Mastacanthus 206
Notospartium Carmichaeliae ... 206
Viburnum Carlesii ... 206
Water, hot 204
Week's Work, the ... 200
Welsh garden, notes from a 202
Wisley, notes from ... 202

ILLUSTRATIONS.

Bewley, Dr. F. W., portrait of 198
Berberis Autumn Beauty 209
Chrysanthemum Doreen Woolman 211
Cimatopsis Stuhlmannii in its natural habitat ... 203
Euphorbias, giant, on the Ngorongoro crater ... 205
Montbretia Jessie 199
Solidago missouriensis 207
Sweet Pea The President Harding 201

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 50.9°.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, October 3, 10 a.m.: Bar., 29.7.; temp., 52°. Weather—Showery.

The Advance of Knowledge of Fungous Pests.

It is not often that the student of science reads such an arresting passage as that contained on p. 168 in the citation from the *Gardeners' Chronicle* seventy-five years ago. Perusing it the mind is carried back the better part of a century and may contemplate with philosophical interest the disputations which ranged round the birth of new knowledge. In those days the now universally accepted fact that fungous parasites are responsible for many of the most serious diseases of plants was the subject of surmise and dispute. The pioneers—de Bary in Germany, and Miles Berkeley in this country—had already, at the time of which we write, produced evidence which was ultimately to prevail in favour of the view that plant disease is often caused by specific fungi. But there is a long lag in the prevailing of truth, and the older school of scientists and horticulturists opposed a stout resistance, or what is worse, a bland indifference to the discoveries of their contemporaries. How marked must have been the indifference on the part of men of science to Berkeley's discoveries is indicated by the fact that although he began publishing the results of his researches in these pages in 1854, his merits were so unrecognised in scientific circles that in 1863, when he received a Royal Medal from the Royal Society he had not been elected to a fellowship of that society. Horticulturists likewise displayed for a long time a tenacious disbelief in the parasitic nature of such plant diseases as late blight of Potatos, mildew of vines, etc. Confronted with the universal presence of a specific fungus in or on the tissues of a diseased plant, they argued that the fungus was merely a scavenger alighting and battening on the tissues after they are dead. Gradually, however, the experimental evidence in favour of the theory of fungus parasitism became too strong to be ignored. So early as 1847 Berkeley described the vine mildew, Oidium Tuckeri, which had attacked with disastrous results the vines in Mr. Tucker's nursery at Margate, and had persuaded him to apply sulphur as a remedy. The success which attended this method of treatment must have had a profound effect in modifying the opinions of contemporary horticulturists. In those middle years of last century, late blight of Potatos was peculiarly prevalent, and the knowledge that its occurrence is invariably associated with the presence of the fungus Phytopthora infestans undoubtedly helped gardeners to recognise that in parasitic fungi they have some of their worst enemies. But the main credit for their conversion, at all events so far as British gardeners are concerned, rests with Berkeley, who for thirty years—from 1854 until 1884—wrote regularly and vigorously in these pages on the subject of fungi and their pathogenic activities. Yet in spite of the vast body of knowledge which has been built up by successive generations of investigators on the foundations so surely laid by Berkeley, the diseases are still with us and still take a vast annual toll of the produce of farm and garden. To combat them requires unceasing vigilance and large outlay in spraying outfit, fungicides and labour. The impatient may find in the fact that preventive measures are even at the present day but crude, ground for complaint against the investigators who work at life histories of pathogenic fungi and propound remedies for their destruction. But to those who see things in a truer light, it is by no means a reflection on the ability and assiduity of mycologists that their labours have not been able to exterminate our fungous pests. For the soils and the climate of this country are of endless variety, and plants have to be grown not only under ideal and perfect conditions, but under average conditions. Hence it is that their fungous enemies have ample opportunity for renewing their attacks year after year. They have also the advantage of "getting their blow in first"; for it is impossible, or all but impossible, to adopt preventive measures against every kind of potential pest, and only too often when in circumstances of weather and soil favourable to it the fungous parasite has taken hold of a crop, it is too late to save the plant. The wise gardener, however, much as he may feel harassed by the numerous prescriptions which he is urged to try, does not refuse to keep abreast of the advance in knowledge of fungous diseases. He learns all that there is to be learned about these enemies of garden and orchard, and uses his judgment as to the adoption of means of combating them. Best of all means is still, as it always has been, good cultivation. Doubtless in the future the plant breeder will provide us with immune of resistant strains of plants which will each be proof against the several diseases which now attack them. But it is a far cry to that happy day, and in the meantime gardeners must perforce be content to seek always to improve their cultivation, to learn more of the peculiarities of their soil, to grow chiefly those varieties which do best in their several districts, and to adopt, when epidemics promise, those remedial measures, which mycologists have devised for the control of fungous pests. Nor, if they view the story in fair perspective, can they withhold admiration for the unceasing labours of the long line of British mycologists, the first of whom was Berkeley, who have elucidated and are elucidating the dark ways of these enemies of the cultivator and of his plants.

Imperial Fruit Show Conferences.—In conjunction with the Imperial Fruit Show to be held at Belle Vue Gardens, Manchester, from October 26 to November 3, a series of conferences has been arranged. The programme is as follows:—On Monday, October 29, at 2 p.m., Mr. H. Goodwin, Manchester, will preside, and the subject of "The Commercial Storage of Apples and Pears" will be discussed; a representative of Messrs. J. and E. Hall, Ltd., will be in attendance to answer technical questions. On Tuesday, October 30, at 2 p.m., Mr. H. V. Taylor, Deputy Controller of Horticulture, will preside, and an address on "The Manuring of Fruit-Tree Plantations" will be given by Mr. T. Wallace, of the Research Station, Long Ashton, Bristol. In the evening, at 7 p.m., Mr. R. G. Hatton, East Malling Research Station, will lecture on "Fruit Growing in Small Gardens." On Wednesday, October 31, at 2 p.m., Mr. W. G. Lobjoit, Controller of Horticulture, will take the chair, and the subject for discussion will be "The Marketing and Distribution of Fruit." The National Federation of Retail Fruiterers will move a resolution relating to the marketing and distribution of fruit, and the delegates of the National Farmers' Union, Federation of British Growers, and National Federation of Fruit and Potato Trades' Associations will join in the discussion. On Thursday, November 1, at 7 p.m., Mr. W. Herrod Hempsall, Technical Adviser in Beekeeping to the Ministry of Agriculture, will lecture on "Beekeeping," while at the meeting on Friday, November 2, "The Dietary Value of the Apple" will be discussed

Proposed Show at Southport.—The question of holding a floral fête on up-to-date lines, and evening water carnivals on a very large scale in Southport next summer, is under consideration. Southport is well adapted for a show of this description; in fact, the town has been known for a long time as "England's Seaside Garden City." It is eighteen miles from Liverpool, and less than an hour's train journey from Manchester. It has a population of over 70,000. At a well attended meeting of representatives of the horticultural trade held on the 27th ult. there was general agreement that a floral fête and water carnival should be held at Southport during three days in the last week in August and that Victoria Park would be an excellent site for the fête. The Mayor and Mayoress entertained the representatives to tea in the Mayor's parlour and the Mayor presided at a dinner given to those present during the evening.

Famous Woods for Forestry Commission.—For some time past negotiations have been proceeding between the Duke of Richmond and Gordon and the Forestry Commissioners for the purchase of the famous and extensive forest land of Glenmore, Strathspey. The final details are now being adjusted, and the bargain is expected to be completed very shortly. Glenmore has about 3,000 acres of plantable land, and is admirably adapted for, and intended to be utilised as, a nursery. With an altitude of over 1,000 feet, Glenmore forms part of the old Caledonian forest, and its Scots Firs have always been ranked as among the finest grown in the country. Time and again magnificent specimens from this forest area have been on view at forestry exhibitions, where their great height and circumference have evoked warm admiration. It was to Glenmore, one of Morayshire's fairest spots, the Government sent during the

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war over 300 Canadian woodmen to cut down the standing timber. There, for over 18 months, they cut, milled and transported millions of cubic feet for service overseas. It may be recalled that a speech made at Glenmore to the Canadian woodmen by Mr. Lloyd George, caused some bitter feeling among natives of the district, which for generations has been a nursery for foresters. Mr. George, in commending the Canadians' labours, said they had given an object lesson to our woodmen in the way of felling trees, and that prior to their coming from Canada, the position in this country was to wait for the first gale of wind to blow down the giant Firs! The resentment felt among Morayshire foresters was somewhat keen, for as a matter of fact these men had forgotten more about tree-felling than many of the Canadians had ever learned; indeed, many of the latter had never wielded axe or saw until they began operations on the woods of Glenmore.

Manufacture of Walking-Sticks as a Rural Industry.—In the September issue of the *Journal* of the Ministry of Agriculture there is an interesting article dealing with the "Manufacture of Walking Sticks as a Rural Industry," contributed by the Rural Industries Intelligence Bureau. The industry is considered to be particularly well suited to many partially disabled ex-Service men, especially where they need a country life or are unfitted for employment in urban industry. We gather from this article that the English natural-stick cutter will find his chief source of supply in such subjects as Ash, Aspen, Birch, Blackthorn, Cherry, Sweet Chestnut, Crab, Elm, Furze, Hazel, Holly, Hornbeam, Maple, Mountain Ash, and Hawthorn. When the roots have sufficient size or characteristic shape to form handles or knobs, the saplings are used, but sometimes, also, the small branches of larger trees. Particulars regarding methods of drying, peeling, and shaping the sticks are given, and we commend the article to the notice of partially disabled ex-Service men who have had horticultural or forestry experience.

Rose Trials at Bagatelle, 1924-1925.—M. Forestier, Superintendent of the Parks and Promenades of Paris, informs us that trials of new Roses will be held at Bagatelle, during the coming season of 1924-1925, as in previous years. All new Roses sent for trial should, so far as possible, have been raised in pots and at least five specimens should be sent before April 30, 1924. At the same time a note should be sent stating the name, origin and parentage of the variety and any special treatment required for it. The plants will be put out as soon as they reach Bagatelle and will remain there until the month of October, 1925, so that the judges may be able to study the growth and flowering of the plants during two seasons. All letters concerning the Rose trials should be sent to Le Conservateur des Promenades de Paris, 4, Route du Champ-d'Entraînement, par Neuilly (Seine), Paris; and the plants forwarded to Roseraie de Bagatelle, Bois de Boulogne, Neuilly-Porte-Maillot Station, Paris.

Scarcity of Roman Hyacinths.—There is a great scarcity of white Roman Hyacinths this season, and growers in this country are experiencing a difficulty in obtaining bulbs. The scarcity is chiefly owing to unfavourable weather in the Ollioules district of France this year, where the bulbs are principally grown, and the crop proved a very poor one, so that no British bulb firms have received anything like their usual supplies. A prominent member of the bulb trade informs us that for years past the supplies of white Roman Hyacinths have been decreasing, and in consequence prices have risen so much that at the present time Roman Hyacinths are scarcely worth the money asked for them. In view of this it may be useful to readers to know that specially prepared Dutch Hyacinths are very suitable for early blooming and are an excellent substitute. The bulbs are taken up out of the ground very early in the season and subjected to artificial warmth, thus giving the bulbs the character of those ripened off early under a hot sun. These specially prepared Hyacinths may be flowered extra early, and a succession of bloom be easily obtained during January, forming a decoration far superior to that obtained from Roman Hyacinths. The best sorts are l'Innocence and Arentine Arendsen (white); Lady Derby (pink); Gertrude (rose); La Victoire (rose-crimson); Garibaldi (crimson); Lenotel (light blue); Dr. Lieber (bright blue); Marie (dark blue); and Yellow Hammer (yellow). The authority referred to states that he would not be surprised if in a comparatively few years the French Roman Hyacinth is a flower of the past and, in his opinion, one which will not be missed.

Dr. W. F. Bewley.—A native of Northumberland, Dr. W. F. Bewley graduated at Durham University and finally obtained the degree of Doctor of Science. Being keenly interested in all matters pertaining to the scientific aspects of agricultural and horticultural matters, he became attached to the Rothamsted Experimental Station and later became Director of the Experimental and Research Station at Cheshunt in Hertfordshire, an extremely useful Institution of special service to the large number of growers in the Lea Valley, and financed by them through

DR. W. F. BEWLEY.

the Nursery and Market Garden Industries' Development Society. The principal function of the Research Station is to study the many problems connected with the cultivation of crops under glass and to conduct experiments with a view to increasing the output of the crops most cultivated in the district. The problems also include those of crop management and manurial treatment, as well as the identification of diseases and pests and the giving of advice for their prevention and cure. Dr. Bewley has investigated successfully many plant disease problems, principally in connection with the Tomato, and has written numerous scientific papers dealing with these matters. At the present moment he has a book in the press entitled *Diseases of Glasshouse Plants*, which is to be published by Messrs. Benn Bros. Dr. Bewley is convinced that complete co-operation between the practical grower and the scientist will lead ultimately to the solution of many horticultural problems which at present are shrouded in mystery, and fortunately he has won the confidence of the many keen business men who have made the Lea Valley famous as a great horticultural producing centre.

Distribution of Surplus Pedigree Fruit Tree Stocks at East Malling.—A distribution of surplus fruit-tree stocks and varieties of soft fruit true to name, has again been sanctioned by the Executive Committee of the East Malling Research Station, under the following conditions: (*a*) Stocks, bushes, etc., are to be distributed on the understanding that they will be used for stool-bed purposes, or for propagation by cuttings, etc.; (*b*) to ensure this, they will only be distributed in small quantities and at the prices fixed by the committee (and forwarded on application); (*c*) applications for such material must be to hand by November 10, 1923, and the distribution will take place as early as possible during December, 1923, and January, 1924; (*d*) applications from subscribers to the Building Fund of the Station to have priority; (*e*) all applications to be addressed to The Secretary, East Malling Research Station, East Malling, Kent.

The Oldest Botanic Gardens.—A writer in the *Gartenwelt* (Berlin) draws attention to the fact that, although in ancient times collections of plants existed which could be considered to be the equivalent of the modern botanic gardens, the range of the plants must have been very limited before the discovery of America or the opening up of the continent of Africa. In the sixteenth and seventeenth centuries, however, the movement towards botanic gardens was rapid, and in 1560 there were already fifty of such gardens in Italy, the first, at Pisa, having been founded in 1543. The one at Padua was founded in 1546, and is the oldest still existing in the world; it contains a "Chaste tree" (Vitex Agnus-castus) said to be 370 years old. The garden at Bologna was founded in 1568, and those at Rome and Florence were commenced about the same time, while the one at Leiden, the famous Dutch University town, dates from 1575.

Sweet Pea Trials in 1924.—The National Sweet Pea Society is making arrangements for the holding of a trial of new Sweet Peas during the forthcoming season and raisers and distributors who wish to send seeds of new varieties for these trials should communicate at once with the Secretary, Mr. A. C. Bartlett, 318, Kew Road, Kew, Surrey.

R.H.S. Dinner in connection with Holland Park Hall Show.—The Royal Horticultural Society gave a dinner at the Hotel Cecil on Tuesday last to the judges, the members of its standing committees, and the chief exhibitors of the Holland Park Hall show. In the absence of the President, Field-Marshal Lord Grenfell of Kilvey presided, and he made sympathetic reference to the death of Lady Lambourne, and the consequent absence of the President. The health of the committees, judges and exhibitors was proposed by the Chairman and responded to by the Hon. Vicary Gibbs, Mr. E. J. Holland and Mr. J. Whitton. A visitor from South Africa, in response to an invitation by the Chairman for a speech, said that horticulturists had overlooked the possibilities of the South African flora in providing new garden plants, and he urged them to give less attention to plant expeditions to China and to devote some of their energies to the wild flora of Africa. Their exhibitions in South Africa were not to be compared with those held in this country, but the shows of wild flowers, collected mainly through organisations associated with schools, were fascinatingly interesting. In response to the toast of his health, proposed by Mr. W. Cuthbertson, Lord Grenfell referred to some of the difficulties of the Society during the war, and especially in connection with the desire of the military to acquire the hall, offices, and even the library.

New Allotments Bill.—The Executive Committee of the National Union of Allotment Holders has given final approval to the draft of a new Allotments Bill which is to be introduced into Parliament. The principal object of the Bill is to provide facilities for security of tenure for allotment holders. The tenancy of an allotment is sometimes taken into consideration when assessing poor law relief and old age pensions, and a strong protest was registered against this by the Executive Committee of the National Union of Allotment Holders.

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Appointments for the Ensuing Week.—Sunday, October 7: Wakefield Tulip Society's meeting. Monday, October 8: United Horticultural Benefit and Provident Society's meeting; Bath Gardeners' Society's meeting. Tuesday, October 9: Jersey Gardeners' Society's meeting. Wednesday, October 10: Four Northern Counties Fruit Show and Congress (two days) in the Market Hall, Durham City; Sheffield Chrysanthemum Society's meeting; East Anglian Horticultural Society's meeting. Thursday, October 11: Wargrave and District Gardeners' Society's meeting. Friday, October 12: Foots Cray Horticultural Society's show. Saturday, October 13: Elstree and District Horticultural Society's show.

"The Gardeners' Chronicle" Seventy-five Years Ago.—*Flower Borders.* I have a border in my garden which has, this year, been filled as described below, and of which the effect is, at this moment, very brilliant, and I would be much obliged by some suggestions with a view to filling it in future years with some variety, but with equal effect. The situation of the garden is in the neighbourhood of Edinburgh, and the space to be filled in the border in question is in length 120 feet, and in breadth 12 feet. The present arrangement is as follows:—1st (*i.e.*, nearest the gravel walk in front of it), a row of scarlet Verbenas; 2nd, Nemophila insignis; 3rd, white Stocks; 4th, Erysimum Peroffskianum; 5th, Malope grandiflora; 6th, Dahlias; 7th, Hollyhocks. The Hollyhocks and Dahlias I should have no objection to continue in the same spot, but the rows in front of them might be varied in different years, provided an equally brilliant arrangement of colours, and suitable proportion as to the height of the plants, were preserved. They may either be annuals or occasionally (if thought equally suitable) plunged greenhouse plants. A list of either or both kinds, of suitable colours and height, would much oblige. *J. D., Gard. Chron., September* 30, 1848.

THE BULB GARDEN.

YELLOW CROCUSES AND PHEASANTS.

Those who are purposing planting Crocuses in quantity in the grass will do well to be aware of the fact that many birds are specially partial to yellow Crocuses and will frequently destroy the flowers. Pheasants are destructive both to the flowers and corms. It is rather singular that they leave the blue, white and striped varieties alone, while the yellow sorts may be entirely eradicated by these birds. I know of several places where Crocuses were planted in vast numbers in the grass. In these the yellows have gradually disappeared; while the blue, white, and striped sorts have increased very greatly. I have in mind a broad stretch of lawn in front of a large mansion where in spring there are myriads of Crocuses of all colours except yellow, which were planted in the same proportion at the same time. It was found that the pheasants not only destroyed the flowers but pecked the corms away. As yellow Crocuses were desired these had to be planted in an enclosed garden where the pheasants scarcely ever entered, owing to the place being so much frequented. *S. A.*

AUTUMN-FLOWERING LILIES.

Amongst autumn-flowering Lilies, L. auratum is one of the noblest, and, given a cool, moist rooting medium, one of the easiest to grow. Well-sheltered, semi-shaded spots in the woodland suit it admirably, and if the natural soil is a sandy loam or of a peaty nature, little preparation will be necessary. If the soil is of a heavy nature, however, large holes should be opened and filled with a mixture of loam, sand, peat and decayed vegetable refuse, which will render the texture porous.

Another position in which Lilies succeed is in Rhododendron or Azalea beds or in any bed where the soil is cool and peaty, and where the overgrowth is not too crowded. Planted deeply in such positions L. auratum will do well for two or three years, after which the bulbs will be likely to have increased so much that it will be a good plan to lift and divide them.

There are several good garden varieties of this fine Lily. L. a. platyphyllum is of great size and vigour, with handsome blossoms, beautifully spotted and sometimes so much as a foot across. L. a. platyphyllum virginale has a yellow band in each division with pale yellow spots, and L. a. rubro-vittatum has a red band on each petal.

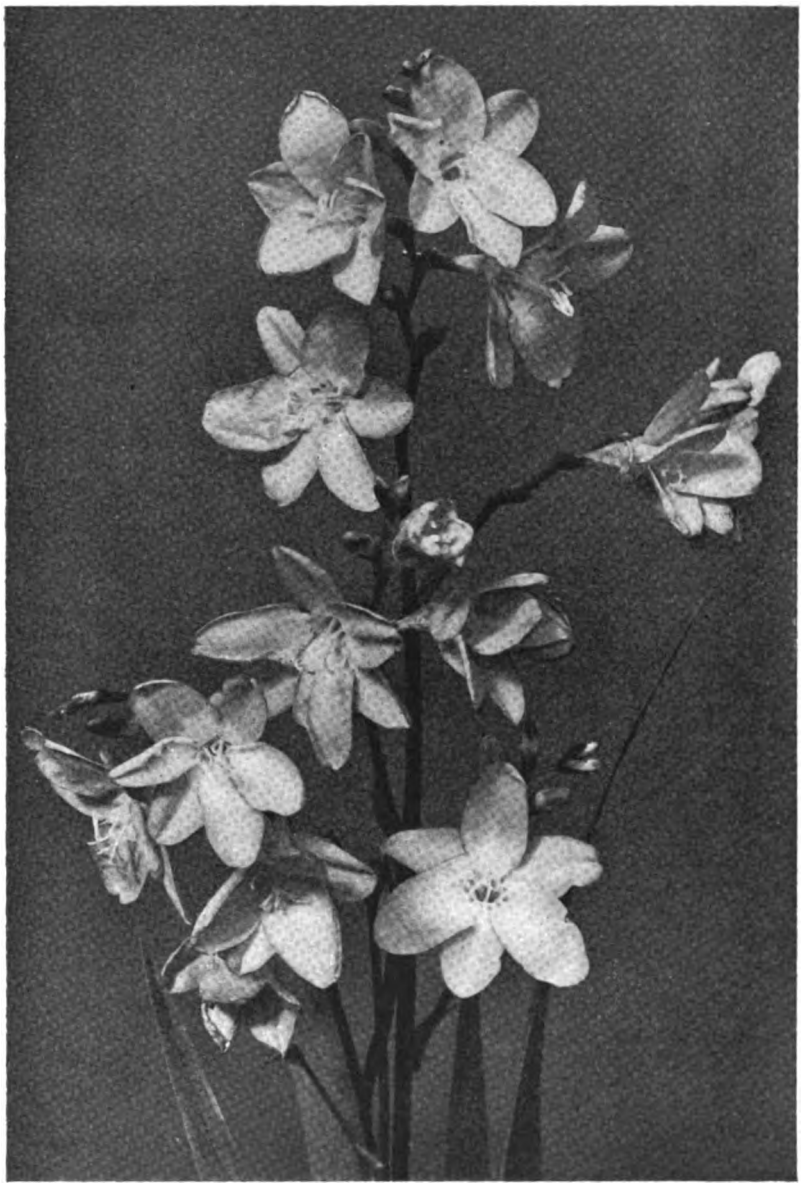

FIG. 72.—MONTBRETIA JESSIE, R.H.S. AWARD OF MERIT, SEPTEMBER 18 (SEE P. 178).

When well-grown the flower spikes of L. auratum reach a height of from 6 feet to 8 feet, and bear from five to twenty flowers on a stem, but it is most beautiful when the number of blossoms borne is not so great as to crowd the head.

When buying imported bulbs of L. auratum it is not wise to purchase too early in the season, as the first consignments sometimes contain insufficiently ripened bulbs, which arrive in a limp and flabby condition.

L. speciosum is also a beautiful, late-flowering Lily, and deservedly a favourite. Although often grown as a pot plant, it has great merit as a border subject, owing to the attractive qualities of its flowers. It succeeds under similar conditions to those advised for L. auratum, but being of a less vigorous habit, it should be given a more forward position in planting. There are many good varieties of this Lily, but probably the best for out-door planting is L. s. roseum superbum.

L. tigrinum is one of the latest flowering of our Lilies, and probably the most widely cultivated of all. Its bold, turn-cap form is well known, and its dark stems, black-spotted petals and deep brown, rust-coloured anthers combine to make it most attractive and decorative. There are several good forms of it besides the type, which is always a capital garden plant. L. t. Fortunei and L. t. F. giganteum are good varieties, but the finest of all is L. t. splendens, which is a very strong grower with large flowers of splendid colour. Tiger Lilies may be readily increased by means of the bulbils, which most of them produce in the axils of the leaves. These may be grown to flowering-bulb size in three or four years.

All the Lilies mentioned have an upper rooting system from the base of the stems, in addition to the roots that come from the bulbs, hence deep planting should be practised to insure that the upper roots, which help to nourish the growing stems, should be well under the surface of the soil. In well-prepared ground L. speciosum and L. tigrinum should be planted from 6 inches to 8 inches deep and L. auratum even as much as 10 or 12 inches. In addition, a surface mulching of rotten manure to keep the ground cool and provide nutriment is desirable for the welfare of these plants. *W. Auton, Pyrford Court Gardens, Woking.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Seedling Orchids.—Seedling Cattleyas and Laelio-Cattleyas raised from seed sown in the spring of the present year, and pricked off into store pots as soon as they were of sufficient size to handle, should be large enough to be transferred to single pots. It is important in the cultivation of seedling Orchids that as soon as the small plants fill their pots they should be repotted at the earliest possible moment, as if allowed to overgrow each other there would be a difficulty in separating them. They should be grown close to the roof-glass, as they need all the light available in winter; an even temperature of about 65° is suitable at all times, with sufficient atmospheric humidity to create suitable growing conditions. Seedlings in small pots that have matured their first pseudo-bulbs, and are developing new roots from the base of the growths, should be repotted and given every encouragement to develop. They will not make much growth during the winter, but develop roots to an extraordinary extent, which will be the means of the plants making satisfactory growth next season. No attempt should be made to rest these small plants, but they should be grown on continually until the flowering stage is reached. They should not be allowed to suffer for the want of water, or from an excess of it, neither should they be allowed to become pot bound. It is advisable, wherever possible, to grow them in a small house by themselves, but, where this is not possible, they may be stood on a shelf in a house having a suitable temperature. The compost may consist of a mixture of Osmunda, A1 fibre, and clean Sphagnum-moss in equal parts, with half-decayed Oak leaves added. The material should be made moderately firm around the plants, which, after repotting, are best grown in a close case for a few weeks until the roots begin to enter the new material, when they will be the better for more air. The larger plants should be repotted in compost of a coarser nature, until the time they are placed in their flowering pots, when they may be grown in the same material as the full-grown plants.

Seedling Cypripediums.—The above remarks apply also to seedlings of this family, the only exception is in the material in which the plants are grown. These plants grow much better in a peat fibre and Sphagnum-moss compost composed of equal quantities of each. They should be potted rather firmly. These plants should not be exposed to quite so much light as in the case of Cattleyas and Laelio-Cattleyas. Grow the plants in a warm, moist corner, in rather a shady position of the house in which other members of this family grow satisfactorily.

Seedling Cymbidiums.—These seedlings may be treated in precisely the same manner, the only difference is they need a position near the roof glass in a house having an intermediate temperature. In their early stages these plants need a good compost, but they like something of an open nature.

HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Grease Banding.—With an increase of caterpillars in the past few years, the efficacy of this work has again been considered. The trouble is, where an estate is well timbered with Oak and other trees of which the caterpillar is equally fond, the question is what and what should not be grease-banded? Is it worth while to band fruit trees and leave others alone? The point to remember is that if the female winter moth is effectively barred from reaching the branches of a tree during the autumn, it will be by no means an easy task for young caterpillars in early spring to transport themselves from an unbanded tree unless in very close proximity. The contention that the male moth will convey the wingless female on its back to the tree and thus overcome the grease band obstacle I have so far failed to prove. With the aid of a powerful acetylene lamp I have seen the female moths climbing up the stems of standard trees and become entangled in the grease. If the grease used is liable to run, it is advisable to make a collar of the lower part of the grease band. Any injurious liquid will thus be dislodged about an inch from the bark; certain greases are very detrimental to the bark of the younger trees. To prevent them being dirt-splashed, the bands should, where possible, be at least 3 feet from the ground. Winter moths become active towards the end of September, so that the work of grease-banding should be completed by the first week of October. Growers who continually tilled the ground beneath the trees by hoeing in the early part of summer will have disturbed the hibernating pupae, and assisted birds in finding them

Planting.—Give earnest consideration to this work, and all preparations for new plantations. The selection of trees should be made known to the nurseryman. It is advisable to know the nature of the soil the trees have been growing in. Trees planted with their roots near the surface are less liable to become diseased, and the fruit will show better colour. On heavy or damp soils trees should be raised about 6 inches on mounds above the level of the ground. After planting, the trees should be securely staked. In the case of larger trees it is advisable to use three stakes in tripod fashion. The ends of these should be so placed, using cloth or sacking if necessary, to prevent rubbing during windy weather.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Canna.—Plants of Canna that have done duty in the greenhouse may be stored for the winter. For this purpose the stems may be partly shortened, and the plants turned out of their pots, storing them with the balls intact. Cannas generally keep badly, or fail to start well the following season if they are kept too dry during the winter. Any frost-proof shed that is fairly moist will serve as a store; I find the plants keep best stored under a bench in a cool greenhouse, from which frost is just excluded.

Hydrangea.—Large specimen Hydrangeas may be stored for the winter in the same manner as Fuchsias; but as they will withstand much more frost than Fuchsias they may be wintered in an open-fronted, lean-to shed, protecting material being hung up in front during severe weather.

Double Wallflowers.—These flowers are very useful for greenhouse decoration. Plants that have been grown for this purpose should be lifted and placed in pots, afterwards standing them in cold frames for the winter. There are numbers of other hardy biennial or herbaceous plants suitable for growing in pots for conservatory decoration; they include such well-known plants as Canterbury Bells, Dicentra spectabilis, Anchusa italica var. Dropmore, which is a beautiful plant for early flowering in the cool or unheated greenhouse, and Polygonatum multiflorum (Solomon's Seal). There are also many beautiful varieties of Astilbe suitable for this purpose. Well-grown plants of the many fine varieties of Campanula persicifolia; especially the variety Telham Beauty, are very suitable for this purpose, and some time during this month they should be lifted and placed in suitable-sized pots; six-inch or seven-inch pots will accommodate large plants. They are best stood out-of-doors at the foot of a wall, plunging the pots to the rims in ashes to protect them from damage by frost. All the hardy subjects are best treated in this way, leaving them out-of-doors until such time as it is necessary to take them indoors, either for forcing or to be brought on slowly in a cool house.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Poppy Anemones.—Given open weather and the soil in workable order, varieties of Anemone coronaria may be planted from October until March. Garden soil of an average quality will suit them—the quality of the soil being less important than free drainage. As a rough guide plant the roots 2 inches deep, and 5 to 6 inches apart. Should the winter threaten to be severe, or if the garden is exposed, afford the plants a light protection of Bracken Fern or some such material during very wintry weather. These windflowers should not be allowed to become dry when carrying their flower buds in spring or they will fail of their best. Their range of colouring is wide, and the flowers last long in water when cut.

Early-flowering Gladioli.—This section of Gladioli is, perhaps, mostly grown in pots for gentle forcing in spring. The plants are, however, equally adapted for outdoor beds or borders, and the corms may be planted now until mid-December. Select ground that is not heavy in texture, and let it be well worked and made moderately rich with old manure. During hard frosts place a few evergreen branches over the border as a means of safeguarding the plants from possible harm.

Carnations.—Where it is the custom to plant Carnations in the autumn, choose a day when the soil is dry enough to allow it to be handled freely. Unless the ground be poor manure need not be added, but give it a dressing of old lime rubble. Make the plants firm when setting them in their positions. If circumstances do not favour present planting, the layers may be severed and left around the parent plants, or they may be placed in small pots and plunged in coal ashes in a cold frame, as may be most convenient, until spring.

Removal of Plants.—Plants in tubs or vases that have been occupying places in the flower garden during the season should be brought indoors, for although some are hardy enough not to be greatly harmed by slight frosts, yet their beauty may be marred. Stock plants of any kind not yet secured should be attended to before it is too late—after which the various beds, as they become unsightly, should be cleared and made ready for planting the spring bedding plants.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Bennett, Esq., Woolverstone Park Gardens, Ipswich.

Orchard House.—If there are any Apples, Pears, and Plums still hanging on the trees the ventilation of the house will need careful attention, and if birds are troublesome every opening should be netted to keep them out. If the house is heated, a little warmth in the pipes during damp weather will be necessary to preserve Plums in good condition. An abundant supply of air should be admitted whenever the outside conditions permit. If the house is unheated, it is much more difficult to maintain a dry, buoyant atmosphere during damp weather. Under such conditions the ventilators should be kept nearly closed, and as little moisture as possible used in the house. The time is at hand for replanting or root-pruning trees that have made gross growth and failed to fruit satisfactorily. In a house in which the trees are planted out there are generally a few that require attention. Either they have not formed and matured their fruit buds, or the growth is too rank, and few, if any, fruit buds are to be found. In the first case the trees should be removed and planted out-of-doors, filling their places with others from the reserve quarter, and if there are sufficient trees well set with fruit buds to permit of the removal of the rank growers, it will be advisable to use them. Otherwise lift and roof-prune the trees, cutting back fairly closely all strong, fibreless roots. Notches should be made at intervals and kept open by means of a small stone or other imperishable material, and the tree replaced in position. A little fresh loam should be placed

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about the roots. If the soil is in a moist condition it is advisable not to apply water for some days after planting, and then to give the soil a good soaking.

Cleansing the Trees.—After the leaves have fallen, prune and thoroughly cleanse the trees of any form of parasitic life or mossy growths. Paraffin emulsion is an excellent insecticide, and it is possible to use it in a much stronger form when the trees are at rest than at any other period. If badly infested with scale or American blight, scrub the affected parts with the emulsion, working it well into cracks and corners. Should the trees be reasonably free from insect pests, spraying them thoroughly will answer. Alkali wash will remove mossy growths, leaving the bark clean and bright. After the pruning and cleansing operations are carried out the mulching material should be removed. The glass and woodwork of the house should be cleansed thoroughly, and the walls lime-washed. Lightly prick up the surface of the border, and, if well filled with roots, top dress it with good loam, to which has been added a small portion of broken plaster or old mortar rubble and wood ash.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Celery.—Pay special attention to the later batches of this crop. The plants should all be earthed up some time during this month, as sharp frosts may occur at any time. Remove all side shoots carefully and any decayed foliage. Give the roots a thorough soaking with water. Celery should only be earthed up when the foliage is thoroughly dry, and the afternoon is the best time for the operation. Give the rows a good dusting with old soot, which will keep the Celery maggot in check. If labour cannot be spared to hold the stems together while earthing, it is best to tie each head with broad bast, cutting the ties when the earthing is completed. This will prevent soil getting into the hearts. Celery, which is being blanched by means of brown paper bands for present use, should be examined, and the bands loosened if they are too tight. Keep the roots well watered.

Leeks.—Leeks raised from seed sown early in the year and planted in trenches for producing large specimens should be well supplied with manure water, which may be applied easily if the plants are grown between boards as previously advised. It is a good plan to place clean straw on the surface around the plants to prevent heavy rains washing the soil into the foliage. Place a mulching of decayed manure each side of the boards. Late sown Leeks intended for spring use should, if not already done, be planted in holes made with an iron bar about 15 inches deep, dropping each plant in so that the roots rest on the bottom, and placing a little soil in the bottom of the hole to just cover the roots. Fill the holes with water, but do not use any more soil. As soon as the plants have filled the holes, draw soil up to them to assist the blanching, and as a slight protection against severe frost.

Endive.—Plants of Endive growing out-of-doors should be protected in case of frost at night, and any that were raised from seed sown in frames should be pricked into skeleton frames to prolong the supply. The watering of these plants should be done in the mornings in order that the foliage may be dry before night, otherwise they will damp off badly. Keep all dead or decaying foliage picked off, and stir the soil between the plants.

General Remarks.—As fast as all crops are harvested remove all rubbish. Any that will burn, such as Pea and Bean haulm, should be made into suitable heaps, and set on fire. The wood ash of the fire will form a useful fertiliser, and should be stored in a dry place until required for use. On wet days examine the second early Potatos in store, and remove any that are not quite sound. Storehouses should also be cleansed and limewashed.

LATHYRUS ODORATUS ZEYLANICUS.

THE SWEET PEA OF CEYLON.

I have read with much interest the suggestive letter on this subject from Mr. T. Petch, of Peradeniya, which appears in *Gard. Chron.*, September 8, p. 145, and note that he thinks it would seem much more probable that Hartog would collect the Sweet Pea at the Cape than at Ceylon.

This appears to me to be purely conjectural, for, so far as I am aware, there is no record of the discovery of the Sweet Pea in South Africa prior to 1730.

I also was not aware that Hartog had collected at the Cape and shall thank Mr. Petch if he will kindly refer me to his authority, as there may possibly be other information connected therewith that may be both interesting and useful.

The information in my possession when preparing my paper for the Sweet Pea Bi-centenary Celebration in 1900 was obtained by me from the preface to the *Flora Zeylana*, in which Linnaeus states :—" John Hartog was born and trained for the service of Flora at the gardens of Leyden. . . . William Sherard, who directed the Sceptre of Flora, was solicitous day and night regarding the procuring of the plants of Ceylon and publishing a brief account of them Hartog was the only one willing to undertake a journey into Ceylon. He embarked full of expectation and found a large number of rare plants. Entering too rashly into the woods and deserts he would have been torn in pieces by a lion had not his attendants used their guns. Having explored Ceylon he sent thence a complete Ceylon Herbarium to Cornelus Vos, Curator of the Botanic Gardens, Amsterdam. Fate and unsuitable food carried him off in the flower of his life."

Before his death Vos presented this Herbarium to John Burman, who published an account of it in his *Treasury of Ceylon Plants*.

The foregoing shows that Hartog's explorations were not confined to the coast line, and that the purpose of his journey was to secure the plants of Ceylon. The historical facts mentioned by Mr. Petch are familiar to every student of the records of colonisation; and thirty years of business and other association with horticulturists in Ceylon have kept me fairly well informed of the climatic and other difficulties with which the early settlers, Dutch and British, had to deal. Some of the information obtained by me from Mr. Wm. Nock, Superintendent of the Hakgala Botanic Gardens, Nuwara Eliya, was published by me in an article entitled "Historical Facts and Fancies" in the *Sweet Pea Annual* for 1905.

I still think that the suggestion of Dr. Hallier and the inference drawn by me therefrom form a fairly satisfactory basis for the settlement of that much-disputed point, the origin of the Sweet Pea of Ceylon. *S. B. Dicks*

SWEET PEA THE PRESIDENT HARDING.

The new Sweet Pea, The President Harding (see Fig. 73), which has just been placed on the market by Messrs. Atlee Burpee and Co., Philadelphia, is remarkable for its large size and perfect form. The colour may best be described as Peach-red, a beautiful warm, pure flame colour. It was shown last year before the National Sweet Pea Society, in company with one hundred and five other new seedlings, and gained the only Certificate of Merit awarded on that occasion, a unique distinction for an American-raised Sweet Pea. A high honour has been won by this remarkable Sweet Pea in America, for it has been awarded the Silver Medal of the American Sweet Pea Society, an honour we are informed that no other Sweet Pea has received at that Society's hands. It is said by its raisers to be sun-proof, and if it will stand the fierce summer sun in the land of its birth, it is fairly certain to withstand the milder rays over here; however, those who try it will be able to settle this for themselves.

It will be interesting to see how this new variety behaves in this country under ordinary cultivation, and there will be many, doubtless, who will desire to possess it for exhibiting.

B

FIG. 73.—SWEET PEA THE PRESIDENT HARDING (NATURAL SIZE).

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GARDEN NOTES FROM S.W. SCOTLAND.

Autumnal Asters are troublesome things in respect that they require to be tied up if the better way of setting small branches among them as they grow has been neglected. This is especially the case in a wet and blustery autumn such as we are passing through (we registered 7½ in. of rain in August and had some heavy gales). It may be noted, therefore, that one species—Aster pyrenaeus—needs no support, but carries its large flowers—lilac blue, faintly tinged with pink—in a flattened panicle, through any amount of buffeting, at a height of two feet. Moreover, it has a longer flowering season than most of the family; it began here this year on 17th August, and is still in beauty on this 24th September. Whether it be from prejudice, prepossession, or pedantry, I must confess to entertaining a strong preference for good natural species over plants that owe their distinction to the florist.

Very different in habit from the Pyrenaean plant is an Aster that came here from a friend under the name of A. Lipskii, for which I can find no warrant in the *Kew Hand List* or elsewhere. Rising from a cluster of lanceolate, radical leaves, the stiff stems, bearing three or four linear leaves, carry in July, at a height of twenty inches, the handsome solitary flowers, each measuring three inches across; the ray florets are of a rich, vinous purple, set round a large orange disc. The origin of this fine Aster seems to be unknown.

Notwithstanding my preference for natural species, it was an agreeable surprise to come lately on a very beautiful variety of Trollius in Messrs. Cunninghame and Fraser's nursery, Edinburgh, an ancient establishment which I never visit without finding something worth carrying away. The label beside this Globe Flower bore the inscription "Trollius Y. Smith." It has very large flowers of clear lemon-yellow, at least twice the size of those of our native T. europaeus, and it seems to possess the desirable property of flowering in autumn. Whether it does so in spring also remains to be seen.

On account of some minute structural difference which I am not doctor enough to describe, the white-flowering Rue has forfeited the family name of Ruta and been endowed with the cumbrous title of Boenninghausenia albiflora. It is a Japanese plant, which deserves to be more often grown than it is, for it makes a little dome of bipinnate leaves three feet high, in colour and texture somewhat like those of an Adiantum, and September has not run its course before the foliage is veiled in a mist of small white flowers.

The pretty Peruvian annual, Calceolaria chelidonioides, offers an exception to the general rule that plants from the Southern Hemisphere do not readily establish themselves in the Northern Hemisphere, for it springs up in the borders here every autumn, and is welcome for its pretty yellow flowers and erect habit. I do not know how it arrived here, probably in the roots of some other plant; but it has never deserted us during the last thirty years. The shrubby species, C. rugosa (integrifolia), from Chile, makes a fine display in the open border, for it remains covered with golden bloom from the beginning of July till the end of September. It is hardier than it gets credit for; there is a bush of it here three feet high and five feet through that has withstood 17 degrees of frost without the slightest protection. In inland districts it requires the defence of a wall.

Kirengeshoma palmata is a disappointing plant, the flowers might easily be so much better. Still, it is worth a place in the garden, were it only for the sake of its shapely leaves.

It is an annual treat to look forward to when Nerine Bowdenii opens its bright rose, delicately crimped flowers. It is quite as hardy as Amaryllis Belladonna, and flowers here simultaneously with that charming plant in September, fully a month later than in Sussex. As a cut flower Nerine stands fresh for many days.

Few, if any, genera of plants assume so many disguises a the Knot Weeds—Polygonum. One of the quaintest is P. equisetiforme, whereof, as the name denotes, the clump of two-foot stems bear as close resemblance to some Equisetum as do the sprays of the Australian Beef Tree—Casuarina equisetifolia. In September these stems become studded along nearly their whole length with little, white, starlike flowers. P. campanulatum is a notable acquisition, producing its panicles of fragrant blossom over a long period. Moreover, it is not such a rampant terror as P. polystachyum. It certainly spreads pretty freely, but does so above-board, enabling one to keep it in check; whereas it is impossible to control the subterranean incursions of the other.

There is often an autumnal flush of flower on some of the small-leaved Chinese Rhododendrons, especially on R. hippophaeoides, R. intricatum, and the like; but none of them here is so regular—or is it irregular?—in that respect as the fiery scarlet R. haematodes. I counted twelve trusses on a bush not two feet high last week, the same bush having flowered freely last April, and is already well furnished with flower-buds for next spring. Mr. Millais does scant justice to this choice Rhododendron. He states that the corolla is more than an inch long. I put a tape to one this morning and found it to be exactly two inches long and the same across the bell-shaped mouth. *Herbert Maxwell, Monreith.*

NOTES FROM WISLEY.

It was a pleasant surprise, after the frequent and heavy rains, to see such a wonderful display of Dahlias at Wisley. The brilliant flowers sparkled in the hot sunshine and almost dazzled one, owing to the large proportion of vivid red and scarlet varieties. In the Star section, Seafield, with large rosy-apricot flowers, was particularly attractive. In the Cactus group, a fine white variety, Jkr. G. van Tets, was prominent by reason of the assertive manner in which it displayed its blooms, not hiding them in the foliage after the fashion of many varieties in this class. Two small Paeony-flowered varieties, remarkably full of bloom and suitable for garden decoration, are Rosie, pink, and Trixie, scarlet.

Owing to the fact that several severe ground frosts have been experienced at the gardens, it has been thought advisable to give protection at night by means of light sacking to the early-flowering Chrysanthemums which are undergoing trial. Some handsome blooms are already showing, and the plants are in a beautifully healthy condition.

Of the perennial Asters, those of the Amellus section are at present the most conspicuous, notably Mrs. Perry, Cassubicus, and King George, the last being particularly good this year.

In the herbaceous borders, yellow Helianthus, Heleniums, and Rudbeckias predominate, the taller varieties forming something like a hedge at the back of the border. A solid mass of colour is provided by the flowers of Helianthus multiflorus, and a good double variety named Loddon Gold. Of the smaller plants, Rudbeckia speciosa attracts attention in the front row with its nigger-brown button-like centre and deep yellow rays.

In the wild garden there are numbers of Colchicum autumnale together with some fine forms of the larger C. speciosum. Colchicum agrippinum, prettily chequered in the manner of our common Fritillary, is to be seen flowering in the rock garden, where are also large patches of Crocus nudiflorus.

Numbers of British fungi are to be observed about the gardens and in the woods. Of the edible kinds, in addition to the common Mushroom, is an allied species Agaricus procerus, known as the Parasol Mushroom, which makes a most appetising dish. The Giant Puffball (Lycoperdon giganteum) is also palatable in its earlier stage. Of the poisonous kinds the Death Cap (Amanita phalloides), which is occasionally mistaken for the Mushroom, with fatal results, is frequently seen, as is Boletus luridus, the behaviour of which is interesting in that, in breaking off a portion of the cap, the exposed surface quickly turns from a dull yellow to blue.

The ground around the laboratory is nearly in order, and the shrubs planted under the walls are beginning to establish themselves. Among these, Tricuspidaria dependens and Eucalyptus viminalis have lately made rapid growth, which, however, is more than likely to be spoiled by frost; Escallonia pulverulenta is showing its pale pink flowers.

My thanks are due to Sir Herbert Maxwell and to *C. F. C.* for pointing out an obvious mistake in my notes on p. 146. Cotoneaster frigida should be C. affinis, the fruits of which I described as turning black. Perhaps a dark purplish-brown would be a more accurate description. Mr. W. J. Bean, in *Trees and Shrubs Hardy in the British Isles*, writes: "The identity of this species is somewhat confused, but what is usually grown under the name is an ally of C. bacillaris and C. frigida." *J. G. White*

NOTES FROM A WELSH GARDEN.

One of the most interesting plants in flower in the woodland during September was Kirengeshoma palmata. This somewhat uncommon Japanese introduction is a fine subject for partial shade and grows well in cool, but well-drained vegetable soil. It makes a large clump, the branching stems, rising to about 3 feet, being glossy black and bearing broad, palmate leaves of a fresh green hue. Towards autumn the extremities of the growths break into loose sprays of pendulous blossom, the individual flowers being tubular, some 3 inches long, leathery in texture and of a soft ivory yellow. There is a peculiar, unconventional elegance about K. palmata which is distinctly fascinating, and the noble foliage, which is entirely herbaceous, turns a good bold yellow in late autumn.

Several of the Cistuses have produced a crop of late bloom since the rains, the most florriferous being C. salvaefolius and C. florentinus. C. corbariensis is also fairly reliable as an autumn bloomer, and C. crispus, with its beautiful variety Sunset, can always be depended on for some bright colour at this season. C. (Helianthemum) formosus unicolor, a lovely shrub, is always the best of the taller yellows as a late bloomer, and for several weeks its grey green foliage has been ablaze with its charming blossoms. Indeed, a little group consisting of this plant and Potentillas Farreri and Vilmoriniana, has been one of the brightest objects in the garden through several weeks of rough and changeable weather.

The Fuchsias are always conspicuous in September and, quite apart from their rich colouring, they are worthy of much admiration for the brave manner with which they endure the most boisterous winds and rain. The old F. Riccartonii is a handsome shrub whose bold, sealing-wax red is very welcome at a time when other flowers are few and the autumn tints begin to invade the woodland green. Of much lower stature and more elegant habit is F. gracilis, which appears in several pretty forms, and another reliable kind here is F. exoniensis (corallina). Though it needs protection even with us F. recurvifolia is a little species of the greatest charm for a rock garden ledge, and another dwarf which is tolerably hardy is F. Cunninghamii. The trailing species, F. procumbens, has proved quite hardy here, and an old plant is now well furnished with its curious amber, chocolate and green tubular flowers which are followed by large, Plum-red fruits.

Although Escallonia macrantha is practically an all-season bloomer, its flowers are never so fine as they are in these late days, and the sweetly-aromatic fragrance of the foliage, like that of the Balsam Poplar, is as noticeable on a warm day as it is in June. The latest of all the Escallonias, E. floribunda, has opened its trusses of large, pure white flowers, which are not seen in perfection every season, since, being so late, they are very liable to be spoiled by rain and wind. Abelia floribunda is also frequently a late bloomer, but the clusters

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pretty pinky-white flowers which adorn its elegantly curved branches are so disposed along the latter that they do not seem to suffer in the least, no matter how rough the weather may be.

Among the berry-bearing Cotoneasters, C. bullata was the earliest to ripen its fruits, and very attractive the latter are hanging in conspicuous bunches from the broad, fan-shaped branches. C. Dielsiana (applanata), though the fruit is considerably smaller, is another which colours very early, and there is something very attractive about the elegant habit of this species. If the birds will allow, there will be a good crop of berry on C. frigida, a concession they rarely grant in the case of C. horizontalis. This fine species is, however, better than usual this season, but, admirable as it is, I always think the flat-growing variety of this Cotoneaster is even better, the berries being larger, greater in quantity and of a more pleasing colour. At any rate in the form grown here the fruit of the latter has a more decided infusion of orange in the crimson than has that of the type. C. Zabelii, which is now bearing coloured berries for the first time in this garden, promises to be a highly attractive member of this interesting family. The most ornamental of the evergreen Cotoneasters now carrying fruit is undoubtedly C. rugosa var. Henryi, a shrub of singular elegance and beauty, and one that appears to bear but little resemblance to any of the others with the single exception of C. salicifolia.

That splendid shrub, Daboecia polifolia alba, though it has never been out of flower since May, has now put forth fresh spikes of blossom with that prodigality which is such a notable feature of its genus. The purple form, if not quite so charming, is also a fine and free autumn bloomer not to be omitted from any collection of Heaths, and then there is Bryanthus empetriformis, which can always be relied upon to produce some clusters of its lovely ruby and pink blossoms towards the "back-end." Polygonum vaccinifolium will afford bright mounds of colour throughout autumn in the woodland as well as the rock garden, both blossom and foliage contributing to the claim that this little creeping shrub is still one of the very best of its attractive race. *A. T. Johnson.*

ORCHID NOTES AND GLEANINGS.

LAELIO-CATTLEYA SARGON, WESTONBIRT VARIETY.

A remarkable inflorescence of five large and beautifully formed flowers of this showy variety of Laelio-Cattleya, which is of the same class as the Westonbirt L.-C. Morvyth, is sent by Mr. H. G. Alexander, Orchid grower to Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt, Tetbury. The spike is a sufficient flower display for a vase in itself, and is best so displayed. The sepals and petals are white, with a slight mauve shade, whilst the broadly-expanded lip is ruby-crimson, changing to violet in front and having distinct gold lines from the base to the centre. The fine L.-C. Lustre (C. Luddemanniana × L.-C. callistoglossa) first flowered at Westonbirt in 1907, L.-C. Sargon (C. Hardyana × L.-C. Lustre) and L.-C. Orpheus (C. Schilleriana × L.-C. Lustre) in 1915, while L.-C. Morvyth, a later Westonbirt product was a L.-C. Lustre cross. Others have made crosses with L.-C Lustre, and it always gives good and distinct features in the progeny.

FLOWERS FROM ROSSLYN.

Flowers of a selection of the many rare and curious Orchids at present blooming in his collection are sent by H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. F. W. Thurgood), the specimens well demonstrating the wide range of species cultivated, some of the small and reputedly delicate species having been in the collection for many years. The Masdevallias include a very dark form of M. Chimaera of the Roezlii section; M. Chestertonii, a pretty greenish-yellow species spotted with purple, the showy feature being the large concave orange-red lip; M. Carderi, a singular species with cupped white labellum (the plant is a division of the original of 1883 collected by Carder near Frontino, New Granada); and M. tridactylites, with beetle-like flower showing the affinity of this section of Masdevallia to Restrepia, comparison with which is provided by the flowers of Restrepia antennifera sent. Two extremes in Cycnoches are represented by the Swan Orchid, C. chlorochilon, the one sent being the larger female form, with well-defined ovary, the male bloom, which may be produced on the same plant, being smaller, and with the pollinia well developed. The flower received has the fleshy labellum, ventricose in front, and the raceme form of C. Egertonianum viride with many stellate greenish male flowers.

Aerides Lawrenceae (F.C.C. 1884) is of the original importation. It is the largest and best of the Aerides ordoratum section, and the plant is said to have two spikes of twenty-three and twenty-four flowers respectively.

Chondrorhyncha Chestertonii, a cream-white and yellow flower with much fringed lip, is one of the leafy Crytopodieae of the Warscewiczella class. It has a bad reputation for being difficult to grow, yet Mr. Pitt in his London garden finds it a good subject, and his plants are seldom without blooms.

Other flowers sent are the white Calanthe veratrifolia; Dendrobium sanguinolentum with violet-tipped flowers; Miltonia vexillaria rubella, which, though a small form, flowers after the other varieties are over; Oncidium Papilo majus, a grand flower of the Trinidad type; and other Oncidiums, Promenaea xanthina, Odontoglossum aspidorhinum, and Epidendrum variegatum.

LEPTOTES BICOLOR.

This pretty, terete-leaved species succeeds suspended in the Cattleya house, and is best grown in shallow pans, in similar compost to that used for Cattleyas. During active growth the plants should be given liberal supplies of water, but when growth is completed the amount of moisture should be reduced. *B.*

HARDY FLOWER BORDER.

SIDALCEA LISTERI.

Those desirous of possessing the best of the taller border plants, suitable either for the decoration of the garden or for use as cut blooms, should not overlook Sidalcea Listeri. I believe that it was found in a garden in Lanarkshire and introduced by Mr. Lister, of Rothesay. I saw it the first year it was shown by Mr. Lister at a Scottish show and admired it greatly. It soon acquired great favour because of its beauty, so superior is it to the ordinary pink Sidalceas. It has larger and rounder flowers of a better colour. Its importance in the garden is increased by the ease with which it is cultivated. It will grow well in any ordinary garden soil, light or heavy, but it is deserving of a little special treatment such as giving it a sound loam, well enriched with animal manure. Then it will grow taller and bear finer blooms. Its stature varies considerably, but it is generally from three to four feet tall. It increases readily at the roots and may be propagated by division in spring or autumn. S. Listeri is perfectly hardy. *S. Arnott.*

FIG. 74.—CLEMATOPSIS STUHLMANNII IN ITS NATURAL HABITAT (SEE P. 205).

KIRENGESHOMA PALMATA.

For a particularly shaded border or the woodland garden K. palmata is a handsome and interesting plant. It is a hardy, herbaceous perennial from high altitudes of Japan, the polished, ebony stems rising to about 3 ft. and bearing broad, palmate leaves like those of a Sycamore. The flower sprays appear at the ends of these growths in August and carry a number of ivory-yellow blossoms, the petals of which are some 2 inches in length and overlapping. K. palmata will thrive in good, free loam intermixed with peat and leaf-mould, provided the soil does not get excessively dry in summer. When the blossoming is over the foliage assumes fine yellow and orange tints. *A. T. J.*

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THE DEVELOPMENT OF THE DAHLIA.*

AN autumn flower show in our days is nearly everywhere characterised by the Dahlia; at least, this is so in Holland, where the flower has again become a topic of public interest. The important place which the Dahlia occupies, not only at shows, but in the floriculture of the various countries, has led me to read a paper on this subject.

The highly appreciated presence of so many distinguished representatives of foreign horticulture is an appropriate opportunity to refer to the part which Holland has repeatedly played in the development of the Dahlia as an ornamental plant. I consider it a great advantage to be able to illustrate this paper by a collection of publications and plates, including many which, as a rule, are not found worthy of being preserved. Indeed, the historical truth may often be discovered exclusively in trade catalogues, especially so far as new introductions and new seedlings are concerned, which have been of some importance to the development of a plant genus, while such dates and facts can scarcely be found with the same accuracy anywhere else. The necessity of systematically preserving trade catalogues of horticultural products in public libraries is becoming recognised more and more. The United States took the lead in this direction many years ago, and at this moment the library of the State Agricultural University at Wageningen is in the possession of a nucleus of such a collection, and it will be a great pleasure to me to add the Dahlia catalogues here shown to the Wageningen collection after this conference.

INTRODUCTION OF THE DAHLIA IN EUROPE.

The Dahlia has so often been treated in booklets and magazine articles in various languages that the history of the introduction from its native country Mexico, is generally known. It may be remarked here that, as a rule, most authors accept as an axiom that the Dahlia has been imported from its country as a wild plant only. This seems not very likely. The endless variability which the Dahlia proved to possess at once after its introduction in Europe seems an indication that it had long been cultivated in Mexico before its arrival in Europe.

The oldest reference to the Dahlia seems to have been made so long ago as 1615, when Francisco Hernandez, physician to the Spanish king Philip II., published his work on *The Plants and Animals of Mexico*. As I have not seen this book, I cannot give any particular information on the figures of the Dahlias to which some Dahlia monographs refer. But I am pleased to be able to show the second and enlarged edition of the same book, most kindly lent for this occasion by the Director of the Teyler Institute at Haarlem. In this book, published in 1651, two, or perhaps three, figures of plants are given under the Mexican name of Acocotli, which evidently represent Dahlias, and two of them most probably D. coccinea and D. variabilis.

The facts of the introduction in Europe are well known, and seem to be well fixed. Practically, there were no Dahlias cultivated for commercial purposes until 1805 or 1806, for although the flowers had been introduced from Madrid to England in 1798 (not 1789), and to France by the Count de Selieur, the Germans were the first to grow the Dahlia successfully from seeds sent from Mexico by Alexander von Humboldt, who, with Bonpland, visited that country in 1803.

THE FIRST DOUBLE VARIETIES.

Von Humboldt sent these seeds to Mr. Otto, Director of the Berlin Botanic Garden, and from there the Leipsic court gardener, Breiter, evidently obtained the nucleus of his Dahlia collection, so that as early as 1806 he could offer 55 varieties, single and half-double. A perfectly double form is first mentioned in 1808, and said to be obtained from seed by Hartweg, of Karlsruhe.

In Belgium, the Director of the Botanic Garden at Liége, Mr. Donckelaar, commenced Dahlia cultivation in 1808. The third generation of his seedlings showed not only many colours and changes in the form of the foliage, but, besides the half-double flowers he had already obtained before, two absolutely double-flowering varieties, one of which was of a bluish colour. Next year he distributed these Dahlias to Paris, Ghent and London. Donkelaar discarded all the varieties that were not full double, and soon had a collection in which over sixty distinct colours were represented. In 1820 he had already raised 10,000 plants. He later raised his seedlings exclusively from dwarf varieties, and he stated that in every new generation the number of dwarf varieties increased, and in the same proportion the flowering period became earlier.

The Napoleonic wars were a great obstacle against the spreading of the Dahlia in other countries, and some years elapsed before the commercial cultivation of Dahlias commenced either in Belgium, England or France. Meanwhile, the Dahlia made its appearance in Holland, and this cannot be a surprise, considering the fact that some Dutch bulb growers, notwithstanding the disturbed state of Europe, regularly visited the yearly markets at Leipsic and Frankfort, and thus had many opportunities of obtaining seeds of the Dahlias already known in Germany.

A very exact account of the first double Dahlias raised in Holland has been given by Dr. Molkenboer in an old gardening monthly, the *Maandschrift voor Tuinbouw*, of 1852. According to his statement, a florist of Leyden, C. Arentz, raised a double violet Dahlia from seed in 1813, and offered seventy-two seedlings of various shades in 1819. The method of growing Dahlias from cuttings was discovered and successfully practised. The Dahlias raised in Holland were sent to France, England and Germany, and were evidently used there for further improvements. French horticultural authors, such as Count Lelieur, in his *Mémoire sur le Dahlia*, published in 1829, state that Soutif, a nurseryman at Passy, bought double Dahlia seedlings from the Dutch raisers and put them on the market; he also raised the best French seedlings shortly afterwards.

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A glance at a contour map of Africa shows the greater part of the "great dark continent" as a huge plateau, with an average elevation of about 2,200 feet. The coastal plain, below 600 feet, is in some parts very narrow, beyond which the land rises steeply to the plateau, whence the rivers descend by a series of rapids. The Eastern Plateau averages from 3,000-5,000 feet, the highest lands being of igneous origin, like Mt. Ruwensori (18,000 feet), Mt. Elgon (14,000 feet), Mt. Kenya (17,500 feet), and Mt. Kilimanjaro (19,200 feet), near the Eastern Rift Valley. These volcanic peaks capping the plateau are clothed with a vegetation as interesting as it is varied, and they may be likened to oceanic islands in that the floras of their upper slopes are almost as much isolated. The accompanying illustrations, from photographs by Mr. T. Alexander Barns, the explorer, give some idea of the wonderful wealth of plant life found in these regions, where one meets with weird and extensive forests of Senecio and Lobelia of tree-like habit, quite unlike the species of these genera to which we are accustomed in this country. In Fig 74 is shown a sample of the herbaceous vegetation which clothes the savanna or park-like formations, in this case the plant being Clematopsis Stuhlmannii, a species of a new genus described by me a few years ago in the *Kew Bulletin* (1920, p. 20). From a phylogenetic point of view Clematopsis is of extraordinary interest, for it forms a link between the genera Anemone and Clematis which had not before been recognised, thus showing a close connection between the tribes Anemoneae and Clematideae of the family Ranunculaceae, and incidentally pointing to the true origin of Clematis out of Anemone. Even the veriest tyro in botany knows that the coloured sepals in Anemone are overlapping (imbricate) in the bud stage, whilst in Clematis they merely touch at the edges (valvate). In Clematopsis they are either wholly overlapping or some are overlapping and the remainder touching at the edges in the same flower. On this account I have established the genus Clematopsis. Another of its interesting features is that whilst most of the species have opposite leaves, like Clematis, those of Clematopsis Stanleyi (Clematis Stanleyi) occasionally revert to the alternate form under cultivation.

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According to Welwitsch, species of Clematopsis form almost a dominant feature of the vegetation in the elevated regions of Angola, where large tracts of pasture ground amidst the forests look at a distance in the flowering season as if covered with snow. Mr. Barns' photograph shows a somewhat less vivid picture in the highlands of East Africa.

A scene more typical of Abyssinia is seen in Fig. 75—that of the great Ngorongoro Crater and its lake, called Magad by the Masai people. In the far distance may be seen the opposite side of the crater ring, and in the foreground some exceptionally large examples of tree Euphorbia, probably Euphorbia abyssinica. Many of these trees must be of considerable antiquity, and at one time no doubt dominated the landscape even more than at the present day. *John Hutchinson, Kew.*

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Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

THE DEVELOPMENT OF THE DAHLIA.*

An autumn flower show in our days is nearly everywhere characterised by the Dahlia; at least, this is so in Holland, where the flower has again become a topic of public interest. The important place which the Dahlia occupies, not only at shows, but in the floriculture of the various countries, has led me to read a paper on this subject.

The highly appreciated presence of so many distinguished representatives of foreign horticulture is an appropriate opportunity to refer to the part which Holland has repeatedly played in the development of the Dahlia as an ornamental plant. I consider it a great advantage to be able to illustrate this paper by a collection of publications and plates, including many which, as a rule, are not found worthy of being preserved. Indeed, the historical truth may often be discovered exclusively in trade catalogues, especially so far as new introductions and new seedlings are concerned, which have been of some importance to the development of a plant genus, while such dates and facts can scarcely be found with the same accuracy anywhere else. The necessity of systematically preserving trade catalogues of horticultural products in public libraries is becoming recognised more and more. The United States took the lead in this direction many years ago, and at this moment the library of the State Agricultural University at Wageningen is in the possession of a nucleus of such a collection, and it will be a great pleasure to me to add the Dahlia catalogues here shown to the Wageningen collection after this conference.

Introduction of the Dahlia in Europe.

The Dahlia has so often been treated in booklets and magazine articles in various languages that the history of the introduction from its native country Mexico, is generally known. It may be remarked here that, as a rule, most authors accept as an axiom that the Dahlia has been imported from its country as a wild plant only. This seems not very likely. The endless variability which the Dahlia proved to possess at once after its introduction in Europe seems an indication that it had long been cultivated in Mexico before its arrival in Europe.

The oldest reference to the Dahlia seems to have been made so long ago as 1615, when Francisco Hernandez, physician to the Spanish king Philip II., published his work on *The Plants and Animals of Mexico.* As I have not seen this book, I cannot give any particular information on the figures of the Dahlias to which some Dahlia monographs refer. But I am pleased to be able to show the second and enlarged edition of the same book, most kindly lent for this occasion by the Director of the Teyler Institute at Haarlem. In this book, published in 1651, two, or perhaps three, figures of plants are given under the Mexican name of Acocotli, which evidently represent Dahlias, and two of them most probably D. coccinea and D. variabilis.

The facts of the introduction in Europe are well known, and seem to be well fixed. Practically, there were no Dahlias cultivated for commercial purposes until 1805 or 1806, for although the flowers had been introduced from Madrid to England in 1798 (not 1789), and to France by the Count de Selieur, the Germans were the first to grow the Dahlia successfully from seeds sent from Mexico by Alexander von Humboldt, who, with Bonpland, visited that country in 1803.

The First Double Varieties.

Von Humboldt sent these seeds to Mr. Otto, Director of the Berlin Botanic Garden, and from there the Leipsic court gardener, Breiter, evidently obtained the nucleus of his Dahlia collection, so that as early as 1806 he could offer 55 varieties, single and half-double. A perfectly double form is first mentioned in 1808, and said to be obtained from seed by Hartweg, of Karlsruhe.

In Belgium, the Director of the Botanic Garden at Liége, Mr. Donckelaar, commenced Dahlia cultivation in 1808. The third generation of his seedlings showed not only many colours and changes in the form of the foliage, but, besides the half-double flowers he had already obtained before, two absolutely double-flowering varieties, one of which was of a bluish colour. Next year he distributed these Dahlias to Paris, Ghent and London. Donkelaar discarded all the varieties that were not full double, and soon had a collection in which over sixty distinct colours were represented. In 1820 he had already raised 10,000 plants. He later raised his seedlings exclusively from dwarf varieties, and he stated that in every new generation the number of dwarf varieties increased, and in the same proportion the flowering period became earlier.

The Napoleonic wars were a great obstacle against the spreading of the Dahlia in other countries, and some years elapsed before the commercial cultivation of Dahlias commenced either in Belgium, England or France. Meanwhile, the Dahlia made its appearance in Holland, and this cannot be a surprise, considering the fact that some Dutch bulb growers, notwithstanding the disturbed state of Europe, regularly visited the yearly markets at Leipsic and Frankfort, and thus had many opportunities of obtaining seeds of the Dahlias already known in Germany.

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TREES AND SHRUBS.

NOTOSPARTIUM CARMICHAELIAE.

This little shrub, sometimes called the Pink Broom, will reach a height of four or five feet, and always attracts attention on account of its fine, Cytisus-like foliage. It flowers in the Autumn and although the flowers are small, the plant is covered with them. Being a native of New Zealand, it is somewhat tender, especially in a small state, and should be planted in a warm, sunny position and protected in very cold weather. As it grows and the wood becomes harder it will stand more extremes of weather, and any shoots that die may be cut back and the plant will break into growth again in the spring. The foliage is so fine that the stems almost look bare, and it has a very pleasing habit of growth.

The soil in which this Notospartium is planted should be well drained and made firm. The plant should be staked for a few years until it is strong enough to take care of itself. It is a gem for the front of the shrubbery. The flowers are dark rosy-pink and they are borne all over the tiny branches.

BROOMS OF LATE SUMMER.

Although the excellent late-flowering form of the common Broom, Cytisus scoparius, may often be relied upon to bloom until July is far spent, one has to depend on others to carry on the succession of flowering through August into autumn. The best of these is C. nigricans, which will make a neat-habited bush some 6 ft. in height, covered with fine spikes of citron-yellow blossoms at a season when most things have gone off. C. n. longispicatus is a form of this plant with even larger bloom sprays, and another admirable variety is C. n. Carlieri, which will often remain in flower until October. The members of the nigricans groups are among the few Brooms which are the better for pruning, and the young wood should be cut hard back in February.

C. purgans, a very hardy, low-growing bush from the mountains of France, and one of the parents of the beautiful C. praecox, is, strictly speaking, an April bloomer. But when this species gets a good check during a midsummer drought it will not infrequently break into bloom again in early autumn. Though the habit is stiff the colour of C. purgans is a rich golden yellow and the blossoms are very fragrant. C. schipkaensis is a late-summer, prostrate Broom bearing terminal clusters of creamy-white flowers which, in a favourable season, will persist for many weeks. It is certainly distinct if not a showy species and is a good rock-garden subject.

That somewhat tender Sicilian, Genista aetnensis, was in full flower in mid-August, and its long, pendulous, rush-like twigs with their shower of gold flowers produce a very charming effect. G. radiata, also a native of Southern Europe, is a grey-green, spiny shrub of about 3 ft. whose bright yellow blossoms are usually contemporary with those of the above.

Though its yellow is not of so pleasing a shade as that of most Brooms, the merits of our own G. tinctoria should not be overlooked since its very late flowering is a feature of the utmost value. This shrub, with its dark green, glossy foliage, is a good subject for open woodland or associating with Heaths, but G. t. var. elatior, which is taller, growing to over 4 ft., is a distinct improvement on the type, bearing larger and more showy terminal panicles of flower. The prostrate, double form of G. tinctoria is usually much earlier with us and is an admirable little shrub for the rock garden. But G. corniola mantica, which appears to be a semi-prostrate form of G. tinctoria, and also an early bloomer, may generally be expected to produce a second crop of blossom in autumn.

No reference to the late-flowering Brooms would be complete without a mention of that splendid old shrub, Spartium junceum. We grow this extensively grouped under tall woodland trees, among other places, and from early June to nearly Christmas it maintains an unbroken succession of its fine, sweet-scented blossoms. Though these Spartiums never get any attention they invariably flower profusely and only when, owing to old age, they get lanky and ungainly are they replaced by young plants. S. junceum will, of course, break more readily than the Brooms if cut hard back to old wood, but fresh plants are so easily and quickly raised from seed that we consider replanting the more satisfactory method of renovating worn-out groups. *N. Wales.*

VIBURNUM CARLESII.

This beautiful Viburnum is a native of Corea and is quite hardy, and I know of no shrub that has such a delicious scent. It does not grow very tall, but spreads well and the foliage is broad and somewhat rough.

The waxy, white flowers are borne in a cluster at the top of the shoots, not unlike those of a white Bouvardia. The plant prefers a rich, moist soil and requires little or no pruning. It is a shrub that should be in every collection, however small, and is also suitable for growing in pots. This shrub flowers in April and will do equally well in sun or shade provided it has good soil to grow in.

CARYOPTERIS MASTACANTHUS.

This deciduous shrub from China is sometimes called the Blue Spiraea. It is of dwarf habit, with silvery green foliage and blue flowers somewhat darker than those of Ceanothus Gloire de Versailles.

It is a splendid plant for a warm, sunny position, and flowers in September, which makes it especially valuable. The shoots should be pruned to two or three eyes during April and all weak wood taken out. The plant is apt to become overcrowded; therefore, to ensure fine, strong spikes of bloom the growths should be thinned when they commence to grow. It has never been so good with us as it was during the hot summer of 1921. The plant was well watered and was a mass of flower during September of that year. *T.*

NOTICES OF BOOKS.

The Gardens of Hampton Court.

Visitors to Hampton Court who are interested in the gardens and who, lacking much knowledge of plants, desire to know the different species grown there will find in Mr. Law's little book* a useful guide. In his brief account of the history of the Hampton Court Gardens, the author describes the additions which have been made since the Cardinal Wolsey's days. Henry VIII. added largely to them, causing to be laid out the King's Privy Garden and embellishing the gardens with fountains and arbours. In his day also an orchard was planted where is now the Wilderness. Another innovator was Queen Elizabeth, and so the gardens continued with little change until William III. undertook their entire transformation. The Great Fountain Garden, the Privy Garden and the Wilderness are due to William III., and it was he who planted the clipped Yews, rare shrubs and the Lime walks of the Great Fountain Garden. The Maze also was probably made in his time, and it is interesting to note that, according to Mr. Law, Hornbean was originally the chief plant, but that it has now become a mixed plantation of Privet, Yew and Laurel. The gardener, Switzer, did not think much of its intricacy, and claimed that in one of his own design you could lose your way twenty times, whereas at Hampton Court you could only do so three or four times. Lists of plants in the several gardens and plants thereof make up the bulk of the book, and appear to be so complete that a visitor with the guide in hand should be able to identify every plant that grows there.

* *The Flower Lover's Guide to the Gardens of Hampton Court.* By Eric Law, C.B. George Bell and Sons, York House, Portugal Street, W.C. Price 2s. net.

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante, pp. 71-76.)

(*Continued from page* 190.)

WALES.*

Cardiganshire.—All varieties of fruit trees flowered very freely in this district, but the weather was very unfavourable at the time, and only a very small proportion of the trees are bearing fruits. Amongst Pears, trees of Doyenné du Comice and Emile d'Heyst are fruiting, and the following Apples are also bearing fair crops: Allen's Everlasting, Charles Ross, King of the Pippins, Lord Grosvenor, Warner's King, and Christmas Pearmain. Of Plums only trees of Victoria, Czar, and Monarch are fruiting. Our soil is of heavy texture and cold, overlying a subsoil of slaty rock. *W. Phillips, The Gardens, Derry Ormond.*

——Apple, Pear and Plum trees flowered well, but the inclement weather of spring proved disastrous to the crops, especially during the month of May, when heavy showers of hail fell at intervals; both leaves and flowers were blown off the trees. Frost was responsible for a lot of damage during the last week of May. The three crops mentioned above are very deficient. Raspberries are scarce, but Gooseberries, Strawberries and both Red and Black Currants were equal to the average. Nuts are very scarce. Winter spraying was carried out here, with the result that few caterpillars troubled us. The Apple blossom weevil does a lot of damage. Spraying against the Plum aphis had little effect, as the spray material was repeatedly washed off before it became effectual. Leaf cluster cup on Gooseberries is on the decline, owing to spraying with a strong solution of copper sulphate. The garden is 580 feet above sea level, and lies in a valley encircled by hills rising from 200 to 300 feet, with a narrow inlet from the East and S.S.W. The soil of these gardens is a medium loam resting on a subsoil of gravel. *D. H. Dunn, Hafod, Devil's Bridge.*

Denbighshire.—Most varieties of Apples set badly; Lord Grosvenor, Warner's King, Mère de Ménage, James Grieve, Worcester Pearmain, and Charles Ross being amongst the best cropped varieties. Some Pear trees had an abundance of blossom, but the fruits failed to set owing to cold, sunless weather; many of the trees flowered for a second time. The Plum trees appeared to set a heavy crop, but owing to drying winds and sunless weather the fruits dropped when they were about the size of small Peas. Aphis on the young shoots has given a great amount of trouble. Cherries were the only satisfactory stone fruit crop. Black fly has been troublesome on Cherry trees. Peaches and Nectarines are affected with shot-hole fungus, and Peach-leaf blister has been very prevalent. The only variety of Peach carrying a crop is Princess of Wales. Apricots showed a quantity of flower but the fruits failed to set. Red Currants, Gooseberries and Loganberries were all very good. Raspberries needed rain to swell the young fruits. Aphis has been bad on Currants and Gooseberries. Strawberries were satisfactory, with the exception of being very late in ripening. There was very little mildew either on the plants or on the fruits. The soil here is a stiff loam, overlying clay, and the position north, sheltered from strong winds. *R. H. Crockford, Horsley Hall Gardens, Gresford.*

——Although fruit trees flowered fairly freely, cold, sunless weather in spring militated against the setting of the fruits. There are very few Pears, and Apples are much under the average yield. The varieties Lord Grosvenor, James Grieve, and Cox's Orange Pippin are carrying the best crops. Raspberries, Gooseberries and Currants were all good. Loganberries were a heavy crop. Strawberries were under the average quantity, but of good quality. *F. C. Puddle, Bodnant Gardens, Tal-y-Cafn.*

(*To be continued.*)

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ROYAL HORTICULTURAL SOCIETY.

EXHIBITION AT HOLLAND PARK HALL.

OCTOBER 2, 3 and 4.

The Royal Horticultural Society's Autumn Exhibition, held on the above dates in the spacious Holland Park Hall, Kensington, was extensive, effective and interesting, but we do not think it was quite so attractive as the corresponding show in 1922. Michaelmas Daisies were very much in evidence; indeed, too much so, as they emphasised the fact of autumn. Other hardy flowers were, however, shown extensively, and the yellow and red colouring of many relieved the mistiness and comparative dullness of the perennial Asters. In this they were assisted by generous displays of Gladioli, and by groups of Dahlias and Chrysanthemums. Trees and shrubs were also represented by autumn colouring; berry-bearing shrubs were not so conspicuous as could have been wished.

This great autumn show combines in itself what were formerly the two distinct shows of fruits and vegetables, but whereas trade displays of fruits and vegetables were splendidly arranged in the body of the hall, the competitive classes were provided for in the long galleries, which, on the opening day, very few people reached. This is a great pity, as formerly the competition proved a great attraction, especially for professional gardeners.

A goodly number of novelties came under the consideration of the standing committees, and the Floral Committee granted ten Awards of Merit, after patiently considering several dozens of flowers and plants. Those which gained awards were crowded together on one of the tables, so that many visitors missed them completely; more room and a conspicuous position should be provided for those subjects the committee may honour. The Orchid Committee had a less busy time, and the Fruit and Vegetable Committee could not complain of overwork.

The joint R.H.S. and National Dahlia Society Committee considered numerous Dahlias, and selected five for trial at Wisley next year.

The attendance on the opening day was good and the weather kindly, but there was not a crush such as is experienced at the Chelsea show.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. J. O'Brien (Hon. Secretary), Gurney Wilson (Assistant Secretary), E. R. Ashton, W. H. Hatcher, R. G. Thwaites, Arthur Dye, J. E. Shill, H. G. Alexander, S. W. Flory, J. T. Barker, Chas. H. Curtis, Pantia Ralli, Clive Cookson, J. Cypher, A. McBean, H. T. Pitt, Fred. K. Sander, Stuart H. Low, C. J. Lucas, W. H. White, W. J. Kaye, and J. Wilson Potter.

First Class Certificate.

Laelio-Cattleya Marina var. majestica (*C. Hardyana* × *L.-C. St. Gothard*) from Messrs. Cowan and Co., Southgate. One of the finest crosses with the favourite L.-C. St. Gothard (C. Hardyana × L.-C. Gottoiana), the second use of C. Hardyana giving surprising results. The plant bore a fine spike of large and well formed flowers nearest to L.-C. St. Gothard. The sepals and petals are bright rosy-mauve, the immense lip ruby-crimson in front, the disc yellow and with gold lines at the base.

Awards of Merit.

Cattleya Aeneas var. Goliath (*Dowiana aurea* × *Venus*) from Messrs. Cowan and Co. The largest form of the cross with well formed bright yellow flowers, the showy lip being rose-crimson in front, the base with yellow lines extending to the isthmus in the middle, which approaches some of the forms of C. Venus.

Brasso-Laelio-Cattleya maculata The Dell variety (*B.-L.-C. The Baroness* × *L.-C. Thyone*) from Baron Bruno Schroder, The Dell Park, Englefield Green (gr. Mr. J. E. Shill). A very fine improvement on the showy yellow-flowered section raised at The Dell, the first of which flowered in 1920 and was a companion to the B.-L.-C. Amber, which was also a hybrid of B.-L.-C. The Baroness. Two plants of the cross were shown, each with strong spikes of good bright yellow flowers with some rose colour on the front of the showy lip.

Sophro-Laelio-Cattleya His Majesty var. Flammea (*S.-L.-C. Marathon* × *C. Trianae Backhousiana*), from Messrs. Charlesworth and Co., Haywards Heath. A grand flower shaped like the best forms of C. Trianae. The sepals and petals are bright rosy-mauve with a gold shade, the petals having a purple band as in C. T. Backhousiana; the lip is ruby-crimson with a bright yellow disc.

FIG. 76 SOLIDAGO MISSOURIENSIS. GAINED AN AWARD OF MERIT FROM THE ROYAL HORTICULTURAL SOCIETY, AS ASTER HYBRIDUS LUTEUS, ON AUGUST 22, 1922, WHEN IT WAS SHOWN BY MR. AMOS PERRY, WHO ALSO EXHIBITED IT AT HOLLAND PARK HALL.

Laelio-Cattleya Mrs. Medo var. Sovereign (*C. Venus* × *L.-C. luminosa*), from Messrs. Stuart Low and Co., Jarvisbrook. The third and best of the cross to receive an award. The flowers are clear canary-yellow, the large labellum velvety crimson, the front extended on a narrow middle lobe as in C. Iris.

Cattleya Tagus var. Cupid (*Rhoda* × *King George*), from Messrs. Flory and Black, Slough. Flower large and finely formed of clear yellow colour with crimson lip.

Groups.

Messrs. Charlesworth and Co., Haywards Heath, staged a very fine and well arranged group, containing a very large proportion of novelties. At the back were slender Oncidiums with showy Odontoglossums and brightly-coloured Odontiodas, the ends being of white Odontoglossums of the xanthotes section which orginated with the firm. The body of the group was of showy Cattleyas and Laelio-Cattleyas with heavy sprays of the large white Moth Orchid (Phalaenopsis amabilis Rimestadiana) drooping over. The group included many Miltonia crosses, and other rare hybrids specially noteworthy being Odontonia lutea (O. Magali Sander xanthotes × Odm. luteo-purpureum Vuylstekeanum) with an elegant spray of white flowers with yellow spotting; Cattleya Lord Rothschild alba with pure white flowers and purple lip; Cattleya Luegeae Triane, a grand form with very large and richly-coloured flowers; Charlesworthara Rajah (Miltonioda Ajax × Oncidium monachicum metallicum), a marvellous cross with its first flower, which is deep claret-purple with yellow base to the lip. Another grand novelty with first flower was the richly-coloured Odonto-glossum Clonius (Aquitania × The Czar).

Messrs. Stuart Low and Co. staged a very fine and varied group of good hybrids and rare species, in the centre being a very showy and interesting selection of Sophronitis crosses of various rich tints of colour. The back was of graceful Palms with slender Oncidiums, and the body of the group contained showy Cattleyas, Brasso-Cattleyas and Laelio-Cattleyas; specially handsome were Laelio-Cattleya St. Gothard var. Lord Renfrew, one of the showiest of the class, L.-C. Ortega (L.-C. labiosa × C. Dowiana) bronzy-mauve with crimped crimson lip; excellent Cattleyas of the Hardyana class, and some very large and delicately coloured Brasso-Cattleyas.

Messrs. Flory and Black, Slough, staged a group of select hybrids, Brasso-Laelio-Cattleya Rumania Majestica, with an immense delicate lavender flower; Brasso-Laelio-Cattleya Alfred Mollet var. Baron Ohara (B.-L.-C. Morna × C. Hardyana); B.-C. Viscount Sohma (C. Moira × B.-C. Ilene); and other Brasso-Cattleyas and Cattleyas were well displayed.

Messrs. Mansell and Hatcher, Rawdon, Yorkshire, had a very large, varied and excellently arranged group replete with fine Odonto-

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glossums, Odontiodas, Cattleyas and Laelia hybrids. Large-flowered Miltonias and especially the white forms, were most effective and were marvels of excellent culture.

Other Exhibits.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), sent Cattleya Prince Shimadzu Rosslyn variety (Hardyana × Tityus), a grand example of one of the finest hybrid Cattleyas, of perfect form and rich colour; and Brasso-Cattleya Penelope Frenchay variety (B.-C. Madame Chas. Maron × C. Fabia), a large flower of fine shape.

A. M. Gentle, Esq., St. Albans, showed Laelio-Cattleya Edith Gentle (L.-C. Miss Louisa Fowler × C. Hardyana), a very pretty light mauve flower with white midribs to the segments and Tyrian purple lip; and a well-flowered plant of Pleione Wallechiana.

Messrs. Cowan and Co., Southgate, showed Cypripedium Bedfordiae (Actaeus revoluta × Shogun), a very handsome Cypripedium which had previously obtained an Award of Merit; and other hybrids.

Floral Committee.

Present: Messrs. H. B. May (in the chair), Wm. Morter, H. R. Darlington, John Heal, G. W. Leak, Chas. E. Pearson, G. Reuthe, G. Harrow, Hugh Dickson, J. F. McLeod, J. Jennings, W. Blakey, C. R. Fielder, D. B. Crane, Arthur Turner, J. B. Riding, W. B. Gingell, W. H. Page, M. C. Allwood, Thos. Stevenson, H. V. Warrender, Andrew Ireland, R. W. Wallace, W. B. Cranfield, H. J. Jones, Clarence Elliott, R. C. Notcutt, W. J. Bean, W. G. Baker, Sydney Morris, and Amos Perry.

Awards of Merit.

Berberis Autumn Beauty. This is a very beautiful Berberis when in fruit, as it carries an abundance of fairly large fruits, often as many as seven in a cluster, and these are pale creamy green at first, but change to brilliant coral red. The growths are very twiggy and more erect than in most Berberis. We are informed that it is a hybrid from B. rubrostilla. Raised at Wisley. Shown from the Royal Horticultural Society's Gardens, Wisley.

Ligustrum Quihoui. This elegant and free-flowering shrub attracted a good deal of attention by reason of its large Spiraea-like pyramidal panicles of tiny white flowers, produced freely towards the ends of the branches. The specimens shown were said to represent the tree form of this useful species. A very fine Privet, with narrow, shiny, deep green leaves. Shown by the Hon. Vicary Gibbs (gr. Mr. E. Beckett), Aldenham House, Elstree.

Gladiolus Palestine. A very effective variety with neat spikes of pale yellow or deep cream flowers, this shade being deepest on the two smaller segments and forming a fine setting for the large rich red brown blotches. Shown by Messrs. J. Kelway and Son, Langport.

Buddleia Golden Glow.—This is one of the hybrids obtained by crossing Buddleia variabilis with the old B. globosa. The spikes bear the flowers in rounded clusters that betray the B. globosa parentage. The colour is orange and yellow, with shading and tinting of pink and mauve. Shown by W. Van de Weyer, Esq., Corfe Castle, Dorset.

Buddleia Moonlight.—Another hybrid between B. globosa and B. variabilis; the flowers are borne in similar style to those of B. Golden Glow, but they are of a light creamy shade with deep orange yellow throat. Interesting but not very attractive. Shown by W. Van de Weyer, Esq.

Aster Snowdrift.—A pure white double variety with flower heads of good size and form. As shown, it is a very free flowering variety, and because of its purity it should prove useful for the art flower trade as well as for the flower border. Shown by Mr. Ernest Ballard, Colwall.

Chrysanthemum Minstrel.—A shapely and neat Japanese variety apparently of comparatively dwarf habit. The colour is deep rosy crimson. A fine early flowering chrysanthemum. Shown by Mr. H. Woolman.

Chrysanthemum Royal Salute.—This early-flowering variety has very double flowers of rich chestnut red colouring. Shown by Mr. H. Woolman.

Chrysanthemum Doreen Woolman.—A charming single variety of capital form, and bearing large flowers of a brilliant light orange, terra-cotta shade. Shown by Mr. H. Woolman, Shirley, Birmingham.

Chrysanthemum Mrs. Jack Pearson.—This orange bronze variety is fine for garden decoration, as it flowers continuously from mid-July until severe frosts arrive. Figured and described in *Gard. Chron.* of February 3, 1923, p. 65. Shown by Mr. P. Ladds, Swanley Junction.

Carnations and Pinks.

Though somewhat smaller than at Chelsea, the groups of Carnations were of considerable size, and of distinct merit. Messrs. Allwood Bros. arranged, on staging, large vases of George Allwood, their new blush salmon, which is a good companion perpetual flowering variety to the gorgeous coloured Edward Allwood, Wivelsfield Apricot, Laddie, Maine Sunshine and Wivelsfield Claret, were also excellent. On a floor space Messrs. Allwood Bros. made an attractive turf bordered garden of their Dianthus Allwoodii, with a centre grouping of perpetual border Carnations. The former included masses of Barbara, crimson; Jeanie, pale blush; Brian, salmon pink; and Beatrice, rose-madder. This little garden was particularly happy in its conception.

Adjoining their large collection of Chrysanthemums Messrs. Keith Luxford and Co. had an exhibit of fresh and bright Carnations, which included Cheerful, rosy-crimson; Tangerine, orange; Mr. Walter Hemus, pink; and Bomb, salmon. Messrs. Stuart Low and Co. arranged a number of excellent varieties. Their Eileen Low, White Pearl, Saffron, and Red Ensign, were very prominent.

At the opposite end of the hall Mr. C. Engelmann had an imposing collection of the best varieties. This was arranged with considerable skill, and the dominant varieties were Delice, Laddie, Dora and Enchantress, of pink shades of colour, and such vivid sorts as Aviator, Belle Washburn, and Tarzan.

Chrysanthemums and Dahlias.

Messrs. Keith Luxford and Co. set up an attractive group of Chrysanthemums, both large exhibition and hardy border varieties, at the end of the hall. The former included Amy Paul Labbe, a splendid incurving Japanese bloom, with broad florets of bronzy yellow, with a golden-buff reverse, which is the dominant colouring of the fine blooms. Harry Clements is another valuable variety. It is of Lady Talbot type, made up of rather broader yellow florets. Geoffrey Henslow is a large white exhibition variety. The hardy varieties, suitable for growing out-of-doors, included Rose Chatillionaise, Verona, Harry Thorpe and Polly.

A great many hardy varieties were staged by Mr. Wm. Yandall, who had Bronze Normandy, Framfield Early White, Ernest Baltet, Shrapnel, Roi des Blancs, September Glory, Hesperis and Dolores. Chrysanthemums were associated with herbaceous flowers by Messrs. Wm. Artindale and Son, and with Michaelmas Daisies by Messrs. Dickson and Robinson.

Dahlias were extensively shown, and in spite of the fact that some districts have suffered from early frosts, the blooms were of great beauty. Messrs. Carter Page and Co. filled a large space with excellent varieties. Roy Hay, Mrs. Wurfbain, and Rev. Robinson, of the large decorative type; Signal and Masterpiece of the many Cactus varieties: Yellow Star, Nora Belle and Lady Greer are the names of only a very few of the excellent sorts they staged. At the end of the group Messrs. Carter Page and Co. arranged some very good Roses.

Collerette varieties were freely included by Messrs. Dobbie and Co. in their exhibit of Dahlias; the chief varieties were: Arran, rose with white quills; Hussar, scarlet; Glencoe, a deeper shade; with Strathmore, a rose-flushed cream of great beauty. Show and fancy varieties displayed in stands were particularly decorative, and the sorts so employed included Mrs. Langtry, Warrior and Model. Along the front of the group there were many Pompon and Cactus varieties, while at the end a small collection of well grown Sweet Peas attracted a deal of attention.

In the centre of their interesting contribution, Messrs. Jarman and Co. had a massed Rose Supreme, a lovely miniature Paeony Dahlia. Their new Joyce Goddard, a large Paeony-flowered variety of delightful orange-scarlet flushing, was also admirable. They also had a goodly number of Star, Cactus and Decorative types.

Miniature Paeony-flowered varieties of charming colours were included by Mr. J. T. West in his collection. This type included Lovely, Daydream, Conspicua, Rainbow, Neville and Dazzler.

It was several of the large Decoratives and Paeony-flowered varieties that, at first, "took the eye" amongst Mr. Chas. Turner's Dahlias. These were Toreador, Orange Bower and Phidias, and they also served to draw attention to such dainty little Pompons as San Toy, Johnnie, Mars, Censor and Ideal.

Messrs. Wm. Treseder, Ltd., had a large collection of fresh blooms of all types, Roy Hay, Mrs. Hay, President Wilson, Ebor, Anglaia and Delice of the large types. Miss Irens, a self-coloured Collarette, Mrs. Perry, a self-scarlet, and both of useful decorative size, were very charming. They also had very good boards of exhibition, Show, Fancy and Cactus varieties. Mr. John Forbes had a quantity of the dwarf single Coltness Gem, which is so valuable for bedding, with their herbaceous flower exhibit.

In a representative collection, Mr. J. B. Riding showed Mrs. C. Vaughan, Insulinde, Aquitania, Le Grand Jaune and Reve d'Armour of the large Paeonies and Decoratives, and Glut, Rhoda, Fairy, Halley and Glory of Stanhaus representing small varieties of the same type. He also had some especially good Cactus and single-flowered varieties.

Show Single Dahlias of perfect form and charming colouring were freely staged by Messrs. J. Cheal and Sons, who also specialised in their many decorative Star varieties. Amongst the larger sorts they included the Decoratives H. C. Drusselhuys and King Harold.

Stove and Greenhouse Plants.

There was no group of the ornamental stove specimens such as were important features of bygone days. In a corner Messrs. Robert Green, Ltd., had a very effective group of Palms. There were excellent specimens of Phœnix Roebelinii, P. canariensis, Cocos flexuosa, Kentia Fosteriana, and K. Belmoreana. In another corner Messrs. Green displayed well-grown specimen Bay trees.

A miscellaneous collection of greenhouse plants shown by Mr. E. H. Causer included Cyclamen persicum varieties, Bouvardias, Primula obconica, greenhouse Ferns, together with small pot plants of Veronica speciosa in variety. Trusses of Zonal Pelargoniums, both single and double flowered, were set up by Mr. R. J. Case. His principal sorts were A. J. Macself, deep purple; Golden Lion, orange scarlet; John Daniell, warm salmon pink; and Mars, crimson, of the singles; while chief among the double-flowered varieties were Baronne A. de Rothschild, semi-double Hydrangea pink; Champ de Neige, pure white; Diales, deep crimson lake; and Emperor Nicholas, white, with edging of rosy purple.

Adjoining their Carnations, Messrs. Stuart Low and Co. arranged tall plants of Acacias (Mimosas) interspersed with grand groups of Bouvardia Humboldtii and Chironia exifera. Mr. W. Bunn showed his new Cactus-flowering Geranium.

A group of glorious Begonias was exhibited by Messrs. Blackmore and Langdon, who showed grand plants and flowers of magnificent form, size, and colour, some being 8 inches

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in diameter. The leading varieties were Albatross, white; Lord Lambourne, orange; Hilda Langdon, pink; Queen of the Belgians, deep pink, almost salmon pink; James Braid, crimson scarlet; and Lady Cory, a lovely salmon.

An exceedingly interesting collection of Cacti was arranged by Mr. Sidney Smith. His tall plants included varieties of Cereus, Opuntia, and Euphorbia, while the many small plants were chiefly of Mammillaria, Echinocactus, with a goodly variety of Echeverias and Sempervivums.

Trees and Shrubs.

One of the principal central spaces was well filled by Messrs. L. R. Russell, Ltd., with hardy trees and shrubs. Clematis were freely employed, and under the artificial light a group of the white-flowered Marie Boisselot was exceedingly effective. Associated with it were the varieties Princess of Wales, silvery-lilac, Lady Betty Balfour, royal purple shades, and Jackmanii rubra. Besides many of these excellent Clematis Messrs. Russell showed general shrubs, including Rhus typhina, Pittosporum, Silver Queen, and a collection of hardy Fuchsias.

Messrs. Hillier and Sons displayed a valuable group, largely of the newer Chinese Conifers, nearly all of which were represented. Their extensive Conifer collection included Pinus Armandii, P. Ayachuite, Abies religiosa, A. squamata, A. recurvata, A. Forrestii, Cupressus funebris, Torreya Myristica and Cunninghamia sinensis. Interspersed with the Conifers were several Japanese Maples, with brilliantly coloured foliage.

An effectively sober-hued group was arranged by Messrs. A. Charlton and Sons. They used Ilex crenata, Sycopsis sinensis, and the grey-green Senecio Grayi very effectively, with Eriobotrya japonica, various Cupressuses and Actinidia chinensis. The whole was attractively bordered with the variegated Veronica speciosa.

The dark green foliage of various large-leaved Rhododendrons in the group displayed by Mr. G. Reuthe well illustrated their value, even when not in flower, and in addition to their luxuriance is added the charm of the russet or white tomentum beneath. The chief of such sorts are Hodgsonii eximium maximum, and Falconeri. Enkianthus campanulatus, and Berberis Sargentiana supplied gorgeous colouring in their blood-red autumn foliage, while the clear and scarlet berries of Viburnum theiferum added to the effect. Liliums, Asters and Colchicums in great variety were also employed.

Clematis were prominent in a group arranged by Messrs. G. Jackman and Sons, whose outstanding large-flowered varieties were Betty Balfour, Marie Boisselot, Fairy Queen, Crimson King, and Jackmanii superba. They also showed several exceedingly floriferous plants of the fragrant "Maidens' Bower," Clematis flammula and C. paniculata. Many splendid blooms of Gaillardias, Sunflowers and Michaelmas Daisies were also incorporated in the collection.

Erect plants of the grey-green Cytisus proliferus made an uncommonly good effect in a flower group arranged by Messrs. Waterer, Sons and Crisp. They also had dwarf Conifers, Lilium tigrinum varieties, masses of Gladioli and Michaelmas Daisies, while, amongst the bordering of such dwarf shrubs as Erica vagans and varieties, there were many Colchicums.

In close conjunction with Mr. H. J. Jones's magnificent central group of Michaelmas Daisies Messrs. R. and G. Cuthbert had a very effective arrangement of hardy trees and shrubs. Acer Negundo variegata, dwarf Conifers, various golden and silver-leaved Hollies, Ceanothus Gloire de Plantieres and Ericas were the chief subjects.

Messrs. J. Cheal and Sons had two groups in the same sector. One contained excellent examples of topiary work, and the second was filled with general trees and shrubs. Autumn foliage of vivid colouring predominated, and the chief species were Parrotia persica, Quercus palustris, Berberis Thunbergii splendens and Euonymus alatus. Beautiful golden colour was provided by Acer japonica lacinatum and Koelreuteria paniculata.

Dwarf Conifers eminently suitable for planting in the rock garden were shown in close conjunction with alpine plants by Mr. G. G. Whitelegg and Mr. Clarence Elliott. They both had very good specimens, particularly of prostrate Junipers and the erect little glaucous upright Irish Juniper. The spreading dwarfed varieties of Picea were also shown. Mr. John Klinkert set out, near the raised bandstand, good specimens of topiary.

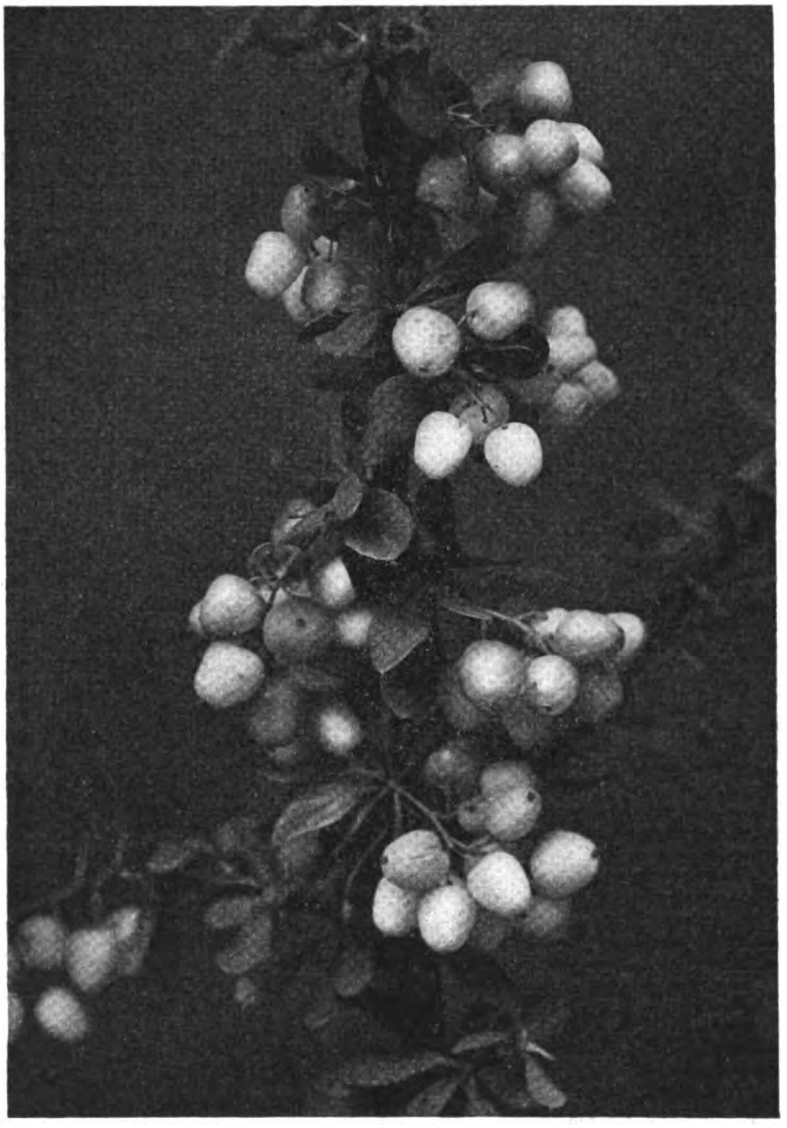

FIG. 77—BERBERIS AUTUMN BEAUTY: R.H.S. AWARD OF MERIT, OCT. 2 (SEE P. 208).

Roses.

A long stretch of tabling just inside the corridor at the main entrance was filled with beautiful Roses, and there were other groups in various parts of the hall. The arrangement by Mr. George Prince was particularly successful, and he had lovely vases of Lady Plymouth, Columbia, Golden Emblem, Etoile de Hollande, Covent Garden, and many other valuable varieties, making altogether a memorable display of first-class Roses.

A quite different style of arrangement was adopted by Mr. Elisha J. Hicks, whose chief feature was very tall columnar stands of Hugh Dickson, Golden Ophelia, Columbia and climbing Lady Hillingdon, with beautiful arches of Madame Butterfly, Ophelia and Melody. Along the front he had dwarfed masses of such sorts as Premier, W. F. Dreer and White Ophelia.

A well arranged collection was set up by Messrs. B. R. Cant and Sons, who employed masses of Emma Wright, Golden Ophelia, Mrs. E. Powell, Modesty, Hugh Dickson, George Dickson, Padre, and Mrs. Christie Miller to good effect. Such sorts as Martha Dreer, Souv. de Claudius Pernet, and Margaret Dickson Hamill were well shown by Mr. John Mattock.

Boxes of very creditable exhibition blooms were disposed along the front of their display of Roses by Messrs. S. Prior and Sons. They also staged the new dwarf Polyantha Alice Amos, single pink, with the double Alice of similar colouring. Messrs. Waterer, Sons and Crisp showed such good varieties as Los Angeles, Lady Pirrie, K. of K., Ophelia, and General McArthur.

A highly attractive group was put up by Messrs. Chaplin Bros., who used quantities of Red Letter Day, Emma Wright, Innocence, Lady Pirrie, Mrs. Henry Moore, and other desirable sorts. Varieties of his own raising were prominent in the collection of the Rev. J. H. Pemberton, with these included Nur Mahal, Mermaid, Aurora, Mary Munro and The Adjutant.

Arches of their last year's novelties, Lady Inchiquin and Betty Uprichard, were delightful in the group of Messrs. Alex. Dickson and Sons, who also displayed Lady Pirrie, Margaret Dickson Hamill, Sunstar, Betty Hulton and Shot Silk, of charming colouring.

The pink H.T., Capt. F. S. Harvey-Cant, was exhibited by Messrs. Frank Cant and Co., who also staged a good vase of the beautiful Isobel.

Roses were associated with Dahlias, Violas, and general border flowers by The Central Garden Supplies.

Adjoining their Dahlias Messrs. Dobbie and Co. staged very good vases of Sweet Peas. Considering the lateness of the season these

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were very meritorious, and included such sterling sorts as Picture, Majestic Cream, Constance Hinton, Royal Purple, Royal Scot, and Hawlmark Pink. They also set up uncommonly good Zinnia blooms.

Hardy Flowers.

Herbaceous plants and flowers formed the majority of the exhibits at Holland Park Hall, and of these Asters were the predominating feature. Nevertheless there was no lack of variety in the groups which, owing to conditions favourable to second flowering, included numbers of the earlier blooming border plants.

Mr. H. J. Jones' group took the form of tall pillars of Asters, the centre one of which was crowned with a new white seedling. In addition to good examples of the Novii Belgii and Amellus groups, some fine varieties of the ericoides section were shown, one of the best of which was Florrie. Another fine exhibit of Asters was arranged by Messrs. Dickson and Robinson, whose extensive group comprised over one hundred varieties. Among others was an improved form of Lil Fardell, which was said to possess a pleasant fragrance. Some new, early-flowering, single Chrysanthemums also formed part of this fine exhibit.

Messrs. G. Jackman and Son, in addition to a good display of Clematis, among which Crimson King and Fairy Queen were conspicuous, had a representative exhibit of herbaceous plants. Bright Gaillardias, Kniphofias and Helianthus species contrasted well with the blues and lilacs of the Delphiniums and Asters, while masses of red colouring were provided by flowers of Pentstemon Southgate Gem. A large group of herbaceous plants backed by Japanese Maples was arranged by Mr. Amos Perry, in which Solidago missouriensis (given an Award of Merit on August 22, 1922, as Aster hybridus luteus—see Fig. 76), and Aster Snowdrift figured attractively.

A brilliant contrast was seen in the colours of Gentiana acaulis, and G. Farreri, together with Geum Borisi, which were seen in the group staged by Mr. W. Wells, Junr. Other interesting plants here were Eupatorium Fraseri and Trollius species. Messrs. John Waterer, Sons and Crisp showed good varieties of Asters, edged with the black-eyed Rudbeckia speciosa. The Amellus section was well represented, and included the deep blue-lilac variety Ultramarine, and a variety named Stella, which is rendered distinct by reason of its very narrow ray florets. The exhibit of Messrs. Bowell and Skarratt was by no means lacking in variety. Among other plants we noted Nymphaea albida, Clematis tangutica var. obtusiuscula, the dark blue Hyssopus aristatus, and a good form of Arabis alpina rosea.

Messrs. Gibson and Co. showed some handsome Verbascum hybrids, Pyrethrums, Gladioli, Phloxes, and some fine spikes of Lilium tigrinum magnificum. Lilies were also seen in the exhibit of Mr. Reuthe, including some examples of L. speciosum rubrum. This group was edged with species of Colchicum and enlivened by the deep red of Lobelia fulgens. Messrs. Harkness and Sons showed some good spikes of Lilium auratum and a number of Lupinus polyphyllus hybrids, the delicate shades of which were rather overpowered by the brilliant orange-scarlet and blue of other plants.

Messrs Wm. Cutbush and Son displayed Asters interspersed with baskets of Dahlias, and in the centre of their group placed a large basket of Pentstemon seedlings. The most conspicuous of the Michaelmas Daisies were the pink Ethel Ballard and the white Snowdrift. In Mr. E. Scapelhorn's group were some capital blooms of the pink Amaryllis Belladonna and of Lavatera Olbia rosea. Numbers of Gladioli were also shown. Gladioli were also exhibited by Messrs. R. H. Bath, Ltd., and attractive varieties were Yellow Hammer and Baron Joseph Hulot. Mr. H. Vigers contributed Antirrhinums, African Marigolds, and border Chrysanthemums. Some excellent Kniphofias in Messrs. Baker's exhibit included K. aloides grandiflora and K. Tuckii, which contrasted well with the violet-coloured Delphinium Mackay, with its dark stems. A bright, rose-coloured Astilbe named Granat and the white A. Beauty of Codsall, which is green in the bud state, were also attractive in Messrs. Baker's collection.

Messrs. Isaac House and Son showed a large group of their beautiful Scabious, with colours ranging from white to deep bluish lilac; while Messrs. John Forbes, Ltd., had a bright array of choice varieties of Pentstemon and Phloxes. In addition to herbaceous plants, Messrs. Maxwell and Beale staged a miniature rock garden furnished with dwarf Conifers and Ericas, the latter including E. ciliaris rotundiflora. Rock plants were also shown by Mr. Fred G. Wood and by Messrs. W. H. Rogers and Sons. In the group from the last-named firm was a spray of Skimmia oblata nana, with its scarlet fruits.

Mr. Ernest Ballard had a fine group of Asters, chiefly of his own raising, embellished with brown Bracken fronds and sprays of Golden Rod. In the centre was a big mass of the almost violet Little Boy Blue Aster. Associated with some brilliant Begonias by Messrs. Blackmore and Langdon were grand Delphiniums and other herbaceous plants. Bold groups of herbaceous plants were also exhibited by Mr. Thomas Carlile, including Hollyhocks and Phloxes; and by Messrs. Wm. Artindale and Son, who also showed a number of Gladioli. The bright group of Gladioli set up by Messrs. Lowe and Gibson was rendered very attractive by the association of sprays of autumn foliage with the spikes.

A brilliant display of hardy hybrid Lobelias made up an interesting exhibit from Messrs. B. Ladhams; the range of colour was wide and the massed effect excellent.

Messrs. James Macdonald and Sons made another of their fascinating formal gardens, solely of grasses. Amply bordered with green grass of ideal texture were beds of very highly ornamental varieties, which attracted a deal of well-deserved admiration. A little model sunken garden, with rockery, was made by Mr. Ernest Dixon.

Violets of considerable merit and in generous quantities were shown by Mr. B. Pinney and Mr. J. J. Kettle.

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (Chairman), J. Cheal, A. H. Pearson, H. S. Rivers, W. Crump, Geo. Kelf, E. Neal, P. D. Tuckett, W. F. Giles, A. B. Dicks, G. Reynolds, F. Jordan, A. Bullock, T. Pateman, Geo. Woodward, H. Prince, N. F. Barnes, P. Veitch, J. Harrison, H. Markham, James Vert, W. Lobjoit, J. Gibson, F. Treseder, J. C. Allgrove, A. W. Metcalfe, W. Pope, E. Harriss, J. Basham, W. H. Divers, J. Wilson, Geo. F. Tinley, J. G. Weston, A. C. Smith, and A. N. Rawes.

Apple Comrade was exhibited by F. C. Stoop, Esq., West Hall, Byfleet (gr. Mr. G. Carpenter), for competition in the Bunyard Cup class, but no award was made as the Committee considered that the variety was too much like James Grieve and showed no advance.

A new variety of Grape was shown by Mrs. T. S. Hall, Crichel St. Thomas, Chard. It resembles Mrs. Pince variety and is said to be growing under trial at Wisley.

A perpetual fruiting variety of Strawberry named Boreal Giant was shown by Mr. Robert Holmes, Norwich. Flowers and ripe fruit were present on the same inflorescence which makes a big truss; the berries are round, smallish and of dark red colour. This variety is said to be on trial at Wisley.

A very promising unnamed seedling Apple sent by Mr. C. Huggins, The Chestnuts, Coldinhill, Hertfordshire, was received with favour by the Committee, who requested to see the variety again after Christmas.

Non-Competitive Exhibits.

Mr. J. C. Allgrove put up an imposing group of pot fruit trees, all cropping profusely and with samples of choice varieties of hardy fruits in baskets around the base of the exhibit. Special prominence was given to his new coloured Jefferson Plum named Allgrove's Superb, the fan-trained trees of this variety being laden with choice fruits. Exquisite little trees of Merlin Peach and others of such choice Plums as Jefferson, Coe's Golden Drop, Golden Transparent Gage, and Early Transparent Gage were all bearing choice fruits in great freedom. There were also excellent samples of such Apples as Bramley's Seedling, Newton Wonder, Lane's Prince Albert, Rev. W. Wilks and Ontario, but the most conspicuous was the rosy-scarlet cheeked S. T. Wright, a new variety sent out by Mr. Allgrove last autumn. The inclusion of Grapes, Blackberries, Rosa Moyesii, and R. Fargesii added further interest to the display.

Messrs. G. Bunyard and Co., Ltd., displayed Apples and Pears in fancy baskets of a deep mahogany colour, a tone that suggests autumn and fruit harvest time. The group was displayed for effect and the desired result was obtained, for the exhibit was one of the most notable of the many displayed in the hall. A touch of greenery with Palms and Asparagus foliage gave the necessary foil. The fruits were of first-class exhibition size, and the colour in the Apples was developed to a high degree, such sorts as Devonshire Queen, Ben's Red, Cutler Grieve, Wealthy, Red Victoria and Worcester Pearmain being coloured an intense red. The Apples embraced sixty varieties, and there were six sorts of Pears.

The Barham Nursery, Ltd., showed nearly one hundred varieties of Apples, the group having a little decoration of autumn foliage. The fruits were of fine quality generally, the more notable sorts being Cox's Orange Pippin, Bramley's Seedling, Lane's Prince Albert, Newton Wonder, King of the Pippins, Ellison's Orange, Chas. Eyre, Encore, Sir John Thornycroft, and Worcester Pearmain, the last extra fine.

Messrs. Waterer, Sons and Crisp, Ltd., exhibited pot fruit trees, the collection including a new variety of Apple, named John Waterer, a cordon tree with two fruits and another with eight fruits. The largest Apple on the former tree was estimated to weigh nearly two pounds. It was mistaken by many for Rev. Wilks' variety, the shape being like that older sort, but the colour is greeny-yellow. There were also excellent fruited trees of Ribston Pippin, Cox's Orange Pippin, Washington, Allington Pippin and Chas. Ross. The Pears included Doyenné du Comice, Conference, and Beurré Superfin, whilst a few standard trees of Brown Turkey, Negro Largo and Brunswick added variety and further interest.

The Swanley Horticultural College had a small exhibit of Apples and Pears, the fruits being remarkable for their high colouring, especially the varieties Peasgood's Nonesuch and Bismarck.

The Orpington Nurseries showed Apples and Pears in considerable variety and of fine quality. The fruits were well coloured and arranged in an attractive style. Notable dishes were Allington Pippin, Ben's Red, Peasgood's Nonesuch, Lord Derby, American Mother and Blue Pearmain.

Messrs. T. Rivers and Sons, Ltd., showed pot vines finely fruited. They were in a variety of shapes, single rods, flat-trained, and umbrella shape. The varieties were Alicante, Gros Colmar, Gros Maroc, Melton Constable, and Lady Hutt. Baskets of Apples grown under glass were displayed in conjunction with the Grapes, the fruits having that luscious, mellow appearance always associated with orchard house produce, and every fruit was a choice specimen.

Studley College showed Apples and a few Pears tastefully arranged with decorations of Rose hips, Cotoneaster frigida and Brambles. Warner's King, Peasgood's Nonesuch and King of the Pippins were outstanding dishes.

Messrs. Spooner and Sons showed some forty varieties of Apples.

The Hon. Vicary Gibbs (gr. Mr. E. Beckett) showed one of his outstanding collections of vegetables, this time the most extensive he has displayed at an exhibition. A stand similar

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to the one he used at Chelsea was employed for exhibiting the various dishes, and consisted of an open trellis at the back with a floor of sea-green boards, and the back of the trellis draped with green velvet. Almost every vegetable grown in this country was shown, from Chinese Radishes to Globe Artichokes. Especially good were Leeks, Improved Lyons; Cauliflowers, Early Giant; Carrots, New Red Intermediate; Onions, Ailsa Craig; Turnip, Elstree Early; Cos Lettuce, Mammoth White; and Celeries, Aldenham White and Aldenham Pink. The group was cleverly arranged with a view to colour effect, bright tones being provided by groups of Aubergines, Tomatos, coloured Beans, golden and red kinds; Cucumbers, Chilian Beet, Sea Kale Beet, Radishes, and coloured Potatos. This fine exhibit was adjudged the best in the show and awarded the Coronation cup.

Messrs. Sutton and Sons had an exceedingly fine display of vegetables on a staging draped with black velvet. The exhibit was one of the largest in the Hall, and both in quality and style of arrangement left little to be desired. The Celeries, including Solid White, Giant White, White Gem, the earliest of all Celeries, and Sulham Prize, were marvellously good, and others that call for special notice are Student Parsnips, Sutton's Autumn Mammoth Cauliflowers, Prize Taker Leeks, Ailsa Craig Onions: Perfection, Golden Perfection and Best of All Tomatos, A.1 Kales and Gladstone Peas. Interspersed in the collection were plants of Capsicums, which gave a very decorative effect, and there were gathered fruits of Aubergines, Capsicums and Chillies, whilst in the body of the group were Cabbages, Brussels Sprouts, Lettuces, Chicory, Endive, Spinach, Cucumbers, Chinese rose-coloured Radishes and Black Spanish Radishes, and numerous other kinds. Onions were an especially strong feature in the exhibit, and embraced no fewer than thirty varieties.

Messrs. H. Chapman, Ltd., Rye, showed several new vegetables, including a yellowish Tomato with a suffusion of red, which was appropriately named Blood Orange, and Rotherside, a red variety of very even size in the truss, which bears a very large number of fruits. Orange Sunrise is another new Tomato. Rotherside Orange Marrow, which was highly commended in the trial of Marrows at Wisley this year, was also displayed, and there was a big Capsicum, Rotherside Mammoth, said to be the largest Capsicum in cultivation.

Messrs. Dobbie and Co. showed Potatos in their usual attractive style, the collection on this occasion comprising thirty baskets, each of a distinct variety. The varieties included all the standard sorts as well as novelties. As a selection we may instance Di Vernon, a new early variety, Catriona and Katie Glover, two new second early varieties; Arran Rose, a pink kidney early variety, Midlothian Early; Arran Comrade, Great Scot, and Majestic, all white kidney second early varieties; Kerr's Pink and The Bishop, two excellent late varieties.

Competitive Vegetable Classes.

The most important class in this section was that for a collection of 12 distinct kinds selected from a specified list. There were five competitors, of whom the Rev. J. Davies, Crowle Vicarage, Worcester, was easily first, with produce of remarkably fine quality and the largest size. There was not a weak dish in the exhibit. The Onions, of the Premier variety, were splendid, but some preferred the dish of Arran Comrade Potato as the best vegetable shown, and it was the finest dish of Potatos in the show. Carrots of the New Red Intermediate kind, Prize-winner Beans, Michaelmas White Broccoli, Ailsa Craig Tomatos, Selected Gladstone Peas, and Tender and True Parsnips were all of the finest exhibition quality. 2nd, Viscount Hambledon, Greenlands, Henley-on-Thames (gr. Mr. W. Turnham), whose Exhibition Brussels Sprouts, Delicacy Cucumbers, King Edward Potatos, Best of All Tomatos and Student Parsnips were of grand quality and extra large size. 3rd, E. E. Palmer, Esq., Drayton House, Basingstoke (gr. Mr. E. J. Dibben).

For a collection of nine distinct kinds, two competed, the prizes being awarded to R. Chetwynd Stapylton, Esq., Headlands, Great Berkhamsted (gr. M. W. Meager), and V. C. Vickers, Newsells Park, Royston (gr. Mr. W. Watkins), in this order. The produce in the premier collection was the smaller, and some regarded certain dishes, such as the Carrots, Onions, and Brussels Sprouts, as being much inferior to those in the 2nd prize collection, but they were in conformity with the conditions of the schedule, which stipulated "only those vegetables which are in daily use, but specially of the quality and size in which they are most acceptable and suitable for table use."

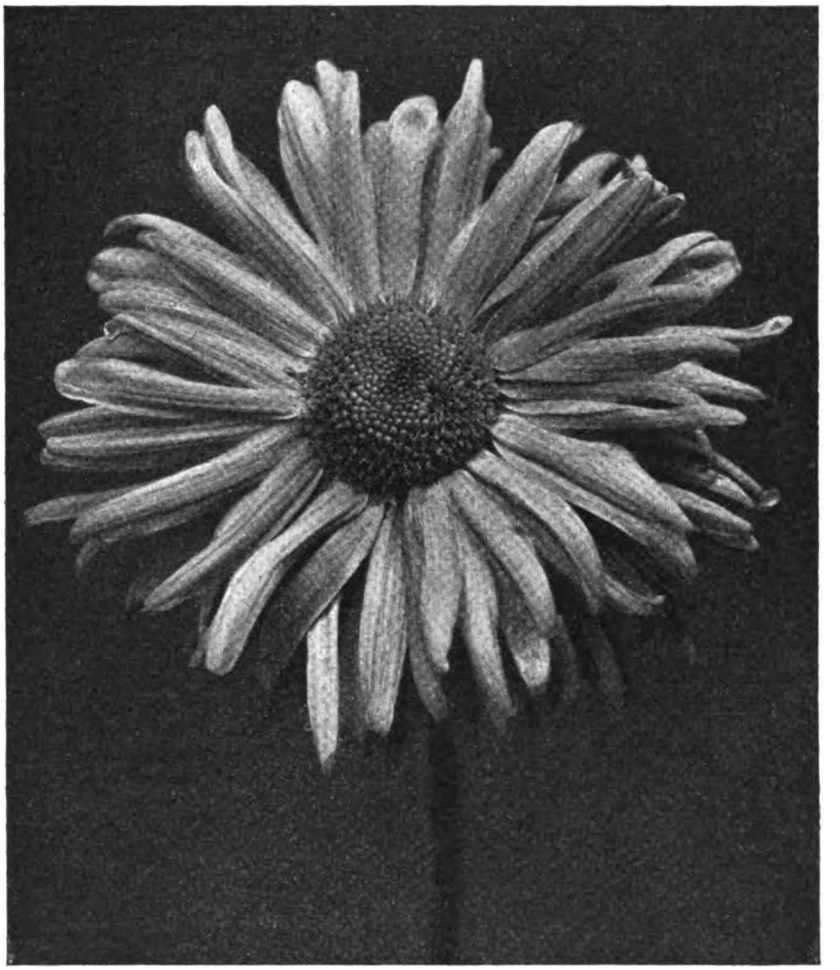

FIG. 78.—CHRYSANTHEMUM DOREEN WOOLMAN: N.C.S. FIRST CLASS CERTIFICATE, OCT. 1; R.H.S. AWARD OF MERIT, OCT. 2 (SEE P. 208).

For a collection of six distinct kinds selected from a list the 1st prize was awarded to Mr. W. Taylor, Grinshell, Shrewsbury. His Holborn Onions were extra large and of high quality, and there were fine Arran Comrade Potatos, Autumn Giant Cauliflowers, Sunrise Tomatos, Scarlet Emperor Runner Beans, and Aldenham Pink Celery. 2nd, J. Day, Esq., Berkhamsted, whose tubers of The Bishop Potato were of exceptional quality. 3rd, Mrs. Austin, Totteridge, Hertfordshire (gr. Mr. E. Longhurst).

Potatos. There were several entries in the class for a collection of 12 varieties, distinct, and the 1st prize was awarded to G. Thorn, Esq., Willesborough, Kent (gr. Mr. Hoad), for clean, shapely tubers of Renown, Arran Comrade, King Edward, Majestic, Kerr's Pink, Goldfinder, Abundance, Tinwald Perfection, and Snowball. 2nd, Sir Charles Nall-Cain, Bart. (gr. Mr. T. Pateman), with larger tubers of first-rate quality.

For a collection of six immune varieties, there were four entries, and the prizes were awarded to Mr. Head, Mr. J. Day, Berkhamsted, and Mr. R. Basil Hoare (gr., Mr. H. Penfold), in this order. Mr. Head showed Arran Comrade, Snowball, Majestic, King Albert, America and Dominion.

Onions.—The best collection of six kinds of Onions was shown by Viscount Hambledon, N. C. Vickers, Esq., Royston (gr., Mr. W. Watkins) being 2nd, and R. H. King, Esq., Berkhamsted 3rd. The largest bulbs shown by Viscount Hambledon were of Ailsa Craig variety.

The best salad vegetables, in six distinct kinds, were shown by Viscount Hambledon, who staged Cucumbers Delicacy, Blood Red Beets, Best of All Tomatos, Ideal Lettuces, Solid White Celery, and Mustard and Cress; 2nd, Mr. R. C. Stapylton.

Single Dish Classes.

The best Scarlet Runner Beans were shown by Mr. Vickers, the variety being Best of All. Mr. Palmer excelled in the class for climbing French Beans, with the variety Princess of Wales, and Mr. Palmer in that for Dwarf French Beans, with Canadian Wonder.

The finest Globe Beets were Reliance, shown by Mr. Thorn, and the best Long Beets Sutton's Black, shown by Sir Charles Nall-Cain.

Brussels Sprouts were best shown by Mr. R. H. Ling; the only exhibit of three plants of Brussels Sprouts, shown by Sir Chas. Nall-Cain, was awarded the 2nd prize.

Mr. Vickers had the best Cabbages (Savoys), Mr. Palmer the best Cauliflowers (Autumn Giant), the best Celeriac, and the best Onions. Mrs. Farnham won the first prize for Celery, with Selected Red; Mr. C. Thorn excelled in the class for Cucumbers with Everyday variety. The best Leeks were exhibited by Viscount Hambledon, with the Prizetaker variety: Marrows of the Long Green striped variety,

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shown by Mr. R. H. Ling, were adjudged the best in a strong class. Tender and True Parsnips from the Rev. Davies won in the class for this vegetable, whilst for Peas Mr. R. H. Ling, with Gladstone, was placed first. Mr. Pateman showed the best white-fleshed Turnips (Snowball). Mrs. Farnham, the best red or green-topped Turnips (Manchester Market); and the Rev. Davies the best yellow-fleshed Turnips (Golden Ball). In the class for white Potatos Mr. G. Thorn scored with Majestic, and in the class for coloured Potatos Mr. Pateman excelled with King Edward variety. Mr. T. Pateman was awarded the first prize in the class for Kales. Mr. Palmer was awarded the first prize for Tomatos with Best of All variety. In the class for any other vegetable, Aubergines, shown by Mr. Vickers, and Salsafy by Mr. Palmer, were adjudged equal second, no first prize being awarded.

Competitive Fruit Classes.

There were two classes for choice collections of dessert fruits which need not be grown under glass—the one for a collection of nine dishes, the other for six dishes.

Only one exhibit was forthcoming in each class, and the first prize was awarded in each case.

The exhibitor in the larger class was Sir Charles Nall-Cain, Brocket Hall, Hatfield (gr. Mr. T. Pateman), whose fruits were of the highest merit. His Grapes were Muscat of Alexandria and Madresfield Court, shapely bunches with well finished berries. He had also Lady Palmerston and Princess of Wales Peaches, Nectarine Pineapple, Doyenné du Comice Pears, Brown Turkey Figs, Cox's Orange Pippin Apples, and a grand fruit of Hero of Lockinge Melon.

The exhibitor of the smaller collection was Viscount Hambledon, Greenlands, Henley-on-Thames (gr. Mr. W. Turnham), who showed well finished bunches of Black Hamburgh and Black Alicante Grapes; Pitmaston Duchess and William's Bon Chrêtien Pears; Apples Rival and Worcester Pearmain, and a large Melon of Queen of the West variety.

Grapes.—There were ten classes for Grapes, but no exceptional bunches were forthcoming, the quality generally being good, but not of outstanding merit. The largest class was for six distinct varieties, two bunches of each, and two sorts of white Grapes were required. It was unfortunate that one of the two exhibitors misinterpreted the reading of the schedule and staged two bunches of white Grapes instead of two distinct varieties. The first prize was awarded to W. H. Thickett, Esq., Bradley, near Grimsby (gr. Mr. J. Irving). His Muscat of Alexandria were large of bunch, but rather small of berry and greenish. Gros Colmar was extra good, and his other sorts were Mrs. Pince Alicante, Madresfield Court and Cannon Hall.

G. Mayer, Esq., Wistlers Wood, Woldingham (gr. Mr. W. Sayer), who was disqualified, had finer Muscats and excellent bunches of Mrs. Pince and Prince of 'Wales.

No entry was forthcoming in the class for three varieties if Grapes.

In the class for Black Hamburgh, the only exhibitor, E. Mayer, Esq., was awarded the 2nd prize, and this exhibitor was first in the class for Mrs. Pince and Prince of Wales.

Viscount Hambledon excelled in the class for Muscat of Alexandria, in which there were five competitors, Mr. Mayer being second.

No entry was forthcoming in the class for any other black Grape, but for any other white Grape Mr. Thickett was awarded the 1st prize for Cannon Hall and Sir Chas. Nall-Cain the 2nd prize for Lady Hutt.

Fruits Grown Entirely in the Open.

There were four classes for Apples, but competition was not so good as usual, and in the one for twelve dishes, distinct, eight culinary and four dessert sorts, there was no entry. There were two good collections in the class for twenty-four varieties, sixteen cooking and eight dessert, and Sir Charles Nall-Cain won the first prize with splendid fruits of such sorts as Wealthy, Rival, Lord Derby, Peasgood's Nonesuch, and Ellison's Orange. This exhibitor also excelled in the class for six distinct varieties of culinary Apples in competition with three other growers. The Earl of Bessborough showed best in the class for six varieties of dessert Apples, the number of entries totalling five. It is a matter for regret that no entry was forthcoming in either of the classes for eighteen dishes of dessert Pears; nine dishes of dessert Pears; three dishes of Plums; three dishes of Damsons or Bullaces; or Morello Cherries. The shortage of Pears and Plums is probably partly accountable, but the small value of the prizes may also have had some effect. The only exhibit of autumn Raspberries was from Capt. Drummond, who was awarded the first prize, and this exhibitor was successful in the class for Figs with good specimens of the Brown Turkey variety.

District County Classes.

It is to be regretted that interest in these special county classes has fallen greatly, and on the present occasion there were only eight entries from the whole of the English, Scottish and Irish counties as well as the Isle of Man and Channel Islands.

Such an important fruit-growing county as Kent did not supply a single entry, and there was only one from Surrey, Sussex and Hampshire. Capt. Drummond, Cadland Park, Southampton (gr. Mr. E. Smith) was the exhibitor and he won the first prize for both Apples and Pears. In the Wilts, Dorset, Somerset, Devon and Cornwall section there was again only one entry, and this for Apples only, the exhibitor being J. A. Stidson, Esq., who was awarded the first prize. In the class open to growers in Gloucester, Oxford, Bucks, Berks, Beds, Herts and Middlesex, the first prize went to Mrs. Austin, Totteridge (gr. Mr. E. G. Longhurst), while in the class open to growers in Lincoln, Northampton, Warwick, Leicester, Notts, Derby, Staffs, Shropshire and Cheshire, the sole entry was from Mr. W. Taylor, who gained the first prize. In the class open to growers in Worcester, Hereford and Monmouth, E. Evans, Esq., was successful with Apples and Mr. T. Jones with Pears. The Earl of Bessborough, the only exhibitor from Ireland, won first prize in the class for Apples.

Two special classes were provided for amateurs possessing a total of not more than twenty-five Apple trees. In the class for six fruits of one dessert variety Mr. W. West was placed first of three competitors, with good fruits of Cox's Orange Pippin. In the class for one cooking variety E. A. Watts, Esq., won the first prize with The Queen variety.

*** *A report of the single dish classes for fruits will be given in the next issue. The awards made by the Council are given on p.* ix.

Obituary.

William Coomber.—After a few days' illness, Mr. W. Coomber peacefully passed away at Teddington, Middlesex, on September 21. He was in his eighty-fourth year. He survived his wife only three weeks, and his loss, together with the anxiety experienced during her painful illness, evidently hastened the end. The funeral took place at Ticehurst, on September 26. Mr. Coomber leaves a son, and two daughters to mourn his loss. He was the only brother of Mr. Thos. Coomber, V.M.H., who recently retired from the charge of The Hendre Gardens, Monmouth, and who received valuable assistance from him in the early days of his horticultural career. Mr. William Coomber was a native of Kent, having been born near Tonbridge. He commenced his career as a school teacher, but owing to the unsatisfactory state of his health at that time, he was advised to take up an outdoor vocation. As a beginning he entered the nursery of Messrs. W. Wood and Son, of Maresfield, where he remained some few years, and after leaving there spent some time as journeyman and foreman, in private gardens. He was in the Royal Gardens, Kew, for two years, while Mr. Smith was curator, and also served in Messrs. Henderson and Son's St. John's Wood Nursery. His first position as head gardener was at Encombe, Sandgate, but holding this for less than two years he was offered the charge of Knole Gardens, Sevenoaks, by the Countess De la Warr, who remembered him as a schoolboy, and also as leader of the choir of St. Michaels Church, Withyham, Sussex. He stayed at Knole ten years, when he was appointed superintendent of the Royal Botanic Gardens, Regents Park, an appointment he held twenty years, leaving in 1896. Here, as at Knole, his unassuming disposition and general kindliness won him many friends. Subsequently, for nine years, he managed the Pashley (Ticehurst) estate for Miss Wetherell and Mrs. Darby, and left there only when the estate was sold, since which time he has lived in retirement.

ANSWERS TO CORRESPONDENTS.

Agricultural and Horticultural Instruction: *W. W.* Write to the Ministry of Agriculture, 10, Whitehall Place, S.W., for particulars of the scholarship schemes in agriculture and horticulture.

Carnation Plants Diseased: *W. S.* The specimens were dried up and withered when they reached us. They did not, however, have the appearance of being attacked by a fungous disease. We certainly advise you to raise new plants from a clean stock, as suggested, and burn all the old plants.

Clematis Diseased: *T. J. F.* The specimen you sent was dried when it reached us, but an examination showed that the mycelium of some fungus was present, although which it was not possible to determine. Clematis are very subject to basal stem rot, and it is always a good plan to plant them in a position where the base of the stem and roots are shaded from bright sunshine.

Evergreen Hedge for a Smoky District: *G. H. H. W.* Thuja Lobbii (syn. gigantea) is to be recommended for forming an evergreen screen or hedge for planting in smoky localities in the Midlands. T. orientalis succeeds better in the London area, but the flame-shaped growths render it unsuitable for hedge purposes. If not too smoke-infested, the Evergreen Oak makes a good screen tree, but is rather slow of growth for the first ten years. Both Phillyrea and Osmanthus are valuable evergreen shrubs for town planting.

Exhibition Schedule: *B. E. H.* We have no knowledge of the show to which you refer, but you would doubtless be able to obtain information on application to the Secretary, Crystal Palace, Sydenham.

Melon Diseased: *W. F.* The fruits having cracked, bacteria and the mycelium of some fungus have affected the flesh. These, however, are probably only secondary agents in producing the disease. The splitting of the fruit is due to some wrong cultural treatment, such as an excess of moisture following drought.

Names of Plants: *L. G. D.* 1, Colutea arborescens; 2, too withered to identify; 3, Teucrium fruticans; 4, Saponaria officinalis; 5, Senecio Gravii; 6, missing; 7, Nandina domestica; 8, Cydonia japonica; 9, Euonymus japonicus var. albo variegatus; 10, Spiraea chamaedrifolia; 11, Olearia stellulata; 12, Spiraea Thunbergii.—*A. N.* 1, Rubus xanthocarpus; 2, Tilia platyphyllos var. asplenifolia; 3, Clematis heracleaefolia; 4, Fagus sylvatica car. heterophylla; 5, Acer creticum; 6, Catalpa bignonioides; 7, Rhamnus alnifolius; 8, Acanthopanax ricinifolium.

Communications Received.—J. B.—W. W.—J. N. E. S.—F. S. and S.—Goodmayes.

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THE

Gardeners' Chronicle

No. 1920.—SATURDAY, OCTOBER 13, 1923.

CONTENTS.

Brompton Park Nursery 218
Bulb garden, the—
Ornithogalum nutans 222
The Autumn Snowflake 222
Tulipa Batalini ... 222
Cobæa scandens, hardiness of 224
Cole, St. Cuthbert's ... 224
Cultural Memoranda—
Coreopsis grandiflora 217
Dicentra spectabilis... 217
Muscari in pots ... 217
Prunus triloba ... 217
Daffodils, notes on some of the newer... ... 224
Dahlia in Holland, the 213
Dahlia, the development of the ... 221
Fruit crops, remarks on the condition of the 223
Fruit garden, the market 222
'Gardeners' Chronicle" seventy-five years ago 214
Hardy flower border—
Chrysanthemum Roi des Blancs ... 220
Cimicifuga 220
The Snowdrop Anemone 220
Holland in autumn ... 215
Holland Park Hall exhibition 213
Iris pumila 218
Lake in St. James's Park 214
Orchid shows 214
Parks and gardens, public 222
Pears, second crop ... 224
Phygelius capensis ... 224
Plants, new or noteworthy—
Erica vagans var. St. Keverne 219
Notes on East African plants 219
Rubus mesogaeus ... 219
Poa annua as a perennial 224
Ponds, scum on ... 224
Potato champion, a ... 214
Rose garden, the ... 215
Shimadzu, Prince ... 214
Societies—
Manchester and North of England Orchid 224
National Chrysanthemum 224
Royal Horticultural 225
Royal Scottish Arboricultural 225
Teta, Jonkheer G. F. van 214
Trees and shrubs—
Autumn flowering Heaths 220
Choisya ternata ... 220
Spiræa japonica ... 220
Viburnum tomentosum 220
Viger, N., presentation to 214
Week's work, the ... 216

ILLUSTRATIONS.

Aerial bulb, a giant, in East Africa 221
Delphinium candidum in East Africa 217
Rose Joan Waddilove 215
Ruwenzori mountains, a scene on the 219
Teta, Jonkheer G. F. Van, portrait of 214

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 49.3°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday October 10 10 a.m.: Bar. 30.0; temp., 57°. Weather—Dull.

The Holland Park Hall Exhibition.

Judged by the results as a whole, the Fellows of the Royal Horticultural Society will be satisfied with the "great autumn meeting" held in the large hall at Holland Park on October 2nd, 3rd and 4th. The attendance was satisfactory, even on the second day, when rain fell almost continuously, but the number of visitors was nothing like so large as at the spring shows or, indeed, at some of the Holland House exhibitions of past years. This autumn show is regarded as a combination of the old Holland House and the Fruit and Vegetable Shows, but many will be disposed to consider it merely a glorified fortnightly meeting, lacking, in a large measure, the special features which the Holland House and the Fruit and Vegetable Shows supplied. No criticism can be levelled at the Council on account of the unsuitable character of the building, as it is probably the best that can be obtained of a size sufficient to accommodate such an extensive show, but the lighting is very poor and inadequate to show off the colours of the flowers that were on view. Whilst generous masses of border flowers, such as Michaelmas Daisies, Chrysanthemums and Dahlias are always attractive, we think the first-named were too numerous at Holland Hall and pushed into the background some of the more interesting but less obtrusive exhibits, such as the collections of Begonias, stove and greenhouse plants and Carnations. Fortunately the season has suited the late blooming of Roses and we never remember having seen finer Roses exhibited in autumn than at Holland Park Hall, but these again were not given the prominence afforded the hardy flowers, being relegated to the sides where the light was even poorer than in the centre of the building. Such special shows as these have always in the past attracted fine groups of various subjects from amateur growers, but on this occasion the amateur element was sadly lacking; indeed, the show was almost wholly composed of traders' exhibits. We are glad in this connection to note that an amateur, the Hon. Vicary Gibbs, was adjudged to have the best exhibit in the show in his marvellous collection of vegetables of almost faultless quality, and both Mr. Gibbs and his capable gardener, Mr. E. Beckett, are to be congratulated on their well-deserved success. But we missed the fine collections of pot fruit trees and indoor fruits which amateurs were wont to stage, and the numerous interesting exhibits of flowers which keen amateur gardeners used formerly to display whenever the R.H.S. held a big event of this character. Of fruit exhibits from nurserymen there were several, and most of them deserving of the highest encomiums, whilst the splendid exhibit of vegetables by Messrs. Sutton and Sons was worthy of high praise, but evidence of a special fruit and vegetable exhibition was lacking in the main body of the hall, for the competitive classes for both these subjects were all relegated to the gallery and a large proportion of the visitors never suspected their presence. This seems to us a pity, for one of the great objects of a flower show is ocular demonstration of the quality which may be obtained by high cultivation, first-class exhibits setting a high standard for those who come merely to inspect. It is, moreover, always noticeable how at flower shows professional gardeners exhibit the keenest interest in high cultivation and in many respects the special Fruit and Vegetable Exhibitions of the R.H.S. were "gardeners' shows," being held at a time when London is practically empty and those who patronise the Chelsea show largely on holiday in Scotland and elsewhere. Whether the secondary place afforded both the fruit and vegetable exhibits, or whether the meagre prizes are responsible for the great falling off in the competitions is a matter for conjecture, but we think that both have a bearing and that it would be wise to bring at least some of the more important of the fruit and vegetable exhibits into the body of the Hall another year, and to revise the lists of cash prizes in accordance with the times, for in some cases the prizes offered were not equal to the expense of bringing the exhibits to London and staging them. It seems a great pity that such a prominent horticultural society as the R.H.S. should not be able to attract better exhibits of Grapes than were seen at the recent show; indeed, we have no hesitation in saying that the quality of the Grapes was scarcely equal to that seen at a moderate provincial exhibition and certainly in no way approaching the quality found at Shrewsbury at an earlier date. Then again, collections of choice indoor fruits, for which two classes were provided, were represented by only one exhibit in each case. The keen competition that resulted at one time in the County Classes seems to have gone entirely and one wonders why such an important fruit-growing county as Kent did not send a single exhibit of either Apples or Pears in the County Classes! Even in the single dish classes the falling off in the number of entries was most noticeable, and the same was true in the vegetable section. It will be a thousand pities if the Royal Horticultural Society allows the interest in the special Fruit and Vegetable Exhibitions to lapse and we urge the Council to give the matter its serious consideration and to see how interest in them may be revived—always assuming the Council desires such a revival.

The Dahlia in Holland.

During our recent visit to Holland the outstanding floral feature which presented itself was the wonderful way in which the Dahlia has captured the Dutch people. As a flower for garden decoration the Dahlia is steadily increasing in popularity in our own country, and it will become more and more popular as raisers devote greater attention to the production of varieties which commence to flower early, produce an abundance of flowers on long stems carried well above ample leafage, and continue to bloom satisfactorily until frost comes. The number of varieties grown in Holland appears to be somewhat limited, but, doubtless, more varieties are cultivated in private gardens than are to be seen on the markets and in public parks. It appeared as though the Dutch raisers had almost given up the large and somewhat floppy Paeony-flowered varieties which they boomed a few years ago, and that they have practically dropped the cultivation of Cactus varieties. So far as we were able to judge the Decorative and the larger-flowered Pompon varieties are those which have captured the popular fancy and have, indeed, become the fashion as September flowers in Holland. On a September morning not less than eighty per cent. of the flowers submitted for Dutch auction at one of the flower markets at Aalsmeer were Dahlias, and these were presented in a remarkably fresh condition. At Aalsmeer most of the flowers are brought to the markets from a comparatively short distance, but after their sale they are despatched to the principal towns and cities of Holland, where, judging from the examples we saw in hotels and restaurants, they arrive in a fresh condition. White, yellow, mauve, pink, orange and scarlet varieties appear to be those most in favour, and in every case the blooms are compact, hence one of the reasons why they travel so well. In the open street markets at Amsterdam and The Hague, Dahlias were equally as prominent as in the cut-flower markets at Aalsmeer, while in the public parks and open spaces at Amsterdam, The Hague, Rotterdam, and Haarlem, Dahlias were to be seen everywhere. It was also interesting to observe that the shopkeepers in the principal cities and towns used Dahlias freely in their shop windows to enhance the display of goods they offered for sale, and this utilisation of natural flowers for such purposes is a point to be commended to British traders who, unfortunately, are inclined to use artificial flowers for this purpose. In private gardens, also, the Dahlia is grown quite freely in Holland, and in private houses the flowers are used for decoration as freely as we use, say, Roses, Gladioli and summer-flowering Chrysanthemums. In the display of Dahlias at exhibitions it is probable that we have not much to learn from Holland, as boards are fast giving place to vases as receptacles for the display of the blooms. In Holland, however, very large vases and large baskets are mostly used for the exhibition of Dahlias, and very rarely is more than one variety used in a receptacle. The Dutch raisers and growers have advertised Dahlias freely in Holland as elsewhere, and they appear to be reaping the reward which follows wide publicity.

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Presentation to M. Viger.—Our readers who know something of French horticulture will not need to be reminded of the high position occupied by M. Viger, formerly Minister of Agriculture, and who, for nearly a generation, has occupied the post of president of the National Horticultural Society of France. M. Viger has long been recognised as the doyen of French horticulturists, and in that capacity he has visited and taken a most prominent part wherever French horticulture has been represented at home and abroad. He has now reached his 80th year, and his colleagues, to mark the high sense of their appreciation of his services to the society in particular and to French horticulture in general, organised some few months ago an influential committee for the purpose of raising the necessary funds to commemorate, by a lasting memorial, their high appreciation of M. Viger's many services. The subscription list, which has met with a very generous reception, has now been closed, and it is proposed with the proceeds to erect in one of the halls of the society a bronze bust of their eminent and highly-respected president. In the meantime, the French Government, in recognition of M. Viger's important services to horticulture in France, has promoted him to the rank of Commander of the Legion of Honour. There is thus a double reason for his numerous friends to rejoice, and it is proposed to hold a special gathering of all persons interested in the event, in the large hall of the National Horticultural Society of France, 84, Rue de Grenelle, Paris, on Thursday, the 18th inst., at 3 p.m. M. Chéron, the Minister of Agriculture, will preside, and we have no doubt that the function will be, as it deserves to be, a most brilliant success.

Orchid Shows.—At the meeting of the Orchid Committee on September 18 the Chairman, Sir Jeremiah Colman, Bt., read a communication from the Hon. H. D. McLaren advising that the Committee should consider the question of asking the Council of the Royal Horticultural Society to set aside certain dates of the year on which one or other of the larger genera of Orchids should form the special feature. The suggestion was well supported by the Committee and the Chairman discussed the matter with the Council. At the meeting on October 2 Sir Jeremiah Colman reported that the Council had agreed to offer facilities for the showing of special genera in rotation, beginning with Cypripedium, Cymbidium, Odontoglossum and Cattleyas in 1924, the Cattleyas to be the special feature of the Orchid show at the end of October, which is now an annual event. Details will be worked out and the result published in the *Arrangements of the Royal Horticultural Society* for 1924.

Lake in St. James' Park.—It is unfortunate that, after spending £31,700 on concreting the bed of the lake in St. James' Park, London, the water will not remain at its proper level, there being a loss of some three inches of water each day. It was hoped that the original concrete bed would prove sound, as from appearances it seemed unaffected by the purposes to which the bed was put during the war, and the lake was filled with water in such hope, but the water, some millions of gallons, trickled away, proving that the concrete had perished. The cause of the trouble has now been ascertained, and the Office of Works states that the source of the loss of water is found to be limited to approximately two square inches of the area of over ten acres. The leakage was discovered by isolating sections of the lake by means of submerged barriers after the water had been lowered about seventeen inches for the purpose of investigation.

A Potato Champion.—Mr. Jasper Davis, of Bromham, Wiltshire, is well known in the West of England as a highly successful small-holder and Potato grower. He has exhibited collections of Potatos for over ten years and has never been beaten, though in classes for one variety only his exhibits have occasionally been surpassed. He was awarded two first and one special prize for hundredweights of Potatos at the Crystal Palace last year, and has received many prizes for the best acre of Potatos. For five years in succession he won the two first prizes in open competition at Chippenham, and he has won seven first prizes for Potatos this year. He has a large collection of cups, shields and medals won by him outright in competitions extending over three years.

Jonkheer G. F. van Tets.—There was no more outstanding personality than that of Jonkheer G. F. van Tets at the recent International Horticultural Congress held at Amsterdam, and it is not too much to state that most of the extraordinary success of the gathering was due to him and to the able Congress Secretary, Dr. M. J. Sirks. Jonkheer van Tets is the President of the Royal Netherlands Horticultural and Botanic Society, which is under the high patronage of Their Majesties Queen Wilhelmina and the Queen Mother of the Netherlands, and has its headquarters at Amsterdam. For ease of working and to secure a thorough representation of every branch of horticulture, which finds a prominent place in Holland, the Society is divided into sections; thus, there is the Aalsmeer section, which con-

JONKHEER G. F. VAN TETS.

cerns itself principally with the cultivation of cut flowers for market; the Haarlem section, which deals principally with bulbous plants; the Amsterdam section, which takes a special interest in florists' flowers; the Westland section, which devotes attention to fruits; and the Boskoop section, which is concerned with the production of trees and shrubs for export. It will be seen, therefore, that the President of such an organisation has no light task, but the high esteem in which he is held and the great regard all members have for him show how admirably he carries out his duties. Jonkheer van Tets has a delightful garden at his home at Zeist, to which he invited the members of the Congress on September 23. The British members of the Congress, most of whom had met Jonkheer van Tets at The Hague Conference of 1922, were so charmed with his business ability and his kindliness that they have taken advantage of the opportunity afforded by his marriage to present him with a handsome silver Rose bowl as a token of their appreciation and to commemorate at once his wedding and the jubilee of the Society over which he presides.

Welsh Red Clover.—Experiments carried out at the Welsh Plant Breeding Station, Aberystwyth,* during the past four years, demonstrate in striking manner that the strain of Red Clover known as Montgomeryshire Red, and grown around Welshpool and over into Shropshire, near Chirberry, is superior in its persistence to all foreign Red Clover, and only equalled by the similar strain grown in Cornwall, and known as Cornish Marl Red. Thus, whereas both these strains give full yields in the second harvest year, other strains of foreign origin tested beside them gave only 46, 24 or 0 per cent. Another Welsh Red Clover which has proved its value is the Vale of Clwyd Late Flowering Clover. Those who require seed mixtures for pastures which are to be down for three or more years should study the article and include one or both of these strains in their mixtures.

* See *Journal* of the Ministry of Agriculture, XXX., No. 6, Sept., 1923.

Distribution of Surplus Bedding Plants in the London Parks.—The surplus bedding plants at the London County Council parks will be distributed to the public between the hours of 9 a.m. and 11 a.m. on Saturday, October 20, 1923. Those desiring to participate in the distribution should make personal application to the officer in charge at the various parks. Plants will not be handed to children under the age of fourteen years unless they present a note from their parents or teachers.

Prince Shimadzu.—After the great earthquake in Japan it was reported that Prince Shimadzu was amongst those killed. His many friends in England will be glad to know that it is now officially stated that he is alive and in good health. Prince Shimadzu is a great lover of Orchids and was for a year or more before his return to Japan an honorary member of the Orchid Committee of the Royal Horticultural Society and regularly took his place at the meetings. He is well known to orchidists generally, having visited most of the chief collections in this country.

Appointments for the Ensuing Week.—Monday, October 15: National Chrysanthemum Society's Floral and Executive Committees meet. Tuesday, October 16: Royal Horticultural Society's Committees meet; Sevenoaks Gardeners' Chrysanthemum Society's meeting; Winchester Horticultural Society's meeting. Wednesday, October 17: Morley and District Paxton Society's meeting. Friday, October 19: Eastbourne Horticultural Society's meeting. Saturday, October 20: Carnwath Chrysanthemum Society's Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Hot Water Cure for Scale Insects.*—We need not tell gardeners how much they have to fear from the presence of the Scale Insect in their greenhouses. They know it too well, as they also know the difficulty of removing it. The ordinary applications employed to arrest its progress—tobacco-water, sulphur, lime, soft mud, gum, paste, etc.—all are powerless before it: and it was not till Mr. Gordon ascertained that water of the temperature of from 150° to 160° Fahr. would kill the Scale without injuring trees, that gardeners had any chance of even keeping it down, except by a process little less wearisome than his wheel to Ixion. Rub, rub, rub—scrub, scrub, scrub; this was the endless doom of the unlucky labourer until the virtues of hot water were ascertained. In the meanwhile trees perished in gardens, and what was worse, in the colonies. The Orange trees of the Azores were devoured, or rather sucked to death, by the Coccus, and at one time it was feared that it might overwhelm all Orange-growing countries in one common ruin. But although the Scale may certainly be destroyed by hot water wherever it can be brought instantly in contact with it, yet there is a practical difficulty in the application of the remedy in consequence of the smallness of the creature and the facility with which it can screen itself in the crevices of bark or in the earth itself. Vigilance is, therefore, still demanded in order to keep it down, or a sudden multiplication of it may take place to an extent which leaves no remedy except the destruction of the trees and insects by means of fire. *Gard. Chron., October* 7, 1848.

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HOLLAND IN AUTUMN.

Seven days do not provide sufficient time for a proper acquaintance with the horticultural features Holland presents in autumn, nevertheless, if the weather be kind, the routes well selected with regard to railway, steamboat and motor transport, and the objectives well chosen, very much of horticultural interest may be seen in such a short period.

The programme arranged on the occasion of the International Horticultural Congress at Amsterdam, as set forth on p. 191, will show that the Congress Committee made arrangements for visitors to see the principal centres of horticultural interest in Holland. From Flushing, through the Westland, a brief view of the fruit-growing district was obtained and large Cherry trees, a goodly number of Plum trees and an abundance of Apple trees were observed, but it was not until towards the end of the time that a better idea of the extent of fruit cultivation in the Westland was obtained. Mr. Hatton, of East Malling, made a special trip to Westland and was delighted with his experience and the observations he was able to make. He found several varieties of Apples not commonly cultivated, some appearing to be new, while certain varieties worked on the Jaune de Metz stock were extraordinarily fruitful and retained their dwarf stature and fruitfulness for many years. But although Mr. Hatton and others admired the skill of the Westland growers, and were full of admiration for their co-operative methods, no one was impressed with the cultivation of Tomatos in Holland, and all were agreed that we grow these better at home.

In every country where fruit is grown extensively the cultivation of certain kinds tends to be centralised in a few places, and probably in no country is commercial fruit production so centralised as in Holland, where the Westland growers have the advantage of the Hook of Holland as a handy port of export for their goods. Not only are Apples grown largely in the Westland district, but Pears, Peaches, Nectarines, netted and Cantaloup Melons are also grown extensively for the home and British markets.

A subject of general comment was the lush greenness of the grass on the Polders and the large numbers of Friesian cattle per acre. Another matter which impressed British visitors was the enormous extent of the cultivation of Sugar Beet, which serves the dual purpose of providing sugar and feeding cattle, as we understand the larger part of the refuse after the manufacture of sugar is returned to the farms and used for cattle feeding.

Of course, to those previously unacquainted with Holland the long lines of Poplars by the canals proved a striking feature, but whether the visitors were making the trip for the first time or not, all were full of admiration for the woodlands around Haarlem and also around The Hague, and for the numerous large private establishments near the latter town, in many of which it was obvious that good gardening is being carried on and tree planting is made a feature.

At The Hague there is an excellent system of public parks and open spaces, and most of the visitors had a special opportunity of briefly inspecting these under the guidance of the Superintendent. It was interesting to observe that The Hague has a public Rose garden which is beautifully kept and in which many popular and some lesser-known varieties of Roses are cultivated in large numbers. This, however, is a new feature of The Hague and will be more worthy of inspection next year.

The visit to Aalsmeer was a great event, for this little town is the centre of the flower producing industry in Holland. Practically every establishment is separated from its neighbour by a canal, and in many cases canals serve the purpose of roads for the conveyance of flowers and other goods. There are three markets at Aalsmeer, two of which concern themselves chiefly with the distribution of flowers and plants. In each of these the produce is disposed by Dutch auction, consequently the business proceeds in a particularly quiet and orderly manner; indeed, the method of sale and distribution is in striking contrast to that which obtains in Covent Garden. The enormous number of Dahlias offered for sale as cut flowers was the subject of general comment. At home we have not come to regard the Dahlia as a serious competitor with the Gladiolus and early-flowering Chrysanthemum as a subject for cutting for the market.

Most readers of *The Gardeners' Chronicle* are aware that at Aalsmeer Lilac is grown and forced on a very extensive scale, and that the majority of the graceful and sweetly-scented sprays which come into England from the middle of December onwards are grown there. Roses are cultivated even more extensively, and we saw houses half an acre in extent in which many thousands of Roses were planted and flowering freely in September. Messrs. Barendsen Bros. have one house covering nearly three-quarters of an acre, containing 25,000 plants. Hadley, Ophelia, Golden Ophelia, Mme. Butterfly, Mme. Abel Chatenay, and Lady Hillingdon were amongst the varieties most extensively grown. As a deep red Rose, the American variety Hadley appears to be grown to the exclusion of all others of its class. A French variety new to us, pink and fawn, and named Aspirant Marcel Rouger, is being grown for market, and is worthy of attention from home growers. *C. H. C.*

(*To be concluded.*)

THE ROSE GARDEN.

ROSE JOAN WADDILOVE.

The new Rose named Joan Waddilove, illustrated in Fig. 79, was prominent amongst the new varieties submitted for award at the autumn Exhibition of the National Rose Society on September 20. It was raised by Messrs. S. McGredy and Son, an Irish firm that has been most successful in raising new Roses, and who gained a Certificate of Merit at the show referred to for another variety named Victor Waddilove.

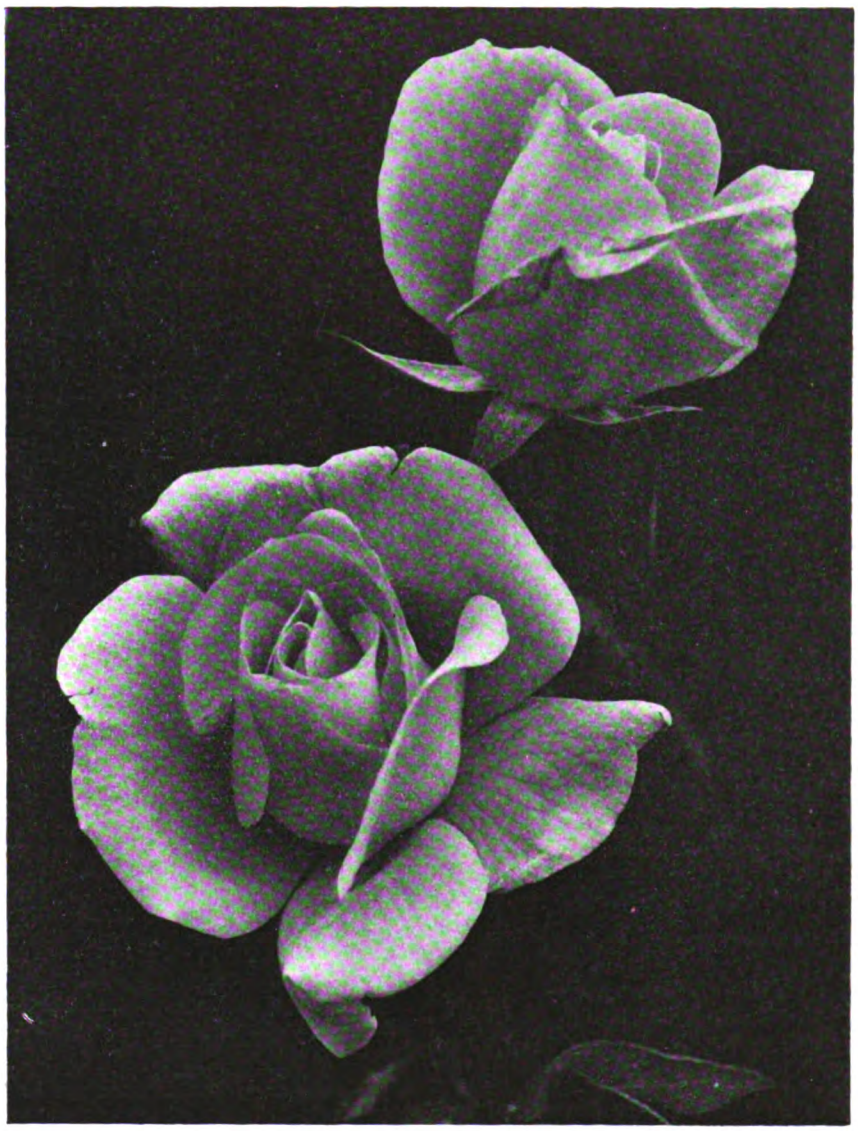

FIG 79.—ROSE JOAN WADDILOVE.

The colours, however, of these two new Roses are quite distinct, for whereas Victor Waddilove is a bright shade of pink, Joan Waddilove has much gold in the petals, the ground colour being slightly flushed with purplish rose-pink; the golden reverse to the petals shows most conspicuously.

As will be seen on reference to the illustration, the bloom is of very pleasing form, and although not suitable for exhibition purposes, this new variety will doubtless make a good garden Rose. The growth of the plant is said to be robust, and, judging by the examples exhibited, this new variety is very free-flowering.

Many of the newer Roses have golden colour associated with other tones, derived in most cases from the influence of the Persian Yellow Rose, Rosa lutea, the gold being usually most pronounced at the bases of the petals. In the variety illustrated, the gold colouring is the chief attraction, and, as stated above, shows prominently on the under sides of the petals.

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The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, late Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Oncidium.—The recent importations of Oncidiums will enable many to replenish their stocks of these graceful Orchids, of which in most cases there are too few. These imported plants may be potted or placed in baskets or on rafts, according to their respective habits, and treated much in the same manner as the established plants. Many of these Orhids are sending up their flower spikes, and should be grown in a light place and watered carefully until the spikes have developed. Light, more than heat, has a great influence on the development of the flowers, but when the blooms are developed it is not wise to expose them to strong sunlight, especially if it is desired to retain them for a reasonable time. Many Oncidiums, such as O. varicosum Rogersii, O Gardneri, O. crispum, O. ampliatum, O. incurvum, and some of the hybrids develop very large spikes in comparison with their size, and these, if allowed to remain for a considerable time, have a debilitating effect, in many cases resulting in the death of the plants. It is wise, therefore, to remove the flower spikes immediately after the flowers are fully expanded, and especially if the plant shows signs of shrivelling. The flowers of many of the Oncidiums are small individually, but when produced on large, strong spikes, these plants are amongst the most showy and useful Orchids grown With few exceptions Oncidiums require an intermediate house temperature, with a fair amount of sunshine, especially at this season, to ripen the growths as much as possible before the winter, as unless they are well consolidated there is a danger of them decaying.

Oncidium Lanceanum.—This sweetly-scented Orchid is sending up its flower spikes, and should be given plenty of water until the new leaves and flower spikes are fully developed, and then kept fairly dry until growth commences again in the spring. This large, terete-leaved Oncidium, with others of a similar nature, is capable of withstanding a considerable amount of drought, and is the better for a good rest if drying off is not done too drastically.

Oncidium Cavendishianum and O. carthaginense.—These two terete-leaved varieties are like O. Lanceanum in growth, and should also be grown in the stove, and given plenty of water until the new leaves are fully developed. These are now in full growth, and should be well exposed to the light in order that the growth may be thoroughly ripened. Large, soft growths of these plants do not always produce the best flowers, and are in some cases not capable of withstanding the vicissitudes of the winter.

HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Harvesting the Fruit Crop.—Ripening fruit will require daily attention. Where large quantities of Apples are growing it is desirable to apportion the fruit store into sections, which may extend to four in dessert kinds. The general way is to divide the sorts of both culinary and dessert into three, namely, early, mid-season, and late. Fruit arranged in this way is easily accessible.

The Colouring of Fruit.—Apples, and particularly the varieties James Grieve and Allington Pippin, have developed very high colouring this season; Cox's Orange Pippin, too, has a less russeted skin, which enhances the colour. To obtain a good finish to their fruits is the aim of most growers, and to this end, the necessary ingredients to the soil in which the trees are growing should be supplied. The amount of potash and phosphates required varies, but a liberal quantity of lime, in the form of lime rubble, is more particularly desired each year by stone fruits. The roots, too, should also be near the surface, for trees with roots that are deeply buried are not likely to produce fruits of high colour. Summer pruning is also an aid in the production of good-coloured fruit. Outside Peaches, on the contrary, are not, at any rate with us, colouring or keeping so well as usual this season. Nothing is more pleasing than to see an evenly balanced fruit pergola, with its varied colouring of fruit and autumn-tinted leaves. The aim should be, if this effect is desired, to have varieties with fruits maturing at the same time. For this purpose varieties which will be at their best in the early part of October would probably find most favour.

Autumn-fruiting Raspberries.—One of the best of autumn-fruiting varieties is Lloyd George, introduced by Mr. Kettle, of Corfe Castle. It is equally good for summer cropping. This Raspberry produces fine canes and fruit of good size, and in large quantities. The extension of the season of bush fruits is welcomed, and the introduction of a late Black Currant, September Black, by Messrs. Daniels, is another step in this direction.

Wall Trees.—One is often asked what trees are suited for certain aspects. For south and west walls the same kinds are, for the most part, suitable, and include Apricots, Peaches, Nectarines, Plums and late Pears. For east walls Plums, Cherries and Pears may be selected, and trained Gooseberries and Currants for north walls, with Plums, Morello Cherries, Early Pears and Sweet Cherries for succession. Late fruits of Currants and Gooseberries may also be obtained from bushes on north walls. White Currants especially keep well in this aspect. Figs or Grapes need to be grown on sunny south walls. A few of the less hardy Peaches should have a south aspect. Blackberries have bore freely this year, especially the American variety. With a lean fruit year, and soft fruit deteriorating rapidly after picking, the fruit grower has had a bad time.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Fuchsias.—Large specimen Fuchsias from which water has been withheld gradually may be stored for the winter in a frost-proof shed. Young plants rooted last month should be kept growing steadily all through the winter, allowing the leading shoot to grow without stopping it; as most varieties throw out lateral shoots naturally the latter should be pinched frequently to obtain shapely specimens.

Crinum Powellii and C. Powellii album.—Where grown in tubs for conservatory decoration these bulbous plants may be stored in a frost-proof shed. Agapanthuses may be stored in the same way; but, if room can be spared, these plants do better in a cool greenhouse.

Wintering Tender Plants.—Tuberous-rooted Begonias should, when they are dried off, be stored in a cool, dry shed free from frost. Gloxinias, Achimenes, Caladiums and Gloriosas require warmer conditions to bring them safely through the winter. They may be stored in their pots, or, if space is a consideration, should be shaken out and stored in boxes or pots of dry sand.

Phyllanthus pulcher.—This very graceful stove plant, grown in 48-sized pots, is ideal for table decoration. It may be propagated at any time during the spring and summer, inserting the cuttings in pots of sandy soil, and plunging them in a warm propagating case. P. nivosus is another beautiful species, which used to be a favourite decorative plant; it is a slender, freely branching shrub, and is easily propagated by means of cuttings, placed in a warm propagating case. Half-ripened wood should be used for cuttings. Its successful cultivation presents no difficulty, as it grows in any good potting compost. P. atro-purpureus is a somewhat stronger growing species, with dark purple foliage. All the Phyllanthuses require stove treatment.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Parsley.—Plants of Parsley raised from seed sown last month should be ready for pricking out into cold frames about 4 inches apart. They should make good progress, and provide young leaves for use in winter and early spring. Keep the soil well stirred between the plants, and dust the rows occasionally with old soot. This will keep slugs away, and also act as a stimulant. Water the plants while the weather is bright, but later water should be applied only when the soil is dry.

Turnips.—When the Turnip crops are mature the roots should be lifted and stored in sand for winter use, after cutting the tops off fairly close to the roots. Those still growing actively should be kept well hoed, and a little soil drawn up to them to protect them from frosts.

Chicory.—Roots of this useful salad plant may now be dug up and placed in boxes or pots of soil after first trimming off the tops closely. The boxes should be placed in a Mushroom house or a dark shed. The plants will soon send up new leaves. They should not be forced too hard. Where plenty of Lettuces and Endives are available there will not be much demand for Chicory yet, therefore it is advisable not to dig up too many roots at one time.

Parsnips.—It is generally agreed that Parsnips are improved in flavour after frost, but they may be used now if required. The roots are much better left in the ground and dug as required, but in the event of severe weather it is wise to dig a supply and store the roots in sand.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Bennett, Esq., Woolverstone Park Gardens, Ipswich.

Late Peach House.—Any shading material on the roof-glass should be removed, as the maximum amount of sunlight is necessary to thoroughly ripen the wood. The ventilators should be left fully open night and day, and the trees be well syringed every afternoon until the foliage is matured. If the borders are dry give them a good soaking of water forthwith, using clear lime-water.

Fruit Trees in Pots.—The time is at hand when pot Fig trees should be removed from the orchard house to the plunging ground, and the opportunity should be taken of repotting such plants as require this attention. Any trees that require larger receptacles should be repotted, if possible, before the foliage has fallen entirely. The roots of each tree should be examined, and treatment afforded according to its condition. If the roots are much matted together, shift the plants into a receptacle one size larger than it has previously occupied, first disentangling the roots on the outside of the ball. It may be necessary to replace the plant in a pot of the same size, and, if so, with the aid of a pointed stick loosen the ball of roots in order that some of the old soil and the whole of the crocks may be shaken away from the roots to allow room for fresh drainage and fresh soil. Should the soil be exhausted or in poor condition, remove as much of it as possible; if the roots are in a bad condition repot the tree in a pot of smaller size. In many cases it is not necessary to disturb the roots, a top dressing sufficing for another season. In applying this, remove as much as possible of the surface soil by means of a pointed stick, and make the fresh material quite firm with a rammer. Allow room in the pot for watering. The pots selected for use should be perfectly sound, otherwise, sooner or later, trouble will occur, usually when the trees are rooting freely, and require an abundance of water. The crocks should be carefully arranged to ensure good drainage, and over these should be placed a layer of turfy fibre. Good loam of a rough, friable nature, with a liberal addition of broken plaster or old mortar rubble, and a 7-inch potful of bonemeal to each barrowload of soil, should be used for

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potting purposes. When repotting is finished remove the trees to the plunging ground, and sink the pots to their rims. Coal ash is to be preferred for plunging purposes, as this material is free from worms, and permits of water draining away from the pots freely. If the pots are plunged in soil a certain amount of hard material should be placed immediately under each pot to ensure free drainage, and sprinkled with soot to prevent worms entering the pots. Some of the trees may require a support for a time after they are potted, otherwise they will be liable to be disturbed in their pots during very rough weather.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Preparations for Rose Planting.—Where new Rose beds are to be made, or existing beds taken up and replanted, the ground should be prepared in advance of planting to allow of a reasonable time for the soil to settle in position. A strong loam is the best rooting medium for Roses, and needs no other addition beyond a sprinkling of ½-inch bones incorporated with the top layer of soil. Poor soil should be enriched with well rotted farmyard manure, and should be so placed that the roots do not come in contact with it for the first year—the plants having no use for manure until they are established. A little bone-meal may be added to this latter type of soil at planting time. Plants lifted from beds that are to be overhauled and replanted should be laid in carefully elsewhere until wanted.

Herbaceous Phlox.—Autumn cuttings of perennial Phloxes are not always to be had—many stools seeming to lie dormant after flowering—but if they can be obtained and are wanted, the resulting plants will be stronger and flower earlier than those raised from cuttings inserted in the spring. Dibble the cuttings in pots of sandy soil, and plunge the pots in a cold frame that can be made frost proof. Although there are plenty of excellent varieties in commerce the raising of a few seedlings is interesting. Gather the seeds as soon as they are ripe and press each one separately into a pan of sandy soil, which should be placed on a greenhouse shelf until the seeds have germinated. The seedlings should be pricked out when large enough and hardened gradually.

CULTURAL MEMORANDA.

PRUNUS TRILOBA.

This species is one of the best members of the Prunus family for forcing, and lends itself to many uses, not the least among them being its value as a cut flower for vase decoration.

Young plants should be procured as soon as possible, potted in a suitable mixture when received and stood in a sheltered spot out-of-doors.

Any time after the New Year is early enough to commence forcing them, and, as in the case of all shrubs that are forced, they should be taken into an intermediate house for a week or so before being introduced to the forcing house. A temperature of 65° is suitable—in a higher temperature the plant will not give of its best. and constant syringing is necessary until the flower buds begin to open. It is well then to cool the plants down at this stage, and if this is done carefully the flowers will remain for three weeks or a month in perfection.

After flowering it is well to encourage the development of growth by placing the plants in a warm Peach house, when, after the severest frosts are over, they may be placed out-of-doors in a sheltered situation. If they are to be retained for forcing the following year they should be trained carefully, removing all unnecessary old wood immediately after flowering; giving the roots some slight stimulant during the summer. Planted outside in a shrubbery this Prunus is of great value—both for its hardiness and its wealth of double pink flowers in April.

DICENTRA SPECTABILIS.

If clumps of this charming plant are potted during October and kept in cold frames, they may be transferred in batches to a warm house during January as required. Gentle forcing and plenty of light, with frequent syringings, are practically their only requirements, and they are not fastidious in regard to soil. Dicentras are very charming associated with forced Narcissi, and they have the advantage of possessing pleasing foliage. If aphis should attack the plants when they are growing actively, syringe them with weak quassia, fumigating being apt to "burn" the edges of the leaves—while, if in flower, the erstwhile pink of the beautiful blossoms will turn to a sickly grey and spoil the effect. A better-known generic title for this plant is Dielytra.

COREOPSIS GRANDIFLORA.

Sow a few seeds of this annual now in a cool house. When they are large enough, prick off the seedlings into small pots of loamy soil, and grow the plants on a shelf in any airy house until they are well rooted. They may then be transferred to 48-sized pots, and, if grown hard in a cold house, will give a welcome bunch of cut flowers in the spring, or, if carefully staked, will make quite goodly shaped pot plants.

MUSCARI IN POTS.

These lovely plants, grown in pots, provide a pleasant change from the ordinary series of forced bulbs, and the blue colour strikes a note of contrast to the yellow Daffodils, An ordinary potting compost will suit them, and they should not be planted deeply, but placed firmly in a cold frame facing north. Do not cover the pots with ashes, but keep the frame dark. When growth commences, allow the plants all the light and air possible, a shelf in a cool house being an ideal place on which to grow them. Gentle warmth may be used in the house from the middle of January, but the plants need to be kept close to the roof-glass, or the flower stems will "draw" and become useless. Before the buds open, remove the plants to a cooler house and allow the blooms to develop slowly. The best Muscari for forcing are Heavenly Blue and botryoides. *J. D.*

FIG. 80.—DELPHINIUM CANDIDUM IN EAST AFRICA (SEE P. 219.)

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BROMPTON PARK NURSERY.

THIS one-time famous London establishment derived its name from an old country residence, the site of the nursery being on part of the park belonging thereto. Over 100 acres in extent, it lay between Old Brompton Road and Kensington Road, and it was bounded on one side by the present Gloucester Road. From the very beginning its history and that of its numerous owners is obscure. Not for lack of notes, but because these disagree. We cannot always be certain who were its owners at different periods, nor even be sure when and to whom it passed during the years of its existence till at last its greatly diminished space was acquired by the Royal Commissioners of the Great Exhibition of 1851 for the site of the South Kensington Museum.

In the *Gardeners' Chronicle* for March 19, 1892, and September 13, 1913, are articles on London and Wise, the most famous of its early proprietors, in which occur remarks that need not be repeated here. But there may be some that need correction. There is, for instance, the date of London's death, which is almost always recorded as 1717. But Switzer's statement that it was at the end of 1713 is corroborated by Laurence in the preface to *The Clergyman's Recreation*, in which, referring to London and Wise, the former is mentioned as "the late." This was in March, 1713, and seemingly contradictory to Switzer, but as that date is now equivalent to 1714, it is clear that Switzer was correct. Other dates about which there is diversity are those of the death of the two senior partners of the original association, the retirement of Cook and the admission of Wise to partnership. Usually, the date given of the first-named change is 1694, but in an unsigned article, obviously by Dr. Hogg, who became a partner in the business 81 years ago, 1686 is recorded as "about the year"; and 1689 as that in which Cook retired, in which year he disposed of his share in the business to Henry Wise, and in 1690 the association of London and Wise was begun.

It is possible, but improbable, that Dr. Hogg may have been mistaken. There is no certain record of the retirement of Wise, who must have lived to a very advanced age, for Horace Walpole, in one of his gossipy letters, mentions having met him. One writer states that Joseph Carpenter, who edited the second edition of *The Retir'd Gardener* in 1717, was associated with Wise until several years later. Loudon, on the other hand, in more than one instance states that Swinhoe, Smith and Co. succeeded London and Wise, while Dr. Hogg disagrees with both, and writes: "In the year 1714 the nursery passed into the hands of Smith and Carpenter." These were succeeded by Swinhoe, who retired in 1755-1756. One thing is clear, that the establishment had lost its unique position previous to the appearance of Miller's first book in 1724. For none of these names is to be found in the list of leading nurserymen and florists of that date, nor do we hear of them elsewhere. Mr. Jeffreys, a relative of Swinhoe, carried on the business till 1788, when he was joined by Mr. James Gray, its title being for a brief period Jeffreys and Gray, but the first named died shortly after completion of the partnership. A nephew of Jeffreys' named Wear succeeded to the latter's share in 1790, and a little later a brother of Gray's entered the business, on which the firm became Gray, Wear and Gray, which continued till 1809, when Wear retired and the original Gray followed in 1818, a nephew succeeding him, when the firm became James Gray and Son.

In 1827, Robert Brown, a Scotsman, was made a partner, but he died young, and his place was taken by Adams in 1837, the firm being then Gray, Son and Adams. In 1842 the Gray who entered the firm in 1818 died, when Robert Hogg—of whom more below—entered it, though I have seen 1845 given as the date of his entry, the title henceforward being Gray, Adams and Hogg. The first named retired in 1847, then 87 years of age, and Hogg followed in 1848, the business becoming extinct in 1850 or 1851.

It is worth noting that the firm's early years were noteworthy for a personality of outstanding distinction in George London; and in its latest by a personality of equal distinction, though of a different nature, in Robert Hogg, better known as Dr. Hogg, concerning whom a few remarks may be of interest to the generation that has arisen since his death. He was born in 1818, the son of Robert Hogg, farmer and nurseryman, near Duns, Berwickshire, the latter being head of the still vigorous firm of Hogg and Wood, of Coldstream and Duns. The youth left Edinburgh University for London in 1836, and started work in Ronalds' Nursery, at Brentford, but left there shortly afterwards, and seems to have been very unsettled for some years. He had a weakness for old books, and even when in Edinburgh commenced gathering together a library of works, ancient and modern, on gardening and allied pursuits, which sold subsequently to his death for over £3,000. He also early took up the study of hardy fruits, not only their nomenclature, as some might suppose, but also their cultivation. It is significant that Gray, Adam and Hogg published a descriptive catalogue of fruits in 1847, entitled *A Manual of Fruits*, and this was probably the germ of the *Fruit Manual*, though what may be termed the first edition of that standard work on pomology came out in parts at 1s. 6d. each in 1851 and 1852. It is entitled, *British Pomology, or the History, Description, Classification and Synonymes of the Fruits and Fruit Trees of Great Britain*. And here may be interpolated a note on how difficult it is to be certain of dates. In this work it is stated that 2,500 Ribston Pippins were "now" worked in Brompton Park Nursery, which would prove conclusively that that establishment was still a going concern. But on reference to the *Fruit Manual* the "now" is elided and "in 1847" substituted. At the time of Dr. Hogg's death in 1897, material for a new edition of the last-named book had been prepared. I have a suspicion that he was responsible also for a small volume on *Fruit Trees and Fruit Bearing Shrubs*, which was published anonymously. He wrote a monograph on the *Dahlia* in 1853, and brought out the *Herefordshire Pomona* in conjunction with Dr. Bull, as also an illustrated *Flora* embodying the results of much research. About the time of his retiral from Brompton Park, Dr. Hogg established a private orchard at Worth, Sussex, for the purpose of observing the characteristics of hardy fruits.

In 1851 Hogg wrote a note to *The Cottage Gardener* to rectify a mistake made by its editor, Mr. G. W. Johnson, better known, perhaps, as the author of *A History of English Gardening*, which led to a long friendship, their tastes in many respects being similar. One result was that he became a constant contributor to that journal; in 1855 became joint editor and proprietor, and on the retiral of Mr. Johnson in 1879, sole proprietor. Long before this its title had been changed to *The Journal of Horticulture*. When at Brompton Park he discovered a large number of letters stowed away as lumber in a box in the office, which proved to be the correspondence of W. Forsyth, gardener to the King at Kensington, and a well-known personage and author. Forsyth succeeded Miller in the superintendence of Chelsea Botanic Garden. A selection of these letters was published by Mr. Johnson, some of them being of much interest, and of these one or two may be noted here. One from the Prime Minister of the day, with the reply, throws a vivid light on the gardening of the period as it affected gardeners. The Minister had sent his gardener to Forsyth, obviously to receive instruction, and wrote to the latter complaining of the treatment he received being no better than that accorded to a common labourer. To which Forsyth explained that there was only a greenhouse and some structures for forcing Strawberries under his charge, and that he could give as wages only 10s. 6d. per week in winter and 13s. in summer. Other letters relate to the initiation of the Royal Horticultural Society, which was first mooted by a son of Wedgwood, the great potter. He had also correspondents abroad who sent home seeds and plants of novelties they discovered.

Of the first Robert Hogg, I believe there is now no representative in the male line. It would be a serious omission not to state that Dr. Hogg was a Tulip enthusiast from his youth up. *R. P. Brotherston.*

IRISES.

IRIS PUMILA.

WHILE the larger Bearded or Flag Irises undoubtedly have the premier value for inclusion in gardens, the smaller species and varieties of similar, though less imposing, attractions are eminently suited for certain positions. None of these smaller Bearded Irises is more delightful than Iris pumila and its varieties, which are not too often cultivated, their places being frequently taken by hybrids, which, though taller, are by no means so delightful for the rock garden, for which the pumila varieties are so charming; nor can they even rival them in contending for a place near the front of the border devoted to Irises or a mixed collection of herbaceous plants. They are, indeed, delightful little plants, natives of South Europe and Asia Minor, but hardy and free, as a rule, from any objection to our climate. They may be successfully cultivated in common soil, preferably in a sunny place. Planting in July or March is recommended, the former month being generally favoured by the best growers. The true I. pumila is only about 5 or 6 inches high, whereas the hybrids often sold for it are considerably taller, coming in midway between I. pumila and the larger Bearded Irises.

These Irises flower about April and have wonderfully large blooms, possessing the beard which characterises the larger Bearded Fleur de Lis. There are not so many varieties as in the hybrid class, but the following are all of much beauty and fitting ornaments for a choice rock garden or border.

The type has violet or lilac purple blooms, the standards lighter in colour than the falls, which are ornamented by a large white beard. Alba is a pretty white variety, but not absolutely pure, as it possesses a blue blotch; atroviolacea is a deep purple-violet variety with a blue beard.

In azurea or coelestis we have a pretty variety of a charming shade of azure blue. Gracilis or cinerea is of a greyish white with bronze falls, while lutea is yellow, and macrocarpa of a bluish violet. *S. Arnott.*

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PLANTS NEW OR NOTEWORTHY.

NOTES ON EAST AFRICAN PLANTS.

(*Concluded from p.* 205.)

In the background of Fig. 80 is depicted a species of Carduus, of which there are 22 species in East Africa, as lately revised by Dr. R. E. Fries (*Act. Hort. Berg.*, 8, 11, 1923). In the foreground are fine examples of Delphinium candidum, one of the very few examples of this typically boreal genus which occur south of the Equator. Huth, in his monograph of the genus Delphinium, has remarked on the peculiar structure and isolated position of the only two other species, D. macrocentrum and D. Leroyi, which reach the Southern hemisphere. Such characteristics seem to point to these representatives of northern genera being not merely outliers, but definite relics of a former and much more widely spread temperate flora peculiar to the Southern Hemisphere.

A fine illustration of the weird forests of giant Lobelia (L. Wollastonii) and Senecio (S. Johnstonii) is given in Fig. 81; both species are named after well-known and intrepid explorers of Tropical Africa. The photograph was taken by Mr. Barns, on the Ruwenzori Mountains, between 12,000 and 13,000 feet, just below the snow line. These giant species tower above a ground vegetation of Ericaceae (Blaeria?), Alchemilla cinerea, and species of Helichrysum.

Mr. Barns describes the plant seen in Fig. 82 as a "giant aerial bulb," and it is, I think, an example of Adenia globosa (Passifloraceae), which is unique in the genus on account of its peculiar habit. The swollen base is evidently a nesting place for ants, which, together with the prickly branches, no doubt form a formidable protection against the ravages of animals. *J. Hutchinson, Kew.*

RUBUS MESOGAEUS.

In *Trees and Shrubs Hardy in the British Isles*, a fine selection of decorative brambles or Rubus is given. To this list I would like to see added another species worthy to be cultivated for its general appearance, notably as a distinctive and attractive foliage plant, namely Rubus mesogaeus, Foche. It is a native of Western Hupeh and Western Szech'uan, and was first described by Foche in 1901. Later on, in 1907, it was collected by Mr. E. H. Wilson, in thickets near Tchang, etc., at an altitude varying from 1800-3600 feet, and from his collection numbers 52a and 71, the plants grown at the New York State Agricultural Experiment Station are derived.

Although the plants are killed back to the ground every winter, they come up vigorously in spring, and during summer form large, round bushes about 2½ to 3 yards high, with stems about 1 inch thick and copiously branched, carrying most attractive foliage. These stems or canes are greyish-green, with a light red tinge on the exposed side, and densely covered by a thick felt of long greyish hairs and numerous hooked prickles, which are curved upwards. The leaves are trifoliate on rather short, felty and prickly stalks, and doubly or almost lobately toothed. The terminal leaflets are much larger than the lateral ones, so much as 6 in. long and 5 in. wide. They are softly hairy above and covered with a dense white felt beneath, and thus soft to touch, but the midrib and lower lateral veins are prickly.

The hairy tomentum of the canes is so strong, that it extends to the prickles, which are beset almost to their point with spreading hairs. The stipules are strangely fissured into several subulate points.

As the canes of this remarkable Chinese Raspberry do not survive our winters, I have not been able to see either flowers or fruits. The flowers are white and probably not very showy; but there is a variety with rose-coloured flowers, which may be hardier as, according to Mr. E. H. Wilson, it grows at almost 10,000 feet elevation in woodlands west of Kuan Hsien.

The fruits are said to be small and probably are of no value from a pomological point of view.

In regions with milder winters than ours (Geneva, N.Y.), this Raspberry will no doubt prove to be a very ornamental plant; it is certainly one of the finest species of Rubus ever introduced. *Alwin Berger.*

FIG. 81.—A SCENE ON THE RUWENZORI MOUNTAINS, SHOWING A FOREST OF LOBELIA WOLLASTONII, SENECIO JOHNSTONII, WITH A GROUNDWORK OF ALCHEMILLA CINEREA, ERICAS AND EVERLASTING FLOWERS.

ERICA VAGANS VAR. ST. KEVERNE.

This form of the Cornish Heath is one of the most striking and valuable additions that have been made to our garden Ericas for some years. It has a free, yet compact, habit of growth with foliage akin to that of the type, though perhaps somewhat darker in the green than that of most varieties. The flower spikes, as well as the individual blossoms, are unusually large and showy, and the colour is a soft, salmony rose, quite distinct from that of any other variety. E. v. St. Keverne will doubtless soon become one of the most popular of its class for grouping in large beds, for bold edgings and massing with other Heaths in open woodland or the wild garden. *A. T. J.*

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TREES AND SHRUBS.

AUTUMN-FLOWERING HEATHS.

Although the flowering date of most Heaths varies considerably in accordance with local conditions, there are some which may usually be expected to be at their best during September and throughout the autumn. Even Daboecia polifolia, which frequently breaks into colour at the end of May, often keeps its good wine until the end, giving us a crop of blossom in autumn which is finer than that of earlier days. This is especially true of the splendid white form.

Then there is Erica ciliaris which, though certainly later to come into flower than the above, does not display its fullest beauty in North Wales until most of its summer rivals are well out of the running. Though perhaps the most tender of our native Heaths, E. ciliaris is such a charming species, with its soft green, downy mats of semi-prostrate foliage and splendid, erect racemes of rosy-purple flowers which are borne well into November, that it fully deserves any little protection that the climate may render necessary.

The lovely pure white variety of E. ciliaris is a gem, not to be outshone by any contemporary, and another very beautiful form of this species is the variety Maweana, which also flowers late. This form was discovered in Portugal about fifty years ago by Mr. George Maw, and although it bears all the characteristic features of the type the blossoms are even larger and the foliage, perhaps, a trifle darker and inclined to be more upright. E. Watsonii, a natural ciliaris × tetralix hybrid, also comes into this set, and it is quite distinct in its dense, emerald-green foliage and short, blunt heads of rose-purple blooms.

E. Mackayi, whilst bearing no little affinity with Erica ciliaris in its sprawling habit and other respects, also suggests a strong infusion of tetralix parentage. Thus, while some authorities claim it to be no more than a form of the last-mentioned, others hold it to be another ciliaris × tetralix hybrid. However, E. Mackayi, which comes from that home of many quaint things, the West of Ireland, is an excellent low-growing Heath with rather rounded bells in a clear, yet full-toned, rose-pink. The flowering season extends from about the middle of August well into autumn, the very attractive double variety holding out the longer.

Erica vagans (Cornish Heath) though it may often be in flower during the late summer is usually considered among the autumn blossomers, since its 4-6 in. racemes, which open at the base upwards, will not have spent the last of their blossoms until November is approaching. This loose-habited, but graceful and spreading shrub is generally well enough known and appreciated as a free and easy doer as well as a prolific bloomer. In addition to the typical form, which is a purplish-pink, there are varieties in white, cream, crimson and other shades. But the Cornish Heath which is most likely to win the greatest esteem in the near future is the comparatively new variety, St. Keverne (see p. 219), whose very large blooms are a beautiful salmony rose.

E. vagans makes a useful edging, or low hedge about 2 ft. high, and it is particularly valuable for this purpose inasmuch as it stands the shears better than most. This clipping over—just enough to keep the bushes or edging in shape—should be carried out in spring and the effect is not only greater neatness but more and better blossoms. Another admirable Heath for such purposes as the above is E. stricta (corsica) which will, in favoured spots, ultimately attain the height of 5-6 feet. But this handsome species is naturally compact and orderly in shape and only needs occasional pruning. The habit is somewhat stiff and upright, and the fresh, moss-green foliage has an uncommon, bristly appearance owing to the leaves being set in whorls. The flowers, which appear during September in terminal umbels, are a vivid rosy-pink and the faded corollas, which turn a rusty-red, are by no means unattractive in the winter garden. E. stricta is quite hardy in all save our bleakest counties and it is a species that merits a much wider appreciation than it now enjoys.

Among the latest of the Callunas to bloom here are C. Alportii, with very dark green foliage and rich crimson flowers, the varieties aurea and cuprea, usually being grown for their foliage; and the dwarf, moss-like Foxii. The very beautiful double-flowered form of the type, C. vulgaris flore pleno, naturally last longer than the single, and in the whites C. v. Hammondii usually precedes the more elegant Serlei. But in all of these and others the date and extent of the flowering period are governed very largely by the soil and weather conditions, and young, vigorous plants will usually bloom earlier than old-established clumps. *A. T. Johnson, N. Wales.*

CHOISYA TERNATA.

The Mexican Orange Blossom, although usually seen growing against a wall, may be planted in the shrubbery. Its dark green, glossy foliage is very fine, and when in flower with its large clusters of creamy-white blossoms the plant is a conspicuous object. It is fairly hardy, but it is advisable to give the plant a little protection from sharp frosts. It should be planted in a warm, sunny position in order that the wood may become well ripened, and as it makes dense growth, should be protected against damage by heavy snow, the weight of which might cause the branches to snap off.

This Choisya flowers in May and June and occasionally again in the autumn, and the blooms are very fragrant. It will also thrive well under trees, provided they are not too dense and the soil is good. *T.*

VIBURNUM TOMENTOSUM.

It is not always the most strikingly brilliant coloured foliage that proves the most effective, and this idea was impressed firmly on my mind when looking at a large bush of Viburnum tomentosum a few days ago. The wonderfully artistic colouring is superb. Usually one regards this plant as a flowering shrub only, and certainly as such it is of the very highest merit, but one must also admit it holds a high position for the colouring of its foliage, which ranges from the deepest coppery red on the older leaf surfaces through lighter shades of red and deep pink to the younger leaves that are of pretty light, bronzy green flushed with deep pink markings according to age. The stem and growths are bronzy brown, whilst the leaf-stalks are very deep red, and then, to finish off, there is the paler under surface suffused with pink. The whole is marvellously toned down by the leaf tomentum. The variety V. tomentosum plicatum is almost as beautiful, but the leaves are of somewhat smaller size. *E. Beckett.*

SPIRAEA JAPONICA.

The type species of the group of shrubby Spiraeas included under the above term is not so well known, nor is it so attractive as some of its varieties. The most popular of the latter is Anthony Waterer, a sub-variety of S. j. var. Bumalda, one of the handsomest of its race, and especially valuable on account of its late flowering. The broad, crimson-carmine corymbs of this shrub, much more brilliant than those of the dwarfer Bumalda, are well known, and this season they happen to be especially good. This is due not only to the abundant rains of the later summer, but also to the fact that there has not been sufficient sun to bleach the rich colour of the flowers.

One of the most charming varieties of S. japonica is S. j. alba, or, as it is sometimes called, S. callosa alba. This is a very distinct little shrub—so distinct, indeed, that some class it as a separate species. It does not exceed about a foot in height, and the many slender, upright branches, with their pale, almost emerald, green leaves, bear a profusion of white flowers in terminal corymbs. S. callosa alba blooms freely and late, it is perfectly hardy, and easily satisfied as to soil and situation. *A.*

HARDY FLOWER BORDER.

THE SNOWDROP ANEMONE.

Anemone sylvestris, known popularly as the Snowdrop Anemone, is a charming plant where it does well. In some places it thrives so luxuriantly that it spreads freely about a bed or other position in the enclosed or wild garden, but in some other places does not condescend to live for many years. I cannot profess to have solved the mystery of this. The ways of plants are not always easy to learn, and I must confess to being unable to offer any solution of the question as to how to grow Anemone sylvestris. I can only say that I have seen it do best in a somewhat light soil with a good deal of peat in it, and with a fair amount of moisture below, though not in a boggy condition. It is a woodland plant, and a certain amount of moisture appears to be essential to its welfare. A well-known authority recommends for it a light, moist loam, but I consider it does best with a little peat or leaf-soil in the compost. It is a charming plant with pure white flowers borne gracefully on slender stems. Some three varieties are offered by the trade. These are grandiflora, a large-flowered variety of much beauty; Spring Charm, a distinct variety with bell-shaped flowers of large size; and flore pleno, a double one which I do not much care for, but which has been a good deal admired, and which attracted a good deal of notice when first exhibited in London many years ago. Such a lovely Windflower as Anemone sylvestris should be borne in mind when ordering additional flowers for the garden. *S. Arnott.*

CIMICIFUGA.

Cimicifuga, belonging to the Crowfoot family, was introduced during the 18th century. The species are natives of N. America and China. Their foliage much resembles that of the Astilbes, but is of firmer texture and sets off to advantage the many stately spikes rising from 3 feet to 4 feet high. The inflorescence is silvery white, elongated and elegant. From July to October the Cimicifugas are splendid associates for Gladiolus gandavensis, Kniphofias and Campanula persicifolia. All are perfectly hardy, and are readily propagated by division of the roots during the autumn or early spring, and succeed in ordinary, well-drained, moderately enriched soil, in partial shade or full sun.

The following are all worthy of cultivation:—C. acerina, with neat, bright green, Spiraea-like foliage, and pretty creamy-white flowers, borne on 2½ feet branching stems in late summer and early autumn. C. cordifolia, a North American species, with tall and erect, slender, black stems from 3 feet to 4 feet high, supporting dainty feathery-white flowers during August to October. C. dahurica, a pretty Chinese species, with distinct, large glistening foliage, and long branching racemes of pure white flowers, July to September, 3 feet. C. japonica, a distinct and handsome foliage plant, with black, shining, cylindrical stems, and racemes of dainty white flowers; August to October, 3 feet tall. C. racemosa, one of the most beautiful of the American species, and which should be included in all collections of hardy, herbaceous plants, the elegant Fern-like foliage and peculiar twisted drooping racemes of feathery snow-white flowers providing a most charming effect during July to August; 3 feet to 4 feet tall. C. simplex, a lovely, rare Japanese species, bears dense racemes of beautiful snowy-white flowers on erect pyramidal stems, 3 feet tall, during August and September. *W. Logan.*

CHRYSANTHEMUM ROI DES BLANCS.

For garden embellishment, and also as a cut flower, this variety stands out pre-eminently. It flowers over a long period. I have plants in my garden carrying ten to fifteen beautiful white blossoms of Japanese form. This variety does not require pinching; at least I have found it best to allow it to grow at will. Roi des Blancs requires good cultivation, and will be improved in growth and flower if weak manure water is applied to the roots occasionally. *G. L.*

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THE DEVELOPMENT OF THE DAHLIA.*

(*Continued from page* 204.)

Dahlia raising and growing was a profitable business. Retail prices for new varieties varied from 10s. to £5 each, and the entire stock of certain novelties was often sold for £100 to £200. Girling, who started as a small grower in 1820, died twenty-five years later, a wealthy man, leaving a capital of over £100,000.

The Dahlia had now become such an important florist's flower, that the inevitable standard for the official qualities of the Dahlia was established. William Smith, in his article quoted already, decrees: "The flower should be fully double, always filling the centre; the florets should be entire or nearly so, pointed or rounded, reflexed, and so forming a globular head, regular in their disposition, each series overlapping the other backwards; they may be either plain or quilled, but never distorted; if, instead of being reflexed, the florets are recurved, the flower will be equally symmetrical."

It is remarkable that "pointed" florets were allowed, which was not so in a later period, when the well-known Glenny drew up the standards for all sorts of florist's flowers. One of the foremost Dahlias was Well's Sunflower, from which the German seedling Neuer Deutscher Kaiser was raised. A coloured plate of the latter is given in the ninth volume of the *Annalen der Blumisterei*, showing a pointed petalled flower of golden yellow colour, with regular vermilion edges. The figure reminds one of another old Dahlia, known as picta formosissima, offered in Dennis's catalogue of 1834, and which reappeared in the early days of the Cactus Dahlias, about 1885.

Another type, which had made its appearance before 1830, was the Anemone-flowered Dahlia the flowers of which have a centre composed of narrow, radiating florets, like the small petals in the centre of a double Anemone; a variety called Painted Lady, figured in Sweet's *Florist's Guide*, was raised from seed by Drummond, from whom the stock was purchased by Lee, of Hammersmith. In our days a similar type has been offered from France, but it has not become generally popular.

The number of varieties raised from seed had soon enormously increased. The *Bon Jardinier* of 1828 described 115 double forms, and at the same time a similar number of varieties was known respectively in England, Holland and Germany. Three years later, the Swiss amateur, Walner, who collected all Dahlias he could purchase from every country, possessed a collection of 1,500 varieties, and in 1841 Harrison tells us in his *Floricultural Cabinet* that the list of his own varieties at that time was 1,212, all double, which he believed to be considerably more extensive than any other.

The superiority of the British Dahlias was generally recognised on the Continent during the period from about 1826 to 1840, but meanwhile the ever-increasing popularity of the Dahlia, which was then considered to rank next to the Rose, as a garden flower, led to the intensive raising of new varieties on the Continent, and between 1840 and 1870 considerable numbers of varieties that competed favourably with the English varieties were put on the market.

In Germany the watering place named Köstritz, in Thüringen, became the centre of Dahlia culture. Both Christian Deegen and Johann Sieckmann started there in 1824 and 1826, and their Dahlias kept the lead during at least half a century. Other pioneer growers were S. and J. Rinz, in Frankfurt; Johann Zennick in the same place, who were later on followed by the brothers Mardner at Mainz, and C. H. Müschen at Cantor, near Teterow.

France had several florists and amateurs who successfully raised new Dahlias; these men were also known as producers of new varieties of other garden plants—Chéreau, Guénot, Leroy, Lorain, Miellez, Milcent, Soutif, Voisenon, and others.

In Belgium such world-famous firms as Charles van Geert, in Antwerp, and Louis van Houtte, in Ghent, were extensively Dahlia growers in the earliest period of its development, and in the 'forties they offered several Dahlias of Belgian origin, partly of their own raising.

In Holland, Affourtit's grandson, who was established at Utrecht as a florist, obtained very good varieties between 1850 and 1860, which quickly found their way abroad. His best-known varieties were the Fancy Dahlias Sieraad van Kweeklust, a pure rosy-red; Mevrouw Hacke van Mynden; the excellent whites Mevrouw Krelage, Cornelia Suzanna Affourtit, and Mejuffrouw Toussaint; the curious Laurens Koster, almost black, edged fiery-red, with white tips; Mr. Bilderdijk, sulphur yellow, with lilac edging; another Fancy Dahlia, Chinesche Vrouw; C. De Winter, a giant rose-lilac flower; and Dr. J. H. Molkenboer, with large violet purple flowers. Several other firms yearly issued special Dahlia catalogues which contained extensive lists of the introductions from all surrounding countries.

The quality of the flowers, from a grower's standpoint, steadily improved. The first decided advance was made in 1832 by the raising of Springfield Rival, described as a superb crimson flower. In 1840—special Dahlia shows were already held yearly in many places—popular flowers, such as Sharp's Beauty of the Plain was exhibited in 89 stands, 44 of which were first prize stands. Cox's Defiance, a yellow Dahlia, was shown in 41 first prize stands. Two of the best flowers in 1841 were Conqueror of the World, yellow, slightly tipped, and Rival Revenge, a yellow flower, very much ribbed and decidedly inferior as a show flower, as compared with those we knew thirty years ago. The same remark applies to the celebrated Burnham Hero (1841), Whale's Attila and Beauty of Wakefield (1842). Shortly afterwards the flowers had so much improved that only one variety exhibited in a first prize stand in 1846 was exhibited six years previously, and that variety was Springfield Rival.

The public is always seeking for something extraordinary, and in the case of the Dahlia it was not satisfied with the endless variety of colours; in 1846 it wanted a blue variety. The Caledonian Horticultural Society of Edinburgh promptly offered a prize of £1,000 to the raiser of such a flower, and the Irish sister society doubled the prize to £2,000. We cannot find any trace of a result, and, although Robert Cannell was introduced forty-five years later as a "blue Cactus Dahlia," which really had a magenta shade, the public is still expecting the true blue flower.

The idea of the Scottish and Irish societies did not satisfy the editor of the French *Revue Horticole*, who wrote:—"*Nous avons toujours été du nombre des plus zélés promoteurs du progrès de l'horticulture, mais nous renonçons à exprimer ici les sentiments qu'ont fait naître en nous la lecture de ce programme. Proposer cinquante mille francs pour un Dahlia, en Irlande, dans ce malheureux pays, où la famine est devenue une maladie endémique, c'est insulter à la misère publique.*"

The German growers came to the front with England's Rival (1840?), Triumph von Köstritz (1849), Deutsche Sonne (1859), and a host of others.

(To be continued.)

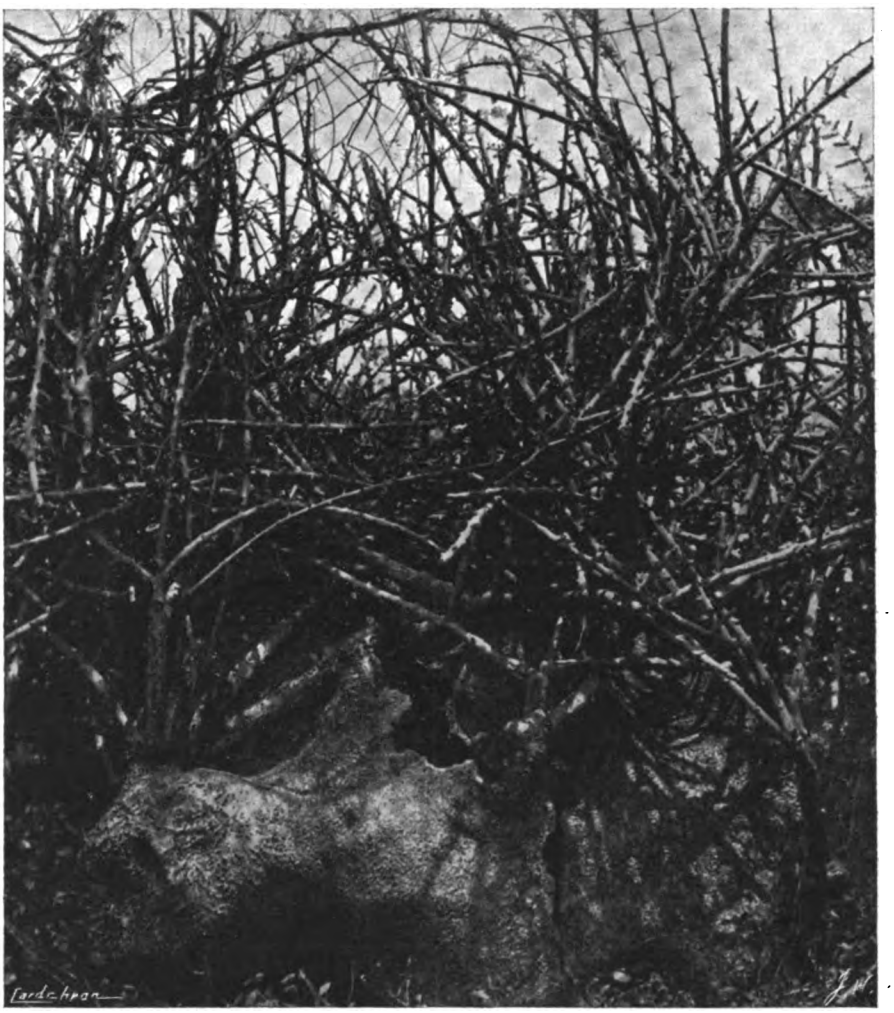

FIG. 82.—A "GIANT AERIAL BULB," PROBABLY ADENIA GLOBOSA, IN EAST AFRICA (SEE P. 219.)

* A paper read by Mr. Ernst H. Krelage before the International Horticultural Congress at Amsterdam, on September 19.

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THE BULB GARDEN.

TULIPA BATALINI.

Tulipa Batalini, which I had perforce to leave behind in the garden I formerly owned, remains a very pleasant memory. It is a scarce Tulip, and not so cheap as one would desire. It appears to need a light, dry soil, with a good deal of sand in it, and should be planted about three inches deep. It has a dwarf habit; its leaves grow almost prostrate on the ground, and the stems grow only about six inches high—sometimes four only and sometimes eight—and bear good flowers of light yellow, almost creamy-yellow, in fact, touched with a line of red at the tips of the segments. It is best adapted for a sunny rockery, where it can be well rested during the summer.

ORNITHOGALUM NUTANS.

For a bulbous plant with spikes of silvery appearance when in bloom I can confidently recommend the old Nodding Star of Bethlehem, Ornithogalum nutans, a plant far too little grown, and a lovely thing when grown in grass or in clumps in the border or rock garden. It looks best when it has a carpet of greenery through which to bloom, as its leaves wither before the flower is in full perfection, and, if on bare ground, the plant is thus shorn of some of its attractions. It grows to various heights, according to the soil, and is often a foot or two in stature, giving a pleasing inflorescence.

The flowers open gradually at the bottom of the spikes; pretty, drooping, starry bells, with a ground colour of white, veined on the outside with a broad veining of green, which gives the blooms a remarkably silvery appearance.

I was much pleased to observe an appreciative remark regarding this Star of Bethlehem from a distinguished amateur cultivator of hardy flowers, whose taste is of the highest, and who appreciates this Ornithogalum very greatly. It is not an expensive bulb by any means, and may be bought in quantity at a cheap rate. Where planted in clumps three to five bulbs will make a good start; but in grass the bulbs should be planted in an irregular fashion. An excellent way is to take a handful, throw them down and plant them where they fall. Self-sown seedlings will come up, and add to the beauty of the mass planted in the grass.

O. nutans is perfectly hardy, and may be planted when bulbs arrive in autumn at a depth of from 2 to 4 or 5 inches, shallower in strong soil than in that which is light.

THE AUTUMN SNOWFLAKE.

Readers who wish to cultivate the exquisite little Autumn Snowflake, Leucojum autumnale, should endeavour to secure the bulbs as early as possible in August, and plant them as soon after they are received as convenient. If planting is done in good time it is likely that flowers will be produced, so that the grower may have a foretaste of the pleasures he will derive from this Snowflake when it has become established, and the bulbs have increased so as to present a little clump. The foretaste will be a charming one in itself, as we see the little, slender, chocolate-coloured stems and the delightful little drooping bells, satin-like in their lustre, and of a charming white just touched with a flush of warmer colouring. Before the flowers pass away the narrow grassy leaves are produced and last during the winter. For a warm spot in the rock garden Leucojum autumnale is a veritable gem. It grows best in sandy soil mixed with leaf-mould or peat and it needs perfect drainage. I believe it to be quite hardy; but I have seen it covered with a bell-glass or hand-light in the north—a precaution I have never found necessary. Planting should be done so that the crowns are an inch underneath the surface. The advice to plant as early as possible is justified by the fact that this Autumn Snowflake generally flowers in August and September if grown in a warm position, and in some seasons I have had it in bloom by the end of July. At any time, however, this charming flower is welcome, and no one will regret its addition to the treasures of the garden if suitably planted and well established. *S. Arnott.*

PUBLIC PARKS AND GARDENS.

The civic authorities of Aberdeen, headed by Lord Provost Meff and Councillor Roberts, convener of the Links and Parks Committee, made a tour of inspection of the city parks on the 18th ult. Accompanied by Mr. W. B. Clark, the Superintendent of Parks, the Town Council visited all the parks, bowling greens, tennis courts and golf courses belonging to the city, and all were greatly impressed with the excellent condition of the parks and the manner in which things are done by Mr. Clark. Subsequent to the inspection, when tea was served at the Duthie Park, Lord Provost Meff gave the toast of the Links and Parks Committee, and expressed his high appreciation of the great asset their fine parks were to the city. They had to-day, he said, in Councillor Roberts a convener who devoted a tremendous amount of time to his department, and who was in the proud position that day of showing them a number of parks and public places that could not be surpassed by those of cities much larger than Aberdeen. In Mr. Clark, their superintendent, they had a very capable official, who had remained with them even when he was assured of securing the plum of his profession (superintendency of Edinburgh Parks). Councillor Roberts, in reply, said it was a great pleasure to him to have the city fathers there that day. They had certainly seen much, but they had not seen all Mr. Clark, their superintendent, had to look after, for besides the parks he had charge of the trees throughout the city, numbering nearly 6,000, and the children's playgrounds. He associated himself with what had been said concerning Mr. Clark's ability and the intense interest he took in his duties.

In reply to the toast of his health, which was proposed by Baillie Wright in very warm terms, Mr. Clark, the superintendent, thanked the council for the courtesy and kindness they had extended to him in his duties, and went on to say that while in Aberdeen they had a considerable area of parks, they had not a piece of ground on which to grow plants to replenish the parks. They had to go to local nurseries and take what was to be got there. With regard to trees for the city streets, the local nurserymen did not grow trees for that purpose, but for cover, and the result was that some of the trees in the streets of Aberdeen were a disgrace through nothing better being obtainable. He advocated the provision of a field—preferably at Hazlehead Park—which could be utilised as a municipal nursery. Were such provided they could grow their own plants and trees as well as turf for returfing the bowling greens.

Bethlem Hospital, Southwark, the site of which was formerly St. George's Fields, is likely to be removed, and it is suggested that the present building should become a museum and picture gallery for South London, and the grounds a public park.

MARKET FRUIT GARDEN.

After an unsettled August it was hoped that September would be fine, but that hope was not realised. It is true that the month opened and closed well, but there was a period of twelve days, from the 14th to the 25th inclusive, when rain fell every day, often accompanied by gales which brought down much fruit, including late Plums. The weather became thoroughly autumnal, and fruit trees responded by the yellowing of the leaves, though the ripening of the fruit was still delayed. The gathering of the crops was hindered, and the demand for fruit fell off, as it always does when the weather is cool and dull. A start was made with much-needed hoeing and cultivation early in the month, but this had to be abandoned when the rain came, and the labour transferred to the mowing of litter in the grass orchards. Weeds grew fast on the arable land, and it is to be hoped that October will give an opportunity of cleaning this, as much spring work is saved if the plantations can be got into good order before winter.

Plums Finished.

The Plum crop lingered until late in September. The total yield of my orchards was 972 half-sieves, as compared with 2,745 last year. Prices, although high for Plums, did not compensate for the short crop. The average net return per half-sieve was 11s., as against 6s. last year. Thus the price was less than double, whilst the crop was little more than one-third. Imports from the Continent, including large quantities of German Plums late in the season, prevented home growers from securing the full value of their light yield. Monarch was the only variety which with me, cropped better than last year, though Victoria fell very little short. Curiously enough, the mid-season varieties, such as Czar, Victoria and Belle de Louvain, which are often very cheap, brought the best returns, if we except the very few Presidents which formed the final consignment.

The generally unfavourable character of the year for fruit of all kinds extends even to nuts. I gathered only 383 lb. of Cobs from about four acres of trees, which yielded 4,395 lb. last year.

Late Apples.

The later varieties of Apples are maturing very slowly, but some of the cooking Apples are proving much more plentiful than the early varieties. Lane's Prince Albert is quite the crop of the season. This has been gathered, and, with Bramley's Seedling, will be stored away until prices improve. Although very heavy imports are expected, and home growers have been advised to market all their Apples as soon as possible, I doubt if this is wise in the case of cooking varieties. The imported Apples are used chiefly for dessert, and do not compare with such kinds as Lane's Prince Albert and Bramley's Seedling for cooking. I shall be surprised if the market for these does not improve when the home supply nears exhaustion.

Apple Calville Rouge d'Automne.

A few years ago I noticed on a huckster's cart a box of brilliantly red Apples, which had been bought from a neighbouring farm orchard. They were so very striking in appearance that they appealed strongly to me as a good variety to grow for market. I went to the farm, and was shown the tree, a miserable specimen half smothered by others in the usual kind of neglected farm orchard; but I was told that it cropped well and regularly. New shoots were scarce, but I secured a few for use as scions, and have raised several trees. These carried half a dozen fruits this year. The variety has been named for me as Calville Rouge d'Automne, often called Sops-in-Wine. Mr. E. A. Bunyard tells me that he has a tree of this Apple in his orchard, but that it always comes rather too uneven to make a good market variety. I think, however, that it may be specially suited to my light soil and early district; and I shall work up a stock and try to popularise the fruit in local markets. It seems to be the kind of Apple that is wanted to follow Worcester Pearmain. The colour is quite as brilliant, staining through even into the flesh in a sunny season, and the flavour is better, which does not say too much for it. Hogg describes it as a culinary Apple of inferior quality in this country, but highly esteemed on the Continent for both culinary and dessert purposes. He states that the tree is a strong and vigorous grower, and an abundant bearer; and that it should be grown as an open dwarf on Paradise stock in a fine sandy loam, and not too closely pruned. Its season here appears to be late September and October.

Grass Orchards Popular.

More and more growers are favouring the practice of grassing down established Apple orchards. They find that, though they sacrifice a little in size of fruit, they gain more than enough to compensate for this in colour and skin quality. Some of them claim also

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that they get less trouble from pests and diseases. In most cases the grass is kept down by grazing with pigs or sheep, or by running poultry under the trees. I believe that this is a move in the right direction, if only because it reduces the cost of cultivation. Orchard fruit can hardly pay for hand hoeing at the present cost of labour. I find that several varieties do better on grass, including Allington Pippin, Worcester Pearmain, Beauty of Bath, and Blenheim Pippin. But on my land, which lacks organic matter and is apt to suffer from drought, I prefer to mow the grass and leave it on the surface as a mulch, rather than feed it off. I believe that the "sod strip" system, in which the actual tree rows are on strips of turf mown twice a year, with the alleys between the rows kept cultivated by horse-drawn implements only, is going to prove ideal for my conditions of soil and climate.

It cannot be too strongly emphasised, however, that grassing down must not be done until the trees are thoroughly established, say at least ten or twelve years from planting. Up to that time they must be in cultivated ground, or, at any rate, must have a cultivated space extending slightly beyond the spread of the branches round each tree. It ought not to be necessary nowadays to urge this; but examples of young trees simply stuck into grass land are still frequently seen; and it is always clearly apparent that such trees are doomed to permanent stunting and failure.

DRESSING WOUNDS ON FRUIT TREES

A satisfactory dressing for wounds on fruit trees has yet to be found. It is badly wanted, because many of the worst fungous diseases, including Silver-leaf, enter the trees through wounds made in pruning, or where branches are broken. I have generally painted all large wounds with Stockholm tar, but, according to trials made at the Long Ashton research station, this is of little use, as it does not stand the weather well. These trials have not gone on long enough to test the various dressings with regard to disease prevention, but some observations have been made as to the nature and rate of callus formation, the weathering of the dressing, and the ease of application. Only a few of the applications tried weathered at all well. Clay and cow dung, Stockholm tar, gas tar, a grafting compound, boiled linseed oil and chalk, all weathered more or less badly. Anti-fouling paint (used on ships' bottoms) weathered extremely well, but is apt to cause killing of the bark, a fault shared by lysol, gas tar, and gum arabic. Callus formation is favoured most by dressings which are not antiseptic, but which aim chiefly at keeping the wound moist. These include surgical tape, grafting wax, and a mixture of clay and cow dung. White lead paint weathered well, and appears to have been free from objection.

According to Messrs. F. T. Brooks and H. H. Storey, who are investigating Silver-leaf disease at Cambridge and at the John Innes Institute, gas tar has given the best results so far. They consider that there is no danger of this substance injuring the bark if it is applied carefully to the wound so as not to extend on to the healthy bark. In their experiments Stockholm tar gave very disappointing results, but white lead paint produced fair protection. Anti-fouling paint gave excellent protection, but in some cases killed considerable areas of bark around the wounds; but it is hoped to make some improvement in this dressing. The need for renewing the dressing, say after three months, is urged by these experimenters, because the swelling of the callus causes the best of dressings to crack. The prompt application of the dressing after making the wound is also recommended, as fungi enter most easily whilst the wound is fresh.

It will be seen that the most hopeful dressings at present are gas tar and white paint. I know from experience that gas tar applied with reasonable care does no harm to the bark; and I shall substitute this in future for Stockholm tar.

There is one dressing used by some growers which does not seem to have been tested in these trials. That is a solution of copper sulphate. This soaks right into the wood, of course, and does not form a weather-proof covering to the wound; but it is such a strong fungicide that it may protect it from infection for some time. Anyhow, some growers believe that it heals up canker wounds quickly. I have also heard of undiluted Bordeaux paste being used with satisfaction.

IMPERIAL FRUIT SHOW.

The growers' classes at the Imperial Fruit Show, which will be held at Manchester from October 26 to November 3 inclusive, should be more attractive and instructive than they have been on previous occasions, because the packing will not be upset by the judges in making their awards. Hitherto it has been necessary for them to dive into the boxes to examine the fruit in the lower layers, and consequently, visitors have come away with the impression that English growers do not understand how to pack Apples in boxes. This year each entry consists of seven boxes instead of six; and the judge will select any one of these to turn right out and examine thoroughly. The fruit in this box will not be shown at all, but the remaining six boxes will be exhibited undisturbed.

The holding of the show in Manchester is pleasing to the Eastern Counties and West Midland growers, for whom the northern markets are very much more important than London. *Market Grower.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante, pp. 71-76.)

(*Concluded from page* 206.)

WALES.

GLAMORGANSHIRE.—Fruit in these gardens is scarce generally, especially Pears and stone fruits. We have a fair crop of Apples, the best varieties being Codlins, including Lord Grosvenor and Lord Suffield on trees on a covered walk, Worcester Pearmain, Allington Pippin (the heaviest crop of all), Warner's King, Frogmore Prolific, Lane's Prince Albert, Bramley's Seedling, Tom Putt and Norfolk Beauty. Of Pears we have a few fruits of Beurré Hardy, Conference and Doyenné du Comice, but no early or very late ones. We had a few Victoria and Early Prolific Plums on wall trees, but no Damsons or Cherries. There were heavy crops of Royal Sovereign and King George Strawberries, and an average crop of Raspberries, including Lloyd George, Park Lane and Superlative. Black Currants, Victoria and Seabrook's Black were plentiful, but not of the best quality. Red Currants and Gooseberries were both plentiful. Our soil is all that could be desired for fruit cultivation. *W. E. Wright, Henstaff Court Gardens, Pontyclun.*

IRELAND.

KILKENNY.—I have never known a worse year here for tree and wall fruits. An exceptionally mild winter was followed by a cold spring, with continuous east winds, and morning frosts, from early April until June. There was plenty of fruit blossom of all kinds, but the conditions were unfavourable, and very poor crops have resulted. Added to this there was no rain from mid-April until July. This drought reacted very unfavourably on most promising bush and small fruit crops. As was to be expected, the unfavourable weather of spring and early summer favoured aphis attacks; aphides and the capsid bug on some young Apples trees have proved our worst pests this season, little or no damage having been caused by caterpillars. The soil is a medium and very fertile loam, overlying subsoils varying from sand to yellow clay. *T. E. Tomalin, Bessborough Gardens, Piltown.*

——The cold weather during spring retarded the blossoming of fruit trees until May, and the weather was not very good at the time when the fruits were setting. The great quantity of Pear blossoms was very exhausting to the trees, and comparatively few fruits set. Apples and Plums were failures. Small, soft fruits were rather below the average, excepting Strawberries, which gave a heavy crop of good flavoured berries, and Raspberries, which were plentiful. Our best varieties of Strawberries are Royal Sovereign, King George, Givon's Late Prolific and Laxton's Latest. Peaches and Nectarines out-of-doors were very disappointing, which is accounted for by the fact that a sharp North-Easterly wind prevailed at the time of the trees flowering. *J. W. Grahame, Flood Hall Gardens, Thomastown.*

MEATH.—This district is one of Ireland's best fruit districts, and this year there is not a peck of fruit to each ton gathered last year. I never saw such a total failure of the crops. The weather of spring after February was of the severest kind, and the blossom perished in the wintry conditions. *Michael M'Keown, Juliana town, Drogheda.*

TYRONE.—We have the worst crops of Apples, Pears and Plums for over 30 years. Cherries are grown only in very limited number, but they were a little better, although not a good crop. This is due, I consider, partly to the excessive crops of last season, which weakened the trees, and partly to the inclement weather experienced in April and May. Bush fruits were fair crops, but Raspberries were rather scarce. Strawberries were a fair crop, but were fully a fortnight late in ripening. The soil is a very heavy binding clay. *Fred. W. Walker, Sion House Gardens, Sion Mills.*

CAVAN.—This is one of the worst years in County Cavan on record for Apples, Pears and stone fruits. The blossom was late in opening and all the fruits failed to set. During the period of flowering the wind was from the north, and frost and hail were frequent. Gooseberry mildew is prevalent in this district. Small fruits were extra fine crops. Strawberries were good, but about ten days late in ripening. *Edward Rutherford, Farnham Gardens.*

DOWN.—With the exception of Apples, we have average crops of most kinds of fruits. Gooseberries were more than usually abundant, and although we had a long spell of cold, cutting winds at blossoming time, I think exhaustion from over-cropping last year is the chief cause of the failure of the Apple crop. *T. W Bolas, Mount Stewart Gardens, Newtownards.*

CORK.—On the whole this is a very disappointing fruit season. Many varieties of Apples have good crops, but the fruit is undersized. Pears are a complete failure. Plums set well; but, as a result of the persistent cold north and north-east winds and prolonged drought during May and June most of the fruits dropped. Of bush fruits Gooseberries were the best, the crop being above the average. The rainfall for May and June combined only amounted to 1.10 inch, and the effect of the long drought and harsh winds was apparent on all crops, particularly Strawberries, Black Currants, and Raspberries. Aphis has been very troublesome, and caused much damage where spraying was neglected. *J. Dearnaby, 17, St. Patrick's Terrace, Magazine Road, Cork.*

WATERFORD.—Fruit generally is scarce; late spring frosts, harsh winds, and hail showers did much harm to the fruit blossom. In the case of Pears the unfavourable weather, when Pear trees and some varieties of Apples were in full flower, practically ruined these crops. Small fruits were very good; Black Currants and Gooseberries being heavy crops. Peaches and Nectarines in the open were badly attacked with leaf blister and mildew. I have treated these pests, but the fruit was inferior. Apricots are not a success here. Cherries dropped considerably, and the few that ripened were of poor quality. The soil is of a heavy, clayey nature. *William H. Arrowsmith, Curraghmore Gardens, Portlaw.*

CHANNEL ISLANDS.

JERSEY.—The fruit crops are not very favourable; everything seemed to suffer badly from the cold, wet weather in the spring. In some instances there is an average crop, but the fruits dropped freely in summer. *Thomas Sharrenan, The Imperial Nursery, St. Mark's Road, St. Heliers.*

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HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Scum on Ponds.—If *A. H.* (see p. 166) wishes to get rid of the green Algae which are causing the scum on his lake, I would suggest that the best material to use would be copper sulphate of 98-99 per cent. purity in the form of small crystals. The amount required should be placed in a coarse bag, and then be pulled very gently backwards and forwards through the water as close to the surface as possible. It would be best to select as warm a day as possible, as it has been found that temperature has a very great influence on the effect of copper. It is, of course, always better to use copper sulphate as a preventive rather than as a cure, and the cost of treatment is naturally much less. The quantity to be used depends on the size and depth of the pond; but to calculate the cubic contents multiply together the length, breadth, and average depth in feet, and then, in order to obtain the number of gallons of water to be treated, multiply the result by 6. For every 10,000 gallons of water to be treated 2½ ounces of pure copper sulphate 98-99 per cent. purity would be required, and if applied in this proportion no injury should be caused to either fish, or plants such as Water Lilies. In America copper sulphate has been used extensively during recent years, not only for preventing the growth of Algae in reservoirs, but even for the clearing and cleansing of reservoirs and ponds covered with offensive smelling scum. The use of copper sulphate for the purpose of removing the objectionable odours caused by the decay of water plants is of great importance, and there is little doubt but that the treatment of water in this manner will probably be found to have the most favourable effect in keeping mosquitoes from using water so treated as their breeding places. *Robert W. Ascroft.*

Hardiness of Cobaea scandens.—With reference to the note in *The Gardeners' Chronicle* of September 22 respecting the hardiness of Cobaea scandens by Mr. C. Orchard, The Cottage, Smoglands, Bembridge, I.W., I would observe that I sowed seeds in February, 1922, for the purpose of raising plants for planting against 9 ft. columns and to cover chains (that hang from one column to another) until the permanent climbers were established. The seedlings were potted into 4½ inch pots and planted at the base of the stone columns early in June. They grew up, covered the chains, and flowered from the end of August until late autumn; during the winter of 1922-3 they had no protection whatever. This year they grew away strongly and have flowered continuously, which surprised me not a little. The Cobaeas are growing in heavy loam incorporated with leaf-soil and old mortar rubble. *F. Clipstone, Melchet Court Gardens, Romsey, Hampshire.*

——I give another instance of the hardiness of Cobaea scandens. In July, 1922, a seedling of C. scandens was planted against a wall facing south-west, near a bay window at the District Hospital here. It flourished well and bore a good many flowers during the autumn, and a few during the winter. In April a ripe capsule was gathered, seeds from which I sowed at once in a gentle hot-bed. These germinated, the seedlings were through the soil in less than a fortnight, and have grown into strong plants. The old plant now covers a space of several square yards, and has hundreds of buds, flowers, and fruits. This summer a small plant of Tricuspidaria lanceolata in my garden formed one fruit, which ripened in September, and contained four good seeds. I do not know whether this is an uncommon occurrence or not *W. A. Shoolbred, F.L.S., St. Ann's, Chepstow.*

Phygelius capensis.—I was interested in the recent short article devoted to this plant (see September 29, p. 183), and can endorse what *A. T. S.* writes about its hardihood. I have in mind a clump of Phygelius which has been growing merrily in a Cumberland garden (eight miles inland from the Solway Firth) for thirty to forty years. It has always occupied the same position in a sheltered border facing south, and flowers regularly. At times it has had to withstand fairly severe frosts, for we are not so frost-free in this part of England as is sometimes imagined. *J. P., Carlisle.*

Notes on Some of the Newer Daffodils.—A friendly critic points out that in my article on "Some of the Newer Daffodils" which appeared in *The Gardeners' Chronicle* of September 22 (p. 173) there were two or three slips:—(1) Magnolia (IV., b.) was not raised by Mr. Engleheart, but by the Brodie of Brodie. (2) Venetia did obtain an Award of Merit, a point I was not sure about; it was raised by Mr. Hy. Backhouse. (3) Fortune I unfortunately described as having a light yellow perianth, whereas it is bright golden yellow. Had I grown the flowers, the mistake would never have been made; perhaps I was so dazzled by the orange cup that the perianth was forgotten! Having planted four nice bulbs, I hope to become better acquainted with the flower next spring. *J. Duncan Pearson, Lowdham, Notts.*

St. Cuthbert's Cole (pp. 136, 177).—By an unfortunate omission, Mr. Brotherston's note does not give references to the sources whence he derives his information. I am not calling the accuracy of this in question, but the matter is so interesting that one would like to be able to trace it to its source. There are evidently mis-spellings in Mr. Brotherston's transcript—*e.g.*, "Hieracium Spondylium" for *Heracleum Sphondylium*—and the extracts may contain others, which a reference to the sources would enable one to correct. *James Britten.*

Second Crop Pears.—On October 2 I saw a most remarkable second crop of fruits on a William's Bon Chrêtien Pear, many of the fruits weighing 8 ounces to 10 ounces. It was interesting to notice that every fruit was carried singly on the extreme end of a precocious spur, which seemed to have grown quite distinct and separate from the basal cluster. I examined a Beurré Bosc which has fruited in the same way, and thought the matter worthy of attention, as these fruiting spurs appear to be of biennial maturity, and after close inspection I conclude they will not interfere in any way with next season's set. *Pomona.*

Cercidiphyllum japonicum.—This tree is certainly very beautiful at this season; but the note concerning it, signed *T.* (page 183), in describing it as a "deciduous shrub," will be apt to mislead planters. It is one of the taller Japanese trees, and Mr. J. H. Veitch has recorded a specimen at Hakodate, with a stem girth of 21 feet (*A Traveller's Notes*, page 131). *Herbert Maxwell, Monreith.*

Poa annua as a Perennial? (see p. 149).—Mr. Baker makes interesting reference to this grass. That it is a good grass for town lawns, particularly in smoky areas, is, we believe, well established. We think it was the late Mr. Nicholson, of Kew, who, writing in *Gardeners' Chronicle* a number of years ago, pointed out that the so much admired plots in the neighbourhood of Westminster Abbey are composed entirely of this species. That it is an annual is, we think, incontrovertible, but under favourable conditions it is thoroughly permanent by constant self-seeding. Like most annuals it fares badly in a close sward of perennials, so that if there is a good prospect of a general lawn mixture succeeding it would be a waste to include Poa annua, which, if used, should be sown by itself. Besides, the pure seed is scarce and expensive. In districts like Lancashire, where chemical factories often pollute the air to the detriment of vegetation, this grass would come out on top, the class of competition being entirely in its favour. It is often a troublesome weed on market gardening or nursery lands. Here it is our greatest pest, flowering and seeding the whole year round, and stooling as freely as Chickweed. P. trivialis is another troublesome weed here in parts, though not to be compared with P. annua. *William Power and Co., Waterford.*

SOCIETIES.

NATIONAL CHRYSANTHEMUM.

A meeting of the Floral Committee was held at the Royal Horticultural Hall on Monday, September 17, when no fewer than thirty varieties came up for judgment. Awards were made as follow:—

First Class Certificates.

Shirley Sunset (II, 1, c).—A very attractive border variety of golden-bronze colour. Shown by Mr. H. Woolman, Shirley, Birmingham.

Lichfield Bronze (II, 1, c).—A rich deep bronze coloured border variety, with flowers of excellent substance. Shown by Mr. Thorpe, Lichfield.

Commendation.

Royal Salute (II, 1, c).—A very effective decorative variety for the border, with bright chestnut-red flowers. Shown by Mr. H. Woolman.

September Yellow (II, 1, b).—A soft yellow-coloured variety with large, elegant flowers, something after the character of George Wormig. It is a sport from the popular September White. Shown by Mr. Thorpe.

The Floral Committee met again on Monday, October 1, in the Bandstand at Holland Park Hall, when a goodly number of attractive varieties were brought forward, and the following awards made:—

First Class Certificates.

Royal Salute (II, 1, c).—A variety Commended at the previous meeting and now shown in particularly fine form. Its chestnut-red flowers attracted a great deal of attention. Shown by Mr. H. Woolman.

Minstrel (II, 1, c).—A large Japanese-flowered border variety, with crimson flowers of considerable substance. Shown by Mr. H. Woolman.

Shirley Terracotta (V, 1, a).—A deep terra-cotta coloured single variety of large size. Apparently it is very free flowering. Shown by Mr. H. Woolman.

Doreen Woolman (V, 1, a).—An exceptionally attractive single variety for garden decoration, bearing its bright terra-cotta—almost a rich apricot shade—single flowers in sprays, on long, stiff stems, therefore constituting a variety extremely useful for cutting. (See Fig. 78, p. 211.) Shown by Mr. H. Woolman.

Mrs. Jack Pearson (II, 1, c).—A very useful orange-bronze coloured variety, which is continuous flowering from the middle of July until severe frost sets in. This variety was described and illustrated in *Gard. Chron.*, February 3, p. 65. Shown by Mr. P. Ladds, Swanley, Kent.

September Yellow (II, 1, b).—This is the soft yellow sport from September White, which received a Commendation at the previous meeting. Shown by Mr. D. Ingamells.

Commendation.

Purple Flag (II, 1, b).—This has medium-sized flowers of a rich purple-amaranth colour, with dull silver reverse, and it will appeal especially to those who care for this particular shade. Shown by Mr. H. Woolman.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

September 6.—Committee present: A. Hanmer, Esq. (in the chair), Messrs. J. Birchenall, A. Burns, A. Keeling, E. W. Thompson and H. Arthur (Secretary).

First Class Certificates.

Laelio-Cattleya Mrs. Medo (*C. Venus* × *L.-C. Luminosa*), a well-shaped flower of brilliant colour. From S. Gratrix, Esq.

Odontoglossum Helma (*parentage unknown*), a heavily marked variety.

September 20.—Committee present: R. Ashworth, Esq. (in the chair), Messrs. J. Birchenall, A. Burns, D. A. Cowan, A. Coningsby, J.

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Cypher, J. Howes, A. Keeling, E. W. Thompson and H. Arthur (Secretary).

First Class Certificates.

Laelio-Cattleya Momus var. Mirimar (*rubens* × *Octave Doin*), a large flower with very broad sepals and petals of deep rosy-mauve colour, and a rich amethyst-purple lip, with golden lines in the throat. From Mrs. Gratrix.

Brasso-Laelio-Cattleya Thompsonii alba (*B.-L. Dighyano-purpurata* × *Gaskelliana alba*), a pure white variety, the large lip having a rich orange throat. From S. Gratrix, Esq.

Brasso-Cattleya Sofrano var. Primrose Queen (*C. iridescens* × *B.-C. Mrs. Leemann*). The large lip of this well-shaped flower is beautifully frilled and coloured Primrose-yellow throughout. From Messrs. Cowan and Co.

Awards of Merit.

Cattleya Thebes (*aurea* × *Adula*) and *Cattleya amabilis alba*. From P. Smith, Esq.

Sophro-Laelio-Cattleya Thyone (*S.-L.-C. Marathon* × *C. Thyone*) and *Cypripedium Godefroyae ochroleuca*. From S. Gratrix, Esq.

Groups.

S. Gratrix, Esq., West Point (gr. Mr. J. Howes), was awarded a Gold Medal for a group in variety.

Messrs. J. Cypher and Sons staged a group for which a Silver Medal was awarded.

HOLLAND PARK HALL SHOW.

(*Concluded from p.* 212.)

Single Dish Fruit Classes.

By far the largest number of classes in the competitive fruit section is devoted to single dishes of Apples and Pears, and usually a very large number of exhibits are staged, but this year, in keeping with the rest of the fruit show, the number of entries was down considerably and the majority of the prizes were divided between three competitors, namely, J. A. Stidson, Esq., Captain Drummond and the Earl of Bessborough. Although the numbers of exhibits staged were fewer it is satisfactory to know that there were entries in nearly every class. The largest number of entries was for Apple Cox's Orange Pippin, in which six competed. The first prize was won by J. A. Stidson, Esq., with very choice fruits, and this grower also won first prizes for American Mother (three entries), Ellison's Orange (two entries), St. Everard (two entries), King's Acre Pippin (two entries), St. Edmund's Pippin (of which he was the only exhibitor), and for eight fruits of any early variety not named in the schedule, with Autumn Pearmain.

The first prize for a late variety not specified in the schedule was won by the Earl of Bessborough, with King of Tomkin's County, who also excelled in the classes for Blenheim Pippin (five entries), Charles Ross (one entry), and Adams's Pearmain (two entries).

Capt. Drummond was successful in the classes for Allington Pippin (three entries), James Grieve (four entries), Lord Hindlip (two entries), Ribston Pippin (five entries), and Sturmer Pippin (of which he was the only exhibitor). Of the remaining prize winners, R. Basil Hoare, Esq., was first out of five exhibitors for Rival.

In the corresponding division for cooking Apples the largest number of first prizes was won by the Earl of Bessborough.

He excelled for Bismarck (two entries), Dumelow's Seedling (one entry), Ecklinville (three entries), Norfolk Beauty (two entries), Grenadier (one entry), Golden Spire (one entry), and Lane's Prince Albert (six entries). The first prize was also won by the Earl of Bessborough for fruits of Loddington, in the class for eight fruits of any variety not named in the single dish classes.

Viscount Hambledon was successful in the classes for Beauty of Kent (one entry), Edward VII. (one entry), and Blenheim Pippin, large fruits (four entries), whilst Captain Drummond excelled in the classes for Lord Derby (four entries), Newton Wonder (two entries), Stirling Castle (one), and Warner's King (six entries).

The best fruits of Bramley's Seedling were those shown by J. A. Stidson, Esq., who was first out of five competitors, and who was also placed first of two in the class for Peasgood's Nonesuch, and first of three in the class for The Queen. R. Basil Hoare, Esq., was the sole entrant in the class for Emneth Early (Victoria), as was Sir C. Nall-Cain in the class for the Rev. W. Wilkes, and both received the first prize. Major G. Baynes was first in the class for Annie Elizabeth, for which two entries were forthcoming.

In the division for Pears, entries were even fewer than in that for Apples. In the dessert section Captain Drummond was the sole exhibitor in the classes for Durondeau, Easter Beurré, Emile d'Heyst, Marie Louise, Thompson's, Marguerite Marillat, and was awarded the first prizes, except in the case of Emile d'Heyst and Thompson's, where second prizes were awarded. The same exhibitor was also first out of three exhibitors in the class for Doyenné du Comice, and first in the class for eight fruits of any early variety not mentioned in the single dish classes, with Beurré d'Amanlis.

Sir C. Nall-Cain was first in the class for Conference (two entries), and for Louise Bonne of Jersey (three entries), whilst Mrs. Austin was first in the class for Glou Morceau.

There was no entry in the class for the best flavoured Pear not mentioned in the single dish classes, but in the corresponding class for Apples J. A. Stidson, Esq., was awarded the first prize for fine specimens of the variety Gravenstein.

ROYAL SCOTTISH ARBORICULTURAL.

On September 22 a number of the members of this Society paid a visit to Whittingehame, the East Lothian seat of Earl Balfour. They travelled by char-a-banc from Edinburgh, and on arrival at Whittingehame were conducted over the plantations and policies, where many fine Conifers and broad-leaved trees were seen, by Mr. W. Fife, the head forester. Among these was the famous Whittingehame Yew, under the canopy of which tradition asserts the plot to murder Darnley was hatched by Bothwell and his confederates, which, however, is extremely unlikely, as the calculated age of the tree will not permit of its having even been planted at that time. The bole is about 10 feet high and about 11 feet in girth, and the branches, which form a splendid head, cover an area of 100 feet in diameter. The tree is in excellent health, and the tops of the branches, which arch over and rest on the ground, over which they sweep, make good annual growths. Another interesting tree in the policies is the well-known Eucalyptus whittinghamensis, one of the many forms of E. Gunnii, and the parent of the plant at Kew, which was planted in 1896. The tree, which was raised from seed brought from Tasmania by the late Marquis of Salisbury when a young man, is in excellent health and regularly produces seed, much of which is fertile. A visit was also paid to the gardens under the leadership of Mr. G. F. Anderson, the gardener, who was complimented on their excellent condition.

From a sylvicultural point of view, the most interesting feature was the growing of Thuya gigantea in mixture with Larch and Beech. The Larches, as was no doubt anticipated, have taken a very decided lead, and are now beginning to threaten the existence of the Thuya. Consequently, as was explained by Mr. Fyfe, they are being gradually removed in order to give the Thuya more light and air. Larch makes excellent growth at Whittingehame, and the poles seemed remarkably free from canker.

The visitors were entertained to tea in Whittingehame House by Miss Balfour.

TRADE NOTES.

The Ministry of Agriculture announces that arrangements have been made by the Union of South Africa Authorities whereby Potatos grown in districts in this country in which Wart Disease has occurred only on isolated gardens and allotments will in future be admitted into the Dominion, provided that Wart Disease has not been known to occur on the land on which they were grown, that the actual Potatos are found on examination to be free from serious diseases and insect pests, and that a certificate to this effect accompanies each consignment.

All applications for the necessary certificates in respect of Potatos grown in England and Wales should be addressed to the Ministry at 10, Whitehall Place, London, S.W.1.

In accordance with the requirements of the Seeds Act, 1920, and the regulations made thereunder, it is necessary, in the case of a sale of any of the principal kinds of farm and garden seeds, for a statement to be made to the purchaser, at, or before, the time of sale or delivery, containing certain specified particulars as to the quality of the seed. These particulars must be based on a test carried out not earlier than August 1 preceding the date of the sales, except in the case of seeds sold during August and September, when the test may have been made since August 1 in the preceding year. In order to comply with the regulations, seedsmen and others carrying over stocks of seeds for sale from last season must, therefore, arrange to have them retested before offering them for sale as from October 1 onwards.

The Florists' Telegraph Delivery Association is holding its annual meeting at St. Louis, U.S.A., this week. The British unit has sent the following cable to the President:—"Fraternal greetings from the British unit of eighty florists all with you in spirit to sound the slogan, 'Say It with Flowers.'—Shearn (President), Brunton (Secretary)."

INQUIRY.

A correspondent is anxious to obtain information that will enable him to identify a hexagonal, bronzed badge. Obverse, garden basket and tools "Loyal and Independent Gardeners." Reverse, two men, each wearing cut-away coat, apron and sash, clasping hands, Rose and Vine left and right, "Let Brotherly Love Continue." Suspender, bunches of Grapes. Period, mid-nineteenth century.

GARDENING APPOINTMENTS.

Mr. L. W. Bush, for the past four years Foreman at The Mote Park, Maidstone, as Gardener to Lord Oranmore and Browne, Mereworth Castle, near Maidstone.

Mr. E. W. Hoyle, for the past two years General Foreman at Springfield Gardens, Marlow, Buckinghamshire, as Gardener to B. Eric Smith, Esq., Stubbings, Maidenhead, Berkshire.

Mr. Claude Fletcher, previously at Tottenham Trades Hall and Bermondsey Public Gardens, as Gardener to the Countess of Warwick, Easton Lodge, Dunmow, Essex.

Mr. G. Marcham, for the past three years Gardener to the Hon. Mrs. Skeffington Smyth, Stockton House, Codford, Wiltshire, as Gardener and Agent to J. E. A. Dubuc, Esq., Chicoutimi, Province of Quebec, Canada.

Mr. Edward Rutherford, for the past five years Gardener to Lord Farnham, Farnham, Cavan, as Steward-Gardener to J. Wilson, Esq., Hockley Lodge, Armagh. (Thanks for 2s. for R.G.O.F. Box.—Eds.).

Mr. E. R. Beames, for the past four years Gardener to Major Hague, Norman Hill, Dursley, Gloucester, as Gardener to W. H. Butler, Esq., The Priory, Westbury-on-Trym, Bristol.

Mr. Charles Jones, for two years and eight months Gardener-Bailiff to Cyril Gurney, Esq., Henlow Grange, Biggleswade, as Gardener to the Rt. Hon. Lord Manners, Avon Tyrrell, Christchurch, Hampshire. (Thanks for 2s. 6d. for R.G.O.F. Box.—Eds.)

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ANSWERS TO CORRESPONDENTS.

BOOKS: *H. S.* The best work on hardy trees and shrubs for your purpose is *Trees and Shrubs Hardy in the British Isles*, by W. J. Bean. The best work on British wild flowers is Bentham and Hooker's *British Flora*, in two volumes, one text, the other illustrations. Both these works may be obtained from our publishing department, price £3 4s. 6d. and £1 4s. 9d., respectively, post free.

BEGONIA WITH RUSTY LEAVES: *J. K.* The rust on your Begonia leaves is caused by a mite, which may be destroyed by dipping the plants in an insecticide, or by dusting the undersides of the leaves with tobacco dust.

NAMES OF FRUITS: *E. N.* 1, Decayed, probably Lane's Prince Albert; 2, Norfolk Beauty.—*H. N.* 1, Summer Strawberry; 2, Mank's Codlin; 3, Cox's Pomona.—*E. S.* 1, Blenheim Pippin; 2, Hanwell Souring; 3, Adams's Pearmain; 4, Cox's Pomona; 5, Lady Henniker; 6, Cox's Orange Pippin; 7, Pear Marie Louise d'Uccle; 8, not recognised, deformed specimen; 9, Quarrenden.—*J. E. A.* Red Ingestre.—*J. N. A.* 1, Lord Derby; 2, Lane's Prince Albert; 3, Winter Hawthornden; 4, Ribston Pippin; 5, Newton Wonder; 6, Bramley's Seedling; 7, Lord Suffield; 8, King of the Pippins; 9, 10, and 12, not recognised; 11, Roi d'Angleterre; 13, Dumelow's Seedling (syn. Wellington).—*Kent.* 1, Golden Spire; 2, Mère de Ménage; 3, Scarlet Goldea Pippin.

NAMES OF PLANTS: *T. R. P.* It is impossible to identify your plant without seeing either a leaf or inflorescence. Probably it could be identified from an entire leaf. Judging from your description, we are inclined to think the plant is Curculigo recurvata variegata.

NEW SEEDLING DELPHINIUM: *G. F. E.* The Delphinium seedling has a spike and flowers of excellent size and quality, and the colour is such a charming shade of bluish-mauve that the variety seems to be well worth naming.

ORNAMENTAL OAK TUBS: *H. T.* You will be able to obtain these from horticultural sundriesmen, such as Messrs. W. Wood and Son, Beechwood Works, Taplow.

PYRUS AUCUPARIA CASTING ITS BARK: *J. H. S.* It is impossible to say from the specimens of bark received for examination what may have caused the fungous attack. A considerable quantity of mycelium was present in the bark and it is very doubtful whether the tree will recover. All that can be done is to remove the loose bark, paint the wood with a 20 per cent. carbolic solution, and when dry coat it with coal tar. The disease may have originated through an injury to the bark, through a broken branch or by root injury. Any dead branches that may be present should be cut out and the cut surfaces coated with coal tar.

TOMATO PLANTS DISEASED: *G. T.* It is impossible to state with certainty what disease is present in the dried-up specimen you send. Stripe disease is most readily controlled by liberal applications of sulphate of potash to the soil. If the disease has been exceedingly bad, sulphate of potash at the rate of half to one ton per acre should be applied in the base dressing, and nitrogenous fertilisers should be kept as low as possible. Should the plants develop stripe next year they should be dressed immediately with sulphate of potash at the rate of 5 cwt. to the acre. The white fly present in the houses should be destroyed when the crop is finished by fumigating with hydrocyanic acid gas at double strength. Should the fly appear next season it may be destroyed by fumigating with hydrocyanic acid gas or with tetrachlorethane.

Communications Received.—K. F. F.—C. T.—J. A. —M. J. W.—W. S. L.—R. H. M.—F. A. W.—G. B. —W. S. H.—J. C. W. and S.—F. A. A.—J. B.—P. P.

MARKETS.

COVENT GARDEN, Tuesday, October 9, 1923.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples—		
Ribston Pip.	4 0–	7 6
Allington Pip.	3 6–	7 6
King of the Pippins	4 0–	6 0
James Grieve ½ bus. ...	3 6–	7 6
Worcester Pearmain.	4 0–	7 6
—Lord Derby, bushel ...	5 0–	7 0
—Warner's King	6 0–	8 0
—Bramley's Seedling ...	5 0–	8 0
—Lane's Prince Albert ...	5 0–	8 0
—Tyrolean ...	8 0–	12 0
Nova Scotian—		
—Coxes ...	40 0–	50 0
—Gravenstein...	30 0–	34 0
—Ribstone Pip.	28 0–	32 0
—Woolf River	28 0–	30 0
Bananas singles	12 0–	20 0
—doubles ...	16 0–	20 0
Blackberries lb.	0 4–	0 6
cultivated ,,	0 6–	0 8
Grapes—		
—Alicante ...	1 6–	2 0
—Cannon Hall...	3 0–	5 6
—Hamburgh ...	0 9–	1 6
—English Muscat	2 0–	5 0
Grape Fruit—		
—South Africa	15 0–	20 0
—Jamaica ...	25 0–	30 0
Lemons—		
—Malaga, case	30 0–	35 0
—Messina, case	18 0–	25 0
—Naples ...	35 0–	45 0
Melons, English and Guernsey, each	1 6–	3 6
—Cantaloupe ...	2 6–	5 0
Nuts—		
—Cobs ...	... –	— 1 0
—Walnuts, bag Grenoble ...	21 0–	27 0
Oranges—		
—South African Navels ...	27 6–	30 0
—Seedling ...	27 6–	30 0
Pears—half		
—Fertility ...	9 0–	12 0
Beurre Caplamont ...	8 6–	12 0
Californian		
—Beurré Hardy	28 0	32 0
½ case ...	14 0–	16 0
—Louise Bonne of Jersey ...	10 0–	14 0
Pines, each ...	2 0–	4 6
Plums—		
—Continental ...	5 0–	7 6
—Damson ...	— –	—12 0
—Californian	12 0–	14 0

REMARKS.—A moderate demand has prevailed during the past week. For some produce, notably Tomatos, trade has been very quiet, and large consignments received from abroad have kept values down, the low level of which has failed to attract buyers to any large extent. English Apples, although not plentiful, have been sufficient for the demand at ruling prices, and large shipments of Apples from Canada and the United States should bring about an easier tendency in this section. A few more English Pears have been marketed, but they are not plentiful. Choice fruits, such as Grapes, Peaches, Nectarines, and Melons are quoted easier. Grapes in particular are selling slowly. Plums from California, France and Central Europe are still available. Forced Mushrooms have advanced sharply in prices. French Beans are in request and selling at higher rates. Green vegetables are plentiful and at a moderate price level. The recent frost will curtail the crop of Scarlet Runners, and prices for this vegetable should advance. A few new Potatos from Guernsey are selling fairly freely.

SITUATIONS VACANT. *(Cont from page iii.)*

WANTED, YOUNG MAN with experience in the growing of Herbaceous and Alpines.—State full particulars of experience and age, J. W. FORSYTH, Putteridge Bury, Luton.

WANTED, experienced MAN for Pleasure Grounds, Herbaceous and Alpines, etc.; also strong LAD for general garden work; duty every third week.—Apply, stating age and wages, with good bothy, F. DAY, Whirlow Brook Gardens, near Sheffield.

WANTED, OUTSIDE FOREMAN; married or single; with experience, chiefly in Vegetables, Fruit, and the growing of Cut Flowers for market; must be well recommended.—State age, experience, etc., A. P. B., Box 32, 5, Tavistock Street, Covent Garden, W.C.2.

WANTED, strong, active JOURNEYMAN, experienced, for Pleasure Grounds; able to take duty every third week, paid; bothy, etc.—Wages and experience to H. WENMAN, Hickleton Gardens, Doncaster.

WANTED, for Sports Ground, Wembley district, a GROUNDSMAN; excellent opportunity for an energetic man; motor mowers.—Write, J. K., Box 21, 5, Tavistock Street, Covent Garden, W.C.2.

WANTED, MARRIED COUPLE; man experienced GARDENER, wife good plain COOK; part time in house; no children; three rooms; highest references essential; ages 35 to 40.—Reply, SIMPSON, Wynderoft, Enfield.

WANTED, a Young Man, about 25, single, as ODD MAN and fill up time in garden; wages 14/- per week, with board and lodging.—Apply, MISKIN, Woodseat, Rocester, Stafford.

TRADE.

GARDENERS.—Wanted, experienced Men for Jobbing and Landscape work. — THE HORTICULTURAL SUPPLY, Temple Fortune, Golders Green, N.W.11.

WANTED, GROWER for retail: Chrysanthemums, Bulbs and general cut stuff, bedding plants, etc.—State experience, references and wages required, JAMES NASH & SONS, Nurseries, East Horsley, Surrey.

LANDSCAPE and ROCK GARDEN FOREman, fully competent take levels and carry out all classes of work. State age, experience, wages and refs., P. S. L., Box 22, 5, Tavistock Street, Covent Garden, W.C.2.

WANTED, LANDSCAPE FOREMAN of good experience for contract work; must have good knowledge of Ornamentals.—Full particulars of experience, salary required, and copies of references, must be sent in first letter.—JOHN WATERER, SONS & CRISP, LIMITED, Twyford, Berks.

LANDSCAPE FOREMAN required, good all-round knowledge. — State full particulars and salary, H. W., Box 28, 5, Tavistock Street, Covent Garden, W.C.2.

VACANCY for PUPIL, up to date, modern Fruit Farm, General Nursery, glass, open-air pig rearing, poultry; packing and marketing produce; premium.—RYDER, Stratford-on-Avon.

YOUNG MAN wanted for Half-Hardy Department, with some experience in the propagation of Trees, Shrubs and Climbing Plants.—State full particulars and wages required, CLIBRANS, Altrincham.

TWO YOUNG MEN wanted for Roses, smart at budding and used to packing.—State wages and experience to THOS. ROBINSON, Porchester Nurseries, Nottingham.

WANTED, SEED TRADE, experienced SEEDSMAN, with thorough knowledge of all branches of the Agricultural Trade.—Send copies of references, with particulars of experience and wages required, to SECRETARY, c/o Toogood & Sons, Ltd., Southampton.

SEED TRADE.—Wanted, smart Young Man as SECOND SHOPMAN, with good counter experience and knowledge of high-class retail trade.—Copy testimonials, stating age, salary, etc., to W. DRUMMOND & SONS, LTD., Dawson Street, Dublin.

WANTED, JUNIOR ASSISTANT; used to Garden Seeds, Vegetables and Flowers, Bulbs and Sundries.—State age, experience, wages required, etc., to P. B. B., Box 30, 5, Tavistock Street, Garden, W.C.2.

COUNTER HAND required by large retail establishment; must have had first-class experience of the trade in all branches.—Apply, stating previous experience, wages required, age, etc., to K. C., Box 19, 5, Tavistock Street, Covent Garden, W.C.2.

WANTED, HEAD CLERK, capable of taking charge of office, Seed and Nursery house in West of England; progressive situation for the right man.—State experience, wages required, to CLERICUS, Box 14, 5, Tavistock Street, Covent Garden, W.C.2.

WANTED immediately, for Midlands, HEAD SHOPMAN with first-class experience in Seeds, etc., and well up in Floral work.—Apply, stating references, salary, etc. (in confidence), to MIDLANDS, Box 37, 5, Tavistock Street, Covent Garden, W.C.2.

WANTED, experienced ASSISTANT for our Cut Flower Department, solely for making up; one used to first-class work only; also able to take charge of the staff in the absence of Leading Hand.—Apply, WM. TRESEDER, LTD., The Nurseries, Cardiff.

WANTED, for first-class provincial shop, two YOUNG LADY FLORISTS, with good London experience in making up and counter trade.—Apply, stating experience and wages expected, with copies of references, to A. F. K. B., Box 44, 5, Tavistock Street, Covent Garden, W.C.2.

SITUATIONS WANTED

MUNICIPAL AND PUBLIC.

WANTED, situation as HEAD GARDENER in Public Gardens, or SUPERINTENDENT of Cemetery; experienced in the making and upkeep of Ornamental Grounds, Tennis Lawns, Herbaceous Borders, etc.; excellent testimonials; age 35.—Apply, F.R.H.S., Box 31, 5, Tavistock Street, Covent Garden, W.C.2.

PRIVATE.

COL. DARWIN, C.B., highly recommends his HEAD GARDENER where several are kept; life experience in all its branches in good establishments, including Dropmore Park, Buckinghamshire; twenty years Head with Col. Hanbury, C.M.G., Wexham Springs, Buckinghamshire; five years present situation; good references; married; leaving through closing establishment.—Apply, C. FROST, Elston Hall Gardens, Newark, Notts

HEAD GARDENER seeks re-engagement; practical life experience, Inside and Out, in good establishments; married; age 33; employer going abroad; cottage preferred.—STREET, Erigmore, Rogate, Petersfield, Hants.

GARDENER (HEAD) where several are kept; life experience, gained first-class establishments, England and America; good references, personal if required, from previous and present employers; married; age 32, available October 27.—A. WISE, Brooklands Cottage, Chobham, Surrey.

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THE
Gardeners' Chronicle
No. 1921.—SATURDAY, OCTOBER 20, 1923.

CONTENTS.

Agricultural development and unemployment 227
Alpine garden, the—
The Creeping Rosemary 229
Apple crop, the Canadian 227
Autumn tints 232
Bulb garden, the—
Darwin Tulips ... 237
Narcissus Nero ... 237
Cydonia japonica ... 239
Dahlia, the development of the 238
Dahlias in the United States 228
Edinburgh Botanic Garden notes 236
Floral decorations ... 236
Forrest, Mr. G., American honour for ... 228
Fruit trees, pruning ... 238
"Gardening Illustrated" 228
"Gardeners' Chronicle" seventy-five years ago 229
Grape Cannon Hall Muscat 239
Hardy flower border—
Early single Chrysanthemum 233
Holland in autumn ... 232
Holland Park Hall show 238
Honess, Mr. W. H. ... 228
Indoor plants—
Ficus 232
Pseuderanthemum seticalyx 232
Insect pests 227
Iris pumila 233
Lakeland beauty spot for the nation ... 228
Land drainage relief work in 1922-23 ...[227
Orchid exhibitions at Westminster... ... 227
Orchid notes and gleanings—
Odontoglossum Broteham, Broadlands variety 229
Phalaenopsis amabilis Rimestadiana ... 229
Peach, a large 227
Pea, The Gladstone ... 239
Pelargonium Rollison's Unique and others ... 236
Plants new or noteworthy—
Ilex geniculata ... 235
Potato, Black-heart of 228
Rose garden, the—
Some good bedding Roses 233
Silver leaf disease ... 227
Societies—
Cardiff Gardeners' ... 241
General Bulbgrowers of Haarlem ... 241
Manchester & North of England Orchid 241
National Chrysanthemum 241
Newcastle Horticultural 241
Reading Gardeners ... 241
Royal Caledonian Horticultural ... 241
Royal Horticultural... 239
United Horticultural Benefit and Provident 241
Trees and shrubs—
Gaultheria procumbens 231
Paulownia imperialis 231
Pinus sylvestris aurea 231
Ward's, Mr. Kingdon, seventh expedition in Asia 234
Week's work, the ... 230
Wisley, notes from ... 235

ILLUSTRATIONS.

Honess, Mr. W. H., portrait of 228
Ilex geniculata 235
Ligustrum Quihoui 231
Narcissus Nero 237
Odontoglossum Broteham, Broadlands variety ... 229
Rose Christine 233
Taron, the gorge of the 234

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 47.8°.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, October 17, 10 a.m.: Bar. 30.3; temp., 55°. Weather—Bright.

Agricultural Development and Unemployment.

The magnitude and persistence of unemployment in this country demand that every effort should be made to provide useful work. There are on foot and under consideration large schemes of road-making, electrification of railways and dock extension; but we do not remember having seen lately any pronouncement with respect to the putting on foot of agricultural or afforestation schemes for giving useful work to the unemployed. We are, of course, well aware of the many and serious difficulties which beset attempts to provide work of this kind in order to relieve unemployment. Among these difficulties are the inexperience of men whom it is sought to employ, the reluctance on the part of workmen accustomed to live and work in towns to go away from their homes, the problem of housing them in any considerable numbers and the poor output of work performed by persons when employed on tasks in which they have no or little practice. These and other serious difficulties are well known; yet the fact remains that on the one hand unemployment exists on a far larger scale than heretofore, and on the other hand there are many kinds of agricultural development which, could they be carried out, would be to the benefit of the nation and to agriculture. It is not for the layman to rush in where the angel administrator fears to tread, but it is, nevertheless, permissible to urge that all possible schemes calculated to give employment and result in permanent benefit to the land should be considered, not hurriedly in reply to urgent Cabinet demands, but well in advance of the time when such of them as seem most promising might be set on foot. It is, we believe, a fact that the Ministry of Agriculture has elaborate and detailed information as to schemes of land drainage and reclamation which, could they be carried out, would result in a large extension of the area under cultivation. The Forestry Commission has likewise given careful attention to schemes of afforestation. It is much to be desired that these schemes should be considered now—if it has not been done already—by a Cabinet Committee, which should include representatives of the several ministries concerned in the problem of unemployment, development of national resources and agriculture. It is said that the numbers of young men who have never been able to obtain work are very great, and it is recognised that to have a standing army of unemployed men—and particularly young men—is disastrous for the nation. Wherefore, in spite of the many difficulties well known to experts and administrators, which beset attempts to provide work of the kind we have in mind, we are certain that the attempt should be made—and that on a large scale. It is remarkable that in Germany—at all events those parts which have recently come under our observation—there is considerable activity in the direction of developing the natural resources of the land. It is true that the schemes of development appear to be carried out by skilled men and not by unemployed labour; but the fact remains that they are being carried out. With agriculture in its present depressed condition, it might seem idle to urge that steps should be taken to increase the area of land under cultivation; but at all events those who believe that world conditions will presently work for the betterment of agriculture—and we are among the number—will have no fear that more land under cultivation would mean a further embarrassment to the farmers. Beside the larger schemes of land drainage and reclamation there are other local schemes deserving of consideration which collectively would, if they could be operated, give no small amount of employment. But the main point to insist upon is that the possibilities of giving work to the unemployed on agricultural and forestry schemes should be once again reviewed whilst there is yet plenty of time to organise them.

Land Drainage Relief Work in 1922-23.—A brief but extremely interesting account of land drainage and similar work initiated by the Ministry of Agriculture and carried out by local authorities in 1922-23 is given in the *Journal of the Ministry of Agriculture* for September, 1923. Of six hundred and sixty-seven schemes for drainage, sea defence and water supply submitted for the sanction of the Ministry, five hundred and thirty-one were approved and carried out, providing employment for 1,018,976 man-days. The normal rate of wages paid was that for unskilled agricultural workers; the proportion of skilled to unskilled men was as one to ten. The expenditure amounted to £323,419, and the area benefited or protected from inundation was 912,738 acres. The work extended over nine months, from October, 1922, to June, 1923. It is particularly interesting to learn that the men—mainly ex-Service men—worked cheerfully and well, and that in spite of the fact that much of the work had, perforce, to be done under unpleasant conditions and was often of a distinctly unpleasant kind. Some idea of the value of the work done may be gathered from the illustrations which accompany the article: those showing the condition of rivers before cleansing indicate how necessary was the work of clearing them. No less encouraging is the fact that at all events in some cases the work was executed as effectively and as cheaply as it could be done at pre-war piece-work rates. As a result of these drainage undertakings over 2,000 miles of watercourses were cleared and over three-quarters of a million acres of land were benefited.

Insect Pests.—A Report from the Director of the Ministry of Agriculture's Pathological Laboratory at Harpenden refers to two years' work at the laboratory, and covers similar ground to the recently issued and corresponding Report dealing with fungous pests of plants. A few topics have been selected for detailed treatment, and among them that of Aphides injurious to fruit. This particular group of pests has been chosen, as it is one likely to be specially subject to weather conditions, and in consequence to illustrate the effects of the very different summers of 1920 and 1921. Other insects separately treated are cutworms, wire worms, Wheat bulb fly, frit fly, ear cockles, flea beetles, the Onion fly, the Cabbage white fly, and Cabbage aphis; in regard to fruit, the capsids, the bud weevil, the case bearers; and in regard to miscellaneous crops, the red spider, the Mustard beetle, the flower beetles, and the Willow beetles. The price of the publication is 2s. 6d. net, obtainable at the Office of the Ministry of Agriculture, 10, Whitehall Place, S.W.1.

Orchid Exhibitions at Westminster.—Referring to our paragraph on p. 214 dealing with the proposed exhibitions of specified genera of Orchids at the Royal Horticultural Hall, Westminster, Mr. James O'Brien writes: "I think the exhibition of special genera of Orchids in the manner indicated would be rendered doubly interesting if arrangements were made to show the pictures of all the members of each genus which have received awards at the Royal Horticultural Society. The pictures could be arranged together, and to avoid the necessity of handling them to see the records on the back, a small card with the name and parentage of each could be attached to the front of the picture."

A Large Peach.—Mr. Alfred T. Goodwin, Roseholme, Maidstone, informs us that on October 6 he gathered a fruit of Salway Peach weighing 16½ oz. In 1881 Mr. Goodwin gathered a fruit of Dr. Hogg Peach weighing 23¾ oz., as recorded in *Gard. Chron.*, August 27, 1881. Mr. Goodwin states that he gathered another fruit of Salway Peach, earlier in the same week, weighing 12½ oz., and that there are some large fruits still hanging on the tree.

The Canadian Apple Crop.—Whilst the crop of Apples in Canada this year is not quite equal to either that of 1921 or 1922, it is, nevertheless, a good one, and estimated at 3,376,000 barrels. British Columbia is the greatest Apple-producing district in Canada, the commercial crop in that province being estimated at 3,250,000 boxes, about 8 per cent. greater than last year's yield. Ontario and Nova Scotia are other large Apple-producing districts, and there is a fair quantity of Apples grown in Quebec and New Brunswick, but the yields in the last two provinces this year are much under those of 1922.

Silver Leaf Disease.—In April, 1919, the Ministry of Agriculture published a leaflet on Silver Leaf Disease in fruit trees, and the matter has been revised this autumn, giving the results of further research, although it is to be regretted that, according to the leaflet, no cure for Silver Leaf is at present known. The disease attacks other members of the Rosaceae than Plums, and is said to be particularly common on Apple, Almond, Apricot, Nectarine, Peach, Cherry, and Portugal Laurel.

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It also affects trees and shrubs belonging to altogether different families, including the Currant, Gooseberry, Horse Chestnut, Laburnum, and Tree Lupin. Certain Plums are in a measure resistant to the disease, and varieties recommended for planting where Silver Leaf has been very severe are Pond's Seedling, Monarch, Purple Egg Plum, and Damsons, whilst Pershore Yellow Plum, River's Early Prolific, Blaisdon Red, and Damascene are seldom attacked. By the Silver Leaf Disease Order of 1923, occupiers of premises on which Plum and Apple trees are growing are required to cut off and destroy by fire on the premises all the dead wood on each Plum and Apple tree before July 15 of every year, and, where dead wood extends to the ground, the whole tree, including the roots, must be burned. The removal of diseased branches should be done at an early stage, and all wounds made by the removal of the branches should be pared over with a knife and covered with gas tar.

Dahlias in the United States.—The eighth annual exhibition of the American Dahlia Society was held on the 28th ult., on the roof garden of the Hotel Pennsylvania, New York. It appears that the exhibition was of unusual extent and brilliance, and the flowers were arranged in association with autumn-coloured foliage. The outstanding novelty was Jersey Beauty, a pink variety raised by Mr. W. H. Waite, to which a Gold Medal was awarded. We gather from an American contemporary that the American Dahlia Society has a membership of over 2,000, and it would appear that enthusiasm for the Dahlia is at present as great in the United States as it is in Holland.

American Honour for Mr. George Forrest, Collector.—All interested in horticulture will wish to congratulate Mr. George Forrest, the veteran plant collector, on his having lately been awarded the Robert White Medal for "Eminent Service in Horticulture." Mr. Forrest's labours in North China and Tibet now extend to some thirteen years of actual plant collecting, while the number of his Herbarium sheets runs into nearly twenty-four thousand. In this very large number it will readily be understood that many new genera and species are included, which are of special botanical and horticultural interest. To enumerate even a tithe of these would be impossible, but the record of our pages, and more recently published books, at once reveals the value of his work. Enthusiasts in the culture of the genera Rhododendron, Primula and Gentiana are well aware of the many beautiful additions he has made to the embellishment of their collections. Perhaps the full effect of Mr. Forrest's introductions will be more realised in the future, especially in regard to the trees and shrubs, when they have had time to develop. While congratulating Mr. Forrest on his being made the recipient of this honour, all who know him recognise it is well-deserved, and will wish him success in his next collecting trip, upon which he expects to start early in 1924.

Lakeland Beauty Spot for the Nation.—It is with very much pleasure we learn that the Fell and Rock Climbing Club of the English Lake District has presented to the nation about three thousand acres in one of the most beautiful parts of the English Lake District. This area will be placed under the control of the National Trust "for the use and enjoyment of the people of our land for all time," and is being presented as a war memorial to the twenty members of the club who lost their lives in the war. The beauty spot thus preserved for all time includes a large part of Scawfell, together with Kirkfell, Green Gable, the inner heights of Great Gable, Kern Knotts, Allen Crags and Seathwaite Fell.

"Gardening Illustrated."—We learn that Mr. W. P. Thomson, who for twenty-three years has been associated with *Gardening Illustrated*, and its editor for the greater part of that period, has relinquished the duties of editorship, which have been taken up by Mr. Herbert Cowley, formerly editor of *The Garden*. Mr. Cowley is an old Kewite, and since his retirement from *The Garden* he has been employed at Messrs. Wallace's nursery at Tunbridge Wells. He will still have the assistance of Mr. W. P. Thomson, who, we are glad to learn, is not entirely severing his connection with our contemporary.

Mr. W. H. Honess.—Mr. W. H. Honess, who has charge of Viscount St. Cyres' garden at Walhampton, in Hampshire, is a well-known member of the gardening fraternity, and although during recent years his visits to the Royal Horticultural Society's meetings have been much fewer, at the time he had charge of Cobham Park gardens he was present at almost all the fortnightly meetings, and his jovial personality secured him a host of friends. His career has been a varied one, for, after serving eighteen months in the seed department of Messrs. James Carter and Co., he commenced gardening proper at Aldenham House, Elstree, leaving there to become an apprentice in the gardens at Keele Hall, Staffordshire. How well he took advantage of his opportunities at Keele may be discovered from the fact that at the termination of his apprenticeship he was given charge of the fruit department, which at that time was one of considerable importance, as the late Mr. J. Wallis was a prominent exhibitor of fruit at important horticultural exhibitions. Mr. Honess left Keele to enter the gardens at Hatfield House, and later he served in the gardens at Welbeck Abbey at a time when extensive alterations were being made by the late Mr. Goldring, of Kew. The experience he gained at Welbeck in landscape work has been of great value to him. He left Welbeck to succeed his father as gardener at Cobham Park, Cobham. Here he remained for seven-and-a-half years, but, being offered the charge of Hopedene Gardens, Holmebury St. Mary, Dorking, where considerable and extensive alterations were about to be undertaken in the gardens, he left his father's old gardens, but, unfortunately, before the work at Hopedene was nearly completed, the estate was disposed of. Mr. Honess soon succeeded in obtaining a new appointment, this time in the service of Viscount St. Cyres at Walhampton, where he is at present. The Walhampton estate is situated between the New Forest and the shores of the Solent, and the gardens are so exceptionally favourably situated that many choice and semi-tender subjects succeed in them. It will be remembered that we have illustrated specimens of interesting plants from these gardens on one or two occasions, and it is hard to realise that such tender subjects as Solanum capsicastrum and Acacia dealbata will fruit and flower respectively so finely out-of-doors in this country. Mr. Honess informs us that they have excellent specimens in the open of such subjects as Eucalyptus cordata, E. globulus, E. Gunnii, Acacia Baileyana, A. dealbata, A. verticillata, Tricuspidaria Hookeri, Camellia reticulata, Fabiana imbricata, Grevillea rosmarinifolia, G. sulphurea, Dendromecon rigidum, Mitraria coccinea, Metrosideros lucida, M. speciosa, Abelia floribunda, Abutilon striatum, A. Milleri, Fuchsia Colensoi, Lachenalia bicolor, L. Nelsonii, and Cyclamen persicum. Both Viscount and Viscountess St. Cyres are keen gardeners, and throw their gardens open to the public on the first and third Sundays in the months of May, June, July, August and September, when collections are made for the local Cottage Hospital and the Gardeners' Royal Benevolent Institution, a method of helping charitable institutions which might well be copied by other owners of large gardens.

MR. W. H. HONESS.

Legacy to a Gardener.—The late Mrs. Mary Stewart Beattie Whitaker, of Broadclough Hall, Bacup, Lancashire, who died on July 18 last, bequeathed a sum of £300 to her gardener, Mr. Herbert Friend.

United Horticultural Benefit and Provident Society's Annual Dinner.—Sir William Lawrence, Bt., will preside at the annual dinner of the United Horticultural Benefit and Provident Society, which will be held at the Imperial Hotel, Russell Square, W.C., on Thursday, November 1. It is anticipated that a large number of members resident in the metropolitan area will be present, and we are asked to point out that lady relatives and friends of members will be welcomed at this function.

Seeds and Plants Imported into the United States in 1921.—The Bureau of Plant Industry of the U.S.A. Department of Agriculture has issued an *Inventory* of seeds and plants imported by the office of foreign seed and plant introductions during the period from January 1 to March 31, 1921. The booklet, with index, extends to ninety-two octavo pages and is extremely interesting, as a description is given of every plant imported, with notes of its usefulness and, in many cases, an indication of the part of the U.S. where it will grow. The introduction shows that during the period in question five hundred and forty-nine lots of plant immigrants reached Washington and were inspected, fumigated, labelled and planted in the various gardens of the Office of Foreign Seed and Plant Introduction. "Many come from all over the world, recommended for some particular purpose, and those which we were able to propagate will go out to the regions best suited to their culture and find their way into the hands of bona-fide plant experimenters, who will do something with them." The range is a wide one, as the plants include forest trees, forage and fodder plants, vegetables, nut-producing plants, dye and tannia plants, medicinal plants, fruits and plants for parks and "dooryards," the last including decorative subjects such as Paeonia lutea and Lemoine's hybrid Philadelphuses.

Black Heart of Potato.—The *Quarterly Bulletin* of the Agricultural Experiment Station, Michigan, describes and illustrates a complaint of Potato known as Black-heart. It is said to occur frequently in refrigerator-car shipments or in shipments where stoves cause overheating of the tubers. From the illustrations in the *Bulletin* Black-heart appears to be somewhat similar to the mysterious complaint known in this country as Sprain. The complaint is said to be brought about by lack of oxygen in the tuber, caused by the death of the cells around the lenticels or breathing pores of the Potato. As more and more cells are killed the discoloration extends. Black-heart is said to be common with pitted Potatos when the weather is excessively warm in spring. Affected tubers are a ready prey to saprophytic bacteria, which cause a foul-smelling rot of the tubers. The ventilation of Potato clamps and stores in which Potatos are wintered is recommended to counteract Black-heart, and it is also recommended not to pile Potatos in heaps more than five feet deep without making some provision for air to enter the centre of the pile.

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A New Weed.—The Garlic-scented Pennycress, Thlaspi alliaceum, a native of South Europe and allied to Thlaspi arvense, the Pennycress, has made its appearance as a weed in this country. A note in the September number of the *Journal* of the Ministry of Agriculture records its appearance in an arable field near Ashford, Kent. Apparently the new-comer found its adopted home congenial, for in the month of May it was so numerous in a Corn field, which had not been ploughed owing to wet weather, as to look like a crop. It is a prolific annual, and moreover noxious, and should therefore be ousted from its position as a new weed.

Biology at Cambridge.—The Cambridge University Press has recently published for the Cambridge Philosophical Society the first number of a Biological Part of the *Proceedings* of the Society, which until now have contained, in a single series, mathematical, physicochemical, and biological papers. In separating the biological papers from the others it is hoped that a medium will be established for the publication of biological work of general interest carried out in the various departments of the University and possibly elsewhere. A Publication Committee, consisting of Professors and other representative biologists, has been appointed, and it is confidently expected that the standard of the papers will be up to that of the Society's other publications. It is proposed to issue the new *Proceedings* in quarterly numbers.

Appointments for the Ensuing Week.—Thursday, October 25: Royal Botanic Society's meeting; Wargrave and District Gardeners' Society's meeting. Friday, October 26: Imperial Fruit Show at Manchester (8 days).

"Gardeners' Chronicle" Seventy-five Years Ago.—*Gardeners' Labour Hours.*—At what hour of the day is it usual for the gardeners in your part of the country to begin their morning's work? My gentleman walks in about a quarter before eight, oftener eight, and by the time he has taken off his coat, opened his frame lights, and turned himself round, it is time to go to his breakfast, which he always brings with him; after sitting half an hour at this meal, and by the time he has taken out his tools, and again turned round, it is usually much nearer ten o'clock than half-past nine. Should I take so great a liberty as to hint my own opinion of the proper time of the morning at which I think a gardener ought to begin his work, and to which I have always in the north of England been accustomed, I am cut short with the remark, that "It is our custom here, and that he begins as early as other gardeners do." This latter part I believe. Then, again, my man takes his hour and half to dinner, having about ten minutes' walk to his house, and this too, I find, is the custom; for I see it practised almost daily by my neighbours' gardeners, who stroll home about half-past one o'clock, as if they were going to be put to the treadmill; so that very often it is on the eve of striking two when my man has put himself to rights, ready to begin to work. I do not know if this is the custom in your neighbourhood (with gardeners who get fair wages); but, if it is, I think it is a very bad one. *G. W.*—This is not the practice with industrious gardeners anywhere. Fix reasonable hours, and if they are not kept you have your remedy. *Gard. Chron., October* 14, 1848.

Publications Received.—*A Vegetable Grower's Handbook.* By Mrs. Fanny Bennett and Eleanour Sinclair Rohde. Martin Hopkinson and Co., Ltd., 14, Henrietta Street, W.C.2. Price 2s. 6d. net.—*Diseases of Glasshouse Plants.* By Dr. W. F. Bewley. Price 12s. 6d. net.—*Successful Spraying and How to Achieve It.* By Percival J. Fryer. Price 7s. 6d. net. Both published by Ernest Benn, Ltd., 8, Bouverie Street, E.C.4.—*Income Tax Simplified.* Seventh edition. By Arthur Fieldhouse and E. Ewart Fieldhouse. Simpkin, Marshall and Co., Ltd., London, E.C.4. Price 1s. 8d. post free.

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM BROTEHAM, BROADLANDS VARIETY.

The first flower of a seedling plant of this richly coloured hybrid between O. Lambardeanum (coeruleum × Vuylstekeae) and O. amabile (crispo-Harryanum × crispum) is sent by E. R. Ashton, Esq., Broadlands, Camden Park, Tunbridge Wells. It is of the same showy class as his O. Camden (Lambardeanum × Regale), and has the same velvety-purple tint. O. Pescatorei and a blotched O. crispum are the chief species employed in the production, with O. Harryanum and O. luteo-purpureum in some of the combinations. Examination of the species separately does not seem to disclose how such a heavily-coloured flower could result from their combination, but the thoughtful hybridist, by Nature's help, has accomplished many successes in colour and form, and thus the worker seldom misses his reward. The sepals and petals of the flower (Fig. 83) are bright violet-purple, with a slight white margin and tips. The crest is yellow and prominent; lip white with violet-purple base. *J. O'B.*

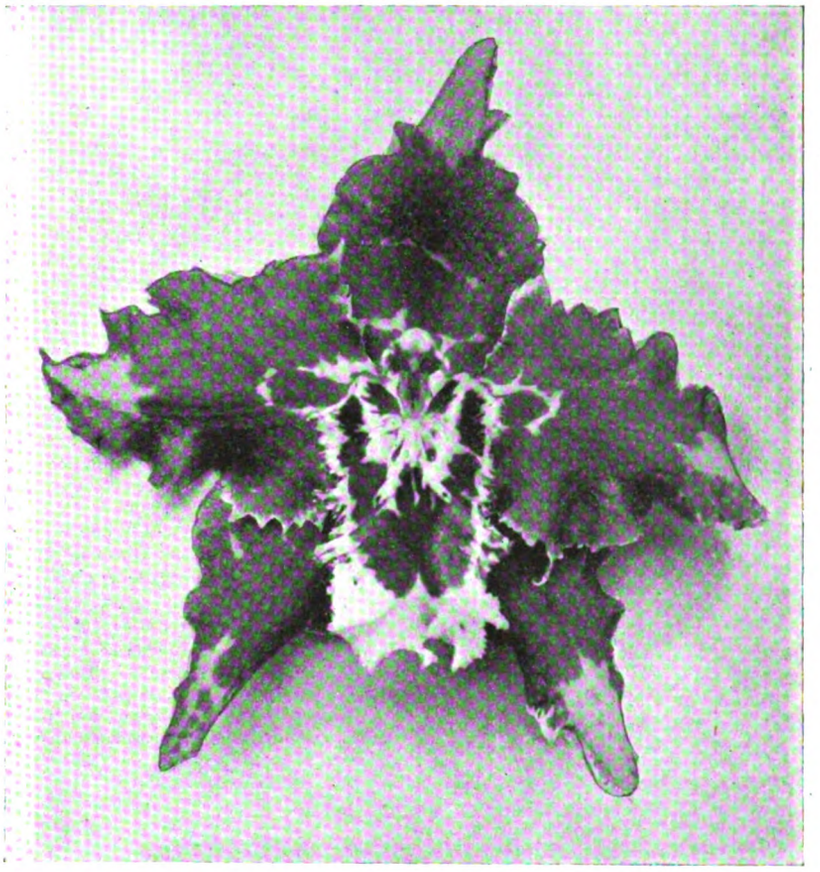

FIG. 83.—ODONTOGLOSSUM BROTEHAM, BROADLANDS VARIETY.

PHALAENOPSIS AMABILIS RIMESTADIANA.

This beautiful pure white Orchid is well in bloom in Messrs. Charlesworth and Co.'s nurseries, Haywards Heath, and some fine specimens of it were shown in the Gold Medal group of this firm at Holland Park Hall on October 2. The species is widely distributed in Malaya. Its complicated history was well set forth by the late Mr. R. A. Rolfe in the *Gardeners' Chronicle*, 1886, p. 168. The same variety, at first known as P. grandiflora, Lindl., and on the more recent importation as P. Rimestadiana, is the largest flowered, and best form of the species, and, moreover, it is the easiest to cultivate, as it has frequently been successfully grown in an ordinary warm house, in association with stove flowering and foliage plants. It is one of the fine species which growers should render plentiful in gardens by raising a batch of seedlings, a matter that is not difficult; seedling plants grow better than those imported, and importation in the present day is difficult and expensive.

LAELIO-CATTLEYA ROSY MORN.

Cattleya Armstrongiae (Hardyana × Loddigesii) raised and flowered by Messrs. Armstrong and Brown in 1907, was one of the brightest and most florally perfect of its class, and it is much appreciated by growers for cut flowers and decoration. In crossing it with Laelio-Cattleya Olivia (C. Schroderae × L. Jongheana) all the good qualities of C. Armstrongiae have been retained in an enlarged and improved degree. The flower of L.-C. Rosy Morn is a model of floral excellence. The sepals and very broad petals are bright magenta rose. The lip is bright yellow with an orange shade in the centre shading to pink in front.

Other new forms of Orchidhurst hybrids sent include Cattleya Achine Orchidhurst variety like a good white C. Mendelii with a purple blotch on the lip; C. Snowcap (Claesiana alba × Saturn alba), a good white and the remarkably beautiful Odontoglossum Dictune, Orchidhurst variety, the heavily coloured flower having opaque blotches of silver-white.

LAELIO-CATTLEYA BARON COFFINET.

With other novelties Messrs. Armstrong and Brown, Orchidhurst, Tunbridge Wells, send a flower of this noble cross with Cattleya Hardyana, the newcomer taking a prominent place in the class of large-flowered yellow-petalled Laelio-Cattleyas, besides being a valuable addition to the winter-flowering section. The sepals and petals, which extend to nearly eight inches in width and are of firm substance, are light Cowslip-yellow, with a delicate tracery along the veining. The broad lip is Tyrian purple, darker in the centre and with delicate gold lines at the base.

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The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, late Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Oncidium Kramerianum and O. Papilio.—These two warm house Oncidiums are highly appreciated when in bloom, their butterfly-like flowers being very attractive and interesting, although not produced in such profusion as in the case of some other species. The plants continue to produce fresh flowers from each stem for a considerable period, but it is wise to remove the spikes after they have produced a reasonable quantity of flowers. These beautiful Oncidiums prefer a light position, and should be grown in small pans suspended close to the roof glass; they need only a small quantity of material to root in, which should be kept moderately moist at all seasons. The smallest possible receptacles should be used for their accommodation, and careful watering is essential until the plants are thoroughly established.

Zygopetalum maxillare.—When well grown, Zygopetalum maxillare is a most desirable Orchid, and several fine hybrids have been raised from it. There are good and bad varieties of this plant; the lip in the best varieties is of a rich violet-blue, which makes a strong contrast against the green and brown of the sepals and petals. In its native habitat this plant grows on the stems of Tree Ferns, and it is instructive to note that it mostly grows in subdued light, owing to the spreading fronds of the Fern. In view of the natural rooting-medium of the plant, it is advisable to provide an open rooting material, such as well cleaned Osmunda fibre affords. Many cultivators grow this plant attached to a piece of Tree Fern, plunged in a pot, so that its roots eventually run down the stem into the compost below. The plant does best in a shady position in the warm intermediate house, and should never be allowed to become excessively dry at the roots. Both the leaves and the stems should be sprayed lightly overhead on all favourable occasions, even during the winter.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Brenners, Esq., Woolverstone Park Gardens, Ipswich.

Strawberries in Pots.—Afford the plants plenty of room to allow sunshine and air to circulate freely about them in order that the crowns may be fully developed by the end of the autumn. The earliest potted plants—where the pots are well filled with roots—will be benefited by occasional waterings with liquid manure and soot-water. Keep the plants free from weeds and decayed foliage, remove all runners and side growths as they appear, and guard against dryness at the roots, but at the same time give only sufficient water to satisfy the plants' needs, just keeping the soil in a moist condition. To ward off attacks of red spider or mildew, syringe or dip the plants in a solution of soft soap and sulphide of potassium, at a strength of half an ounce of the sulphide to one gallon of water; the soapy mixture should be stirred thoroughly before use. If worms are troublesome in the soil they may be eradicated by using clear lime-water.

The Early Vinery.—The early vinery is generally utilised for plant storage up to the latest time when it must be cleared to make preparations for starting the vines. If it is possible to undertake the work at the present time so much the better, as it will be necessary to start the vines towards the end of November if ripe Grapes are required by April next. If the vines have not yet been pruned, shorten the laterals to two or three buds. If the basal buds appear to be of doubtful quality, leave three, but if they are well plumped up two buds will be sufficient. In the former case, should the basal bud break satisfactorily, and show a bunch, the other shoots may be rubbed off. When shortening the leading growth of a young rod, it is a good plan to leave an extra bud, for the reason that such a bud usually starts into growth sooner than the lower buds, and will, if allowed to take the lead, cause the lower buds to break weakly and irregularly. If an extra bud is left, and allowed to make a growth of 2 or 3 inches, and then rubbed off, it gives a slight check to the sap, and causes the lower buds to break in a more even manner. Early-forced vines are more liable to bleed than late ones, owing to the resting period being considerably curtailed. If the vines are free of insect pests, it is not advisable to strip off the outer bark too closely; merely remove the loose portions, which may be readily detached from the rod. Should, however, the vines be infested with mealy bug or red spider, it will be necessary to remove the bark, which is likely to be a hiding place for these pests. Cyaniding is the most successful method of eradicating mealy bug, but many do not care to resort to cyaniding, on the score of its danger to the operator, yet if the directions given for use are followed carefully, the operation will be free from danger. Those who prefer to use other methods will find Gishurst's compound, or paraffin emulsion suitable for the purpose; these specifics will also destroy red spider. The glass and woodwork of the house should be thoroughly cleansed, and the walls limewashed. All crevices in the ironwork, which support the wires, should be painted with paraffin, and the ventilating gear well oiled. An inch or two of the surface soil of the border should be removed, substituting turfy loam, freely mixed with the old plaster and wood-ash. If the border requires enriching, artificial manure may be added to the top-dressing material. Admit air freely up to the time of closing the house. If the border is outside material for a hotbed should be prepared and placed thereon when the vines are started. To retain the heat of the hotbed it is desirable to cover it with spare lights, wood shutters, or any other suitable means of warding off rain and snow.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Rhubarb.—A few crowns of an early maturing variety of Rhubarb may be lifted and placed in a dark shed or Mushroom house, in which they will soon commence to grow, and the stalks will prove useful about Christmas. Forced Rhubarb will be especially valuable this season, as the crop of Apples is a small one. Place sufficient old potting soil over the roots to cover them, press it moderately firm, and then water the roots copiously.

Late Potatos.—The late Potato crop should be dug as soon as possible, as the tubers may deteriorate if left in the ground longer, whilst a sharp frost would hinder lifting operations, and possibly damage the tubers. The haulm should all be cut off, and cleared away before digging commences. The tubers will then dry better on the surface before they are stored. Examine the crop as it is dug, and throw out any tubers that are diseased, and burn them. Late Potatos will keep quite well out-of-doors in a clamp, on slightly raised ground. Make a cone-shaped heap of the tubers, and then cover them with plenty of straw. Dig a trench all round the clamp, and bank the latter with soil up to nearly the top. The unsoiled part will admit the air freely and allow the tubers to become thoroughly dry. In case of severe frost, cover the heap with a good thickness of long litter or dried Bracken Fern.

Lettuces.—Lettuces are doing well out-of-doors this autumn, no doubt owing to the frequent rains and warm weather. From now onwards the young plants should be lifted and placed in cold frames, the lights of which should be placed in position at night. Keep the soil well stirred between the plants and water them freely in the morning, when they need moisture. These Lettuces will prove valuable for use as salad and other purposes.

HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Insect Pests.—Another pest besides the winter moth may be dealt with during October. To kill Apple suckers, or Apple chermes, as they are sometimes called, before they lay their eggs in the autumn is far better than dealing with the young hatched in spring. Certain districts are more troubled with this pest than others. Usually at this time of the year one notices the chermes flying about rapidly if disturbed; they vary in colour from green to yellowish. Paraffin emulsion is a good insecticide to use against these tiny insects. The harm they do in sucking the sap from the fruit blossoms, and the injury they cause, may go on quite unsuspected until the withering of the latter may be evident, and sometimes, if the attack is a severe one, cause a browning of the petals similar to the effect of frost.

Application of Manures.—A general application of basic slag may be desirable in large fruit orchards. This fertiliser will assist both trees and bushes, and a dressing of 4 ounces to 8 ounces per square yard may be applied and hoed or lightly forked in the soil.

Fruit Cuttings.—Cuttings of Gooseberries, Currants, Loganberries and Brambles of sorts may now be inserted. The cuttings should be inserted in the soil about two-thirds their depth, 1 foot apart, in a trench, the bottom of which should be made firm and sprinkled with sand. Place the cuttings on one side of the trench, which should be cut perfectly straight, and make them firm with the foot when filling in the soil. Care should be taken to select only well ripened shoots for making cuttings. The lower buds of Red Currant shoots should be rubbed off to obtain a clear stem or leg. Gooseberries may be treated in the same way. The Lowberry, like the Loganberry, will become extensively cultivated when it becomes better known.

Transplanting.—This work may now be commenced, especially where the soil is moist. Every care should be taken not to damage the fibrous roots; any that have been bruised should have the damaged portion cut off cleanly with a sharp knife. Keep the roots as near the surface of the soil as possible, and make quite sure that they rest on a firm base. This can only be done by well firming the soil with a wooden rammer. Firm planting is especially important in the case of cordon trees. It is a good plan, especially when planting large trees, to fill in two-thirds of the soil, and after ramming the latter to give each tree a thorough soaking of water. When this has soaked away the remainder of the soil may be placed in position. In view of autumn gales, an occasional inspection should be made of wall trees, and any ties that are broken should be immediately replaced by sound ones.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Gladiolus.—Gladioli of the nanus and ramosus sections, in their many fine varieties, are excellent subjects for cultivation in pots, either for conservatory decoration or for providing a supply of cut flower. They should be potted up during October, and as they are free-rooting plants they require fairly large pots; five or six corms should be put in a 7-inch pot. Many cultivators use pots of insufficient size, with the result that the plants are starved and lose their foliage. After potting they may be stood in cold frames, or out of doors at the foot of a wall, covering the pots with ashes, and allowing them to remain covered until the plants are well rooted and commencing to grow, when they should be transferred to cold frames. Where they are required in quantity for a supply of cut flowers they may be planted in boxes in cold frames. G. Colvillei and its white variety, generally known as "The Bride," are largely grown for market purposes, and are worthy of more general attention from the

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private grower. There are many other fine varieties, viz., Fire King, Apple Blossom, Blushing Bride, Ne-Plus-Ultra, Sappho, Ackermannii, and Rose Queen.

Ixias.—In their many fine varieties Ixias are suited for the decoration of the greenhouse, and are ideal for giving a supply of cut flowers over a long period. Once great favourites, they are now seldom seen, and this is surprising considering how cheap the corms are, while their cultural requirements are of the simplest. As their corms are small, six or eight may be placed in a 5-inch pot, afterwards standing them in a cold frame, where they may remain until they throw up their flower spikes, when they should be removed to a cool, airy greenhouse. In short, they may be given exactly the same treatment as Freesias, growing them perfectly cool at all times. In the south they may be planted outdoors in a border of light soil at the foot of a warm wall, although during severe weather it may be necessary to give them some slight protection.

Babiana.—The Babianas are beautiful South African bulbous plants, which should be more generally cultivated. They succeed under the same treatment as that indicated for Ixias, and are very useful for the small, unheated greenhouse.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Spring Bedding.—Any part of the garden to be replenished with spring flowering plants should receive attention now before the soil gets too wet and cold with the autumn rains. Where bulbs are to be used in association with foliage plants, but are not to hand at the time, due allowance must be made for adding them afterwards. Early November is the best time for planting Tulips, while October is the ideal time for planting Hyacinths. Daffodils used for spring bedding should be planted forthwith if convenient to do so, for although they may be planted fairly successfully so late as mid-December, the earlier plantings give the best result and flower sooner.

Lilium.—With the exception of L. candidum—which I have dealt with in a previous calendar—the bulbs of Lilies are not, as a rule, available for planting before the end of October or early November. In making fresh groupings of Lilies choose a portion of ground that is well drained. The soil should be loosened to a good depth, and if of poor quality enriched with well-rotted manure and leaf-mould. Sand placed under and around the bulbs will serve to keep them drier when moisture is excessive, and is to be particularly recommended where the soil is on the heavy side. Temporary shading from the hot sunshine is also desirable. This may usually be provided by planting the bulbs between shrubs, near pergolas, or where a tree or tall-growing plant casts shade during the hottest period of the day. A few strong growing Lilies are:—L. canadense, L. chalcedonicum, L. croceum, L. elegans, L. Henryi, L. Martagon, L. pardalinum, L. testaceum and L. tigrinum. Stem-rooting species, such as L. Henryi, require earthing up with good soil as soon as the roots appear. L. pardalinum should be planted in almost complete shade. A bed or group of evergreens that is not crowded is a capital place to plant bulbs of various Lilies.

Fallen Leaves.—Where deciduous trees predominate in pleasure grounds, as they do here, the work of sweeping and collecting the fallen leaves involve considerable labour at this season. The leaves should be placed in one or two large heaps in a place where they are not likely to be blown on to the lawns again. Failing such an out-of-the-way place in the shrubbery they may be placed in a large hole dug for the purpose, laying some evergreen branches over the top when the work is complete. Leaves likely to be wanted later for the making of hot-beds should be placed elsewhere, and not mixed with those stacked to decay and form leaf-mould, such as those of Oak or Beech.

TREES AND SHRUBS.

GAULTHERIA PROCUMBENS.

This is a pretty little peat-loving shrub of the Ericaceous order, a native of the Eastern States of America, and introduced 150 years ago. It is popularly known as the Creeping Wintergreen, or Partridge Berry, and it has long been valued for the "oil of winter-green" extracted from its fruits and used by chemists for the flavouring of drugs and other purposes. A leaf crushed between the fingers at once reveals the familiar odour of that extract. G. procumbens is a charming subject for cool, shady places where it may be used for associating with other lowly plants of a like nature, or for carpeting the ground about dwarf Azaleas. It does not often exceed 6 inches in stature, and is usually not much more than half that height, the little tufts of leathery, dark green leaves being borne on erect stems, which rise from the creeping roots. The almost cylindrical flowers, which appear in clusters at the leaf-axils in late summer and autumn, are large enough to be conspicuous and of a fresh pinky-white. These are followed by berries as large as those of the Holly and of much the same colour. This is, perhaps, the easiest of the smaller Gaultherias to satisfy. It does well in lime-free loam and leaf-mould. *N. Wales.*

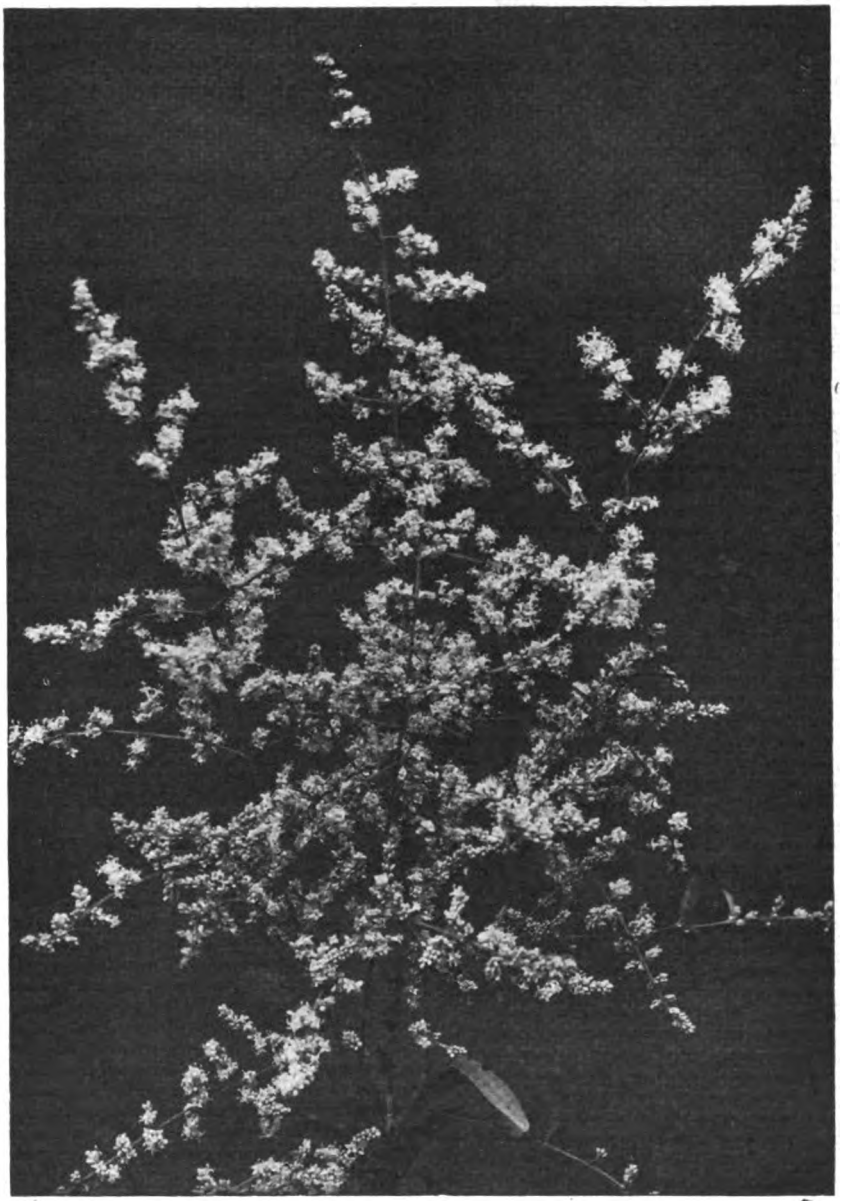

FIG. 84.—LIGUSTRUM QUIHOUI, R.H.S. AWARD OF MERIT, HOLLAND PARK SHOW, OCTOBER 2 (SEE PAGE 208).

PAULOWNIA IMPERIALIS.

There is an interesting specimen of Paulownia imperialis at Tongres in the province of Limbourg, Belgium. It is in the Club grounds of the Société Royale de Musique. The height, about 35 feet, is not exceptional, but the circumference of the trunk measured at 6 feet from ground level is 10 feet 3½ inches. The main portion of the trunk appears to be perfectly sound; it divides at about 12 feet high into two main branches; a third branch was broken off some years ago and the wound has partly healed over. Several of the smaller branches exhibit signs of decay. From the fork of the main branches two young Mountain Ash trees are growing, one 2 feet and the other 6 feet high. *Alfred B. Melles, Ypres.*

PINUS SYLVESTRIS AUREA.

This is a form of the Scotch Pine which is seldom seen in gardens, yet it is a subject of much merit and distinction. It is a very slow grower—practically a dwarf—but its most remarkable feature is the rich golden or brassy colour which the leaves assume in late autumn and which is retained throughout the winter.

P. sylvestris aurea is an admirable subject for the rock garden, or collection of dwarf Conifers. *A. T. J.*

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AUTUMN TINTS.

THE colouration of foliage in autumn is usually much more highly developed on poor soils than on rich soils, hence when planting with a view to the production of autumn tints soils of moderate richness only are to be preferred. Amongst trees, one of the best and most certain for colour is the variety of the American Red Oak known as Quercus coccinea splendens, as, not only does the foliage turn to a very fine crimson, but the tree retains its brilliant foliage for a long period. Liquidambar styraciflua is also highly valued for its brilliant scarlet and orange-scarlet colour, and Gleditschia triacanthos for its beautiful golden yellow tones. Amelanchier canadensis is usually one of the first to change colour, the edge of the leaf becoming bronzed as early as August. This deepens into red and gradually spreads through the whole leaf until the greater portion is crimson, the remaining part lighting up with yellow and orange shades.

There are several Acers, notably A. Ginnala, A. Schwedleri, and A. japonica, which turn to various shades of red and scarlet.

Other trees that deserve mention are Crataegus Crus-galli, brilliant scarlet and gold; Pyrus torminalis, bronzy red; Parrotia persica, red and yellow, and the common Horse Chestnut, Æsculus Hippocastanum, which turns to a beautiful golden yellow tinged with bronze. Amongst shrubs the Sumachs furnish some of the most striking autumn tints. Rhus cotinoides, R. glabra and R. Toxicodendron all turn brilliant crimson, orange and scarlet, whilst R. Cotinus becomes a rich golden yellow. The foliage of Berberis Thunbergii dies off a rich scarlet, and is most effective, whilst its evergreen ally, B. Aquifolium, turns a glowing red and purple after the first frost. Enkianthus japonicus develops a rich, fiery red, and should be included in any planting scheme for autumn tints.

Our native Guelder Rose, the common Viburnum Opulus, becomes a deep crimson in autumn, whilst the common Hazel produces fine effects in yellow. Spiraea Thunbergii, with its feathery foliage, provides a beautiful study in crimson, and the blazing scarlet of Vaccinium pennsylvanicum is not easily forgotten. The Ghent and Mollis Azaleas usually colour freely and give a rich combination of crimson, scarlet and gold.

In a planting scheme for autumn colour effect the value of Gaultheria procumbens as an edging plant or for undergrowths should not be overlooked. Its beautiful crimson-stained leaves remain effective during the whole autumn and early winter. As the causes effecting the changes in the colour of leaves in autumn are largely controlled by light, temperature and moisture, the degree of colouration even in the same subjects varies considerably from year to year. Further, it frequently happens that young plants make vigorous, sappy growth, the leaves of which fail to take on their autumn colours, whereas the same plants when older and less vigorous in growth are conspicuous for their highly developed tints. *W. Auton.*

HOLLAND IN AUTUMN.

(*Concluded from p.* 215.)

ONE very interesting day was spent at Boskoop. In the early morning visitors journeyed from Amsterdam to Gouda, and thence proceeded by steamer up one of the arms of the Rhine to Boskoop. Arriving at Boskoop, the party to which we were attached proceeded by motor launch to the nurseries of Messrs. H. den Ouden and Son, then walked back through this extensive place, in which Rhododendrons are grown splendidly in extraordinary numbers, chiefly for export. Other special subjects in this establishment are flowering Cherries, shrubby Spiraeas, Berberis, Privet, Lilacs and Viburnums. Mollis and Ghent Azaleas are a great feature, and excellent stocks were noticed of Rhododendron racemosum and R. praecox, Picea Breweriana, P. pungens Moerheimii, Cotoneaster lanata, Taxus cuspidata, Cedrus atlantica glauca and the rarer Ilex Pernyi. In the section devoted to herbaceous plants there were fine collections of perennial Asters, Phloxes (75,000)—which were blooming profusely; Irises, including all the new varieties obtainable; Potentillas, Crinums, Geums, Veronicas, Astilbes, Pyrethrums, Salvia nemorosa, and Gypsophila repens rosea. The collection of hardy flowers is a particularly extensive one, and all the leading varieties of popular border flowers are represented.

At this season of the year the bulb-growing district around Haarlem is not particularly attractive, but it was interesting because the planting of bulbs was in progress. Opportunity was afforded for a visit to Lisse and an all too brief inspection of the school where all potential bulb growers have an opportunity of a thorough education in all branches of that industry.

Even more brief was the opportunity of inspecting the State laboratory where all diseases and pests which attack bulbs are investigated by Dr. van Slogteren and his staff. Here also the interesting subject of preparing bulbs for forcing is tested in many ways, and here again, probably for the first time, many visitors saw the dread Daffodil eelworm—under the microscope.

Attention has been drawn elsewhere to the wonderful popularity of the Dahlia in Holland, but another autumn flower which is extensively grown both in private gardens and for market is the Gladiolus, and in the bulb-growing district one may see acres of such popular varieties as Halley, Giant White and America.

Altogether it must be admitted that a brief visit to Holland in the autumn may be as full of interest and of educational value as one made in the springtime, when so many British horticulturists visit the Netherlands for the purpose of inspecting Tulips, Daffodils, Hyacinths, Crocuses and the other bulbous plants which present such extraordinary patches of colour and, indeed, provide the chief attraction in the flat landscape. *C. H. C.*

INDOOR PLANTS.

FICUS.

MANY species of Ficus are useful for different kinds of indoor decorations, altogether distinct from the well-known Fig (Ficus Carica), which is cultivated for its fruit alone. There are trailing and climbing species, and ornamental foliaged kinds. The scandant trailing species can hardly be surpassed as trailers or creepers for covering walls and other bare spaces in ordinary warm greenhouses or conservatories. They are also most suitable for growing in baskets suspended from the roof rafters. They make rapid growth, and may be grown without difficulty in a border against a wall for covering the same. They will cling to the wall similar to Ampelopsis Veitchii, with the advantage of being evergreen, so that the wall is hidden throughout the year.

They also make useful plants for draping the front of the plant stages, the growth hanging down in festoons some 2 feet to 3 feet, and hiding the unsightly bare spaces under the stage.

Other species are grown for their ornamental foliage as decorative plants in the greenhouse and conservatory, and are especially useful for placing in large halls and apartments.

The following are the best of the creeping or trailing kinds:—F. radicans, one of the most useful for covering walls and other bare spaces, on account of its neat, bright green foliage. The leaves are placed alternately along slender shoots, and opposite each leaf numerous rootlets develop by which the plant clings to the surface over which it spreads. It is an extremely useful plant for use as an edging to stages, also a splendid subject for growing in hanging baskets.

Ficus radicans variegata has beautiful variegated foliage; in some leaves the variegation is marginal, and in others nearly the whole surface is coloured creamy white, which makes the plant very attractive when grown in suspended baskets or in places where the shoots are allowed to droop naturally. When intermixed with other foliage its effect is very striking. Baskets tastefully filled with this variegated Ficus and suspended from the roof-rafters are very ornamental and serve to make the conservatory bright and gay.

Unfortunately sufficient attention is not paid to the culture of plants in suspended baskets; many object to the trouble in taking them down for watering and other necessary attention that they may require from time to time. Ornamental wire baskets are the best, and before putting the soil in the baskets they should be well lined with Moss. F. repens (syn. stipulata), is a very neat-growing variety, with smaller foliage than F. radicans, but requiring similar treatment. This is a great favourite for covering walls of conservatories and other plant houses. The leaves are close, small, and thin, and the plant makes a dense mat of foliage, which is as dark in colour as the English Ivy. The stems are slender, and adhere to the wall by little rootlets. Occasionally the plant develops fruits; the fruiting branches are very unlike the juvenile growths: they stand out from the wall instead of lying close and flat against it.

F. repens minima is a unique plant, with dense, small, bright green foliage. It is very neat and compact in habit. The shoots cling readily against a damp wall, or any rough material. This species is invaluable as a carpeting plant of vivid green, and is useful for covering rockeries, forming mossy carpets of greenery.

All the creeping species and varieties of the genus Ficus may be increased readily from cuttings formed of half-ripened shoots and placed in moderate warmth with plenty of moisture in the atmosphere. They should be grown in a winter temperature of 45° to 50°, and need shading from bright sunshine in summer.

F. elastica (the India-rubber plant) is grown extensively as a decorative plant for the greenhouse, or cool conservatory, and is especially useful for standing in halls and dwelling rooms. It makes a good foliage plant for associating in mixed beds in the flower garden from June to the end of September. The plant is liable to drop its foliage if it is over-potted. For propagation select old, bushy, stock plants, and place them in a house having a night temperature of 60° to 65°. As soon as the shoots are 5 inches to 6 inches long they should be taken off, inserted singly in small pots containing sandy soil, and rooted under a hand light, in a temperature about 70°.

During the warm summer season the plants may be grown in frames or pits slightly shaded from the sun. F. elastica variegata is an attractive variety, the leaves being striped and marked with creamy white. F. Parcellii is a splendid decorative plant for a warm conservatory; it has beautifully variegated foliage. The leaves are of large size, thin in texture, and mottled profusely with creamy white and dark green. Ficus eburnea is a handsome, ornamental plant requiring a warm temperature. It produces leaves 12 inches to 15 inches long and 9 inches wide. *John Heal, V.M.H.*

PSEUDERANTHEMUM SETICALYX.

THIS indoor flowering plant is usually afforded stove house treatment, but this is not necessary, as it may be grown in an ordinary greenhouse, or even in a cold frame during the summer, provided the light is closed early in the afternoons, to trap plenty of sun heat. In common with most indoor Acanthads, this plant is easily propagated at any time by means of cuttings of the young shoots. But good plants for flowering at this season may be raised from cuttings inserted during April in a close case with slight bottom heat. The points of growth should be pinched two or three times to induce a bushy habit. *C.*

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IRISES.

IRIS PUMILA.

The note on Iris pumila on p. 218 is somewhat misleading and seems to confuse this species with at least two or three others, namely, I. Chamaeiris, I. aphylla and I. mellita.

The large-flowered dwarf Iris from Southern Europe is, of course, I. Chamaeiris, the species which nearly always represents I. pumila among trade growers. Neither I. Chamaeiris nor I. pumila occurs in Asia Minor, where another dwarf species, I. mellita, is found. This is stemless, as is also the true I. pumila, but it differs from I. pumila in having boat-shaped, green spathes with a sharp keel instead of the closely wrapped, shapeless and almost colourless spathes of I. pumila. I. Chamaeiris comes from the South of France and North Italy, while I. pumila is confined to Austria, Hungary, the Croatian Coast, Greece, the Crimea and other parts of Southern Russia. The flower is relatively small and always rather crumpled. The colour is most variable, and in some places, as, for instance, on the Geissberg outside Vienna and near Weisskirchen in Moravia, each individual plant is of a different colour. The so-called I. pumila coerulea is not a true pumila but a garden hybrid, probably with I. Chamaeiris. I. gracilis (or I. cinerea) is neither a pumila nor a Chamaeiris, but a colour variety of one of the many local forms of the Central European I. aphylla.

Anyone who has once seen the seed vessels of the real I. pumila sitting absolutely on the ground at the base of the leaves, with the long slender perianth tube and withered flower still attached to its apex, will never be likely again to confuse this species with I. Chamaeiris. It is the long perianth tube above the ovary that raises the flowers of I. pumila four or six inches above the ground. It is extremely rare to find any stem at all, and even then it is shorter than the perianth tube. *W. R. Dykes.*

HARDY FLOWER BORDER.

HOLLYHOCKS.

I desire to call attention to the great decorative value of Hollyhocks when arranged in large masses? Usually, probably invariably, Hollyhocks are planted singly or in groups of from three to ten or so, but what I suggest is a group or groups covering 100 square yards. Where there is space for a group covering that extent, with a suitable background, the idea should be carried out. I have grown single varieties only in this way, the selected offspring of a hybrid race between Althaea rosea, A. ficifolia and another, and their beauty has been very satisfying. In the north seeds should be sown in autumn rather than in spring, in order to secure strong, healthy flowering plants to put out in February or March, for I find these—probably from the infusion of a Siberian species—to be practically hardy. They are also less liable to disease than the common strains. I would like to state that it may be best not to grow the Hollyhocks in highly manured ground. They grow quite tall enough in ordinarily fertile soil, and are practically perennial therein. *R. P. Brotherston.*

EARLY SINGLE CHRYSANTHEMUM.

Being an old exhibitor and lover of the Chrysanthemum, my garden generally contains a few of the best early flowering sorts; but among these not one has appealed to me so much as a variety named Shrapnel. The colour, somewhat like that of Mary Richardson, is sometimes described as orange terra-cotta. The flowers are large, and freely produced, the habit of the plant being similar to that of Roi des Blancs. I find Shrapnel responds to liberal supplies of liquid manure. Dolly Thorpe, a pleasing salmon-apricot shade, is much to my liking, and a good cropper, useful and charming for vase and table decoration. Salmonia, a bicolor variety, is also very pleasing and useful, the flowers being large and borne in good sprays. *G. L.*

THE ROSE GARDEN.

SOME GOOD BEDDING ROSES.

It has been my pleasure to live more or less near ten acres of Roses, and I have had ample opportunity for watching the behaviour of the different varieties grown. The following are all free-growing and also free-flowering varieties, rendering them useful for the garden and also for cut flower purposes.

Golden Emblem is a variety of great charm and is one of the three best yellow garden Roses. The growth is robust, the flowers are large and strongly perfumed, making Golden Emblem an ideal Rose in every respect.

Christine (see Fig. 85) is a splendid yellow Rose and mildew-proof; this is a splendid variety for the Rose garden.

FIG. 85.—ROSE CHRISTINE.

Mabel Morse is a variety of recent introduction with a free habit of growth. The flowers are large, well formed and produced continuously. The foliage is mildew-proof.

Independance Day is a Rose of great charm, the colour being of exquisite tinting, orange-apricot and Sunflower gold, with flame-coloured stains making the whole an enchantment of colour. The growth is free and the flowering period lengthy.

Sunstar is one of the most beautiful of all Roses and is splendid both in its growth and flowering. The scent of this variety is delicious. The colour is orange, edged and veined with vermilion.

Ophelia as a bedder is unsurpassed in its colour, which is salmon-flesh, shaded rose. The flowers are freely produced all the season, and, to my mind, of a richer hue in the autumn. The blooms are fragrant and carried on upright stems. Red Letter Day is a free-blooming Rose with a deep, rich colour which does not readily fade to magenta. It is a Rose to be commended, for its blossoms are continuously and freely produced.

Gorgeous is a large, handsome variety with a strong perfume. The growth is robust and the flowering free. The colour is deep orange-yellow, heavily veined and flushed with deep reddish copper. It is a splendid addition and flowers well in late autumn.

General McArthur is a variety with very strong perfume. Its colour is scarlet-crimson and is finest when the weather is not hot, for strong sunshine causes the petals to lose some of their brightness. The growth is free and the variety is always in flower; it is one of the best of autumn Roses.

Emma Wright is a variety of great beauty. The growth is clean and free. The flowers are a deep orange colour, not over large, but liberally produced. It deserves to be better known.

Madame Abel Chatenay is too well known to need description; it is still worthy of a place in any collection of Roses.

Mrs. Henry Morse is a fine Rose with pink or bright rose colouring, and it is sweetly scented. This variety is splendid for massing, being free flowering and producing blooms of large proportions.

Madame Edouard Herriot is coral red, shaded with rosy-scarlet. The season of blooming is early and late, and the plant is a splendid garden variety. The foliage and spines are attractive.

The Queen Alexandra Rose is of a unique colour—intense vermilion deeply shaded on the outer petals with old gold. This Rose should be planted alone to enhance its colouration. The foliage and growth are quite distinct and on a "Rose" soil would carry large and full blooms. The only white Rose I consider adaptable for bedding is the hardy Tea variety Mrs. Herbert Stevens. This sort has the making of a good bedding Rose, is free blooming, and excellent for general garden cultivation. The white is faintly shaded with Peach-pink towards the centre. *G. L.*

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. 22.—THE GORGE OF THE TARON.

FROM an altitude of 3,000 feet the Taron looked a miserable ditch; but two things —noise and foam—told us it was in reality a formidable river.

An infamous descent down the backbone of a spur, carpeted with short, dry grass, tried my boots and my temper equally. Both gave way. On one side of us was a gully filled with mixed forest, in which Rhododendron sino-grande was conspicuous. This ceased on the spine, and the reverse slope, which faced the sun, presented the usual open park of Pine trees and Alders, growing in a deep sea of Bracken.

We did not descend quite to the river, but halted at the first cabin for lunch, and then proceeded by an execrable path down stream, keeping some hundreds of feet above the river. Bad as the path was, however, and slow as was our progress, it was nevertheless much better than I had dared to hope. The flank of the mountain was deeply fluted, and we had to climb up and down over endless spurs. The alignment of the path might have been more skilful, but we should have had to cross these spurs in any case. The vegetation was a wilderness of Bramble, Clematis, and many small shrubs; Luculia sp., being in flower, stood out by itself. Crawfurdia sp. and a large, lank Senecio of indolent habit were also conspicuous. The gullies were thickly wooded, and a species of Impatiens was in flower.

Eventually we reached a village of half a dozen log cabins, widely scattered on a sloping alluvial shelf; but owing to an epidemic, they were all deserted. However, we spent the night here, and next morning two naked savages came along and offered to guide us.

Before us was the torrent we had been compelled to abandon the previous day, flowing in a deep trench. It took us most of the morning to cross this, the path being almost vertical, so that we held on to roots and trees to let ourselves down. Progress was at the rate of under one mile an hour. In the forest above I found two species of Rhododendron, both moderate-sized trees; one of them at any rate was an Irroratum (K.W. 5445).

Only from the edge of the forest could one recognise the various trees; from the interior one saw only trunks draped with moss, and undergrowth.

In the afternoon we began to descend to the Taron by a spur even steeper than the previous one, and so slippery that it was almost impossible to keep one's feet, the soles of my boots being by this time highly polished. At last we reached the edge of the cliff, and had to proceed with more caution. A Rhododendron of the Virgatum series grew here in profusion, forming low, spreading bushes amongst the chunks of rock (K.W. 5446). Our descent ended in a forty-foot precipice, which we negotiated by means of a natural cable, to find ourselves on a sand bank in the bed of the Taron. A big tributary from the Salween divide roared in here.

On the cliffs were Pine trees, as well as large and fantastic-leafed Araliads; Orchids, as well as Rhododendrons. It was indeed surprising to find so many species of Rhododendron right down by the river, where the vegetation as a whole was distinctly semi-tropical. Here grew R. bullatum, and R. sino-Nuttallii, with other species of the Maddeni series. As I am probably the only white man who has seen R. sino-Nuttallii in nature, a short description may be interesting. It grew in deep shade, in the belt of jungle which clothed the tilted slate rocks in the river bed—a slim tree, fifteen feet high with a clean trunk. The truss is three or four flowered, and judging from the size of the capsules, which are three inches long, and an inch round at the base, tapering slightly, the flowers must be of very large size. The withered style is three and a half inches long. The leaves are larger than those of R. Nuttallii, but otherwise very similar, with the same lovely bronzed under-surface. The chocolate-coloured seeds have a peculiar unctuous texture, like soap-stone. The plant is, I imagine rare, and scattered, only three specimens being met with.

If the flowers are a good colour (as they certainly are not in R. Nuttallii), this species might prove to be the most sensational Rhododendron of its year, though I must confess that so far I see no very convincing reason to separate it from R. Nuttallii.

I collected much seed of it under the number K.W. 5466, and distributed it widely. What are the chances it will prove hardy?

The altitude of the Taron gorge (see Fig 86) here is about 6,000 feet—a fact about as useful as that it is situated in longitude 98° E. Owing to the high ranges which enclose the gorge, and the low snow line, it is very cold in January and February; it is also very hot in July and August, and always it is moist. Snow sometimes falls here, but does not lie for any length of time. Our winter would hold no terrors for R. sino-Nuttallii, but our August drought would certainly undo it. Given the shelter of a wood, and a moist soil, with adequate watering for eight months in the year, it would, I think, survive average samples of our climate, though we could easily hand out specimens which would tease it. On the other hand, the Maddeni series, like most of the Irroratums, Stamineums, Arboreums, and others, are tainted with a sort of Indo-Malayan poison, which is certainly going to make the Irrawaddy Rhododendrons touchy, until we discover exactly where the rub lies. Personally I would try R. sino-Nuttallii in North Wales, the Lake District, and West Central Scotland. Rainfall is more important than temperature—though no doubt there is a critical temperature for each species. It is not January and July isotherms, but radiation and stagnant cold air, which kill the plants. The home experts will doubtless plump for Cornwall; but I can see no sovereign virtue in a tempered climate with a forty-inch rainfall for a plant which comes from a region with a regular seventy-degree range of temperature and a hundred and twenty-inch rainfall.

The Taron is the Irrawaddy. We had taken six days from the Salween to the Irrawaddy, though a native with a 30-lb. load on his back would do the journey in three, so near to one another are they. When I found the forest so full of Rhododendrons the temptation to march north up the gorge was great; nor would it have been very difficult, as there are paths on both sides, and there is a regular trade passing up and down. In three or four days I could have been in the temperate forests. But I had set myself the task of crossing all the headwaters of the great river of Burma, and though it was obvious that Rhododendrons would become fewer and fewer as we went westwards, it seemed best to carry out the original plan. I could explore the Taron at some future date.

Crossing the river by "monkey" bridge, we marched several miles down stream, and camped on a sand bank. Here we rested a day—October 28—and I botanised. The trees, though varied, were mostly of small size. I noticed species of Ficus, Alder and Oak, most of them covered with epiphytic Orchids or shrubs, or muffled with creepers; here were masses of Ivy in flower, Agapetes, Aeschynanthus, Clematis, Akebia, and other plants. On the wet, shady cliffs, a yellow Chirita was abundant, and there were mounds of pink Luculia.

In one place the boulders just above high water were covered with the bulbs and foliage of a Crinum. (I brought home half a dozen bulbs in sand.) There was plenty of Bamboo; and where there was no forest, the slopes were covered with grass and giant herbs—Thistles fifteen feet high being especially prominent. Many queer Orchids were just coming into flower.

It was comfortably warm down here, the minimum temperature reaching 47° the first night, and only 52° the second night. Several fireflies added to the tropical appearance of the gorge. One felt in an entirely new world surrounded by vegetation in its strangest forms.

On October 29 we continued our march, and almost immediately turned west to cross the next range, sleeping that night several hundred feet above the river. *F. Kingdon Ward.*

FIG. 86.—THE GORGE OF THE TARON.

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17, July 1, 15, 22 August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, March 10, 24, April 7, 21, May 5, June 2, 23, July 7, 21, August 18, September 1 and 29, 1923.

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PLANTS NEW OR NOTEWORTHY.

ILEX GENICULATA.

In September one of the prettiest-berried shrubs in the Arnold Arboretum is Ilex geniculata. For six weeks past it had been a plant of exquisite beauty, and will remain so, far into the winter, though shortly its leaves will fall. It is related to the common Black Alder (Ilex verticillata), and the plants agree in having deciduous leaves and male and female flowers on different individuals. In the American plant the fruit is very short-stalked and clustered in the leaf-axils, whereas in the Japanese species (Fig. 87), the fruits are suspended on slender, thread-like, purple-brown stalks, each from 1 to 2 inches long, with a curious little joint suggestive of a knee in the middle, from whence its specific name is obtained.

FIG. 87.—ILEX GENICULATA; A RARE SPECIES FROM CENTRAL JAPAN.

This Japanese Holly is a bush from 5 to 8 feet tall, symmetrical in outline, with many thin, ascending-spreading stems clothed with smooth, greenish-purple bark, and has thin, dull green, ovate to elliptic, sharply pointed leaves which are toothed along the margin. The berries are globose and about ¼ inch in diameter, lustrous, cinnabar-red, crowned with a black spot, and forcibly suggest beads of sealing-wax.

The plant grows wild on the mountains of central Japan, but is everywhere rare. I well remember happening upon the first wild bush of this Holly I had ever seen. It was on the scrub-clad slopes of Yatsuga-dake, when I was in quest of the rare Picea Koyamai, and quite accidental. The bush was about 6 feet high and as much in diameter, bearing thousands of its brilliantly coloured fruits suspended from slender stalks, and I thought I had never seen, in fruit, a shrub so lovely.

Ilex geniculata has been growing in the Arnold Arboretum since 1894, when plants were first received from the Imperial Forestry Department of Tokyo. In 1905 seeds were collected in Japan by Mr. J. G. Jack, of the Arboretum staff, and in 1914 by myself. The original plants and those raised from the two consignments of seeds have proved quite hardy in the Arnold Arboretum, and each year the female plants fruit freely. This species would appear to be very scarce, if not actually unknown, in Europe, for it is not mentioned in the Kew *Hand List*, nor in Mr. W. J. Bean's book on *Trees and Shrubs Hardy in the British Isles*. *E. H. Wilson, Arnold Arboretum, Harvard University.*

NOTES FROM WISLEY.

The autumn is the best time in which to consider the relative merits of those Barberries whose unassuming flowers develop into fruits of great beauty, while their hitherto inconspicuous foliage blazes into brilliance. In the latter category are the common Berberis Thunbergii, B. Jamesiana, with its red and gold tinted leaves, and B. yunnanensis, with its blood red foliage. The greatest charm, however, lies in the fruit. Some of the finest effects in this respect are seen in the B. Wilsonae hybrids, which are not only remarkable for the quantity of berries produced, but also for their exquisite colouring.

Considerable success has attended the raising of these hybrids at Wisley, and numbers are now to be seen in fruit in those gardens. The largest collection is planted by the side of the pond in the new field garden, and includes several kinds which have gained awards, such as the variety B. Autumn Beauty (see Fig. 77), which was exhibited at the recent Holland Park Show. Here also is B. Sparkler, with a regular rosette of leaves around the stalk of each fruit cluster, and the large-berried B. rubrostilla.

Among those which have not yet been shown is a variety with small but very numerous, translucent, pink fruits, tightly clustered round the arching shoots; another has berries of an almost orange hue.

In addition to variations in colour there is considerable diversity in the size and shape of the fruits. Some are spherical, others oval, and sometimes with pointed extremities, while others are conical in shape. The habit of growth varies also in different seedlings, as does the arrangement of the foliage. In order to perpetuate any one variety the most satisfactory method of propagation is that of layering.

An interesting Berberis in this portion of the gardens is B. pruinosa. This plant is evergreen, and bears, apparently, white berries. This white colour, however, is caused by a very heavy white meal, which, when rubbed off, discloses a greenish-yellow skin ripening to brownish red. The interior of the fruit is filled with the yellow juice common to Barberries. Another species of Berberis with berries carrying a white bloom is B. dictophylla. In this case the stems and undersides of the leaves also are white, after the manner of Rubus biflorus, and the fruits scarlet beneath the bloom.

In the border containing these Barberries is to be found Ligustrum ionandrum, which has for the first time at Wisley produced an appreciable crop of fruit. The berries are of a dull violet hue, and considerably enhance the value of this shrub as a garden plant.

In addition to Berberis, the banks of the pond have been planted with dwarf shrubs, such as Potentilla fruticosa (Farrer's variety) now blooming, and with some recently introduced prostrate Cotoneasters. Of the latter one of the best is C. rubens (Forrest). Some new Hypericums are growing up, a most attractive species being H. uralum (Forrest). This is cut down by frost in the winter at Wisley, but in the spring throws up graceful, Fern-like shoots from the tips of which yellow, bell-like blossoms appear in September

One of the finest of all the St. John's Worts, and most showy when in flower, is Hypericum

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patulum Forrestii, which is now displaying its brown seed capsules and colouring its foliage. Our native Tutsan (H. Androsaemum), once famous as a medicinal herb, is also fruiting, the fruits taking the form of glossy, black, berry-like capsules. The leaves are remarkable for the resinous smell emitted when bruised.

The shrubs in flower at the gardens at the present time are but few. Among them are Clerodendron trichotomum, with its fragrant, waxy blossoms contained within a pink calyx, and the pink flowered Abelia grandiflora. Buddleia Farreri is unfortunate in that it does not get an opportunity of flowering in the open owing to its susceptibility to frost. It is noteworthy for the very dense white tomentum which covers the stems and young growth, and for its winged petioles.

On the rock garden Gentiana Farreri is in flower, and the blooms of a number of Cyclamen neapolitanum and its white variety are springing up. *J. E. G. White.*

EDINBURGH BOTANIC GARDEN NOTES.

Of the numerous Hypericums flowering in the garden H. patulum Henryi is the most attractive. The large flowers with tufts of conspicuous stamens are borne in clusters at the tip of every growth. Spartium junceum on a slope in the arboretum is a wealth of colour, the environing shrubs providing the background necessary to display to advantage the leafless, whip-like branches crowded with yellow bloom. Elsholtzia Stauntonii, a dwarf shrub flowering in the border by the terrace wall, might be mistaken at first glance for a Veronica; the small carmine flowers are in terminal spikes, and the foliage, when bruised, is aromatic. On a ledge in the rock-garden Abelia Engleriana is flowering; the tubular flowers are deep pink in colour.

Primula pseudo-capitata, P. capitata, P.-c. viridifolia, and P.c. Mooreana are among the best of the late flowering Primulas, P.-c. Mooreana, with Tyrian violet flowers, and powdered stems, being especially fine. Gentiana sino-ornata, bordering one of the paths in the rock-garden, is a sheet of vivid blue. Here also is Gentiana Farreri—"special pilgrimages go to Edinburgh to see the jungles of Gentiana Farreri, a yard through with some 300 gigantic trumpets opening at once." More subdued in their colouring are the many square yards of the prostrate growing Pratia angulata and P. arenaria covered with delicate white Lobelia-like flowers.

A study in contrasts is afforded by a group of Yucca filamentosa antwerpensis, with several stately inflorescences, in close proximity to Convolvulus mauritanicus, whose trailing growths are wreathed with light blue flowers. Other subjects flowering in the rock-garden include Dracocephalum Forrestii, a bright, blue-flowering Labiate, and an extensive drift of Astilbe simplicifolia, with bronze-tinted foliage and graceful panicles of white flowers, 9 inches high.

Three good Asters in the herbaceous border are the large flowering Purple Emperor, Perry's White, and Anita Ballard, Cornflower blue, Erigeron speciosus superbus is flowering freely, and the colour, rich mauve, is very effective in the mass. Anemone elegantissima is a handsome japonica variety, vigorous growing, with large, semi-double pink flowers.

Mustisia ilicifolia, a scrambling shrub, covered with a cobweb-like tomentum and Daisy-like flowers 3 inches across, pink and white, is flowering on the roof in the alpine house. Other plants on the indoor rockery are Fuchsia parviflora, laden with glossy, black, globose berries, the size of Peas; the flowers are small and insignificant. Cowania plicata, a dwarf shrub, with Rose-like, single, dark red flowers; Dendromecon rigidus, the Californian Yellow Tree Poppy; Isoloma senequioides; Amphicome arguta; Alströmeria (syn. Ligtu) Hookeri; and the fragrant Heliotropium anchusaefolium.

On the wall in the corridor the large white, trumpet-shaped flowers of Datura cornigera are conspicuous, as are the many-flowered clusters of Bomarea Caldasiana, orange, heavily spotted with crimson. The clear yellow Abutilon, Golden Fleece, and the free flowering violet-coloured, climbing Maurandia scandens, and the M. semperflorens are also notable.

A batch of Spathoglottis edinensis is in bloom in the warm Orchid house, with other showy species and hybrids, Cattleya Atalanta, C. Ella × Dowiana, Laelio-Cattleya Dominiana, L.-C. callistoglossa, L.-C. Nysa, L.-C. Nysa superba, Coelogyne Cummingii, C. lagenaria, and hybrid Paphiopediums. Suspended from the roof are baskets of Columnea gloriosa superba, with small green foliage and large bright scarlet flowers *Fred W. Jeffrey.*

FLORAL DECORATIONS.

The art of floral decorating has suffered a great deal during the past few years, for whereas many country establishments employed "a man well up in decorating," now, for the most part, the large houses are sparsely adorned with flowers, while groups of plants are seldom used.

It appears to me that the only way for a keen, young gardener to obtain experience in the art of floral decoration is to seek service for a while with a good firm of florists, who specialise in decorating for weddings, balls, and other functions. If he has a few years of practical gardening experience behind him, the break of a year or so in studying this art should do him no harm. Of course, it is not always easy to get into the employ of really good firms, still, there are possibilities. The gardening world is gradually coming into its own again, and, no doubt, floral decorating will presently play an important part once more. It is with that hope these notes are written.

The decoration of the dinner-table used to be a very important part of the work of the decorator. In such work there are several points to be considered in securing a pleasing effect. The vases should be suitable in size and shape; large vases will produce a heavy effect, and very small ones will suggest meanness. Care should be taken not to obstruct the view across the table, therefore the flowers must not be more than 16 inches above the table, or, if very tall vases are used, there must be nothing in them to hang lower than 24 inches from the table. As a rule, a dinner-table decoration will consist of a principal or centre decoration and a few subordinate or smaller ones. If there is to be a dinner party of, say, twenty-four or more people, two or three equally important decorations, varying in accordance with the length of the table are required, and a corresponding number of smaller ones. In these cases Palms and Dracaenas may often be used to good effect as the central features.

When flowers of different hues are used care must be taken that the colours do not clash. Some colours will not associate kindly, and there is nothing worse than to see a vase of mixed flowers in which the colours are crudely arranged. Lightness of arrangement is a great point in floral decorating. Some flowers, especially Roses, have a tendency to look heavy when put into a vase, and this should be guarded against. It is always well to remember that dark flowers need a light position, in front of a window or doorway, and flowers of a light colour should be put into the darkest situations. The use of Smilax and Asparagus around long stems, and the addition of suitable foliage must be left to the discretion of the decorator.

To arrange a group of plants so as to promote an artistic and pleasing effect is not an easy matter, especially when several kinds of plants are to be used. Hydrangeas, Rhododendrons in pots, Rambler Roses in pots, and Chrysanthemums are a few subjects that always form pleasing groups when well arranged. When foliage plants, such as Ferns, Crotons, Coleus, etc., are used in making groups, care must be taken that they assist the flowering plants, and do not dominate them; many groups are spoiled owing to lack of consideration of this matter.

Button-holes and bouquets both come under the heading of floral decorations; but domestic decorating is the more important from the gardener's point of view. *H. W. Stenning, Ebrington Hall Gardens, Gloucester.*

PELARGONIUM ROLLISON'S UNIQUE AND OTHERS.

Your correspondent *T* in the issue of September 29 (p. 191) rather tickles my sense of humour in the tacit way he seems to suggest an "appeal to the umpire." We do know a little about Scented Pelargoniums at Aldenham, but I certainly do not lay claim to expert knowledge. I have not observed that any of our plants of Rollison's Unique vary in the colour of flower at any period, nor any of the other Uniques, of which we grow Aurora Unique (the best of all), Purple Unique, Scarlet Unique, Shelton Unique and White Unique, in addition to Rollison's. I am not suggesting for a moment that Mr. Lynch has not done so, for I rather fancy that something of this colour change takes place in Pelargonium echinatum var. Ariel, as it seems to lose its pale pink tone at times and then closely resembles P. echinatum—to our confusion, be it confessed. Probably there is some well-defined law controlling the question of colouring in flowers and foliage, for we have shrubs that at times, after freely exhibiting their variegation, revert to green, owing to restoration of chlorophyll, only to relapse again after a season, and this trick seems to occur more or less regularly at intervals with certain plants.

Mr. Coomber makes a rather strong suggestion, inasmuch as whilst, no doubt, enthusiasts in these matters would delight to carry over groups of plants during periods of depression, until such time as they regained favour, even gardens like Aldenham could hardly undertake such a task, for it would be an enormous enterprise. Is not this work rather more fitted to the functions of National Botanic Gardens such as Kew?

Aldenham already has about 120 different Cape Pelargoniums (all grown in pots, by the way, and none wall trained), as the Hon. Vicary Gibbs takes a very keen interest in this group. But even that number is comparatively small considering the fact that during the period of 290 odd years since the first species arrived in this country, nearly as many (about 270) species of the various groups have been recorded of the Pelargonium family, besides innumerable varieties and forms, and one wonders where some of them have gone to.

Whilst dealing with this subject I would urge the claims of Cape Pelargoniums as being both interesting and beautiful alike for the greenhouse, for house decoration, and for summer bedding, as they require only sufficient heat whilst under glass to maintain the temperature comfortably clear of frost. They ask for little attention during their period of growth, other than watering and shaping.

For bedding purposes these Cape Pelargoniums are ideal and the plants may readily be grown in either bush, pyramid, or standard form, the latter making ideal plants up to 5 ft. and 6 ft. tall, thus lending very suitable relief to otherwise low-level bedding. Their very variable characteristics of growth, habit, foliage, and colour and appearance of flower add to their charm, and at Aldenham we employ them largely with great advantage.

Cape Pelargoniums have been in the background for a long period now, but are unquestionably coming into favour again, and many folk are seeking them, realising their beauty and utility. A few of the best species and varieties are as follow:—Rollison's and the other Uniques mentioned above; Moore's Victory (Syn. P. Mooreanum); Mdme. Nonin, P. Blandfordianum, Lady Plymouth, Shottesham Pet, Pheasant's Foot, Mrs. Kingsley, P. pinnatum, P. artemisifolium, P. tomentosum, Prince of Orange and its variegated form; P. ardens, P. Zermattii, P. echinatum, P. echinatum var. Ariel, P. Schottii, P. crispum variegatum, Princess of Orange, Dale Park Beauty, Clorinda, Lady Scarborough, Stag's Horn, P. tricolor, Shrubland Pet, Pretty Polly, P. cuculatum flore-pleno, P. rapaceum, Mrs. Kingsley, Shrubland Rose, Attar of Roses, and P. odorum roseum. *E. Beckett, Aldenham Gardens, Elstree, Hertfordshire.*

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THE BULB GARDEN.

DARWIN TULIPS.

The popularity of the Darwin Tulip has increased enormously of late, and right well does the flower deserve the favour of the gardening public, as it possesses so many good qualities. A wide range of colour, a vigorous habit of growth, and the wonderful lasting quality of its flowers are some of its chief virtues. Then the long flower stem in this strain of Tulip makes it very valuable for cutting, and again as it flowers in May, when the weather has usually lost some of the bitter sting of our average English spring, its beauties can be better enjoyed than is the case with flowers opening earlier in the year.

I will first give a list of what I consider the very best and most distinct varieties, and then a few cultural hints.

Red Varieties.

Bartigon: Rich deep red, a very sturdy grower in the open and a good forcer, but has one weak point; it often has one or more greenish petals; height, 22 inches.

Claude Gillot: Large, crimson-scarlet flower, a beautiful glowing colour, very much like Glow, but a little superior; 26 inches.

Europe: Vivid Cherry-red, clear white base, rather near to Farncombe Sanders, but a little brighter and opens out a little more fully; 26 inches.

Farncombe Sanders: An immense, bold flower of a bright Cherry-red; the flower lasts wonderfully well. If I grew only one Darwin Tulip it would be Farncombe Sanders; 28 inches.

Feu Brilliant: A very fine deep scarlet, very like Isis, but a shade deeper in colour; very fine; 29 inches.

Harry Veitch: Deep blood-red, a large and well-formed flower; 23 inches.

Henner: Deep blood-red, inclining to maroon, a fine bold flower; 26 inches.

Orion: Large flower, brilliant dark scarlet, with blue base.

Prince of the Netherlands: Glowing Cherry-red, flushed with a deeper shade of red. One of the largest sorts in cultivation; a very strong grower; 28 inches.

Professor Rawenhoff: Almost too much like Farncombe Sanders; good for forcing.

Salmon King: The blooms are rich deep glowing salmon when young, but Cherry-red when fully developed; a very pretty bright flower, but rather small; 25 inches.

Eclipse (New): A very fine variety; the flowers are of large size, well formed and of a rich blood-red colour; 25 inches.

Rose Varieties.

Edmée: Vivid rose, edged pale pink, a well-formed flower which lasts a long time. There are at least six Darwins in the same style of colouring, as Mme. Krelage and Baron de la Tonnaye, but I consider Edmée the best of the set; 27 inches.

Loveliness: Bright satiny rose, lighter margins to the petals; a very lovely flower when well grown, but it is not a very robust grower; 22 inches.

Nauticus: Very deep rose, base dark violet; a large, showy flower and distinct; a very robust grower; 24 inches.

Petrus Hondius: Deep rich rose, large flower and quite distinct. This variety was not much thought of until the last year or two, but now it is much sought after; 24 inches.

Pride of Haarlem: Not a pure rose, but I do not know of another colour heading more suitable for it. Flowers of largest size and good form; one of the very best and most showy varieties; very early; 26 inches.

Maroon Shades.

Andrea Doria: Deep rich maroon, large, well-formed flower, very good constitution; one of the best of this class of colour; early; 33 inches.

Leonardo da Vinci: Dark purple-maroon, strong grower; flowers large; 23 inches.

Faust: Dark satiny purple, with blue base; very large and well-formed flower; good forcer.

La Tulipe Noire: This deserves a place to itself as the colour is deeper than maroon, and is as nearly black as any Tulip is likely to be. A large flower with a peculiar satiny sheen; 24 inches. There are numbers of these blackamoors, but one or two of the best are sufficient for any but the largest collections.

Pink Shades.

Clara Butt: Pale rose-pink, a most distinct and lovely Tulip, probably the most popular of all the Darwins; rather late; 22 inches.

Julie Virnot (Princess Elizabeth): Vivid rosy pink, edge of petal lighter. The young bloom is like Clara Butt, of a deeper shade of pink. Very beautiful and a good forcer; 25 inches.

L'Ingénue: White, delicately suffused with rose; a very attractive flower and one that lasts well; 29 inches.

Margaret: An egg-shaped flower, outside blush, inside delicate rose. The flower reminds one a little of very delicate egg-shell china; late; 20 inches. Good for pots.

Suzon: Soft rose, blush white at edge of petal, centre, Cambridge blue. A large flower and very attractive; 28 inches.

Mauve Shades.

Bleu Aimable: Deep mauve, a very distinct shade; has been very scarce of late, but is now fairly plentiful; 23 inches.

Erguste: Bright silvery mauve, rather long pointed bloom; a pretty variety, but rather prone to "fire"; 27 inches.

Euterpe: A good mauve, with a slight tint of lilac; a good, lasting flower; 27 inches.

Pensée Amère: Purplish lilac, very beautiful, good forcer.

Rev. H. Ewbank: A beautiful silvery mauve, one of the very best in this class of colour; good sturdy grower; 20 inches.

Purple Shades.

Frans Hals: A very handsome flower of immense size and coloured rich violet-purple; perhaps the finest purple Darwin; 30 inches.

Marconi: Deep rich purple, white base, huge well-formed flower of cup form, very strong grower; a remarkably fine variety; 30 inches.

Mrs. Potter Palmer (Fashion, D. T. Fish): Bright purplish violet, fine large flower, distinct and beautiful; late.

Ronald Gunn: Flowers very large, purple-plum colour, edges of petals silvery white; a noble flower and quite distinct; 25 inches.

The Bishop: A long flower of very striking colouring; a rich purple, shot with lilac; plant very vigorous, very late; 29 inches.

Valentine: An early variety and very beautiful; flower large, bright violet with electric blue centre; 30 inches. *J. Duncan Pearson, Lowdham.*

(*To be continued.*)

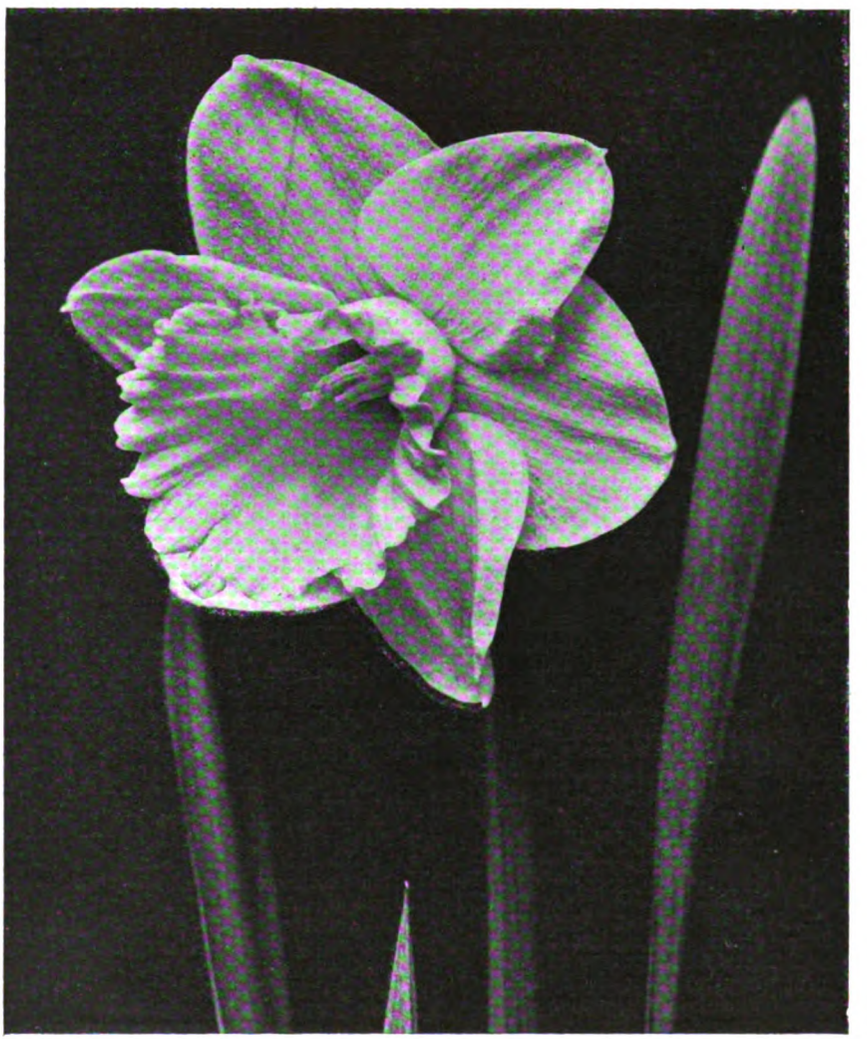

FIG. 88.—NARCISSUS NERO.

NARCISSUS NERO.

The fine new Daffodil illustrated in Fig. 88, named Nero, is a very large yellow Ajax of the Cleopatra type. The perianth is rounded and of great width, the major segments meeting at the back of the flower. As will be seen on reference to the picture, the trumpet is expanded and well frilled at the edge. Dr. N. Y. Lower, of St. David's, Presteign, who has shown this beautiful Daffodil on several occasions, informs us that the variety is a good doer and a very free bloomer; also that the colour is a uniform clear yellow.

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DEVELOPMENT OF THE DAHLIA.*

(*Continued from page* 221.)

From France came Agnès Lord, Beauté de Paris, Champs Elysées, Charivari, Duchesse de Nemours, Gloire de Douai, Triomphe, Rouillard, Marèchal Pelissier, Général MacMahon, Vierge Marie, Biribi, Madame Chauvière.

The most noted Belgian varieties were Fleur de Gand and Souvenir de Gand, P. P. Rubens, Pierre de Bex, Koning der Belges, Nieuwe Glorie, Madame de Man de Lennuck, etc.

About 1855 the large, ball-shaped Show Dahlia, of which I have spoken here almost exclusively, had reached such a standard of perfection that it could hardly be improved further, and many flowers offered for the first time in that period have kept their position as commercial varieties during forty years.

Fashion had favoured the Dahlia for such an unusually long period that it is not to be wondered at that a certain decline set in. In his catalogues of 1847-8 my grandfather remarks that novelties are being offered yearly which do not surpass the older ones and heavily disappoint the amateurs. He therefore does not offer any of the newest Dahlias (of which in 1846 alone 300 were offered at an average price of 10s.), and only lists an assortment of 200 selected varieties.

It is evident that the opportunities for deception and disappointment, as referred to in this notice, were not good stimulants to the purchase of Dahlias. In 1864 any firm's special Dahlia list, in an introductory remark, states that "the glorious days for the Dahlia have passed, and that indifference has replaced the amateur's interest."

And so it was not only in Holland, but all over the world. The large Show flowers still remained the chief group, but not until the rise of the Cactus Dahlia did fashion again bestow her high favour on this genus of plants.

The Lilliput Dahlias.

Before dealing with the Cactus Dahlia, we have first to record the raising of a group of flowers which made its appearance in 1851 under the name of Lilliput Dahlias. They were obtained from seed by Sieckmann, and distinguished by small globular flower heads. The first notice of this new class was given by Sieckmann in the *Thüringer Gartenzeitung* of August 31, 1850, and two years later they were figured on a coloured plate in Regel's *Gartenflora*. In the accompanying article Sieckmann tells that he had grown them for six to eight years.

The Lilliput Dahlias, which were later also known as Pompon Dahlias, have quite recently become more appreciated than in any former period. Their free-flowering properties and their neat, small flowers lend them a decided charm for certain decorative effects in the garden. In our days they are the only form of the old-fashioned ball-shaped Dahlias which are still tolerated in our gardens.

The Green Dahlia.

It was again Sieckmann who in 1873 offered the green Dahlia in his catalogue. He made a great fuss about it, wholly out of proportion to the object of his exaggerated advertisement. He called it "Gottes Wunder," and published a quaint poem of an admirer in his catalogue:

Single Dahlias.

Sieckmann seems to have been very fond of polemics. His catalogues are full of attacks upon and challenges to the raisers of other nationalities as soon as they introduce new types which he had not raised himself. So Sieckmann was a strong opposer to the single Dahlias which made their appearance in England about 1880, but he nevertheless listed and offered them in yearly increasing number in his catalogues.

The ball-shaped Dahlias had reigned so long without rival that every change in the general character of the flower was welcomed with enthusiasm. The wild growing Mexican Dahlias, whether still kept in their original form or reintroduced from their native country, were at last appreciated for their natural beauty and attractive elegance. They came to the front at shows, and in 1879 a single form Paragon, which gave the impression of a wild species, attracted general attention at a Royal Horticultural Society's meeting in London. The Dahlia growers soon took advantage of the public's preference for single flowers, and within a couple of years extensive assortments of single Dahlias were offered in the English catalogues, and, soon afterwards, also in Continental catalogues. Seedlings of this class were raised everywhere, and it would be difficult to decide from where the best came, although the English raisers kept more accurately to the officially fixed shape than others.

(*To be continued.*)

* A paper read by Mr. Ernest H. Krelage before the International Horticultural Congress at Amsterdam, on September 18.

PRUNING FRUIT TREES.

For some years past I have commenced the pruning of fruit-bearing subjects at this time of year, beginning with Currants and finishing with Apples—in advance of defoliation. At first the reason for such early pruning was the need for getting the work out of hand as soon as possible; but there are other recommendations.

One advantage is that the operator sees exactly how to thin out shoots to a nicety, and not only shoots, but also large congregations of spurs and the useless sprays that are formed among these, which, in Pears, are particularly noticeable, and of no use to the trees. Instead of pruning or cutting these off it is best to rub them off, by which means the development of more spray growth is effectually stopped.

Though probably not so hurtful as over-cropping, yet a long period of observation has convinced me that even a condition of over-foliation is opposite to beneficial to the production of blossom, and healthy blossom at that, for much of the blossom on overcrowded growths will, on examination, be found abnormal, wanting even in embryonic ovules. Moreover, where fruit sets, more especially in the case of Plums, it is notorious that most of it drops previous to the stoning period; but Apples also are apt to drop similarly. So certain are these effects that the condition of the future crop may be fairly well gauged by an examination of the flowers. Sometimes the anthers are abnormal, but the great cause of inefficiency rests in the female organs being immature or wanting. That is why an enormous flush of blossom is sometimes followed by a disappointing crop of fruit.

We do not want large displays of blossom, but what blossom there is should be perfect, and that, as one means, can only be secured by letting the greatest possible amount of light and air play upon the foliage, and these efficients can be obtained more perfectly by pruning before the leaf falls than subsequent to that state.

It also has the remarkable property of causing a stronger set of shoots than when pruning is deferred till spring. This, of course, in the case of over-vigorous trees may be distinctly prejudicial to fruit production, but in these circumstances root pruning is the proper thing to do, and as recently noted in an article on the subject, September is the best time for the work, and not, as some assume, while the trees are quiescent during winter.

Exactly the same treatment applies to Grape vines. As a means of keeping them in vigorous health they should be pruned at the yellowing of the leaves. Some cultivators cut back the laterals to half their length long before that stage, and I have done it myself, but I am not sure that it is an expedient that can be commended. But as to the value of early pruning, as compared with leaving it till winter, I am certain that whoever has tried it over a series of years must have noticed its advantage. I like to prune outdoor Figs in August, thinning finally in May. Probably it would be better to treat these like other fruit trees, but I have not tried it. *R. P. Brotherston.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Holland Park Hall Show.—I have not failed to attend the "British Fruit Show"—as we have always termed the special autumn fruit exhibition of the R.H.S.—for the past sixteen years, generally as an exhibitor, and in my opinion the late show was by far the worst I have seen during that period. This I attribute to more than one cause; the present season has been one of the worst known for hardy fruits over a period of many years, but there are other causes which ought not to exist. In the days when the exhibition was held in the Royal Horticultural Hall, Vincent Square, we not only had a fine show, but there was good fellowship and hearty co-operation between all concerned—the officials of the Royal Horticultural Society, trade growers, gardeners and amateurs. As our late, highly-respected friend, Mr. S. T. Wright, once said to me when he managed these gatherings, it was "the happiest show of the year, a real gathering of the clans, where men met in healthy, hearty competition and exhibited the finest fruits of the world." At such times everyone was considered and everything was done to make things easy for exhibitors; a feeling of comradeship existed everywhere, a grumble was scarcely ever heard, and we had a British fruit show worthy of the name. At the recent Holland Park Hall show the competitive fruit classes were not worth going to see, and the reason, in great part, was the autocratic way in which exhibitors and would-be exhibitors were treated by the officials of the Society. Take my own case—the schedule stated that all exhibitors must enter by August 30. After carefully wading through forty-three different rules, I sent my entries before that date, fifty-two in all, which I would have filled creditably. I received a letter, over a week after the closing date, saying evidently I had overlooked a new rule, which I found, quite apart from the other rules (consisting of a line-and-a-half of small type), practically changing the whole conditions of the show. This rule states that unless exhibitors entered in certain classes (in other years barred) they would be restricted to six dishes of dessert Apples, six dishes of cooking Apples, and nine dishes of Pears. I at once wrote stating that I was very sorry I had overlooked this new rule, and that I was away from home, but to simplify matters would they accept my entries in the extra classes mentioned, and so allow my original entry to stand. I received a very curt reply to the effect that I would be given two days to revise my list; that once a rule was made it could not be broken—hence my exhibits in those classes only. Many other would-be exhibitors informed me that they were treated in similar fashion, whilst others, among them some of the finest fruit growers in England, had all their entries returned with the information that these could not be accepted as August 30 had passed. Is it to be wondered at that large empty spaces were to be seen everywhere? Fortunately, exhibitors are not treated in this manner at provincial shows, for if all societies adopted this attitude there would quickly be no exhibitions. Again, why should the fruit and vegetable classes be relegated to the galleries, whilst all the floor space, with the exception of the trade exhibits of vegetables and fruit, is filled with flowers—and yet this is supposed to be the chief fruit and vegetable show of the year. There were no notices put up to inform the public such a show was held upstairs, and on the first day of the show in particular I doubt if more than five per cent. of the people who attended saw the competitive fruit and vegetable classes. The police arrangements, too, were very bad. Last year I lost many of the best dishes of my fruit, and there was not a whole dish left of all that I exhibited. This year the same thing commenced until I complained that fruit was being stolen, when the police were sent to the galleries and the thieving ceased. Unfortunately, too, the shows of the Royal Horticultural Society

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are becoming the haunts of a thieving gang who not only steal fruits and flowers, but go through the pockets of unsuspecting exhibitors, and take money and other valuables. The authorities should warn exhibitors beforehand, and no stone should be left unturned to bring these criminals to book. It is not pleasant to be left stranded in London without a penny in one's pocket for four days. Many were, unfortunately, left in that position at the recent show, I among them, and I write this in the hope that it may be a warning to others. *Lewis Smith.*

—In your able criticism of the recent show held at Holland Park Hall, you suggest that the council of the R.H.S. had no alternative to the Rink as a venue for the exhibition. I suggest that a far superior building in many ways would be the New Annexe to Olympia. It is much larger than the Rink, possesses a wide gallery (with lifts), there is an abundance of light, both natural and artificial, plenty of room for unloading exhibits, and the floor is not likely to be spoiled if water happens to get spilled. There should be ample opportunity there for the granting of two very necessary items—a room for the press and free cloak-room for exhibitors and their assistants. The facilities for catering in the new hall are excellent. Perhaps the council of the Royal Horticultural Society might see its way to hold one of the spring bulb shows in this hall, as the crush at the spring shows in Vincent Square is becoming so great that it is impossible to study the exhibits in comfort, with consequent loss of business by traders. I think, too, that a four-day show in the spring, well advertised, and with a reasonable entrance fee, would attract many thousands of visitors. *Jas. S. Dakere, Forest Hill, London, S.E.*

Cydonia japonica Flowering on a Sucker Growth.—I am sending you a specimen of Cydonia japonica, which shows this plant flowering on a short sucker growth. It seems to me to be a very curious freak, especially as the white variety is not very free flowering and usually blooms only on well ripened wood. *R. Windsor Rickards.*

[The short sucker growth consisted of comparatively soft wood, and carried four fully developed flowers of the white variety of Cydonia japonica.—Eds.]

Pea The Gladstone.—I am sending you a sample of green Peas which I hope will interest you. They represent the variety The Gladstone, and are from plants we have been gathering from since August 25, and the Peas are still of good quality when cooked. The pods I send you were taken from quite near the top of the haulm, and I think you will agree that for this northern district the plants have cropped remarkably well over a long period. Quite recently the stems were attacked by leather jackets, which we effectually combatted by sprinkling "Tipulite" on the ground in the neighbourhood of the rows. *W. G. Holmes, Tain, Ross-shire.*

[The pods sent were of fine size and fairly well filled with good Peas of excellent colour and quality.—Eds.].

Cannon Hall Muscat Grapes.—Your readers will remember that in some notes on the Cannon Hall Grape I stated my son and I were experimenting with a system entirely different to that practised with other varieties in pruning, disbudding, stopping of laterals, watering and feeding, with a view to getting the berries to set more satisfactorily. How far we have succeeded readers may have seen at Holland Park show in the winning set of twelve bunches, which included two bunches of Cannon Hall, while in the class for two bunches of any white variety we also gained first prize. It is remarkable that this Grape has been condemned because of its bad setting quality. Our vines of this variety have been planted only four and a half years, and are likely to give a good account of themselves if they continue to receive the treatment needed. *W. Irvine, senr., Bradley Gardens, Grimsby.*

SOCIETIES.

ROYAL HORTICULTURAL.

October 6.—The Royal Horticultural Hall, Westminster, was well filled with exhibits on the above date, and visitors were fairly numerous for the time of year. Michaelmas Daisies were very much in evidence and Chrysanthemums added to the autumnal effect. The Hon. Vicary Gibbs contributed a splendid collection of berried shrubs and others with coloured foliage. Orchids were not largely shown, but Carnations, Scabious, Roses and fruits were well displayed.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Viscount Sohma of Japan, the Hon. H. D. McLaren, Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson (assistant secretary), Arthur Dye, J. Wilson Potter, S. W. Flory, W. H. White, H. T. Pitt, J. E. Shill, C. H. Curtis, H. G. Alexander, Henry H. Smith, Richard G. Thwaites, Pantia Ralli, R. Brooman White and C. J. Lucas.

First-Class Certificates.

Cypripedium Albion, Bodnant variety. From Lady Aberconway, Bodnant, N. Wales (gr. Mr. F. C. Puddle), and the Hon. H. D. McLaren. This charming hybrid was raised by crossing C. niveum var. Goliath and C. Astarte (insigne Sanderae × Psyche). C. Psyche results from crossing C. bellatulum and C. niveum, and in the present charming cross the interesting feature is that while it is an improvement on other white Cypripediums, some faint traces of colour appear, while C. niveum, amplified, predominates. The small seedling bore a model flower of wax-like texture, snow-white with a few very faint dark dots on the petals.

Cattleya Mrs. Gratrix (*Lady Veitch* × *intertexta Juliettae*), from Messrs. Sanders, St. Albans. A model flower and one of the finest white Cattleyas. The sepals and very broad petals make up an almost perfect flower; the broad lip, which is circular in outline, is crimped at the edge and has a yellow disc.

Other Exhibits.

Messrs. Cowan and Co., Southgate, were awarded a Silver Banksian Medal for a select group, including Cypripedium Mario (Draco × Earl Tankerville), a finely formed flower with a well-rounded white dorsal sepal, emerald green at the base and spotted with red-brown; the fine white C. Boltonii, C. Leeanum Corona, C. Dreadnought, C. King George V., and other Cypripediums; Laelio-Cattleya Soulange, L.-C. luminosa aurea, Cowan's variety, certainly the best of this favourite cross; Cattleya Phoebe, C. Hardyana alba varieties and other Cattleyas.

Pantia Ralli, Esq., Ashtead Park, Surrey (gr. Mr. Farnes), sent a finely grown plant of Vanda luzonica, Ashtead Park variety, with a spike of fourteen wax-like white flowers with mauve lips and slight rose markings on the edges of the petals.

Messrs. Charlesworth and Co. Haywards Heath, showed a selection of fine hybrids, the best of which was Sophro-Laelio-Cattleya Prince Hirohito var. Vesuvius (S.-L.-C. Marathon × S.-L. Leda). The plant bore a fine spike of three flowers of rich red-mauve colour with ruby lip. A grand form of Cattleya Enid alba, a clear white Odontoglossum eximium virginale with sixteen flowers, the new Odontonia maculata (Miltonia Bleuana × Odontoglossum Harwoodii), a very pretty yellow-ground flower spotted with purple and with showy mauve lip, and the pretty Vuylstekeara Memoria Joseph Charlesworth were also shown.

Floral Committee.

Present: Messrs. H. B. May (in the chair), D. B. Crane, G. W. Leak, Amos Perry, A. G. Jackman, W. P. Thomson, W. B. Gingell, W. Howe, C. R. Fielder, E. A. Bowles, W. J. Bean, H. J. Jones, John Heal, M. C. Allwood, Donald Allan, J. Jennings, J. F. McLeod, Sydney Morris, H. V. Warrender, W. B. Cranfield, J. B. Riding, R. C. Notcutt, H. D. McLaren, Reginald Cory, H. R. Darlington, Gerald Loder, W. G. Baker, Chas. E. Pearson and Sir Wm. Lawrence.

The Floral Committee was called upon to consider the merits of twenty-eight plants and flowers and thirty-nine groups.

Awards of Merit.

Aster October Dawn.—A large-flowered variety of clear soft blue colouring. The florets are pleasingly and gracefully arranged, consequently the flower heads present none of the stiffness so often associated with large-flowered Asters. Shown by Mr. E. Ballard.

Aster Aldenham Pink.—A neatly flowered variety with blooms of a rich bluish rose colour, rather different to the colour usually described as pink. Shown by the Hon. Vicary Gibbs.

Chrysanthemum Elsie.—A large-flowered Japanese variety, with broad florets of rich yellow colour. A promising variety for exhibition purposes. Shown by Mr. G. Carpenter West Hall Gardens, Byfleet.

Chrysanthemum Godfrey's Gem.—This is a single variety—at least, it has three rows of florets and thus comes within the N.C.S. definition. The flowers are of medium size and a brilliant orange-buff colour that is very attractive. Shown by Messrs. Godfrey and Son.

Berberis brachypoda Gibbsii.—A very fine Barberry and of distinct habit. The growth is erect and carries formidable spines and stout oblanceolate leaves. The light coral red berries are borne in depending clusters and are freely produced. A very showy shrub. Shown by the Hon. Vicary Gibbs, Aldenham House, Elstree.

Pyrus Aucuparia munda subarachnoideum.—An interesting form of the Mountain Ash bearing clusters of white berries. Shown by the Hon. Vicary Gibbs.

Berberis Tom Thumb.—This should prove an interesting and useful plant for the rock garden, as it is of dwarf, dense habit, attaining barely one foot in height. The parents are B. aggregata and B. Wilsonae, and the influence of both those species is evident in the progeny, but how the stunted growth arises is not so evident. The berries are coral-red, much like those of B. Wilsonae, but not so freely produced, nor is the plant so graceful. Shown by Mr. Sydney Morris, Earlham Hall, Norwich.

Scolopendrium vulgare ramo-crispissimum conglomeratum.—A dense-habited variety of the old Hart's Tongue Fern. The fronds are short, broadened, crisped and crested. Shown by Mr. Amos Perry.

Scolopendrium vulgare muricatum fimbriatum capitatum.—In this variety the long fronds are so crisped that the folds of the frondage overlap. There is also a tasselled crest. Shown by Mr. Amos Perry.

Groups.

The most important exhibit in the hall, both as regards size and general attraction, was the large collection of specimens of hardy trees and shrubs displayed by the Hon. Vicary Gibbs (gr. Mr. E. Beckett, V.M.H.), Aldenham House, Elstree. Naturally it was the species with gorgeously-coloured autumn foliage that demanded first attention, and of the great number of these the most showy were the branches of Rhus toxicodendron, the "Poison Ivy," on which, wisely, was placed a card warning visitors not to touch. Large specimens of Japanese Maples, Rhus Cotinus and Amelanchier canadensis also bore brilliant autumnal colouring. A great many berried shrubs, principally Cotoneasters and Berberis, together with the Snowberry and a number of ornamental Crabs added to the attraction. In the centre there was a large specimen of the uncommon Rhamnus alaternus variegata, while the coral flowers of Erythrina Crista-galli and the large hips of Rosa Moyesii deserved the admiration they received (Gold Medal).

Adjoining this large collection of shrubs Mr. Amos Perry arranged a fine collection of Hart's Tongue Ferns. It was said that the collection embraced 250 distinct varieties, and its extent supported that statement. Scolopendrium vul-

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gare is, notoriously, the most variable of all Ferns, and on the present occasion there were to be seen almost every possible variation from the plain, sword-shaped, shining green fronds of the species. Some were so crinkled and crested as to have quite a Parsley-like appearance, others were simply crested at the tip, others, again, had gracefully waved margins to the fronds, surmounted by prettily waved tips, while a few were of rapier slenderness. But, no matter their form, all bore a family likeness and were full of charm and interest (Silver-Gilt Banksian Medal).

Another welcome exhibit amongst the sea of Michaelmas Daisies was the splendid collection of Nerines staged by Messrs. BARR AND SONS. They included several excellent seedlings, as well as a great variety of named sorts. The giant amongst them was appropriately named Hero, and it may briefly be described as being a greatly glorified Nerine Bowdenii of most lovely pink colour. It is said to produce spikes nearly 3 ft. high and, withal, is quite free from coarseness. Dainty, Prince of Orange, Sardinia and Felicity are other charming varieties, while for brilliance of colour none eclipsed that of the older N. Fothergillii major (Silver Banksian Medal).

Dahlias were shown in considerable numbers, and in very fresh condition. Mr. J. T. WEST staged many of his highly decorative small Paeony-flowered varieties, as well as Collerettes and garden Singles (Silver Flora Medal). Mr. CHARLES TURNER had, along the front of his collection of Dahlias, many of the best Pompons, and the vases of these presented a very charming appearance. He also included many of the graceful Paeony-flowered type, both large and miniature (Silver Flora Medal). Mr. J. B. RIDING set up a representative collection of many varieties, chiefly such as are of decorative value in the garden and as cut flowers for vases, and these presented a most attractive appearance (Silver-Gilt Banksian Medal). Mr. A. J. COBB had several vases of Reading Star, a glorious, scarlet-crimson variety, also a vase of Sweet, which was selected for trial at Wisley.

Roses in fresh and bright condition were staged by several growers. Mr. W. E. CHAPLIN included good vases of Los Angeles, The Queen Alexandra Rose, and Mrs. Henry Morse (Silver Flora Medal). Chief amongst the varieties shown by Messrs. F. CANT AND CO. were Emma Wright, Old Gold and Christine (Silver Banksian Medal). Mr. E. J. HICKS had a beautiful vase of the new H.T. America, with W. F. Dreer and David Lloyd George (Silver Banksian Medal). The Rev. J. H. PEMBERTON included Nur Mahal, Mary Monro and The Adjutant in his collection (Silver Flora Medal).

In a large collection of Chrysanthemums Messrs. KEITH LUXFORD AND CO. included a great many of the early-flowering varieties, which are suitable for growing as sprays. These included Verona, Dick Barnes, John McAlpine, Mrs. G. K. Thorpe and Perle Chatillonaise (Silver Flora Medal). Mr. W. F. GULLICK staged his good yellow sport from Almirante.

Michaelmas Daisies were almost unduly prominent amongst the hardy border flowers, though a great many desirable varieties were on view. Against the wall just inside the entrance Mr. H. J. JONES arranged a large collection with considerable skill: he had tall stands of such sorts as Pink Perfection, Maggie Perry, Louvain, Framfield, Elsa, Henry Adams and similar varieties were repeated in lower baskets of bloom (Silver-Gilt Flora Medal). Numbers of new and recent varieties were displayed by Mr. E. BALLARD. These included Maid of Colwall, white; Beauty of Colwall, blue; Mother of Pearl, of pearl-pink sheen, and the dwarf Little Pink Lady (Silver Flora Medal). Messrs. WATERER, SONS AND CRISP included the beautiful blue Salvia uliginosa and Elsholtzia Stauntonii with their Asters (Silver Flora Medal). Messrs. B. LADHAMS, LTD., had a number of valuable tall Lobelia hybrids (Silver Flora Medal). Hardy border flowers were also staged by Messrs. CARTER PAGE AND CO., Mr. W. WELLS, jun., Mr. F. G. WOOD, Messrs. J. CHEAL AND SONS, Messrs. W. CUTBUSH AND SONS, Mr. G. W. MILLER (Bronze Flora Medals), and Mr. H. VIGERS (Bronze Banksian Medal).

Messrs. KELWAY AND SON showed good spikes of Gladiolus, chiefly of the large-flowered hybrids (Silver Flora Medal), while Messrs. LOWE AND GIBSON had mostly Primulinus hybrids.

A goodly batch of Zonal Pelargonium (Bedding Geranium) Rossway Crimson was exhibited by Sir G. F. HADDEN, Berkhampstead (Bronze Flora Medal), Messrs. ISAAC HOUSE AND SONS again showed a collection of their perennial Scabious (Silver Flora Medal).

The Misses ALLEN-BROWN (Bronze Banksian Medal) and Mr. B. PINNEY showed collections of Violets, and Messrs. REAMSBOTTOM AND CO. had good blooms of St. Brigid Anemones (Bronze Flora Medal).

Carnations in quantity and of good quality were staged by Messrs. ALLWOOD BROS., who had large vases of Wivelsfield Apricot, Edward Allwood and Saffron (Silver Flora Medal). Mr. C. ENGELMANN included Laddie, Surprise and Saffron in his good collection (Silver Banksian Medal), while Messrs. STUART LOW AND CO. gave the most prominent position to their variety White Pearl (Silver Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. C. J. Nix (Chairman), J. Cheal, Geo. Tinley, H. S. Rivers, G. Woodward, S. B. Dicks, W. F. Giles, J. Basham, W. H. Divers, E. A. Bunyard, Ed. Beckett, H. V. Taylor, G. Reynolds, H. N. Rawes, H. Markham, A. Metcalfe, E. Neal, A. Bullock and P. C. M. Veitch.

Several seedling Apples were exhibited for award, but none was considered worthy. A very fine culinary variety named Victory, a cross between Blenheim Pippin and Bismarck, was past its best, and as it is included in the commercial trials at Wisley, it was decided to await the results of its behaviour in the trials. A large Turnip named Golden Cross, stated to be raised between Golden Ball Turnip and Best of All Swede was considered too big for garden purposes. It is like Purple Top Aberdeen Turnip grown by agriculturists.

A large fruit of Lagenaria vulgaris was shown by VISCOUNT ST. CYRES, Walhampton, Hampshire (gr. Mr. W. Honess), and it was recommended for the consideration of the Scientific Committee. Mr. Dicks stated that certain Lagenarias were popular in America as cooked vegetables. A very showy Apple named Loddington Pippin was exhibited by Mr. G. WOODWARD. In shape and colour it somewhat resembles Worcester Pearmain, and is a good variety to succeed that sort.

Mr. A. H. WALDE, Putney, showed a fruit of Pitmaston Duchess Pear weighing one pound fourteen ounces.

Exhibits of Apples were shown by Messrs. DANIEL BROS. (Bronze Hogg Medal); Mr. E. J. PARSON (Bronze Hogg Medal), and Mr. O. M. COURAGE, Crawley (Silver Hogg Medal).

Six dishes of Morello Cherries were shown by Major-General HADDEN.

Messrs. SUTTON AND SONS were awarded a Silver Knightian Medal for a collection of Celeries, Lettuces and Celeriac. The Celeries were exceptionally fine, especially Superb Pink, Giant Red, White Gem and Giant White, the last a new variety. The Lettuces included fine heads of Heartwell, Ideal, White Heart and Sutton's Mammoth Cos.

TRIALS AT WISLEY.

THE following awards have been made by the Council of the Royal Horticultural Society to Currants after trial at Wisley:—

Red Currants.

AWARD OF MERIT.

Perfection, sent by Messrs. LAXTON BROS.

HIGHLY COMMENDED.

Comet, sent by Messrs. LAXTON BROS. and Messrs. T. HARRAWAY AND SONS; and Fox's New Red, sent by Messrs. LAXTON BROS.

COMMENDED.

Houghton Castle, sent by Messrs. T. HARRAWAY AND SONS; Southwell Red, sent by Messrs. MERRYWEATHER AND SON; Bridgeford Red, sent by Messrs. MERRYWEATHER AND SON; Littlecroft Beauty, sent by Mr. G. G. WHITELEGG. The award to Littlecroft Beauty was made for its cropping qualities, but on the understanding that this variety is suited for growing only in sheltered places.

White Currants.

AWARD OF MERIT.

White Versailles, sent by the ROYAL HORTICULTURAL SOCIETY.

Black Currants.

HIGHLY COMMENDED.

Hatton Giant, sent by Mr. H. JONES.

Trial of Spring-sown Onions.

The following awards have been made to spring-sown Onions after trial at Wisley:—

AWARDS OF MERIT.

Silver Globe, sent by Messrs. BARR AND SONS; *Anglo-Spanish* (sent as Giant Zittau), sent by Mr. HEINEMANN; *Premier*, sent by Messrs. DICKSON AND ROBINSON; *Rousham Park Hero*, sent by Messrs. WATKINS AND SIMPSON.

HIGHLY COMMENDED.

Rousham Park Hero selected, sent by Messrs. BARR AND SONS; Maincrop, sent by Messrs. DOBBIE AND CO.; White Spanish (sulphur-yellow type), sent by Messrs. COOPER, TABER AND CO.; Ailsa Craig, sent by Mr. MORSE; Cranston's Excelsior, sent by Mr. A. DICKSON; Bedfordshire Champion, sent by Messrs. WATKINS AND SIMPSON and Messrs. BARR AND SONS; Density, sent by Mr. A. DAWKINS; Golden Globe, sent by Messrs. DOBBIE AND CO.; Ohio Yellow Globe, sent by Mr. MORSE; Ohio Yellow Globe (sent as Danvers Yellow Globe), sent by Messrs. NUTTING; Up-to-Date, sent by Mr. A. DICKSON; Australian Brown, sent by Mr. MORSE; Red Flag, sent by Messrs. J. KELWAY AND SON; White Portugal (silver white), sent by Mr. MORSE; Covent Garden Silver-Skinned, sent by Messrs. BARR AND SONS; Ailsa Craig (but of Prize-taker type), sent by Messrs. COOPER, TABER AND CO.

COMMENDED.

White Spanish (French seed, straw-coloured), sent by Messrs. COOPER, TABER AND CO.; Giant Zittau, sent by Messrs. WATKINS AND SIMPSON.

Trial of Runner Beans.

The following awards have been made to Runner Beans after trial at Wisley:—

AWARDS OF MERIT.

Bounteous, sent by Messrs. DICKSON AND ROBINSON; *Prizewinner*, sent by Messrs. J. KELWAY AND SON; *Colossal*, sent by Messrs. DICKSON AND ROBINSON; *Czar*, sent by Messrs. TOOGOOD AND SON.

HIGHLY COMMENDED.

Scarlet Emperor, sent by Messrs. W. H. SIMPSON AND SONS; Sir Douglas Haig, sent by Messrs. KELWAY AND SON; Prizewinner (dark selection), sent by Mr. W. J. UNWIN; Czar, sent by Messrs. KELWAY AND SON and Messrs. W. H. SIMPSON AND SONS; White Emperor, sent by Messrs. A. DICKSON AND SONS.

Trial of Cucumbers.

The following awards have been made to Cucumbers after trial at Wisley. The following list is supplementary to that already issued:—

AWARDS OF MERIT.

Blair's Prolific, *Telegraph* (Rollison's), *Every-day*, these three sent by Messrs. BARR AND SONS; *Perfection Ridge* (Ridge var.), sent by Messrs. WATKINS AND SIMPSON.

HIGHLY COMMENDED.

Lockie's Perfection, sent by Messrs. WATKINS AND SIMPSON and Messrs. BARR AND SONS; Ideal, sent by Messrs. BARR AND SONS; Ideal, sent by Mr. DICKS; Jasper Queen, sent by Mr. G. CARPENTER, Byfleet; Sensation (Ridge var.), sent by HEINEMANN.

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COMMENDED.

X L All, sent by Messrs, BARR AND SONS; Telegraph Improved, sent by Messrs. W. H. SIMPSON AND SONS.

Trial of Climbing French Beans.

The following awards have been made to Climbing French Beans after trial at Wisley:—

AWARDS OF MERIT.

Phenomene, sent by Messrs. WATKINS AND SIMPSON; *July*, sent by Messrs. J. CARTER AND Co.

HIGHLY COMMENDED.

Mont d'Or and Delicatesse, both sent by Messrs. BARR AND SONS.

NATIONAL CHRYSANTHEMUM.

The Floral Committee met at the R.H.S. Hall on Monday, October 15. A few novelties were forthcoming, but only one award was made.

FIRST-CLASS CERTIFICATE.

Chrysanthemum Dr. Jacobs.—This showy Japanese variety gained a certificate in December, 1922 as a decorative variety, and was then classed as II.i.b.; it has now been found that the variety is equally valuable as an exhibition sort, and may be grown to large size, therefore its true classification is II.i.a. The colour is crimson, with dull gold reverse. Shown by Messrs. KEITH LUXFORD AND CO.

The Executive Committee met during the evening and completed arrangements for the November show. After the usual business Mr. R. B. Leach opened a discussion on "Has the Japanese Chrysanthemum reached the limit of floral development?" A very interesting discussion ensued in which it was agreed that the limit of size had been reached but that in regard to colour, colour shades, ease of culture and fragrance, there was room for and the possibility of further progress.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THURSDAY, October 4.—Committee present: The Rev. Cromhleholme (in the chair), Messrs. R. Ashworth, W. Heesley, J. Birchenall, J. Evans, A. Burns, A. Coningsby, D. A. Cowan, J. Cypher, A. G. Ellwood, W. Giles, A. Hanmer, J. Howes, A. Keeling, D. Losh-Thorpe, D. McLeod, F. K. Sander, E. W. Thompson, J. Whitham and H. Arthur (Sec.).

FIRST CLASS CERTIFICATE.

Cattleya Hesperus var. Duchess of York (*Enid alba* × *Hardyana alba*), a large, well-shaped flower with pure white sepals and petals, the vividly-coloured lip having a white margin and yellow throat. From S. GRATRIX, Esq.

AWARD OF MERIT.

Cattleya Dupreana alba (*Warneri alba* × *gigas alba*) from S. GRATRIX, Esq.

GROUPS.

S. GRATRIX, Esq., West Point (gr., Mr. J. Howes), staged a group for which a Silver-gilt Medal was awarded.

Mrs. BRUCE and Miss WRIGLEY, Bury (gr., Mr. A. Burns), were awarded a large Silver Medal for a group.

Messrs. J. CYPHER AND SONS, Cheltenham, were also awarded a Silver Medal for a group in variety.

GENERAL BULBGROWERS OF HAARLEM.

THE various floral committees of the General Bulbgrowers' Society of Haarlem have made the following awards to Gladioli during July and August.

FIRST CLASS CERTIFICATES.

Gladiolus Lilac Wonder. A soft pink-violet variety, with a purple blotch.

G. Quo Vadis. A light salmon-pink variety, with carmine stripes.

G. primulinus Psyche. The colour is orange-red, with a velvet blotch.

G. primulinus Vinula. A clear carmine variety.

AWARDS OF MERIT.

Gladiolus Circe. A mauve flower with a dark centre and white border.

G. Herbstzauber. A salmon-pink variety.

G. Imperator. The flowers are creamy-white to ivory-white; the stamens also are white, but the pollen is coloured mauve.

G. Mr. C. P. Alkemade. Ivory-white.

G. Red Star. A velvet-red variety, with a brown sheen.

G. Veilchenblau. A very fine mauve-coloured variety, with a clear centre.

G. nanus King of Spain. A light scarlet variety, with small white spots which have a purple border.

G. primulinus grandiflorus Flaming Sword. A clear vermilion variety, with scarlet stripes.

G. primulinus Rosaura. The colour is pink, with a vermilion centre.

G. primulinus Wilhelmina Regina. Of soft apricot colour; a small, delicate flower.

Lilium pseudo-tigrinum. The colour is orange, with purple falls.

ROYAL CALEDONIAN HORTICULTURAL

OCTOBER 2.—The ordinary monthly meeting of this Society was held at 5, St. Andrew Square, Edinburgh, on this date, Mr. W. J. Thomson, vice-president, in the chair. A lecture was delivered by Mr. T. Cuthbert Day, F.R.S.E., on "The Chemistry of Plant Life," illustrated by lantern slides and experiments. He pointed out how the unusual and exceptional often played an important part in plant life. In the last resort, vegetation must support itself from what it can obtain from the air—water and carbon; and it was in the green leaf that the sun's rays found a meeting-place with the organic and the inorganic, and in collaboration with the chlorophyll effected the decomposition of the water and carbonic acid, and thus produced organic food for the plant and gave back free oxygen to the atmosphere.

The exhibits were:—Dahlias, from Messrs. DOBBIE AND CO., LTD.; Potatos, from Mr. COVENTRY, and a new early-flowering Chrysanthemum named T. D. Grieve, from Messrs. WOOD AND MILLIGAN, Corstorphine, which received an Award of Merit.

READING AND DISTRICT GARDENERS' SOCIETY.

THE first fortnightly meeting of the winter session of this Association was attended by 120 members. Mr. A. H. Fulkes presided. Mr. A. J. Cobb, of the University College, Reading, gave his second lecture on "Garden Roses," taking for his theme on this occasion the pruning of the various types. He said that to be successful in pruning one should fully understand the characteristics and growth of the several types, and proceeded to give some very useful hints on this branch of horticultural work, stating that a fast rule could not be laid down, as different varieties required different treatment. Situations and sorts were also ably touched upon. An interesting discussion followed, and much useful information resulted. Seven new members were elected, including Major Cadogan, M.P.

MR. A. H. FULKER presided over a large attendance of the members at the second fortnightly meeting. Mr. S. G. Smalbridge, a delegate from the Newbury Gardeners' Association, gave an interesting lecture on "Strawberries." In making a new bed he advised digging the ground two spits deep, incorporating manure with each spit and planting yearling plants in rows made 20 inches apart and 15 inches asunder in the rows. He stated that August was the best time for planting, and the duration of a bed should not be more than three years. The best varieties were enumerated, and he dealt also with diseases and manures. A keen discussion followed the reading of the paper.

In a competition for three dishes of Potatos, three distinct varieties, some excellent tubers were shown. There were eight entries, and the judge's awards were as follow:—First, Mr. D. TURNER, Coley Park Gardens, Reading; second, Mr. A. H. FULKER, Elmhurst Gardens, Reading; third, Mr. F. ALEXANDER, Kennett's Lodge Gardens, Theale.

A first-class certificate was awarded to Mr. G. TOVEY, Leighton Park Gardens, Reading, for excellent specimens of Savoys, Brussels Sprouts, and Carrots; whilst an award of merit was given to Mr. H. WYNN, Queen's House Gardens, Goring Heath, for Cos Lettuces. Mr. E. ILES, Brighton Road, Reading, exhibited some well-grown Celery from his allotment, to which the judges called special attention.

Several new members were elected.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE monthly meeting of this Society was held in the R.H.S. Hall on Monday October 8, Mr. Chas. H. Curtis presiding.

Six new members were elected. Two members withdrew interest amounting to £8 5s. 8d.; two lapsed members withdrew their deposits amounting to £8 6s. 1d.; and the sum of £51 4s. 2d., plus £10 funeral benefit, was paid to the nominee of one deceased member. The sick pay for the month on the private side came to £65 9s. 8d., and on the State side to £56 9s.; while maternity benefits amounted to £14.

The sum of £13 12s. was granted to members towards payment for dental treatment.

Final arrangements were made for the annual dinner, and applications for tickets, price 6s. 6d., should be made to the Secretary, 35, Alexandra Road, W.14.

NEWCASTLE HORTICULTURAL.

THE members of this Society held its usual monthly meeting on September 25. Mr. R. E. Richardson presided over a very large company. A paper on "Tomato Culture" was read by Mr. Lewis Richardson. The reading of the paper was followed by an animated discussion.

The society is holding a joint Apple and Chrysanthemum Show on November 9 and 10.

The annual meeting will be held on October 23.

CARDIFF GARDENERS'.

THE first meeting, for the new session, of the above Association was held on the 2nd inst., 42 members being present. Mr. H. Wilkins occupied the chair. The meeting was devoted to a discussion on Potatos in the district. The help offered to horticulture in the district by the "Advisers in Agricultural Botany," in conjunction with the University College of South Wales and Monmouth, has been accepted with enthusiasm by the Association.

TRADE NOTES.

MR. JOHN WALKER, Nurseryman, Thame, offered prizes for Onions and Carrots at the show of the Thame Agricultural Association held on September 20. Prizes of £5, £4, £3, £2, and £1 respectively, were offered for twelve bulbs of Walker's Exhibition Onion, in an open class. The first prize was won by Mr. H. Wheeler, gardener to Mrs. Jenner, Wenvoe Castle, Cardiff; the second prize by Mr. Turnham, gardener to Viscount Hambleden, Greenlands, Henley-on-Thames; the third by Mr. Douch, gardener to W. H. Gardiner, Esq., Thame Park; the fourth by Mr. T. R. Cater, gardener to W. S. Glynn, Esq., The Grange, Bletchley, and the fifth by Mr. Hazell, gardener to the Rev. R. Carew Hunt, Albury.

Mr. Walker also offered prizes for twelve Onions grown by cottager allotment holders, and the first prize in this competition was won by Mr. H. C. Jones. The prizes for Selected Intermediate Carrots were won by Mr. R. Wadham, Mr. Steeple Aston, Mr. Hazell, and Mr. Douch; the last named also won the first prize in the class for six Model Horn Carrots. The Thame Agricultural show is probably the

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largest one-day show in the kingdom, and the sum offered in prizes at the recent show was £1,550.

Messrs. Geo. Monro, Ltd., are taking over the business premises formerly occupied by Messrs. T. Rochford and Sons, in order to cope with their greatly increased business in cut flowers. The premises are situated in one of the busiest parts of the market, at the Wellington Street entrance to Tavistock Street, and they adjoin Messrs. Monro's flower sales department. We understand that Messrs. T. Rochford and Sons are giving up their plant-growing business, but will retain their stands in the market proper.

THE WEATHER.

THE WEATHER IN SEPTEMBER.

The remarkable prevalence of westerly and allied winds continued during September, and northerly to easterly airs were practically absent. As a rule, land winds are frequent in September. The first eleven days were mainly very fine—the normal experience at the beginning of September—but the rest of the month was thoroughly unsettled, a curious outburst of sunshine and heat, however, occurring on the 30th, when the screened thermometers rose to 73 degrees. The mean temperature of the complete month was 54.5 degrees, from hourly statistics, and 54.9 degrees from the maximum and minimum readings, the latter value being only 0.5 degree below the average. No trace of frost was registered, even on the grass. There were 156 sunny hours, or 16¼ more than the normal number. Rain, however, fell on 21 days, or six more than usual; and the total quantity was 3.57 inches in Hesketh Park, Southport, or 0.46 inch above the average; while 3.88 inches fell in Birkdale. Wind movement was 64 miles a day above normal, and the daily range of temperature again exceptionally small. Slight thunderstorms occurred on the 1st and 25th. Gale-force of wind was attained on the 20th. Hail fell on the 22nd. *Joseph Baxendell, Borough Meteorologist, The Fernley Observatory, Southport.*

THE WEATHER IN SCOTLAND.

While the mean temperature for September was almost normal, the month was one of extremes, with a maximum of 53 degrees on the 22nd, and the genial warmth of a premature Indian summer towards the close. Rainfall was in excess of the normal, being 2.35 inches, against 2.08 inches, the month's fall and the normal being each for 14 days; the wettest day was the 18th, with 0.56 inch. The aggregate hours of sunshine were 113.9, an average of 3.8 hours per day and a percentage of 29; there were four sunless days. Barometric pressure was again rather low, the mean being 29.88 inches, the highest, 30.31 inches on the 29th, and the lowest, 29.27 inches on the 18th. The mean temperature was 53°, with a mean maximum of 60° and a mean minimum of 46°; the highest maximum of 69° was on the 30th, and the lowest minimum of 39° on the 20th. On the grass, with a mean of 42°, the lowest minimum of 35° was recorded for the 25th; again there were no nights of ground frost. The vagaries of temperature for the month are well brought out in the readings of the soil thermometer; these began at 55°, rose to 57°, fell to 50°, and rose again to 54°. The prevailing winds were south-westerly, frequently strong, with gales on the 11th and 12th. *John Davidson, Director of Studies, Training College Gardens, Mayfield, Dundee.*

ANSWERS TO CORRESPONDENTS.

Apple Allington Pippin Diseased: *Miss K. F. F.* The specimen you send is very badly affected with silver leaf disease. If it is an isolated case we advise you to grub up the tree and burn it.

Books: *G. P.* The original publishers of *Flowers of the Field*, by the Rev. C. A. John, were the Society for Promoting Christian Knowledge. Since the copyright has elapsed a new edition has been published by Messrs. C. Routledge and Sons, edited by Mr. Clarence Elliott. A good English Dictionary which we recommend is the *Concise Oxford Dictionary*, published by the Oxford University Press, price 7s. 6d.

Bulbs in the Axil of Lily Leaves: *Orchid, Fal.* Swollen buds which develop in the axils of the leaves of certain Lilies are in the nature of bulbs, and have no relation whatever to seeds. They are termed bulbils or bulbules, and may be utilised for purposes of propagation. They should be detached when ripe, and inserted in shallow seed pans or boxes, and later, when the seedlings need more room, transplanted either in other boxes or singly in small pots.

Celery with Pithy Stems: *J. C. W. and S.* The Celery is not affected by organic disease; the pithy nature of the stems is the result of an excess of nitrogenous manure at the roots and earthing up the plants too soon.

Coloured Bean: *W. S. L.* The variety is known as the Purple-Podded Bean, and is sometimes seen in collections of vegetables exhibited by traders.

Gardener's Lodge: *George.* If your housing accommodation constitutes part of your remuneration, your employer is entitled to give you notice to leave it; if you do not accede to his request, he can take ejectment proceedings in the local county court. This would take time, and even then it would be for the judge to use his discretion as to whether he should make an order for immediate possession. Gardeners and agricultural workers do not come under the Unemployment Act, and therefore are not entitled to unemployment pay.

Grapes: *C. T.* The vine may be shortened as soon as the foliage has fallen and the buds thoroughly dormant. The best work on Grape growing is *Vines and Vine Culture*, by A. F. Barron, and can be obtained from our Publishing Department, price 5s. 6d. post free.

Grapes Shrivelling: *E. R.* The berries were very imperfectly finished, and the bunch showed a little shanking, due to some check, most probably from over cropping, as you state that you have fifteen bunches on the one rod. Crop the vines lightly next season and admit plenty of air to the vinery when the weather is favourable for ventilation, to cause both berries and growth to be firmer.

Hardy Evergreen Shrubs: *F.* Practically all evergreen shrubs produce flowers, and many of them fruits. If the latter are not desired, they may be removed. Six dwarf evergreens are Berberis candidula, Cotoneaster microphylla, Daphniphyllum humile, Ruscus aculeatus, Buxus sempervirens var. myrtifolia, and Sarcococca saligna. Four evergreens about 5 feet high, suitable for your purpose, are Osmanthus Apuifolium, Ilex cornuta, Euonymus japonicus, and Berberis Aquifolium. These all grow taller with age, but may be kept dwarf by annual pruning.

Hardy Flowering Shrubs: *T. F.* Berberis stenophylla, Olearia Haastii, Veronica Traversii, Philadelphus Virginal, Diervilla Eva Rathke, and Forsythia spectabilis may be recommended for your purpose.

Hybrid Tea Roses for Bedding: *M. T.* It is not easy to name the best six Roses for bedding, but the following are all strong growing and free flowering varieties: Caroline Testout, silvery-pink; Lady Pirrie, coppery-pink; Golden Emblem, yellow; General McArthur, red, sweetly scented; Madame Butterfly, salmon-flesh, shaded rose and yellow; Mme. Jules Bouche, white, sometimes slightly tinted. Madame Abel Chatenay is also very good, while the newer Mrs. Henry Morse is very fine, but very subject to mildew. Red Letter Day is a strong grower and very free. Among the newer Roses Emma Wright, orange, is a fine bedding variety.

Lilium candidum: *Salopian.* It is probable that your Lily plants are affected with disease, most likely Botrytis, and the damp, wet condition in which they are growing would favour the complaint. Your suggestion to remove the bulbs to a drier piece of ground should be followed, and then, when the plants are established, they should be left alone, as the Madonna Lily always does best when the clumps are undisturbed for several years.

Melon Leaves Diseased: *J. A.* The Melon leaves reached us in a condition that rendered investigation of the complaint almost impossible, but we strongly suspect eelworm at the roots as the cause of the trouble. Do not grow Melons in the same pit next season if another house is available for them, and take care to sterilise the soil in which they are planted. We advise you to remove the old compost in which the plants have been grown this year to an out of the way part of the garden and bury it deeply, or if practicable sterilise it by charring.

Names of Fruits: *M. M.* Wealthy.—*G. S.* 1, Mabbot's Pearmain; 2, Norfolk Storing; 3, Sweet Lading; 4, Lincoln Pippin; 5, Twenty Ounce; 6, Bess Pool; 7, Norfolk Beefing; 8, not recognised; 9, Brabant Bellefleur.—*K. F. F.* 1, White Calville; 2, Lord Derby; 3, Old Hawthornden.—*L. M. M.* 1, not recognised; 2, D'Arcy Spice; 3, Reinette Van Mons; 4, Bramley's Seedling.—*J. B., Llandudno.* 1, New Hawthornden; 2, Lord Grosvenor; 3, not recognised; 4, Cox's Pomona; 5, Lane's Prince Albert; 6, Beauty of Kent; 7, Cox's Orange Pippin; 8, Cellini.

Names of Plants: *P. P.* 1 Wellingtonia gigantea; 2, Cupressus Lawsoniana var. Allumi; 3, Juniperus chinensis; 4, Berberis vulgaris; 5, Pernettya mucronata; 6, Thuya Lobbii; 7, Picea pungens glauca; 8, Spiraea ariaefolia; 9, Picea sp. not recognised; 10, Cupressus Lawsoniana variety; 11, Cotoneaster, probably C. applanata; 12, Cotoneaster horizontalis.—*G. R.* Polygonum amplexicaule.—*R. H. M.* Probably Golden Emblem. *K. F. F.* Specimens entirely insufficient for purposes of identification. Primroses very often produce odd flowers in a moist autumn. —*C. T.* Phlomis fruticosus.—*Mrs. M. J. W.* Cineraria maritima.—*J. B., Llandudno.* 1, Cotoneaster Henryana; 2, Olearia stellulata; 3, Hymenanthera crassifolia.—*Salopian.* Æsculus flava.—*G. W.* Myrtus communis.

White or Cream Delphiniums: *R. M. C.* Of the numerous varieties of white and cream Delphiniums, the most satisfactory are: Moerheimii, pure white, with free branching habit; Mikie Ruys, the best of the many whites, having compact, bold spikes of extra large, semi-double flowers, with yellow centre; and Deuil du Genl. Gallieni, the best milky white. All the above are free-flowering.

Communications Received.—J. H. C.—W. S. C., Hillside—W. J.—R. J. R.—C. P.—J. N.—H. W. L. L. —K. McD.—F. W.—H.—H. B.—E. H. W.—K. McD.

GARDENING APPOINTMENTS.

Mr. Henry Cameron, for the past five years Gardener to the Rt. Hon. Earl of Elgin and Kincardine, at Mertoun, St. Boswells, N.B., as Gardener to E. W. Hope-Johnstone, Esq., Raehills, Cockerbie, Dumfries-shire. (Thanks for 2s. for R.G.O.F. Box.—Eds).

Mr. Wm. Green, for the past four years Propagator at Phœnix Park, as Steward and Gardener to Michael Stephens, Esq., Coverwood, Ewhurst, Surrey. (Thanks for 2s. 6d. for R.G.O.F. Box.—Eds.).

Mr. W. Rich, for the past seven years Gardener to the late A. K. Loyd, Esq., K.C., M.P., Downs House, Steventon, Berkshire, as Gardener to R. A. Loyd, Esq., at the same address.

Mr. John E. Davies, previously Gardener to Wyndham D. Clark, Esq., and his late revered father, Godfrey L. Clark, as Gardener at the Miners' Convalescent Home, Talygarn, Pontyclun, Glamorgan, S. Wales. (Thanks for 2s. for R.G.O.F. Box.—Eds.)

Mr. Geo. Perryman, for the past five years Gardener to Sir Clifford J. Cory, Bart., Llantarnam Abbey, Monmouthshire, as Gardener to H. F. Smith, Esq., Didlington Hall, Brandon, Suffolk.

Mr. Louis Chastney, for seventeen years Gardener to the late V. D. Colchester, Esq., J.P., Norton House, Ipswich, as Gardener to F. Tibbenham, Esq., Hill Crest, Paget Road, Ipswich, Suffolk.

Mr. T. A. Botting, for the past four years Second Gardener to James Russell, Esq., Mapleton, Edenbridge, and previously at Bayham Abbey, Tunbridge Wells, as Gardener to Mrs. Norman Cookson, "The Hermitage," Newick, Sussex. (Thanks for 2s. 6d. for R.G.O.F. Box.—Eds.)

Mr. A. Carter, for the past three and a half years General Foreman at Shugborough, Stafford, as Gardener to the Hon. Marshall Brooks, Portal, Tarporley, Cheshire. (Thanks for 2s. for R.G.O.F. Box.—Eds.)

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THE
Gardeners' Chronicle

No. 1922.—*SATURDAY, OCTOBER* 27, 1923.

CONTENTS.

Agricultural conference at High Leigh	245	Obituary—	
Alpine garden	245	Clibran, J. H.	253
Bayley-Balfour memorial garden	241	Paton, R. J.	253
Bulb garden, the—		Yates, J.	253
Darwin Tulips	250	Oglethorpe, General	252
Dahlia, development of the	250	Palms, long-lived	252
Florists' flowers—		Plant note—	
Sweet Peas under glass	247	Cercidiphyllum japonicum	248
French Chrysanthemum Society	244	Potatos, a fine crop of Arran Comrade	252
"Gardeners' Chronicle" seventy-five years ago	245	Primula sinensis	243
Garden notes from S.W. Scotland	248	Reigate Gardeners' Association, coming-of-age celebration of the	244
Glasgow Parks, new assistant-director of the	214	Rose garden, the—	
Hardy flower border—		Rose Léonie Lamesch	249
Chrysanthemum uliginosum	249	Roses, autumn-flowering	252
Hogg, Dr.	252	Shrubs, late flowering	251
Holland Park Hall show	252	Societies—	
Jackson, Mr. Daydon	244	Bristol Gardeners'	253
Jottings on new or rare plants	248	British Mycological	253
Leeds Chrysanthemum show	243	Cardiff Gardeners'	253
		Southport Floral Fete and Water Carnival, 1924	243
		Strawberries, red-plant disease in	252
		Timber of ancient date, British	252
		Week's work, the	246

ILLUSTRATIONS.

Berberis brachypoda var. Gibbsii, fruiting spray of	251
Chrysanthemum Dr. Jacobs	245
Cypripedium Albion, Bodnant variety	247
Jackson, Mr. Daydon, portrait of	244
Rose Phyllis Bide	249

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 46.9°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, October 24, 10 a.m.: Bar. 29.2; temp., 53°. Weather—Bright.

Primula sinensis. The publication of the most recent research* into the genetics of Primula sinensis whets the appetite for more knowledge of this remarkable plant. As the result of the labours of Bateson and his pupils the mode of inheritance of most of the characters possessed by the Chinese Primrose is now well known. Previous work by Bateson and his colleagues has put the student of heredity in a position to predict with confidence what will happen when a Palm-leaved variety is crossed with a Fern-leaved variety; when a sinensis flower is crossed with a "stellata" flower; when "red stemmed" plants are crossed with green-stemmed, or dark-red stemmed varieties, and so on. The present paper fills up gaps in this knowledge and adds to it in various directions. Perhaps the most interesting facts now disclosed are those concerning the genetical relation of the several colour varieties with one another. As is known to those familiar with this plant, P. sinensis exists in a great range of colour variety. The main series of colours is—dominant white, magenta, red, blue, slaty, coral and recessive white. The dominant white variety is remarkable in that whilst its germ-cells carry the factors for colour, the body cells are prevented by reason of the presence of some inhibitor from developing colour in their flowers. The end term of the series is also white; but in this case the absence of colour in the flower is due to the absence of the colour-producing factors in the germ cells. Varieties with magenta flowers have been shown by breeding experiments to possess two factors for colour production—one for red, the other for blue, and the colour of the flower is the resultant of the action of these two factors. When the blue-producing factor is absent the flower is red, and when the red-producing factor is absent it is blue. In the light of these facts, it does not seem probable that the efforts which many plant-breeders have made to produce a perfect blue Chinese Primula are likely to be crowned with success. Even the best of blue Primulas, beautiful though they be, leave something to desire; but inasmuch as they are pure bred to the presence of the blue factor and lack the red factor, it would seem as though Nature has decreed that the azure blue which is the rare possession of certain other flowers is not for Primula sinensis. Most interesting is the discovery announced in the present communication that the good blue and the dingy slaty blue of certain varieties of Chinese Primulas are due to different states of the pigment contained in the epidermal cells of the corolla. In the true blue flowers the pigment exists in solution; but in the dingy or slaty blue it occurs in solid form—a fact which is strikingly shown in the admirable coloured plates which illustrate this paper. This discovery throws light on the nature of the red-producing and blue-producing factors. Each of these appears to possess the power of rendering soluble the pigment of the petals, the red causing it to make a red solution and the blue a blue. When both of these factors are absent, but the pigment is present (in solid form) slatiness of colour results. No less interesting than the elucidation of the genetics of colour is the description given by the authors of the use they made of their genetical discoveries to construct a new variety combining fully coloured flowers with deep claret-coloured leaves—a combination which florists had not succeeded in making. Knowledge of genetics encouraged the late Mr. Gregory to expect that this combination would turn up in one in 6,500 F_2 plants bred from parents carrying certain genetic factors. After the experiment had been continued for some years the long-expected plant arrived and from it the remarkable new variety, Etna, exhibited by Messrs. Sutton and Sons in 1921, was derived. The paper concludes with an account of the history of Primula sinensis; but it unfortunately leaves the knowledge of the origin of this remarkable plant shrouded in mystery. The claims of Wilson's Primula from China, now known as P. calciphila, to be the wild prototype are dismissed. But where the Chinese Primula grew before it was imported by Captain Richard Reeves, soon after 1819, "from gardens" at Canton, remains unknown. The authors are not disposed to regard P. sinensis as of hybrid origin, and yet, though China has been well explored, no wild P. sinensis has been discovered. Soon after its advent in this country, the Chinese Primrose began its spectacular course of variation, a second importation of seeds occurred a little before 1826, when seeds were brought by Mr. Potts, and already, in 1826, Lindley described stellata and sinensis varieties. It appears certain that the originally-imported plants possessed already all the dominant characters, sinensis habit of flower, Palm leaf and magenta colour. Since its arrival, P. sinensis has developed others, the dominant white flower, the origin of which is unknown, and the white eye introduced by MM. Vilmorin about 1902. In the course of its sojourn here, P. sinensis has sported in various directions. Giant forms both of sinensis and of stellata type have appeared, and with respect to the latter it may be of interest to mention that large-petalled stellata flowers, massive enough to be called Giants, now being grown by Messrs. Sutton, originated with the present writer in the course of a series of selections of normal-sized stellata flowers exhibiting supernumerary petals—six instead of the normal five. Though variation by gain of factors appears to have been rare, variation by loss has occurred frequently. The recessive stellata form appeared early. Long-styled forms (which are recessive to thrum-styled) also arose long ago, and for some reason or other were so much preferred that the thrum-eyed variety became extremely rare. Duchess, very beautiful, though apparently somewhat unstable, appeared long ago. In it the dominant white is, as it were, broken up, being confined to the periphery of the corolla, the inner area of which is of a reddish colour. Fern-leaf also appeared early, and at late periods, Oak-leaved, Ivy-leaved and crisped forms have made their appearance. Blues, which, as described already, are recessive to other colours, and the large yellow eye—the Primrose-green eye—are later acquisitions of a recessive nature. So, too, is Coral, a plant which arose with Messrs. Sutton as a colour sport from Crimson King. What may be the antecedent history of this Melchizedek among plants? Without known father or mother, with no wild representative, unable, so far as may be discovered, to cross with any other species! Is it unique among plants in its remarkable genetic history, or is some hybrid origin reflected therein? These are questions it is impossible not to ask, and, unfortunately, as impossible to answer.

* Genetics of Primula sinensis. By the late R. P. Gregory, Miss D. de Winton and W. Bateson. *Journal of Genetics*. 13, 2. August, 1923.

Leeds Chrysanthemum Show.—The Leeds Paxton Society will hold a Chrysanthemum show in the Town Hall, Leeds, on November 16 and 17, in aid of the funds of the Leeds General Infirmary. Substantial prizes are offered in fifty-six classes, and in addition to Chrysanthemums there are classes for fruits and vegetables and two for children attending the elementary schools of Leeds. The latter are for dried mounted specimens on nature study in relation to wild flowers and insect life, and for an individual collection of leaves and berries or plant life and insects. Gold, silver, and bronze medals are offered for trade exhibits, and prizes of £10, £6 and £4 respectively are offered in an open class for twenty-four Japanese Chrysanthemums. In a local class for a group of Chrysanthemums, the prizes offered are £6 6s., £4 4s., and £3 3s. respectively. We understand that an excellent exhibition is anticipated. The secretary is Mr. R. B. Russell, 45, Great George Street, Leeds.

Southport Floral Fete and Water Carnival, 1924.—The proposal to hold a big Floral Fête and Water Carnival in Southport next August was very favourably received by the Parks and Foreshore, and the Advertising and Band Committees of the Southport Corporation at their recent meetings. As already announced, it is intended that the Fête shall be on the lines of the famous Shrewsbury Flower Show, and that it shall be held during the week after that event. Although the dates have not been definitely fixed, they will probably be Wednesday, Thursday, and Friday, August 27, 28 and 29. The exhibits will be housed in a huge marquee covering about an acre of ground in the Victoria Park, alongside which runs Southport's famous half-mile flower border—a most appropriate setting for a Floral Fête. It is proposed to offer prizes to the value of about £1,500, including nine silver challenge trophies, four or five of which will be of the value of

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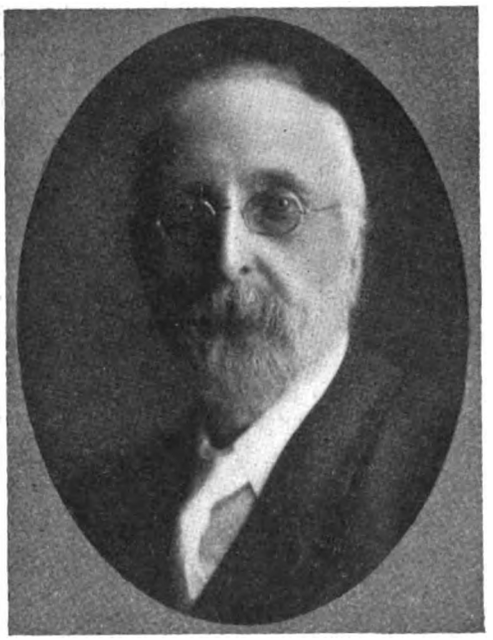
£50 each, and the remainder of the value of £25 each. Three of the trophies have already been offered by the Southport Amusements, Limited, and Councillors Winterbottom and Lean. Although the schedule has not yet been definitely decided upon, the challenge trophies will probably be allotted to classes for rock or water gardens, fine foliage plants, Carnations, fruit, hardy flowers, Roses, Sweet Peas, Dahlias, and early-flowering Chrysanthemums. The Horticultural Society of the London, Midland and Scottish Railway (Northern Division), which last August held a successful flower show in the Victoria Park, Southport, will be invited to hold their 1924 show in conjunction with the Southport Floral Fête. The proposals include the holding in the evenings of a Water Carnival on the Marine Lake adjoining the Marine Parks, concluding with displays of fireworks. The inauguration of a huge annual floral fête during the Mayoralty of Mr. Alderman Aveling (who for the past three years has been the Chairman of the Parks and Foreshore Committee) will be peculiarly fitting, and should certainly do much to enhance Southport's reputation for splendid floral displays.

National Sweet Pea Society.—The annual general meeting of the National Sweet Pea Society will be held in the Lecture Room, Royal Horticultural Hall, Vincent Square, Westminster, London, S.W., on Tuesday, October 30, 1923, commencing at 2.15 p.m.

Bayley-Balfour Memorial Garden.—A short time before he retired from the position of Regius Keeper of the Edinburgh Botanic Garden, the late Sir Isaac Bayley-Balfour had in mind the establishment of a garden for the cultivation of Rhododendrons and other newly imported plants from China, and hoped that such a garden would be established on one of the estates acquired by the Forestry Commission. Later, and after his retirement from Edinburgh, a site was selected in Glenbranter Forest, Argyllshire. This received his hearty approval, and by arrangement between His Majesty's Office of Works and the Forestry Commission consignments of plants were sent there from the Edinburgh Botanic Garden. We learn that an area of fifty acres has been definitely set apart for this garden, and will be under the superintendence of the Regius Keeper of the Edinburgh Botanic Garden, and the hope is expressed that it will be called the Bayley-Balfour Arboretum or Bayley-Balfour Memorial Garden. It is also suggested that there should be a rest house for the use of visitors to Glenbranter, but the size of the building will be subject to the amount of funds forthcoming. In any case, endeavour will be made to provide simple accommodation for visitors who wish to spend several days at Glenbranter. We sincerely hope that this proposal to commemorate Sir Isaac Bayley-Balfour will appeal to those who entertained a high regard for his great ability. A small executive committee has been appointed to carry out the proposals, consisting of Sir John Stirling Maxwell, Pollok House, Pollokshaws; Professor W. Wright Smith, Royal Botanic Garden, Edinburgh; Mr. F. R. S. Balfour, Dawyck, Stobo; and Mr. John Sutherland, 25, Drumsheugh Gardens, Edinburgh, who is acting as honorary secretary and treasurer, and to whom subscriptions should be sent.

Coming-of-Age Celebration of the Reigate Gardeners' Association.—To celebrate the completion of twenty-one years' work, the Reigate and District Gardeners' Mutual Improvement Association held a coming-of-age dinner at the Warwick Hotel, Redhill, on Friday, the 12th inst. Sir Jeremiah Colman, Bt., the President of the Association, presided, and there was a splendid attendance of members and friends. In proposing "Continued Success to the Association," Sir Jeremiah Colman observed that the Association was one of the principal institutions of the neighbourhood, and, in addition to furthering and encouraging horticulture and extending a knowledge of horticultural procedure, it came forward as a body and made a collection for the East Surrey Hospital. The result was a splendid success, and, though there still remained a considerable sum necessary to endow a bed at the Hospital, he was sure the Society would soon set to work to complete the noble sum of £1,000. Sir Jeremiah referred to the fine work done on behalf of the Association by the first Chairman, Mr. W. P. Bound, to whom the members owed a deep debt of gratitude, and to Mr. J. Collier, the present Chairman. Continuing, Sir Jeremiah said that, now the Association was twenty-one years of age, and as he was one of its fathers, doubtless the members "would be able to part with control and look for another President," but the meeting emphatically vetoed Sir Jeremiah's implied suggestion of retirement. Brig.-Gen. G. K. Cockrill, the member of Parliament for the division, Mr. J. Collier, Alderman Crosfield, Mr. W. Burgess, Mr. P. Sherlock, and Mr. W. Rose (Hon. Secretary) were other speakers on this auspicious occasion.

Mr. B. D. Jackson.—Mr. Benjamin Daydon Jackson, the popular Secretary of the Linnean Society, is well known to many of our readers, if not personally, at least through his numerous writings on botany and his work in connection



MR. B. DAYDON JACKSON.

with the premier botanical Society of the country. Mr. Jackson is a native of London, and, like many others who have attained eminence in some special branch of science, he commenced the study of plants as a result of a special happening, for he became interested in the subject when recovering from an illness at a country home in Sussex in 1865. He quickly became absorbed in botany and in a few years—1876—he published his work on John Gerard, under the title of *A Catalogue of Plants Cultivated in the Garden of John Gerard*, a review of which, extending to over three columns, was given in *Gard. Chron.*, July 8, 1876, and the notice concluded with the hope "that Mr. Jackson may be induced to continue his researches into the history of botany in England, and that others of our early writers may receive as much attention at his hands as he has here bestowed upon John Gerard." Before this, in January, 1868, he was elected a Fellow of the Linnean Society; in May, 1880, he was appointed secretary and became general secretary in 1902. It is to such men as Mr. Daydon Jackson that the Linnean Society owes its pre-eminence among the learned institutions of this country. A response was soon made to the wish cited above, for in 1877 he published *Turner's Life and "Libellers,"* and other works issued from his pen include *Guide to the Literature of Botany*, in 1881; *Vegetable Technology*, in 1882; General Index to *Journal of the Linnean Society*, 1888; *Glossary of Botanic Terms*, 1900; *Life of George Bentham*, 1906; *Index to the Linnean Herbarium*, 1912; and he also edited the late A. R. Fryor's *Flora of Hertfordshire*, and the late C. B. Clarke's *New Genera and Species of Cyperaceae*, 1908, and *Illustrations of Cyperaceae*, 1909. But perhaps Mr. Jackson's most monumental work was the editing of *Index Kewensis*, under the direction of the late Sir Joseph D. Hooker. This occupied Mr. Jackson and his assistants fourteen years, and he was also responsible for the Supplements, 1886-1895. Mr. Jackson is a Knight of the Polar Star and Hon. Ph.D. of Upsal University, honours which prove that his abilities and contributions to botanical history and knowledge are recognised far beyond our own shores.

Mr. A. C. Smith.—We learn with very great regret that Sir Henry and Lady Samuelson have decided to close their beautiful establishment at Hatchford Park, Cobham, Surrey, owing to the prolonged illness of the former. This releases Mr. A. C. Smith, who for the last ten and a half years has had charge of the estate, and whose long and varied experience has fitted him for any important position of a similar character. Our readers will remember that Mr. Smith was formerly Assistant Superintendent of the Royal Horticultural Society's Gardens at Wisley, and previous to that was in charge of the gardens at Lyndhurst, Haywards Heath, and for six years gardener and forester at Edenhall, Langwathby, Cumberland.

New Assistant Director of the Glasgow Parks.—We learn with pleasure that Mr. William Besant, until recently Curator of Kelvingrove Park, Glasgow, has been appointed Assistant Director of Parks and Open Spaces, under the Corporation of the City of Glasgow.

French Chrysanthemum Society.—The annual congress of this society will take place at Limoges from the 4th to the 8th November. It will be held in conjunction with an International Horticultural Exhibition organised by the local horticultural society. The schedule is divided into eight sections, with classes for new seedling Chrysanthemums, pot plants and cut blooms, fruit and fruit trees, market gardening, ornamental trees, shrubs and plants of various kinds, and floral art and industries. An art section will also be a feature of the show. The festivities include on November 3 a reception at the Town Hall. On November 4 judging will commence early, followed by a luncheon and the opening of the show and congress. In the evening of that day a banquet will be given to the jury and others connected with the gathering. On November 5 there will be a further meeting of the congress in the morning, then an excursion and luncheon at Aixe. Places to be visited are Solignac, the Abbey, the Chalusset Towers, and the farm of M. Le Play. In the evening there will be a performance at the municipal theatre. The morning of November 6 will be devoted to a visit to the various local porcelain, enamel, and other factories for which Limoges has so long been noted. The agenda for the congress includes such subjects as the Botanical Aspects of the Crown and Terminal Buds; Progress in Fertilisation; Selection of the Best Varieties, Old and New, for Market Plants; Diseases; Sports and the Question of International Priority Regarding Them; and Propagation Other than by Seed. Medals will be awarded to the best papers. Further information may be obtained from Mr. Harman Payne, Foreign Secretary, N.C.S., 195, Wellmeadow Road, S.E.6.

Markets Harvest Festival.—On Sunday, the 21st inst., the interesting annual harvest festival of the Billingsgate and Leadenhall Markets was held at St. Dunstan's-in-the-East Church, Great Tower Street, London. Flowers, fruits, corn, and fish-nets were used to decorate the church, while on a long table the gifts of the market traders were displayed, including a great variety of fish, poultry, fruits, and vegetables. At the close of the service, conducted by the Rev. A. G. West, the gifts were sent to Guy's Hospital.

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Agricultural Conference at High Leigh, Hoddesdon.—The War and Social Order Committee of the Society of Friends has arranged a Conference, to be held on November 2-5 inclusive, at High Leigh, Hoddesdon. The subject for discussion is "The Problem of Agriculture." Dr. B. A. Keen, Assistant Director, Rothamsted Experimental Station, will discuss "The Historical Aspect of Agriculture"; Mr. Montague Fordham will place "The Economic Aspect of Agriculture" before the Conference; while Mr. J. Hunter Smith, Director of Hertfordshire County Council Agricultural Institute, will open a discussion on the "Possibilities of Development in Agriculture"; and on Sunday evening, November 4, Mr. J. Nugent Harris will deal with "The Human Aspect of Agriculture." The fees for this Conference, from Friday evening, November 2, to Monday morning, November 5, including meals will be £2 2s. The Conference programme will include an excursion to Welwyn Garden City in the afternoon of Saturday, November 3. Full particulars may be obtained from Miss M. E. Thorne, Devonshire House, 136, Bishopsgate, E.C.3.

New Zealand Plants.—Mr. Herbert Baillie, of Wellington, N.Z., informs us that a new edition of Cheeseman's *Flora of New Zealand* is nearly ready for publication, and that Dr. Cockayne, F.R.S., is publishing what should be a very useful book for gardeners, *The Collection and Culture of New Zealand Plants*. Dr. Cockayne is an enthusiastic gardener in addition to being a noted botanist.

Chrysanthemum Shows in the London Parks.—Exhibitions of Chrysanthemums are now open in the following London County Council Parks: Battersea Park, Finsbury Park, Southwark Park, Victoria Park and Waterlow Park.

Appointments for the Ensuing Week.—Tuesday, October 30: Royal Horticultural Society's Committees meet (two days); Bournemouth Horticultural Society's show (two days). Wednesday, October 31: Eastbourne Horticultural Society's show (two days); Croydon Chrysanthemum Society's show; Highgate and District Chrysanthemum Society's show (two days); Haywards Heath and Mid-Sussex Horticultural Society's show; Mitcham, Tooting and District Horticultural Society's meeting; Lewes and District Horticultural Society's meeting. Thursday, November 1: National Chrysanthemum Society's show (two days); Taunton and District Chrysanthemum and Fruit Society's show. Friday, November 2: Corn Exchange Chrysanthemum show. Saturday, November 3: Blackburn and District Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Growing Plants in Nutshells.* Those who are interested in the nutshell culture of plants will find the present time favourable for commencing operations. Choose for the purpose some nice little short-jointed, half-ripened cuttings, which are generally to be found on branches that have been much exposed to the wind. The remark applies to Verbenas, Roses, Pelargoniums, Fuchsias, or other favourites. Pinch off the bottom leaves, and insert the cutting about half way up in silver sand. Place them in a little bottom heat, and tilt up the light so that they may enjoy a full current of air, and keep them moderately dry. When they have made their first roots, which will be in about three weeks, take them out carefully and plant them firmly in the nutshells for their winter quarters. The soil best adapted for plants in nutshells is a thoroughly decomposed vegetable manure, mixed with silver sand. A single, or what is called a one-light frame, will be quite sufficient to accommodate a moderate collection of plants. The frame should be four feet by three, and about two feet deep. *W. P., Gard. Chron., October* 21, 1848.

Publications Received.—Research and Advisory Work: *Journal of the South-Eastern Agricultural College*, Wye, Kent. No. 23. Price 2s. 6d.—*Studies in Soil Acidity.* By J. L. Sager. University Press, Cambridge.

THE ALPINE GARDEN.

THE CREEPING ROSEMARY.

Rosmarinus prostratus, as the prostrate form of the common Rosemary is called, is a most delightful shrub for a dry wall, sunny ledge, or any other warm spot where the soil is light, and there is full exposure to the south or west. It is quite a fast grower, soon covering a considerable space with its pretty, arching branchlets, or closely hugging the rock face, and it flowers profusely. Here we can usually look forward to a good show of blossom in autumn in addition to that of spring, and the pale blue flowers are fully as large, if not often larger, than those of the type. The foliage of R. prostratus is a peculiarly fresh and glossy green, which looks well in the rock-garden at all seasons. Though not hardy, this variety will often survive an average winter in places not noted for a mild climate, whilst in the south and west it is rarely affected. As a matter of fact the lowly, creeping habit of R. prostratus is distinctly in its favour in bleak districts, for not only is it thus less liable to injury by frost and cutting winds, but it may be much more easily protected than the ordinary Rosemary. *N. Wales.*

RUTA PATAVINA.

Not many of the Rues are choice enough for the ordinary rock garden, though they often look well when kept dwarf by pruning, with their blue-green leaves and heads of small flowers. There is, however, one which deserves some consideration from the alpine gardener. This is Ruta patavina, which is rather trailing but does not grow usually more than six inches high. It looks quite well hanging over a stone, with its bluish-green foliage and starry flowers of pale yellow. The plant seems to be hardy in most places if planted in very poor, hard, dry soil and in a sunny situation. It may be propagated from seeds or cuttings, the latter method being that generally adopted. The planting of this Ruta is best done in the spring. *S. A.*

CHRYSANTHEMUM DR. JACOBS.

When this variety was first exhibited by Messrs. Keith Luxford and Co., late in 1922, the flowers shown were of what is generally known as decorative size, and the Floral Committee of the National Chrysanthemum Society granted it a First-class Certificate and classified it as a medium-sized variety (II.l.b.). As a result of this classification and its usefulness for providing richly hued blooms of decorative size, the variety has been acquired by several growers who supply the market; moreover, treated as a decorative variety it flowers quite late in December. On October 15, however, Messrs. Luxford exhibited the variety in exhibition form and thus placed the Floral Committee of the National Chrysanthemum Society in an unusual position, because obviously Dr. Jacobs is a large-flowered exhibition sort and an early-flowering one at that, but one which, cultivated in bush form, becomes a very useful late-flowering decorative sort. In short, the difference is one of cultivation rather than of type.

The Floral Committee confirmed its previous award of a First-class Certificate, but altered the classification to II.l.a. Dr. Jacobs is a crimson variety with dull gold reverse.

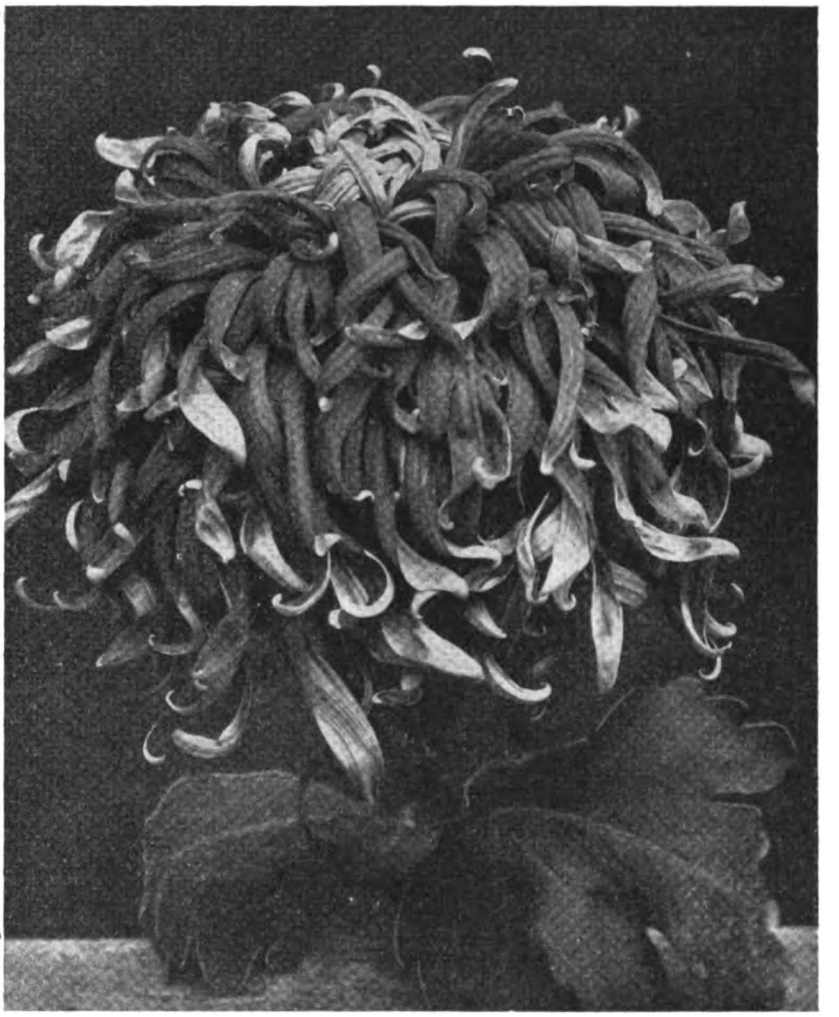

FIG. 89.—CHRYSANTHEMUM DR JACOBS: NATIONAL CHRYSANTHEMUM SOCIETY'S FIRST-CLASS CERTIFICATE, OCTOBER 15, 1923 (SEE P. 241).

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The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, late Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Laelia monophylla.—This little gem among Laelias has bright scarlet flowers, yet the plant has always been considered a difficult subject. When well established and well rooted, and not allowed to over-flower itself, it may be kept in good health for a long time. This Orchid should be grown in small, well-drained pots, in a mixture of Osmunda and A1 fibre. The fibres should be cut into moderately fine portions, and the potting done with moderate firmness, in such a way that when the plants are watered, the surplus moisture will pass away as freely as through a sieve. A good plan is to elevate these small plants among, or above, those of Miltonia vexillaria, the plants thus obtaining the same cultural conditions as that species.

Dendrobium.—The deciduous section of this genus includes many members which produce their flowers early in the winter, and the plants will by this time have fully completed their season's growth. Such plants should now be placed where they will receive all the light possible, in a drier atmosphere, reducing the temperature gradually to a minimum of about 55° to 58°. The flowering of these plants depends entirely on the proper resting and consolidation of the growths, therefore it is essential to take the greatest pains to attain this end. Backward plants, with those that have started to develop a secondary growth, should be given every encouragement to complete their season's growth at the earliest possible date. These remarks apply to all sections of this large and beautiful family, as growth made in the dull days of winter is always of an unsatisfactory nature. The tall-growing species, such as D. Dalhousieanum, D. moschatum, D. fimbriatum, with D. Brymerianum, and their varieties, and several other species of a similar nature, are mostly late in completing their growths, therefore these plants should be afforded liberal treatment until the terminal leaf is visible. These evergreen species, with D. densiflorum, D. Farmeri, and others of this section, should be grown in the warmest divisions at all seasons. During the winter, when the temperature is lower, and the plants are resting, infrequent waterings will suffice to keep the pseudo-bulbs plump and the roots healthy. An excessively dry condition is as harmful as keeping the plants too moist, therefore great care is necessary in watering these Orchids in winter.

D. Phalaenopsis Schroderianum.—Plants of this Orchid now coming into bloom should be afforded slightly more heat and more ventilation to assist the flowers to withstand fog, which in the vicinity of large towns has a pernicious effect upon them. Whilst the plants are carrying their flower spikes, a moderate supply of water to the roots should be afforded, but after the blooms are removed, sufficient moisture only is required to keep the pseudo-bulbs from shrivelling. During the plants' inactive period they are better for being grown in a slightly lower temperature and given a thorough rest.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Storing Tender Plants.—Cannas, Dahlias, Hyacinthus candicans, Gladioli and Salvia patens are a few of the plants which require to be lifted from the beds and stored for the winter. It is not so much that their safety depends upon them being taken up—for the plants would survive average winters where they have grown, especially were they covered with leaf-mould or sand—but their removal makes it much easier to cultivate the ground, and a fresh site can be allotted the roots next season if desired. Lay the tubers of the Salvia on soil and stand the Cannas and Dahlias on the floor of a cold, frost-proof house or cellar, but suspend the two other kinds in bags—having first well dried bulbs and corms. Commelina coelestis should also be taken up and stored in dry, sandy leaf-mould in a place safe from frost. Success in wintering this plant does not always follow, but it is easily raised from seed sown in the spring should the tubers fail.

Amaryllis Belladonna.—Where this bulbous plant succeeds, no autumn flower is more lovely—but the blooming of the plant is somewhat erratic. The bulbs may be planted now and on through the winter. Choose a very warm position for the plant, such as against the south wall of a dwelling-house or greenhouse. The soil in which it is planted should be deep, light and rich. Protect the bulbs in winter with a covering of Bracken Fern.

Lawns and Verges.—Just when the mowing and cutting of lawns and grass verges should cease for the season depends somewhat on the advent of frost and settled cold weather. However, I like to cut the grass as late as possible in autumn in order that there is no excess of growth to get tough by springtime, as will be the case where mowing has ceased too soon. The above evil is, of course, of no moment where scything of lawns is practised in spring before mowing is begun, but such a preliminary is not possible in every garden. After the lawns have received their final trimming, the mowing machines and shears should be thoroughly cleaned and well coated with thick oil to keep them in good order. Any repairs and overhauling necessary to the machines should be attended to early in the New Year so that they may be in perfect order when mowing begins again.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Bennett, Esq., Woolverstone Park Gardens, Ipswich.

Melons.—The fine weather of September had a beneficial effect on the Melon crop, materially assisting the growth both of plants and fruits. With the advent of shorter days and waning sun-heat the moisture in the house should be reduced to a minimum. The soil should be kept moderately dry. After the fruits commence to colour, watering the roots should cease and a warm, dry atmosphere be maintained in the house to assist the fruits to mature. Melons should be cut on the first signs of cracking away from the stems, afterwards allowing them to remain in the house for two or three days to fully mature. A little air may be admitted during the warmer part of the day, but the house should be closed early in the afternoons. Where the bottom heat is under control, afford a steady temperature of 80° until the fruits are cut.

Cucumbers.—The crop of Cucumbers from plants in frames stood on hot beds will soon be over, and the supply will have to be continued from plants in the Cucumber house. In order to obtain the best results from these plants for so long a time as possible they should be cropped lightly; all deformed and unnecessary fruits should be removed while they are quite small. During mild weather only moderate forcing should be practised, otherwise the growth will be weak. The bed of soil should, however, be kept sufficiently warm to obviate a check to the roots, and the temperature of the house should be well maintained in order to ensure healthy growth. Allow the growths ample room, and regulate and stop them once a week. Afford the roots a top-dressing of turfy loam enriched with a liberal sprinkling of bone flour and wood ash: the top-dressing should be applied in small quantities on frequent occasions. Plants intended for successional cropping may be grown in accordance with the demand for Cucumbers, not permitting them to bear until they have acquired strength, and the earlier plants show signs of exhaustion. The ventilation of these houses needs to be done with care, and air should be afforded only during the brief portion of the day when the sun shines. The syringing of the plants should likewise be modified to suit the season, discontinuing it, except once daily on warm days, a damping of the floors, walls and other bare surfaces taking its place. Damping is necessary to keep red spider and thrips in check. If thrips or aphis appear on the plants, recourse should be had to fumigating with the XL-All vaporiser. If the plants are attacked with mildew, make use of the sulphur vaporiser before it spreads all over them: after applying the sulphur the atmosphere of the house should be kept drier for two or three days.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Mustard and Cress.—Both Mustard and Cress may now be sown in boxes under glass if needed. Use good, loamy soil, and sow the seed on the surface, lightly pressing is down into the soil, but not covering it. Water and shade the seed boxes until the plants commence to grow.

The Frame Yard.—Old hotbed material in the frame yard should be cleared out to make room for a fresh supply of fallen leaves. The material should be wheeled to ground that is heavy and of a clayey nature, mixed with ash from the garden fire, and used to lighten the land and render it more workable. Heavy land intended for Potatos will be greatly benefited by a good dressing of this compound. Where farmyard manure is difficult to obtain, old hotbed material will serve to top dress Asparagus beds, and much of it may be used in shrubberies with good effect. Where Oak or Beech trees were used in conjunction with stable litter for making hotbeds, it will be advisable to reserve a goodly portion for potting purposes, and this may be neatly stacked to draw upon as required. It may also be used later on for mixing with loam for growing early vegetables in frames.

Onions.—The Onion crop should by now be under cover, but if the bulbs have not yet been lifted, this should be done forthwith, the loose skin taken off and the bulbs placed in frames to ripen them. Cut the tops off close to the bulbs, and either string the latter on canes or store them on shelves in a dry, frost-proof shed.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Polygala myrtifolia var. grandiflora.—This useful shrubby plant for the cool greenhouse is easily propagated at this season by means of half-ripened shoots, inserted in sandy soil, and stood under a bell-glass in a cool greenhouse. The plants succeed in a compost of light loam, with the addition of a little fibrous peat, and sand. They should be potted fairly firmly, and the young plants should be pinched several times to induce a bushy habit.

Berberidopsis corallina.—This native of Chili is a beautiful plant and hardy on walls in the south and west of England; but in the colder parts of the country it is a fine subject for the cool greenhouse, where it is seen to the best advantage if it is planted out and trained against a back-wall; it loves a cool position, as it is somewhat subject to attacks of red spider. It is easily propagated at this season by means of cuttings, or again during the spring and summer. The cuttings root readily under a bell glass in a cool greenhouse.

Rhododendrons for Forcing.—Numbers of Rhododendrons are suitable for forcing. R. Rosa Mundi, a small growing variety, may be had in flower by Christmas, while Prince Camille de Rohan is a good type for early work; in fact, all the varieties of R. caucasicum parentage naturally flower early and force readily. R. praecox is very charming for early forcing; as also are R. emasculum and R. mucronulatum.

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Watering.—With the advent of short, dull days, watering should be done with extra care, remembering that plants are less likely to suffer from drought than from being kept too wet. Watering is best done in the mornings at this time of the year to allow superfluous moisture to dry up before night. As more fire heat will be necessary care should be taken to keep the walls and floors in the neighbourhood of the waterpipes well damped.

Tropaeolum tricolorum and T. Jarrattii.—These are very pretty Nasturtiums for the cool greenhouse, and good specimens may be obtained by growing four or five tubers in a 10-inch pot. The tubers may be potted now or as soon as they are obtained. When the slender shoots are a few inches high they should be supported by slender twigs, while light sprays of Hazel, some 3 feet in length, should be placed in the pots for them to climb over.

HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Planting.—The preparation of land for the reception of fruit trees or bush fruits obtained from nurseries should be completed. It is important to choose a time for planting when the soil is in a proper condition as to texture and moisture. Should the ground be very moist it is better to heel the trees in until the conditions are drier. Ramming the soil, which is very necessary to secure a proper root-system, will be detrimental to root action if the land is "sticky." The thorough firming of the soil on which the tree rests and also that placed above the roots is essential on light soils. Damp, low-lying parts of the garden should not be selected for fruit trees except for Black Currants. It is far better to plant on high ground, using quick-growing hedges or belts of trees as wind breaks. The Myrobalan Plum is often used for the making of hedges, but it does not appear to me to be wise to use a subject so nearly related to fruits, and therefore open to be attacked by the same insect and fungous pests. The branches of newly-planted trees should be shortened to half their length in the early spring. Late-planted trees should be similarly dealt with the following autumn. Cherries are not usually pruned in the first year of planting, but Peaches and Nectarines should be cut back in March whether autumn or spring planted. I would again emphasise the importance of securing trees on the most suitable stocks. The true broad-leaved English Paradise finds most favour with growers as an Apple stock. Trees bought from doubtful sources, often in markets, as a rule prove disappointing. Those worked on the Crab stock are suitable as standard orchard trees. For planting in soils of average texture Pears should be worked on the Quince, but in the case of very light soils they should be on the Pear stock. Any tendency of the trees to make coarse and unfruitful growth should be counteracted by root-pruning. Apricots, Peaches and Nectarines growing in shallow soils will need a renewal of soil immediately the trees show signs of exhaustion. An annual dressing of lime or lime-rubble will be of great help to stone fruits. Gooseberries, Currants and Loganberries raised from cuttings inserted last autumn need transplanting.

General Remarks.—The constant rains have made it difficult to keep the ground clear of weeds. Every effort should be made to get this work done before the winter sets in. The gathering of main crop Apples and Pears should now be near completion. Birds have been especially destructive to fruits this year, and it has been necessary to use muslin bags in these gardens to protect the few we had. Unfortunately a large number of Apples dropped before they appeared to be really ripe. Bramley's Seedling, Newton Wonder, New Hawthornden and a few other standard varieties have yielded good crops. Although not quite up to the usual size, Cox's Orange Pippin has also given a fair yield. All fruit appears to be less free from scab than usual. Grease banding should be completed by this date. Lime rubble, etc., accumulated last month is ready for use in planting operations. Late-planted Strawberries are getting established in the soil and after frosts the soil about them should be trodden lightly. Where Apricots are grown in cool glass cases, and the structure allows, it is a good plan to remove the long front lights in order to expose the trees to the weather for the next few weeks.

FLORISTS' FLOWERS.

SWEET PEAS UNDER GLASS.

I think Sweet Peas are not grown so extensively under glass as they should be. They are popular and decorative, and with a little extra care first-class blooms may be obtained in April, or early May, at a time when they are much appreciated. To secure such early flowers seed should be sown as early in October as possible, although I have had excellent results from sowings made at the end of that month. I sow the seeds in large 60-sized pots, and use a compost of three parts good loam, passed through a half-inch mesh sieve, and one part leaf mould, adding some burnt soil, lime rubble, or coarse sand. Fill the pots firmly, two-thirds full, placing five seeds in each, covering them and watering them. If possible, place the pots in a propagating case, in a cool house, with a temperature of 50° to 55°. Cover the pots with paper until the seedlings appear; they should then be brought to the light gradually, and afterwards placed on a shelf near the glass in a cool house, a Carnation house being very suitable for the purpose.

After the third leaf appears, the growing point should be pinched from each plant, so as to encourage strong shoots from the base. If desired, two shoots may be allowed, otherwise retain one only. Careful watering at all times is necessary, especially after pinching. When sufficiently recovered the plants should be potted singly into large 60-sized pots, using a similar compost to that already advised, but with the addition of a little bone meal. The loam also may be somewhat coarser. Syringe the plants overhead on fine days, pinch out all tendrils as they appear, rub out all side shoots as early as possible, and place a supporting stake to each plant.

Later treatment depends on the conveniences available for indoor culture, but undoubtedly the best method is to plant out Sweet Peas in a cool Peach or Tomato house, providing they can be grown near the light, and not detrimental to other occupants. Failing this they may be grown on, potted into 32-sized pots, and finally into 10-inch pots.

If planting out is contemplated, a trench should be taken out sometime previous to planting, 18 inches wide and about 2 feet 6 inches deep. Care should be taken not to mix the subsoil, if of a gravelly nature, with the top spit.

Fork up the bottom of the trench and place thereon a good layer of well decayed cow manure, then a layer of good soil, and another layer of manure, adding a good sprinkling of bone meal and burnt soil. Make all firm by ramming. By the beginning of February the plants should be ready to plant out; place them 10 inches to 1 foot apart, in a double row in the soil previously prepared.

A wire should be strained along the bottom of each row, and another near the glass; between these strings should be strung as for Smilax, only of a stronger nature, and the plants trained to them. Keep the temperature at 50° to 55°, without excessive fire heat; rather let the temperature fall a few degrees in bad weather. A little air should be admitted at all times through the top ventilators, unless, of course, the weather is very severe. Syringe the plants on fine mornings and water them sparingly, until they are established.

If finally grown in 10-inch pots the Sweet Peas may be potted in pairs and trained as advised for those planted out. When the plants reach the glass they may be taken down and started up again. The best method is to take down four plants at the end of the row, lay them out carefully and then train the fifth plant along so as to replace No. 1. By following all round the double row, the first four plants will eventually replace the last four plants, and it will be quite some time before the growths again reach the roof glass. *T. Baines, The Gardens, Langham Oaks, Colchester.*

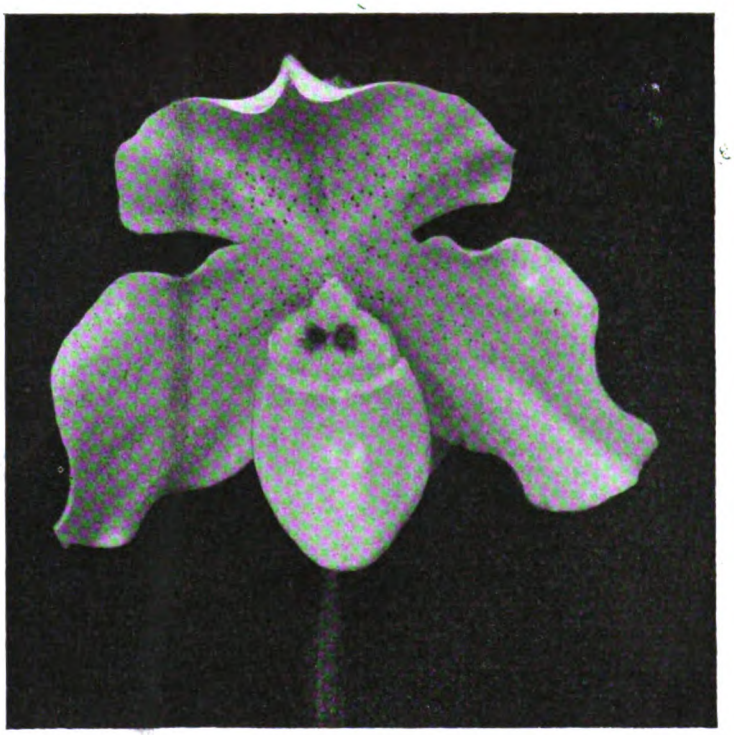

FIG. 90.—CYPRIPEDIUM ALBION, BODNANT VARIETY: R.H.S. FIRST-CLASS CERTIFICATE, OCTOBER 6, 1923 (SEE P. 239).

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JOTTINGS ON NEW OR RARE PLANTS.

THE most satisfactory Strawberry with me this year has been St. Fiacre. Planted as open ground runners last November in richly manured, sandy soil, it was the first to ripen, and we gathered a good crop. I expected it to fruit again in late September and October, as in France, but, to my surprise, it was in full bearing again on August 18. Many of the berries, which were purse-shaped or cock's-comb-shaped, measured 4 inches around, and they were of excellent flavour. I was told in France that it is most important to water the plants well in July and August.

A bright crimson Scabious from Roumania promises to make a reliable border plant, for it flowers from June onwards, and was covered with blossoms late in September. It grows to a height of 2½ to 3 feet, and is perennial; it also seeds freely. The flowers are three times the size of the Scabious sent to me by M. Correvon (said to be the red Scabious of Central Europe), and their colour is better—in fact, quite another shade, and much more vivid. I am planting some in rough grass, which is the way it grows in its native land, where the hayfields are truly a lovely sight with it in full flower. Mr. Barr thinks it may not be a true perennial, but would an annual flourish in the hay, which is cut very early and quickly in Roumania, with the Scabious in full bloom and before the seed forms?

This summer I have flowered a very unusual Foxglove, with bells of a heavy yellow and brown colour, with a little orange in it. The bells are not only along the stalk, but there are numerous side branches below, covered with bloom. The leaves are long and linear, of a smooth dark green, and rather rigid. In dark brown pottery vases the decorative effect was extremely good in the house. This came in response to my demand for Digitalis laevigata, which I had seen in the Roumanian woods. D. laevigata, however, has some purple on its creamy yellow bells, and is much lighter and more graceful of habit—indeed, rather resembling an Orchid.

Some seed picked by me in the Carpathians, of Campanula, has turned out to be C. carpatica, but with white flowers dashed with faint mauve, and quite pretty, while another proved to be C. Medium, single, and of a most curious branching habit, so that, when in bloom, it covered quite a big patch of ground. It grows quite low, and has most attractive flowers of a bright mauve colour.

A bright pink, splashed crimson, Convolvulus, the seed of which I gathered in Greece, has flowered again this year, evidently from self-sown seed; while an Ipomaea gathered by a friend in Uganda last year while walking through the tsetse-fly district, and given to me, and said to be a lovely pale blue, presumably rubro-coerulea, has behaved in the most extraordinary manner. Raised in heat, I planted the seedlings in Rose beds, which treatment suits rubro-coerulea very well. It has completely "taken charge" and proved a veritable Jack's Bean-stalk, for it has grown rampantly everywhere and over everything, but without the sign of a flower. Plants in a stove house and in a cool house have not flowered either. Can it be that this is a perennial climber that requires two years to make its growth? I shall try the inside plant again next year, but those out-of-doors will succumb in the winter.

I have just returned from the Pyrenees, where the most interesting thing in the gardens was Lagerstroemia indica. This shrub, grown as standards, bushes, or small trees, makes the most extraordinary impression on one. There is not much flower in gardens, so far south, at the beginning of September, beyond Bignonias and Althaeas, so that the sight of the resplendent blaze of colour of the Lagerstroemia comes quite as a surprise. This is generally of the most vivid rose pink imaginable—more metallic, even, than Dorothy Perkins Rose. Instead of falling downwards the panicles of bloom stand up like those of the Horse Chestnut, which it somewhat resembles, and one sees no leaves at all—such is the quantity of bloom. The petals are like the daintiest crinkled silk, and it is called the Crepe Flower in the Southern States of America. It is also in mauve and in pale pink, and one tree, 25 feet high, in a hotel garden at Salies de Béaus, was (next to a Jacaranda) the most lovely thing I have ever seen. It had two or three pale grey stems, and above them clouds of mauve—the leaves like large Privet leaves. Would it be possible to grow it here in tubs, I wonder, in a cool house or even a coach-house in winter (for there is often frost in the Pyrenees), standing it outside in summer like an Oleander? Or is there not sufficient heat in our sun to ripen its wood? Perhaps some readers of *Gard. Chron.* may have grown it years ago, when conservatories existed. Nearly every farm had one in its bit of garden, as well as all the private gardens. *Alice M. Martineau.*

GARDEN NOTES FROM S.W. SCOTLAND.

THE effect of autumnal colour in dying foliage is usually left to chance; there must be few places where, as in Sir George Holford's grounds at Westonbirt, trees and shrubs have been planted with specific intention to secure and enhance it. But nature is generous and does not rely upon human design to kindle the fleeting glories of October. Fleeting they must be on each individual plant; but there is a long succession of change, especially after such a streaming August and September as we have had in western Scotland. At present, in mid-October, three plants outbid all others in brilliant raiment. The first is a forest tree—Cercidiphyllum japonicum, whereof the clear carmine and gold sprays tell with exquisite effect beside the silver-grey of Eucalyptus coccifera (I think that is the species). The next is a shrub, the Swamp Blueberry—Vaccineum corymbosum—which does not ask for a swamp in our humid atmosphere, indeed rather resents it, preferring sound land, where it clothes itself at this season with vermilion more intense and more uniform than anything else we have here. Lastly comes a herb which came to me years ago from Glasnevin, and has outlived its label. I believe it is Rodgersia aesculifolia rosea; it has pink flowers and its leaves are now rich, soft crimson, a joy to behold. Presently the Azaleas will vie with these in brilliancy, and already Funkia Sieboldii shines as a long, bright yellow margin to a carriage drive. The blue flowers of Aconitum 'Wilsonii provide a cool relief to all this fiery colour, and may be relied on for a profusion of blossom when all others of the genus, except the rather dingy climbing A. Vilmorinianum, have gone to seed.

Through summer and autumn we have been waging unremitting war in the borders against Polygonum polystachyum, which in an evil hour was admitted to the flower garden many years ago. The slightest relaxation of discipline would entail hopeless confusion, forasmuch as there is hardly any limit to the distance to which this Indian mountaineer will send its runners or to the depth at which it will plunge its roots. But in woodland it is priceless at this season, when it fills a glade with drifts of white flowers like fine lace-work and the air with far-flung fragrance. P. campanulatum, a Chinese newcomer, belongs to the same group of this most Protean genus, but is not so irrepressible, for although it spreads pretty freely, it does so above ground and may be kept in check. Although it begins opening its pink and white flowers in July, a couple of months earlier than P. polystachyum, it is still in full bloom now (October 16), and will continue until nipped by the first frost. It is a thoroughly desirable plant. P. cuspidatum is as uncontrollably rampant as P. polystachyum, without beauty of blossom to atone for it, and should not be planted anywhere, whereas P. sachalinense may be allowed to flap its great leaves, like the ears of a young elephant, in some corner of the demesne whence it cannot gain access to lawn or border.

Those who enrich (or dilute) garden craft with a smattering of botany may find pleasure in the contrast between these giant Knotweeds and the lowly, close-trailing P. vaccinifolium, now covered with bright pink spikes of flower of Heath-like semblance, and a further contrast is furnished by the climbing type—P. baldschuanicum and Aubertii, which run up a wall or sparely branched tree to a height of fifteen feet or more. There is some property in all species of Polygonum that renders them unpalatable or poisonous to the all but omnivorous rabbit; they may therefore be planted in woodland—the proper place for the robust kinds.

Influence of the cold, wet summer of 1922 is still apparent in several plants, notably in Arum italicum, which it is good to allow a free run in some spare corner of the flower garden. This time last year such a corner was brilliant with scores of closely clustered spikes of scarlet berries, this year there is not one, and whereas the summer and autumn of 1923 have been, in Scotland, as cold as those of 1922, and even wetter, one cannot expect the Italian Arum to make much of a display in 1924. Last year Buddleia, Sedum spectabile and Asters were peopled by dozens of Red Admiral butterflies, with a sprinkling of Painted Ladies—this autumn I have seen but one of the former and none of the latter. *Herbert Maxwell, Monreith.*

PLANT NOTE.

CERCIDIPHYLLUM JAPONICUM.

IN reply to the note by Sir Herbert Maxwell on Cercidiphyllum japonicum in *Gard. Chron.*, October 13, p. 224, I believe it is regarded as a tree in Japan, and the specimen he refers to must be a very fine one. Here we have several specimens growing as bushes, and, although they were planted in good soil about eight years ago, they are still only about five feet high, and the same through. The colouring of the foliage is, just now, most delicate and beautiful, but the tones will deepen as autumn wears on, and later, through the winter, the fine twiggy wood will be most attractive. I should be interested to know if there are any large trees of this plant in this country. *R. W. Thatcher, Carlton Park Gardens, Market Harborough.*

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THE ROSE GARDEN.

ROSE LEONIE LAMESCH.

This polyantha variety appears to be falling into neglect and may be little known to those who have recently taken up Rose growing. It is hardly an exaggeration to say that Léonie Lamesch is unique in colour, form and perfume. Polyantha pompons are, as a class, deficient in fragrance. Such commonly grown varieties as Orleans, Jessie and Mrs. Cutbush are scentless; likewise those two varieties, with perfect miniature blooms, Cecile Brunner and Perle d'Or. But the subject of this note is strongly perfumed, with an odour all its own, suggestive of Sweet Briar and fresh Apples.

The colouring of Léonie Lamesch is just the kind to blend well with the Pernetiana reds and yellows, should a pompon be wanted as an addition to beds composed of this type of Rose. The flower is fully double, of a deep orange red with a golden centre, and about the whole there is a gleam of copper. The flower buds are peculiar in that they have a truncate, crumpled, unpromising appearance; yet they unfold into very pleasing miniature, cup-shaped blossoms of unusual hues.

Polyantha pompons may be conveniently divided into two groups, viz. (1) those which produce large clusters of bloom, like Jessie, Orleans, its desirable sport, Coral Cluster, and Nurse Cavell, all of the latest and best; and (2) those which give only few-flowered sprays, like Cecil Brunner and Perle d'Or, already mentioned. Léonie Lamesch belongs to the latter group, with usually five to seven flowers to a spray. This paucity of flowers in a cluster may be considered a drawback from the bedding standpoint. But Léonie carries its flowers erect, whereas some of the other group of polyanthas are apt to have their trusses of bloom top heavy, so as to need artificial support. It is a free bloomer in the sense that one set of flowering shoots is soon followed by another.

Léonie Lamesch is a useful Rose to cut for indoor purposes, as its buds, if not too tightly closed, continue their expansion in water, so that a bowl of this variety may be relied upon to look well for a week, provided care is taken to remove the individual flowers as their colour fades. It blooms particularly well in the autumn.

It is a great advantage to have free flowering varieties of such rich tints at this season of the year, as they harmonise better with the changing foliage around than do pinks, whites and pale shades generally. These are more in keeping with summer with their suggestion of coolness.

Léonie Lamesch cannot, unfortunately, be given the credit of withstanding rain well. This, I am inclined to think, is its chief defect. The advanced flower buds are apt to rot and go messy during a spell of wet weather. Against mildew and black spot it appears fairly well proof; but green fly shows rather a preference for it.

Little need be said about its foliage, except that one can fairly well recognise the variety from its leaf alone. For a polyantha Léonie Lamesch is a strong grower, and should a bed be devoted to it and a low grower wanted for the outside, then the most fitting companion would be the other Lamesch, Eugénie. This is quite a dwarf variety, and much paler in hue. It is said to have a distinct odour of Violets, though I cannot say that I have detected it.

Both varieties, Léonie Lamesch and Eugénie Lamesch, were brought out by Lambert in 1899. In the former, at any rate, judging by its colour and scent, one imagines there must be some Austrian Briar in its parentage. *J. P. Carlisle.*

FIG. 91. ROSE PHYLLIS BIDE: A NEW ROSE-PINK POLYANTHA VARIETY. NATIONAL ROSE SOCIETY'S CERTIFICATE OF MERIT, SEPTEMBER 20, 1923 (SEE P. 191).

HARDY FLOWER BORDER.

CHRYSANTHEMUM (PYRETHRUM) ULIGINOSUM.

Although its value is considerably depreciated by the rise of the early-flowering Chrysanthemum and the development of that grand plant, the old Chrysanthemum or Pyrethrum uliginosum ought not to be quite neglected, as it is able to withstand more severe frosts without having its flowers disfigured. Then it is of considerable value in the back row of the border, where its stature renders it conspicuous and its blooms are very welcome, and afford good material for cutting late in the season. In the wild garden, also, it is serviceable in big clumps and mas and, when grown in quantity, will often supplement the supply of cut flowers at a time when such material becomes scarce in the open garden. Associated with the perennial Asters, or Starworts, it is of high worth indeed. The wonder is that no one seems to have done anything towards improving it, whereas with the C. maximum varieties there have been very considerable advances within a few years. Surely C. uliginosum would give useful varieties if some attention were paid to raising and selecting seedlings with a view to continued work on the same lines.

It seems almost unnecessary to give any description of this fine old perennial. It grows from five to even nine feet high, but if in dry soil it is liable to lose some of its lower leaves. It has good foliage, and a wealth of white flowers with a greenish centre—much more pleasing than the term "greenish" would convey. It may be planted in spring or early summer. *S. Arnott.*

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THE BULB GARDEN.

DARWIN TULIPS.

(*Concluded from page* 237.)

Other Good Varieties.

Andromaque. A very distinct variety; large flowers of a bright garnet-red, white base; a stately plant; 29 inches.

Psyche: A very large flower with long petals, colour rose, silvery inside, pale blue base; 27 inches.

Afterglow: A large globular flower, rose-shaded amber, edges of petals deep amber; a very remarkable flower when seen at its best, but not every bulb produces a good flower.

The following is a list of varieties I have grown and discarded either from some weakness or on the too-much-alike principle:—Antony Roozen, a good, large flower, but with a cold look; Baronne de la Tonnaye, too much like Edmée; Centenaire—did not like the colour; Dal Ongaro, sends up too many flowers with deformed petals; Donders, too small—Andrea Doria is far better; Dream, a pretty flower, but very weak in the stalk and takes the "fire" badly; Edouard André, a large flower, but not a pleasing colour; Isis, too much like Feu Brilliant.

Madame Krelage is not distinct enough from Edmée; Moralis, a very fine flower at its best, but it is necessary to have a 20-yard bed to enable one to cut a good show bunch; Nora Ware, too small a flower; Princess Juliana, not quite distinct enough from several other cherry-reds; Remembrance, too dull and funereal-looking; Sophrosyne, not distinct enough; Van Poortvliet, a pretty flower, but the plant is very given to "fire"; The Sultan, too small and not a very good doer; Whistler, a very fine flower, but with us would always "break" into nasty streaky blooms; Yolande (Duchess of Westminster), a lovely flower, but a bad laster and a weak plant—Clara Butt and Julie Vinot are far better; Gipsy Queen, quite a good purple maroon, but not equal to Leonardo da Vinci.

It is quite certain that really good flowers and really good bulbs will not be obtained from bulbs planted in poor soil. At the same time I do not think that any bulb likes fresh manure. In growing Darwins by the acre we manure heavily the year before, giving from 20 tons to 40 tons per acre of good stable or cow manure as a dressing; then grow a crop of Potatos—early sorts for choice. After the Potatos are lifted, the land is ploughed and harrowed, ready for planting the Tulips in October. This ensures a clean bed for the bulbs and soil which has been well broken up. This method is, of course, only applicable to cultivation on a large scale, but amateurs may learn something from the methods of professional growers, even if they do not follow them exactly.

I have heard Hop manure highly spoken of, to be dug in before planting the bulbs, but have not tried it. What I have successfully tried, when there was a doubt about the soil not being rich enough, was a light dressing of peat moss stable manure spread on the surface during the winter—say, an even covering of half an inch. This "mulch" is very beneficial and is not unsightly.

Darwin Tulips may either be planted in beds, some 5 inches apart, to form a massive display, or placed between such plants as Myosotis, double Arabis, Violas, or any other suitable covering plants; or they may be planted in clumps of from six to twenty bulbs in the herbaceous border. The partial shade of fruit trees or other deciduous trees is very favourable to the Tulips, as it enables the blooms to last nearly twice as long as they do in the full sunshine.

Unfortunately the ground in such positions as these is apt to be poor, so the site chosen should be well prepared. It is a good plan to take out a hole the right size for the group to be planted, about 4 inches deep; dig in some manure or Hop manure, place the bulbs in position—avoiding a too formal grouping—and then replace the top soil. Or leave out the manure, but stir up the soil at the bottom of the hole, plant the bulbs, and give a top dressing of stable manure after planting.

On strong soil I consider 2½ inches of soil above the bulb to be sufficient; on light, dry soils, deeper planting may be better. Planting should not be done too early, or the growth will come up in the very early spring, and is very likely to become injured by frost or hailstorms. I have had a fine crop of late Tulips entirely ruined by a twenty-minute hailstorm.

Mr. Jacob and some other writers recommend November (about Lord Mayor's Day) as the correct time for planting. This may be right for the amateur, but, where hundreds of thousands have to be dealt with, this date is too late. The land may be in good order when one starts operations, but it is sure to get wet, cold, and sticky before the work is finished.

I think it is more important to put bulbs of Darwin Tulips into a comfortable soil-bed a little early than to put them into an uncomfortable one at what is considered the correct time. So I would name the second week in October as a good all-round time for planting.

In the spring, weeds must be kept down, but this must be done with great care, for, if the foliage, which is very easily cracked and broken, be injured, attacks of the dreaded "fire" are very likely to follow, with disastrous results. This "fire" is a fungous disease following any damage to the foliage, either by frost, hail, or sometimes by sea fog. If the plants escape this plague, and decent weather occurs at flowering time, a glorious display may be looked for in the month of May, well repaying the outlay on bulbs and the work of planting and weeding. A small Dutch hoe (4-inch) is the best tool to use among bulbs. A careful worker can push it under the foliage of the plants, without doing any damage, and the stirring of the soil is of great benefit, apart from killing the weeds; caked or cracked soil is never good for growing plants.

Certain growers leave their Darwin and other May-flowering Tulips in the ground for two or even three years, but I can state from long experience that on our soil in Nottinghamshire this practice does not pay. The plants will flower the second year, but never so well as the first, and the third year half them will have disappeared, and the remainder will be but ghosts of their former selves. The Tulip comes from a warmer climate than ours, and, no doubt, gets a summer baking, which ripens the bulbs thoroughly and enables them to withstand their natural enemies. Under our cooler conditions it requires annual lifting and artificial ripening to ensure success.

As soon as the foliage has turned yellow or brown and the sap has returned to the bulb, and before it has become dead and brittle, is the time to lift the bulbs. If left too long, the tops break off during the process of lifting, and then it is often difficult to find the bulbs. We begin lifting about the end of June or the beginning of July.

All varieties of Darwin Tulips will not be ready at the same time, so it is best to commence with the earliest-ripening ones first, and follow on as they become ready. Remove the tops and as much soil as possible, and place the bulbs in shallow boxes or trays, and remove them at once to a shed or room, and keep them fairly warm and free from strong draughts, or all the new skins will split. As soon as the bulbs are dry, they should be cleaned, divided, and sorted into sizes, reserving the full-sized bulbs for planting, and either throwing away the offsets or at planting time putting them closely together in a nursery bed to grow into flowering bulbs for another season.

If lifting be done at the right time, and proper care be taken of the bulbs after lifting, there is no reason why the amateur should not have good bulbs for many years.

I venture to add that the above notes on planting and lifting, etc., will apply equally well to all other late-flowering varieties as to Darwin Tulips. *J. Duncan Pearson, Lowdham, Nottinghamshire.*

DEVELOPMENT OF THE DAHLIA.*

(*Continued from page* 238.)

In a later period the bi-coloured varieties were preferred in some places, and such flowers, ordinarily white with coloured edges, were grouped under a separate name, i.e., Dahlia Parisiens, in France. One of the best known of the more recent varieties which is much appreciated in Holland is the dwarf growing Helvetia, which was sent out by the Swiss originator, together with another variety of the same character named Soleurois; the latter seems to have been lost.

Apart from such exceptions to the rule, the single Dahlias as a class have never gained general popularity. With all other Dahlias of their period they had to give up their position in favour of the Cactus Dahlia.

The Cactus Dahlias.

An occurrence which should later prove to have entirely altered the line of the production of new varieties occurred in 1872. It was then that a Dutch nurseryman, Mr. van den Berg, of Jutfaas, received with other plants some Dahlia tubers from Mexico. Although they were in very bad condition, he succeeded in flowering them, and he found that they produced brilliant coral-red flower heads with pointed florets, quite a new type, which he did not know. The Dahlia was offered in Mr. van den Berg's catalogue as D. Yuarezi, a name suggested by Mr. R. C. Affourtit, of Dahlia fame.

The newcomer, however, did not attract any special attention. Tubers were sold to a French firm, but no one in France cared for it; from France it came into the hands of an Overveen bulb firm with no other result, and only after it travelled from Overveen to England, where it at last reached the late firm of Henry Cannell, it received the appreciation and the honour it deserved. Shown at a meeting of the Royal Horticultural Society in September, 1879, it created a sensation. Figures of it appeared in the leading British horticultural papers, and the nurserymen soon found that it better suited the taste of the public than the declining, old-fashioned show Dahlia. Hence the raising of seedlings was led in a new direction, and raisers tried to obtain more varieties with pointed petals. At the same time, old varieties which did not possess the qualities of a good old Show Dahlia, and had more or less pointed petals, were carefully preserved and multiplied. So the old white Ariel, the bi-coloured picta formosissima, soon joined D. Yuarezi as the first varieties of a series which has later received the collective name of Cactus Dahlias.

The rise of the Cactus Dahlias dates from about the year 1890. The considerable number of new seedlings yearly exhibited at autumn exhibitions showed a remarkably steady improvement. I very well remember the surprise caused by the champions of 1894: Matchless, Gloriosa and Lady Penzance, that were of quite novel appearance. The improvement continued in such a degree that varieties more than three years old were not seen on show stands, as they would have been beaten by newcomers. As a contrast it may be remembered that some of the leading old-fashioned Show Dahlias kept their position for twenty to thirty years.

The Cactus type, from a round flower-head with pointed florets, became more and more narrow petalled. The appearance of the flower became entirely changed, and the older varieties, which still had a certain advantage for garden use, were, later, distinguished as "decorative" Dahlias.

British growers have long held the monopoly of raising Cactus Dahlias, and the horticultural world owes to them many remarkable varieties. Several growers in Germany, France, Belgium and Italy later also obtained excellent results, but notwithstanding the serious effort to raise Cactus Dahlias with long and wiry flower stems, the large proportion of the varie-

*A paper read by Mr. Ernst H. Krelage before the International Horticultural Congress at Amsterdam, on September 18.

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ties annually offered to the public had the drawback of hiding their flowers beneath the foliage. The most wonderful exhibition flowers were disappointing when planted in the amateur's garden, and consequently the strain, which in its period of glory had almost completely outshone the old ball-shaped Dahlias, began to decline when a new group made its appearance that better suited the garden demands. I refer to the Paeony Dahlias, whose sun began to rise twenty years ago.

Various Minor Classes of Dahlias.

I have still to say a few words of certain groups that appeared and disappeared in the period of the Cactus Dahlias. The success of the latter evidently was responsible for the introduction of the single Cactus Dahlias, a strain with elegant flowers, raised by an English amateur grower, Mr. E. J. Lowe, and offered by the firm of Cannell thirty years ago.

About the same time another gentleman grower, Mr. Girdlestone, raised a strain of very dwarf, small-flowered, single Dahlias, which were introduced under the name of Tom Thumb Dahlias by Messrs. J. Cheal and Sons, and highly recommended for beds and borders. The more recent Dutch strain of Mignon Dahlias raised by Mr. Dominicus, of Schiedam, is of somewhat similar character, the flowers being rather larger, and seems to have successfully replaced the forgotten Tom Thumbs.

Of the same age as the single Cactus and the Tom Thumb Dahlias is a double Dahlia of quite a distinct type which came from France under the name of Grand duc Alexis. It was raised by Mons. Coutant, and produced enormous flowers of a pale lilac colour, in form more or less intermediate between an old ball-shaped and a decorative variety.

In 1895, and later, some growers offered what they called Miniature or Pompon Cactus Dahlias, a name which very well suggests the character of the flower.

All these examples prove that the variability of the Dahlia had enormously increased, and although these strains could not all keep their place, they have doubtless exercised their influence on the further development of the Dahlia.

(To be concluded.)

LATE FLOWERING SHRUBS.

By far the greater number of shrubs have their season of flowering in the early months of the year, and the planter has ample material to choose from when planting for a display from March to midsummer. For a display after this period the choice of subjects becomes much more limited, nevertheless there are many beautiful shrubs which flower from July onwards and, as the time of planting is near, the consideration of a few of those which are well worth growing may be of use to intending planters.

Buddleia globosa is a deciduous shrub from Chile, reaching a height of 10 feet or 12 feet. It has long, hoary, Willow-like leaves and orange-coloured flowers borne in large, terminal, globular clusters about midsummer and extending into July.

B. variabilis is a Chinese species about 10 feet high with long racemes of lilac flowers which are very effective in late summer.

Caesalpinia japonica is an interesting shrub with rambling, flexible shoots and red prickles. The leaves are long and of a pleasing green; the flowers, which are borne in racemes in July, are a bright canary yellow against which the reddish anthers show conspicuously. This shrub should be planted where it has plenty of room to develop.

Calycanthus occidentalis is a much-branched, large-growing, North American shrub well worth growing for its highly fragrant and brightly coloured flowers. It should be given an open sunny position to favour free flowering.

Ceanothus americanus, a dwarf shrub bearing terminal clusters of white flowers in summer, is quite hardy and may be planted in the front of the shrubbery. C. azureus is a much more beautiful species, but not quite so hardy and should be given a sheltered position; it is a delightful subject for training against a wall. There are several good garden varieties, amongst which may be mentioned Gloire de Versailles (blue), Marie Simon (pink) and Indigo (dark blue).

Clethra alnifolia and allied species are North American shrubs, the flowering period of which extends from July to October, and as the number of flowering shrubs which bloom during this period is very limited, they are most valuable. They form loose bushes 6 feet to 8 feet high and bear erect racemes of white, bell-shaped, very fragrant flowers in profusion. They delight in a moist, peaty soil in which the majority of the so-called American plants flourish.

Cytisus austriacus is of value because its effective yellow flowers are borne in abundance in July; C. nigricans, another Austrian late-flowering Broom, should be grown in every garden. Its branches are smothered with bright yellow flowers in July and August and the plant remains a long time in beauty. Both these Brooms do well in open, sunny positions and in poor soil.

Deutzia crenata and its double variety are handsome Japanese shrubs which commence to flower about midsummer and continue into July, when the majority of the shrubs of this section have passed.

Escallonia macrantha is a South American evergreen shrub with rich, glossy leaves and bright, Fuchsia-like flowers. It is perfectly hardy in the south and is worth the protection of a wall in the Midlands and north.

Fuchsia Riccartonii, of garden origin, has the reputation of being the hardiest of the Fuchsias and is an excellent plant for summer and autumn floral display. It frequently makes a shrub of fairly large dimensions in the south.

F. gracilis is a slender and beautiful species and appears to be equally hardy. Genista aethnensis, a native of Sicily, is not common in gardens, yet it flowers in July when flowering shrubs are none too plentiful. Its long, slender branches produce rich golden-yellow flowers in abundance, and it would be difficult to find a shrub better suited to a hot, dry soil. G. virgata flowers a little earlier, but extends its flowering period into July. It is probably the most beautiful of the taller Brooms and frequently reaches a height of 15 feet. It flowers sparsely in the young state, but older specimens are a glorious sight, every twig of the somewhat straggling branches being covered with flowers in their season.

Hamamelis virginica, a species with Hazel-like leaves, is a sturdy North American shrub and the only autumn-flowering species of the genus. It has the narrow, twisted, bright yellow petals characteristic of all the Hamamelis flowers, and the blossoms are produced in dense clusters.

Hibiscus syriacus is an upright-growing, deciduous shrub about 6 feet high and particularly valuable, because it flowers at the end of August, when few other shrubs are in flower. It thrives in well-drained, loamy soil in a position fully exposed to the sun. There are several good garden varieties, ranging in colour from white to purple, both single and double forms being represented.

Hydrangea paniculata and its variety grandiflora are invaluable autumn-flowering shrubs from Japan. The huge, pyramidal-shaped heads are composed entirely of sterile blossoms. Both may be grown as bushes or standards, but in any case the plants should be pruned hard when they are dormant.

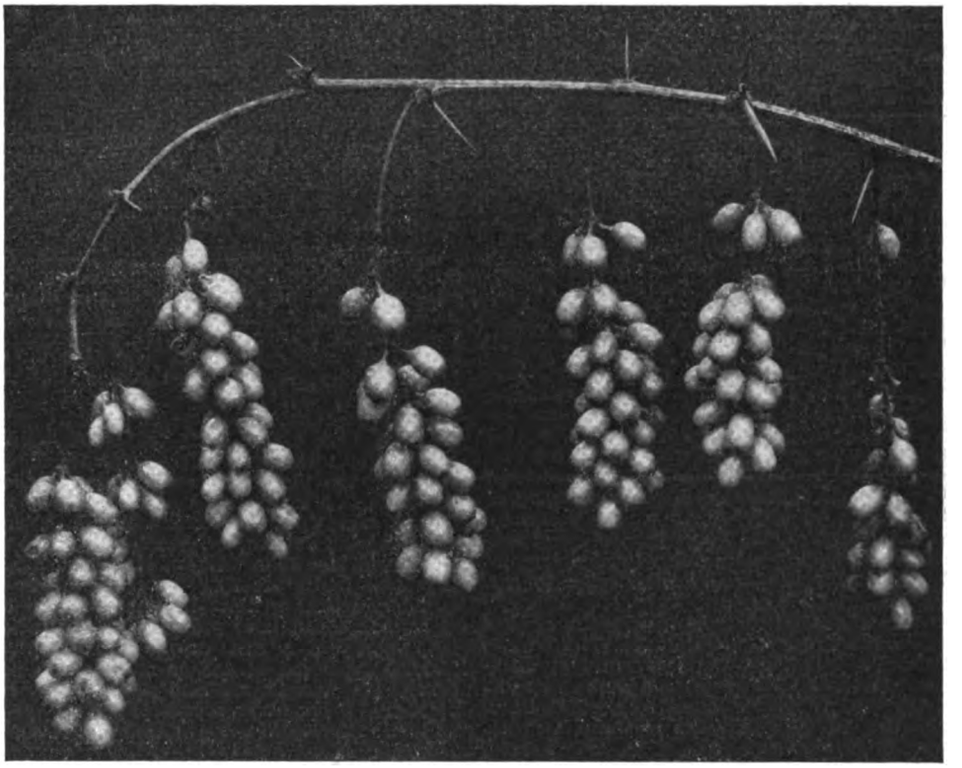

FIG. 92.—FRUITING SPRAY OF BERBERIS BRACHYPODA VAR. GIBBSII: R.H.S. AWARD OF MERIT, OCTOBER 6, 1923 (SEE P. 239).

Hypericum aureum is a North American shrub attaining a height of 4 feet, and very valuable for the front of the shrubbery. Its orange-yellow flowers, produced in August, are about 1½ inches across and have a large and conspicuous mass of stamens in the centre which makes them very showy. Several other Hypericums are well worth growing, not the least valuable being H. calycinum, an attractive plant forming a dense mass a foot or so high and very suitable for covering bare places on banks or under trees.

Ligustrum lucidum has large, glossy, handsome leaves and is the most ornamental of all the Privets. It reaches a height of 10 feet to 12 feet and has large panicles of white flowers in July and August. L. Quihoui is still later, producing its terminal panicles of flower in late September, and for this reason alone is worth growing.

Olearia Haastii is a valuable, evergreen, Box-like shrub from New Zealand. It is compact and slow-growing, and its branches are laden

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with small, Daisy-like flowers in July and August. O. dentata has large, Holly-like leaves but is not so hardy as O. Haastii and needs the protection of a wall. Spiraea ariaefolia is a well-known North American shrub reaching a height of 10 to 12 feet. The leaves are dark green above and silvery beneath; the plume-like clusters of creamy-white flowers are produced in abundance. S. Douglasi forms a crowded bush of erect shoots 6 feet or 7 feet high, every shoot being terminated by a dense spike of rose-coloured flowers in August. S. japonica and its varieties are handsome, dwarf shrubs, bearing larger flat corymbs of rosy flowers, and are amongst the most useful of summer and autumn-flowering shrubs. *W. Auton, Pyrford Court Gardens, Woking.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Red-plant Disease in Strawberries.—My attention has been directed to an article in the current issue of the *Journal of Pomology* by Messrs. Peren and Ballad, of Long Ashton. In this article the joint authors point out that eelworms (Aphelenchus fragarieae) *can always* be found in the growing point of "Red-plants." This is a most remarkable statement in view of the previous and equally emphatic statement sent out by Long Ashton that parasitic eelworms *could not* be found in affected plants.

In my own reports to the officials of the Ministry of Agriculture I have repeatedly pointed out that the eelworms were to be found in the very spot where the joint authors now claim to find them. Perhaps the most interesting point about the article, having regard to the correspondence which has taken place in the pages of the *Gardeners' Chronicle*, is the following statement: "We wish to extend our thanks to Dr. T. Goodey, of the London School of Tropical Medicine, for identifying eelworm material sent to him." One can only assume from this that had I sent my eelworm specimens to the same authority, instead of attempting to get the Ministry's pathologists to agree to my point of view, the *accepted* date of the discovery of the organism producing the disease would have been 1920 instead of 1923. The article in question contains nothing that is new to those who have studied the disease, and the "small leaf" phase which led Captain Wellington to his theory of reversion is well known to growers as a form of the "Red-plant or patch disease" which I have consistently maintained since April, 1920, was due to eelworm and which the Long Ashton authorities attributed to mosaic. In view of this *volte face* it is not surprising to read that Messrs. Ballad and Peren consider that further correspondence is unnecessary (p. 149). I may add that the disease is even more general than the authors imagine, but that where first-class cultivation is carried out, with proper attention to such details as the selection of runners, rotation of crops, and manuring of ground, there is but little to complain of. *W. H. Johns, Town Hall, Bermondsey.*

Holland Park Hall Show.—There is a small error in your report of the R.H.S. Show at Holland Park Hall. Your reporter states that there was only one entry in the County Class, comprising Somerset, Devon, Dorset, Cornwall, and Wilts; yet there was one other—myself. In your issue of October 13 you try to account for the comparatively small number of entries in the fruit classes, and suggest that the small amount of prize money is one of the causes. Doubtless that is true up to a certain point, but there are other reasons. Is the general management satisfactory? Is it not time that new and younger men were engaged to carry out the judging—men who are now in harness? I have no hesitation in saying, as a competitor for many years, that complaints are louder and longer in this respect each year. Another cause, and probably the principal one—why fruit growers do not like the Holland Park Hall Show is that the exhibits are placed in the gallery, and the fruit exhibits are scattered all around the long, narrow space, which makes it very difficult to supervise the exhibits, consequently many of the dishes of fruit are stolen. My first prize dish of Cox's Orange Pippin Apple was taken early on the Thursday morning. We fruit growers feel we are consigned to the background, being, so to speak, last on the list, and we long to return to the hall at Westminster. *J. A. Stidston, Bishop's Teignton, South Devon.*

—— —— In your editorial comments on the recent exhibition at Holland Park Hall (see p. 213) you very rightly refer to the great falling-off in quantity and quality of the fruit exhibits staged, as compared with the shows one recollects in days gone by. Granted this has been a bad season for hardy fruit, nevertheless the exhibits were not worthy of the R.H.S. You comment on the fact that the County Class for Kent was an absolute failure; this was once a very popular class, and splendid fruit used to be staged in it. I believe there is a rule that, if a grower sells any fruit from his garden, he is considered to be a commercial grower, and is thus debarred from this show. Many of the best growers in Kent do sell surplus fruit, and a few years ago several of these were informed that, owing to this fact, their entries could not again be received. I venture to believe the fruit show has never been the same since that time. *B. J. Mercer, Chart Sutton, Kent.*

Dr. Hogg.—Mr. Brotherston's historical notes on page 218 are exceedingly interesting to a student in old London nurseries and kindred establishments. His remarks respecting Dr. Hogg, whom I knew quite well, induce me to add a personal note about him. He was a burly gentleman—a great snuff-taker. It was to him and Mr. Monro, grandfather of the present proprietors of the great Covent Garden business, that I first came to London, and I had to decide whether I would enter the market trade or the plant and seed trade. I chose the latter. I remember Dr. Hogg asking the firm I was with to recommend him a sub-editor for the *Journal of Horticulture*, and we mentioned Mr. John Wright, then gardener to the Hon. Leslie Melville in Lincolnshire—a sound, practical writer. He was evidently the right man, as in later years he became editor. Dr. Hogg died a rich man, leaving about £80,000 made out of one or other of his ventures. Mr. Wright has also passed away, full of years, leaving three sons, all well known in the horticultural world. *Donald McDonald, Hatton Garden.*

General Oglethorpe.—As success has followed the excavations made in the church at Cranham, Essex, by Dr. Jacobs, president of the Oglethorpe University, for the body of General Oglethorpe, the founder of the State of Georgia, U.S.A., increased interest is attached to a printed document in my possession, bearing the title: "*A Sermon Preach'd before the Trustees for Establishing the Colony of Georgia in America. And before the Associates of the late Rev. Dr. Thomas Bray for Converting the Negroes in the British Plantations, and for other good Purposes. In the Parish Church of St. Mary-le-Bow. March 15th*, 1732." This sermon occupies the first 32 pages, and is followed by 18 more, comprising "The General Account of all Monies and Effects received and expended by the Trustees." For encouraging and improving Botany and Agriculture in Georgia, the donations mentioned are from Sir Hans Sloane, Bart., £20; His Grace the Duke of Richmond, by the hands of Mr. Robert Sedgwick, £30; the Rt. Hon. James Earl of Derby, by the hands of Mr. Barnard Frederick, £50; Charles Du Bois, Esq., £10 10s.; James Oglethorpe, Esq., by the hands of Mr. Peter Simond, £5. Of this total of £115 10s., £75 was, on October 4, 1732, given to Mr. William Houston, for half a year's salary, advanced to enable him to proceed on his voyage to collect plants, etc. For use in the trustees' office, James Oglethorpe contributed a large African Mahogany table. *Gurney Wilson, Haywards Heath.*

A Fine Crop of Arran Comrade Potatos.—I enclose a photograph [not suitable for reproduction.—Eds.] of a crop of Potatos I have lifted this autumn, which I think almost constitutes a record. I planted one hundredweight of seed of the variety Arran Comrade on seven poles of ground, and I lifted 18½ cwt. of good sound tubers. *T. S. Lewendon, The Gardens, Hoathly Hill, West Hoathly, Sussex.*

British Timber of Ancient Date.—One of the oldest existing specimens of native timber, that has been shaped by the hands of man, is the original haft of a stone axe from the Solway Moss, which was presented to the British Museum by Sir George Musgrave, Bart., in 1857. This prehistoric implement of wood and stone was discovered by a labourer at a depth of six feet, when digging peat in a bog near Longtown. The handle, which is 18 inches long, and of various thicknesses from an inch to two inches in diameter, is in a very primitive condition, a hole having been formed at the thick end of sufficient size to allow the stone axe head to pass through, and to which it is secured by means of a wooden peg. It appears to have been water-worn, and is more inclined to be flat than round. The wood is of a dark colour, resembling Bog Oak, and though much twisted and warped, and inclined to be brittle, is in an excellent state of preservation. Judging by inference, this haft of wood is of older date than either the coracle or dugout, rudely constructed boats that primitive man, by the aid of stone implements and fire, formed from the butt end of an Oak tree. Of timber that was made use of during the Roman period in this country, there are many examples, such as the piles of old London Bridge, the Roman boat found by the London County Council when excavating for the site of their new hall by the Thames side, and in the remains of a Roman bath which still exists under the Coal Exchange, near Billingsgate Market. Other existing remains of timber made use of by the Romans are to be seen in the museum at Kew, and include one of the old piles of London Bridge, taken up in 1827, and a block of Oak found below the Roman wall, when cutting the canal from Carlisle to the Solway Firth, in 1823, both of which are in a sound condition. Of timber that has been in use for from 800 to 1,000 years, there are still a few examples, as in the Tower of London, and in Greenstead Church, in Essex, which, though erected prior to the Norman Conquest, is in good condition. I have just had an opportunity of examining some of the timbers from the original wooden castle that was erected on Rayleigh Mount, in Essex, in 1096. Some of the beams, which are 18 inches through, are in a remarkable state of preservation, and, indeed, may be looked upon as the oldest and best-preserved Oak wood of which we have an accurate record. These timbers were recently found in the carpenter's shop, under ten feet of soil, and surrounded by a thick layer of bark and chips. These ancient specimens of British Oak are carefully preserved in Prittlewell Priory, near Southend-on-Sea. *A. D. Webster.*

Long-Lived Palms.—It may interest some of your readers to know that I have two Palms growing in one pot, without drainage. They have lived here in those conditions for over forty years, and are still flourishing. *Alice G. Pollock, York Terrace, Regent's Park.*

Autumn-flowering Roses.—The new Rose garden planted last November at Mrs. Finchett Maddock's home at Cae Gwyn, Carnarvon, has proved a great success, and the flowering of the plants during September has been the admiration of all who have visited the gardens. The plants are remarkably clean and healthy, and at the end of September the following varieties were in full bloom:—Christine, Mme. Abel Chatenay, K. of K., Padre, Isobel, Ophelia, Mrs. G. Shawyer, Modesty, Gorgeous, Mrs. H. Stevens, Margaret Dickson Hamill, Mrs. Wemyss Quin, Lady Hillingdon, General McArthur, Lady Pirrie, and Admiral Ward. *G., Carnarvon.*

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SOCIETIES.

BRITISH MYCOLOGICAL.

The twenty-seventh annual meeting and autumn foray of the British Mycological Society was held at Windsor from September 28 to October 3. On Saturday, Virginia Water was searched. Here, as throughout the foray, the amazing abundance of Amanita mappa was remarked, the nearly related A. phalloides being extremely scarce. This has been a common experience during the present season—at least, in the south. The more noteworthy finds were Russula azurea, Pleurotus pantoleucus, Cortinarius claricolor, C. pholideus, Polyporus adiposus, Tremellodon gelatinosum, and Sparassis crispa, the burden of a specimen of the latter being shared by two members of the party.

In the evening the annual meeting was held. Mr. J. Ramsbottom was elected President for 1924. Miss G. Lister, Vice-President, and Messrs. W. J. Dowson and C. J. Sharpe to the Council.

Several parties went out on Sunday, various parts of Windsor Park being visited. Additional finds were Collybia longipes var. badius, Cortinarius dolabratus, Hebeloma longicaudum, Inocybe rhodiola, Polyporus spumeus, and Daedalea biennis. In the evening Mr. F. T. Brooks gave his paper on "Epidemic Plant Diseases." The causes and conditions under which these epidemics arise were dealt with, and the importance of weather upon their development was emphasised. The nature of the delicate balance between host, parasite, and environment which determined the establishment of a disease in an epidemic form was pointed out, and the modes of dissemination of these diseases were discussed in detail. Special reference was made to Silver Leaf Disease of fruit trees, Wart Disease of Potatos, cereal rusts, and certain tropical diseases, such as those of rubber. Whenever possible, a parallel was drawn between the nature and incidence of epidemic disease in plants and in man.

Burnham Beeches was visited on Monday. In this classical collecting ground Pleurotus lignatilis, Pholiota radicosa, Rozites caperata, Cortinarius armillatus, C. argentatus, Inocybe pyriodora, and the two beautiful species of Hydnum, H. coralloides and H. erinaceus, were secured. Professor O. V. Darbishire gave his presidential address in the evening on "Lichenology." He first sketched the position of the systematists of the last century, giving a short account of Nylander (1822-1899) as typical of the school. Most of them were violently opposed to Schwendener's theory of the dual nature of Lichens, feeling that the autonomy of the Lichen group was at stake. The old hostility has now almost gone; very few, if any, systematists are opposed to the physiological school. The present need of systematic lichenology is that Lichen groups, genera, and even species should be monographed so that the exact status of many species could be ascertained and many points of systematic and phytogeographical importance cleared up. The very great difficulty encountered at times in defining a Lichen species is in part due to the fact that the Lichen fungus, usually the predominant partner from an anatomical point of view, has jettisoned the structural traditions of its free-living parasitic or saprophytic ancestors. In the Lichen structure the fungus has to adapt itself to very stringent conditions of growth. The result is that the rock forms of two allied species will often be more like one another in structure than they are like their respective normal bark-inhabiting parent forms.

The development, structure, and growth of Lichens depend upon the amount of available water. As transpiration is a much slower process than absorption, the Lichen fungus absorbs water and stores it for the benefit of the Alga. Lichen evolution is proceeding along very definite lines from the flat crustaceous, but areolate, to foliaceous, upright foliaceous, and finally true fruticulose forms. The highest physiological differentiation is reached in such forms as Cladonia, where the stem and dorsiventral leaf are clearly separated.

The foray on Tuesday was to Brockhurst Wood and Stoke Common. The former provided Hygrophorous conicus, Pleurotus sapidus, P. revolutus, Panus torulosus; the Common many burnt-ground species, as well as Helotium luteolum and a species of Pustularia.

Mr. Carleton Rea gave a talk in the evening on the principle species found during the foray This innovation was much appreciated, as the remarks were characteristic. A communication by Sir H. C. Hawley dealt with the Fungi found in August on a blackbird's nest—fourteen species were identified, ten of them Pyrenomycetes. Mr. J. Ramsbottom read a short paper on "Mushrooms and Toadstools," which had been broadcasted a few days previously. Black Park, Langley, was to have been worked on Wednesday, but the day was so wet that very little searching could be done. However, some additional species were encountered. the chief being Pluteus cervinus var. Bullii, and P. eximius, both on sawdust, Leptonia incana, Psilocybe canobrunnea, and Coprinus picaceus.

The last paper of the meeting was an account by Mr. Ramsbottom of an unpublished monograph on Discomycetes by Mr. M. C. Cooke. The meeting was in every way a success, and many rare species were found. Most of the papers were followed by interesting discussions.

CARDIFF GARDENERS'.

At the meeting of this Association, held on October 16, Mr. H. Wilkins presided, and a very interesting and instructive lecture was given by Mr. G. Chambers, of the Monmouth Education Committee, Abergavenny, on Hardy Fruit Cultivation. Planting an orchard and the effects of transplanting on the roots and subsequent growth were points ably dealt with. Mr. Chambers brought to the notice of those present the advantages that may probably result when the pruning and manuring of fruit trees are considered together. He hinted that more might be heard of this subject in future.

Mr. G. Upham has given a silver cup to the Association to be won by the highest aggregate points awarded to exhibitors at the meeting held during the session 1923-1924. The prize given by Messrs. W Treseder for three dishes of Apples was awarded to Mr. W. Davies.

BRISTOL AND DISTRICT GARDENERS'.

The usual fortnightly meeting of this Association was held at St. John's Parish Rooms on October 11, when Mr. D. Ingles presided over a good attendance. Mr. J. Banting, the lecturer, took for his subject "Trees and Shrubs of Tortworth Court." A fine collection of choice and rare trees is grown at Tortworth. Mr. Banting gave advice as to planting, protection, etc., and he was provided with many specimens, with labels attached, which he described and then handed to the audience. Amongst the species dealt with, the more important were the Acers, Quercus, Juglans, Aesculus, Fagus, Fraxinus, Pyrus, Rhus, Tilia, Carya, and Crataegus. The lecturer also referred to the various uses to which some of the less common trees are put, and at the close of the meeting he was accorded a hearty vote of thanks.

The prizes offered for a vase of Roses were won by Messrs. Grieve, Warren, Bird, and Hessy in the order named, and for a lady's spray Mr. Middleton and Mr. Mistoe led.

INQUIRY.

RHAMNUS CATHARTICUS BERRIES.

A correspondent is anxious to obtain large quantities of the berries of the Buckthorn, Rhamnus catharticus, for medicinal purposes. If any of our readers are in a position to supply these in quantity will they please communicate with us as quickly as possible.

Obituary.

Joseph Hargate Clibran.—Mr. J. H. Clibran, founder of the firm of Clibrans, nurserymen and seedsmen, of Altrincham and Manchester, passed away on the 17th inst., in his 82nd year. It is well over half a century since he first commenced, in Altrincham, what has since become one of the largest businesses of its kind in the country. Of a quiet, retiring disposition, the late Mr. Clibran possessed extraordinary activity, and devoted himself wholeheartedly to his business, in which he displayed exceptional ability for organisation, and an unusual capacity for detail. He was not the type of man who sought or desired personal publicity, but, nevertheless, he was well known to the older generations of nurserymen. Never of robust constitution, of late years he had been in failing health. About fifteen years or so ago, he relinquished active direction of affairs, handing the business over to his son, Mr. William Robert Clibran, the present proprietor. The funeral, attended by all the surviving members of his old staff, relatives and numerous friends, took place at Bowdon Church on the 20th inst.

John Yates, M.A.—We regret to record the death at Redford, Cabrach, Banffshire, of Mr. John Yates, M.A. Born in 1832, Mr. Yates had reached the patriarchal age of 91. Originally engaged in farming work, his keenness to learn led him to Aberdeen University, where he graduated in Arts in 1861, thus having been a graduate of sixty-two years' standing. Mr. Yates was a keen botanist, and from 1880 until this year he was the honorary treasurer and secretary of the Banffshire Field Club. He was the discoverer of some of the most uncommon varieties of plants in his native county, and collaborated with Professor Craib in compiling *The Flora of Banffshire*. In recognition of his long and devoted service to the affairs of the Field Club, it was only on August 24 last that a number of representatives of the Club journeyed to Redford, a picturesque and rugged district, and made Mr. Yates the recipient of his portrait and a lounge chair, the gifts being handed over by Sheriff-Substitute More, the President of the Club. The function was a peculiarly pleasant and interesting one. Mr. Yates was unmarried.

Robert Johnston Paton.—It is with deep regret we learn of the death, on the 17th inst., of Mr. R. J. Paton, J.P., one of the directors of the firm of Messrs. Samsons, Ltd., nurserymen, florists and seedsmen, of Kilmarnock. Mr. Paton was an expert in horticultural matters, and always ready to give the benefit of his knowledge and experience to amateurs needing advice on horticultural subjects. He was also greatly interested in agricultural matters, and was for seven years President of the Kilmarnock Farmers' Society. An excellent sportsman, he nevertheless found time to take a keen interest in public affairs. Mr. Paton had not been in good health for several years, but his decease came as a very great surprise to all who knew him. The funeral was of a public character, and attended by many prominent horticulturists from the district in which Mr. Paton had lived so long, and wherein he was very highly respected.

TRADE NOTES.

After the closing of their Dublin branch for a period of sixteen months, Messrs. Alex. Dickson and Sons, Ltd., of Newtownards and Belfast, have re-opened their premises at 61, Dawson Street, Dublin, and are prepared to execute orders from that address as before. The many friends of Messrs. A. Dickson and Sons will regret to learn that their financial and material loss at Dublin has been very heavy, and that they have passed through a time of great and continuous anxiety. A brighter prospect is now in view.

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NEW HORTICULTURAL INVENTIONS.

Latest Patent Applications.

25,000.—Cuthbertson, J.—Preserving fruit, etc. October 8.

24,011.—Chapman, A.—Device for preventing moths, etc., ascending trees, etc. September 26.

Specifications Published This Month.

204,442.—Stevenson, R.—Method of and means for germinating qualities of hard clover and other hard seeds.

204,151.—Swain, J.—Spraying or diffusing apparatus for gardens and like purposes.

204,216.—Moore, G. E.—Device for planting seed Potatos or like purposes.

203,864.—Headley, F. H., and Gruchy, W. A. De.—Fruit picker.

189,419.—Gradl, J.—Manufacture of artificial manures.

203,554.—Elias, J. J. M.—Machine for planting cuttings.

203,557.—Paul, W.—Machines for trimming Strawberry beds and the like.

203,615.—King, F.—Shears or device or machine for clipping or shearing hedges, or banks, or grass patches, or the like.

Abstract Published This Month.

Supporting and Training Plants.—Patent No. 202,079.—Mr. F. Lee, of Cressey Fields, Alfreton, Derbyshire, has devised a useful system of supports for growing kitchen garden produce such as Peas, Beans, etc. It consists of two rows of vertical or inclined rods fixed to a base frame which can be staked down to the ground with the plants between the rows of rods. Inclined rods are fastened to longitudinal bars which are detachably connected to tranverse pieces. The rods may be connected together by wooden rails and braced by horizontal, transverse, and diagonal stay rods or wires. The two sets of rods may be vertical, or may meet at their upper ends. The rods may be detachably secured to the frame members in groups.

This list is specially compiled for *The Gardeners' Chronicle*, by Messrs. Rayner and Co., Registered Patent Agents, of 5, Chancery Lane, London, from whom all information relating to Patents, Trade Marks, and Designs can be obtained gratuitously.

Messrs. Rayner and Co. will obtain printed copies of the published specifications and abstract only, and forward on post free for the price of 1s. 6d. each.

ANSWERS TO CORRESPONDENTS.

Apple Infested with a Grub: *E. C.* The injury to your fruit of Cox's Orange Pippin Apple has been caused by the Codlin moth. Place grease bands around the trees now, and in spring, just before the blooms have expanded, spray the trees with arsenic of lead, and again just after the petals have dropped.

Blowflies among Fruit Crop: *H. B.* The presence of flies among fruit crops has been very marked this year, and the trouble seems to be generally distributed. The position seems to have been brought about by several contributing causes. As pointed out in your letter, wasps have been very scarce this year, and this seems to be a general condition all over the country. Most people now know that up to the end of July the wasp is responsible for the death of a very large number of insects, as up to this time they are almost entirely carnivorous. Why they were scarce it is more difficult to state. It is, however, a recognised fact that warm, moist winter conditions are very unfavourable to insects hibernating as larvae, pupae or adults (though not necessarily to eggs), and the last winter was remarkably warm and moist. Another contributing factor to the presence of flies on fruit was the extraordinary amount of bird damage. This year birds did a most exceptional amount of damage. Such Pears as were produced were severely bird pecked (as usual, close to the stalk), and Apples also suffered early and extensive damage. Tits were observed doing this damage, and possibly other small birds were also responsible. These pecked places proved attractive to flies, and to such an extent did this occur that the worker on the land was convinced that the flies had "blown" the fruit. This, however, would be directly against the usual habits of any of the flesh-blowing flies, and in view of the undoubted prior bird damage, is an unnecessary hypothesis. The presence of flies in wasp-netted vicinities is more difficult to explain. The most likely explanation is that they were brought in with manure as larvae, and bred out inside the vinery. If no manure had been brought in to the vinery it would point to the wasp netting not being effective. Probably you are in the best position to form a judgment on this point. At any rate, it is unlikely that the particular conditions acting this season will be repeated often, and therefore the situation is not such as to demand special care in the future.

Books: *T. B.* The best work on Grapes is *Vines and Vine Culture*, by the late Mr. A. Barron, and this may be obtained from our Publishing Department, price 5s. 9d. post free. *J. B.* An inexpensive work on trees of the nature you desire is *Trees and Shrubs*, by Mr. W. Dallimore, which can be obtained from Messrs. Cassell and Co., La Belle Sauvage Yard, E.C., price 1s. 3d.

Celery Unhealthy: *W. W.* Without knowing all the conditions under which the crop was grown, we suspect that your Celery plants have received an overdose of manure, solid or liquid.

Commelina and Ceratostigma: *H.* Raise the Commelina each spring, from seed. Neither of the other plants is quite hardy, and in the case of these and other plants similarly tender, a stock of young plants should be kept in reserve. They are easy to raise from cuttings. A loose straw cover will in most years preserve old plants. The Ceratostigma may be enveloped in rough straw, which is an efficient protection for shrubby plants.

Correction. — The Director of the Royal Botanic Gardens, Kew, draws attention to an error which has crept into page 195 of our issue of the 29th ult. He writes: "In an answer to a correspondent it is stated that the growth found on lawns is not a fungus, but one of the thalloid Liverworts (Hepaticae). The remainder of the answer clearly shows that the plant referred to is a Nostoc, one of the lower Algae (not Hepaticae), which not infrequently appears after rain on lawns and gravel paths, and to which the name 'shooting stars' has been applied."

The foregoing note was sent to our expert who contributed the reply on p. 195; he replied as follows:—

"If the growth found on a lawn was really Nostoc, I was misled by its condition, having never seen this Alga in a half-dried state. The clue as to its greasiness was taken from the description given by the correspondent, and this might have been regarded in a variety of ways. Spirogyra may be both black and greasy, but it certainly was not this. The organism I examined was lobed and so spongy that I never suspected Nostoc, otherwise I would have put it in water and placed it under the microscope. Unfortunately I have destroyed the material."

Evergreen Shrub for a Hedge: *G. T. F.* The best evergreen shrub for a hedge in a shady place is Aucuba japonica. If this is too robust in growth, the common Box, Buxus sempervirens, may be substituted, but the position for Box should not be dark, nor the soil dry.

Fertiliser for Chrysanthemums: *Goodmayes.* A fertiliser compounded of four parts superphosphate, two parts sulphate of ammonia, and one part sulphate of potash would be very rich, and not more than half a pound to a pound should be added to each bushel of soil for top dressing your Chrysanthemums.

Gardener's Claim for Expenses and Bonus: *J. G.* It would seem that you have been badly treated by your employer, but the difficulty appears to lie in the absence of any written agreement on the subject of expenses. If legal proceedings are taken it will be for the Judge to decide whether he believes your statement or that of the employer, if the latter should be prepared to swear that he made no promise whatever to pay the expenses in question. The same remarks apply to bonus on sales. With regard to the expenses of removal, you have no claim unless you can prove that your employer agreed to pay these, or else that your employer held out to you that he might regard the appointment as a permanent one without having any intention of keeping you beyond the end of October. This, of course, would be a most difficult matter to prove, and even the fact that it had been the practice to take a foreman only from April to October in previous years would not be sufficient evidence in your favour. You had better consult a local solicitor and endeavour to bring pressure to bear on the employer to adopt a reasonable attitude.

Names of Plants: *W. D. K.* Selaginella uncinata; you can probably obtain plants from Mr. L. R. Russell, Sheen Road Nurseries, Richmond.—*G. B.* 1, Crassula falcata; 2, Hypericum Androsaemum.—*W. S.* 1, Cedrus Libani; 2, Taxus baccata; 3 and 7, Forms of Cupressus Lewsoniana; 4, Veronica Andersonii var. variegata; 5, Forsythia suspensa; 6, Solanum jasminoides; 8, Cupressus obtusa var. densa.—*A. B. H.* The white flower is Cornus macrophylla, and the lilac one Elsholtzia Stauntoni.

Potatos with Scabby Skins: *J. B.* The scabbing of your Potato tubers is only superficial and will not affect the eating qualities of the tubers. This complaint is physiological and is usually attributed to mechanical injury by the soil.

Protection of Dahlia Tubers: *H.* Plants of Dahlias grown from old tubers keep through the winter much better than those from cuttings struck in spring. The chief points to observe are not to let frost damage the stems, to let about a foot of stem remain, not to shake all the soil from the tubers in lifting—dry soil being a good preservative—and to store the roots in a dry, frost-proof room or cellar. A thick layer of chaff, Beech leaves, or Cocoanut-fibre refuse will act as perfect preservatives of ground plants.

Sulphate of Ammonia as a Dressing for Lawns: *H. T. W.* You would not be well advised to apply sulphate of ammonia in the autumn, but we recommend you to give the lawn a dressing of basic slag now and use the ammonia fertiliser in the spring at the rate of about half an ounce to the square yard. Nitrogenous fertilisers encourage the growth of Grasses, which in time will crowd out the weeds. The application may be made at fortnightly intervals in the spring.

Tomatos Diseased: *T. R.* The roots of your Tomato plants are badly infested with eelworm. We advise you to lift every portion of the roots from the soil and, together with the plants, destroy them by burning. The soil will be infected for another crop, and we advise you to remove all the old compost from the border and substitute fresh soil that has been sterilised by baking. The old soil that is removed should not be placed near growing crops, but buried very deeply in an out of the way part of the garden.

Communications Received. — P. P.—H. S. L.—A. W., thanks for 2s. 6d. for R.G.O.F. Box—M. C.—Horti.—F. H.—W. K.—T. W.—J. H.—G. C.—H F.—G. H. H.—A. C. S.—C. T.—H. D.—J. J.

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THE
Gardeners' Chronicle

No. 1923.—*SATURDAY, NOV.* 3, 1923.

CONTENTS.

Alpine garden, the—
Gentiana sino-ornata 261
Heloniopsis grandiflora 261
Raoula australis ... 261
Brassicas, leaflets on ... 256
Bulb garden, the—
Dierama pulcherrima 261
May-flowering Cottage Tulips 260
Chamber of Horticulture, new secretary of the 256
Dahlia, the development of the 265
Gardeners and the Imperial War Graves Commission 266
"Gardeners' Chronicle," seventy-five years ago 257
Geraniums in autumn, hardy 257
Hardy Flower Border—
A large Antirrhinum plant 257
Rheum nobile ... 257
Henry Eckford Memorial medal, award of the 255
Holland Park Hall show 266
Horticulture and phytopathology, the relations between ... 264
Indoor plants—
Camellias 260
Obituary—
Bidder, Rev. H. J. ... 270
Orchids, new hybrid ... 260
Pateman, Mr. T. ... 256
Pea Senator 266
Peas, autumn sown ... 266
Phygelius capensis ... 266
Plants new or noteworthy—
Alocasia macrorhiza 263
Symplocos paniculata 262
Potato crop, the ... 256
Rose garden, the—
Fragrant Roses ... 261
Snell Memorial Medal, John, award of the ... 255
Societies—
Imperial Fruit show 267
Royal Horticultural 268
Soil sourness 263
Torquay, notes from ... 259
Ward's, Mr. Kingdon, seventh expedition in Asia 262
Week's work, the ... 258
Wheat, rust of 255

ILLUSTRATIONS.

Alocasia macrorhiza 265
Antirrhinum, a large, self-sown 257
Gentiana sino-ornata in a Perthshire garden 261
Pateman, Mr. T., portrait of 256
Rheum nobile 259
Symplocos paniculata, fruiting branch of 263

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 45.0°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, October 31, 10 a.m.: Bar. 30.25; temp., 52°. Weather—Bright.

Rust of Wheat. So long ago as 1907, Prof. Biffin discovered that resistance to Stripe Rust (Puccinia glumarum) is a character which, like many others possessed by plants and animals, is handed on from parent to offspring. He showed, moreover, that resistance to this rust fungus reappears in the second generation of a cross between a resistant and a susceptible variety of Wheat. Yet in spite of this discovery epidemics of rust still afflict the Wheat crops of the world, reducing yields by so much as fifty per cent. Thus in Minnesota during the ten-year period 1911-1920, rust was epidemic in three years, 1916, 1919 and 1920. In the years when rust was not epidemic the average yield of spring Wheat was 15.4 bushels per acre; in the rust-epidemic years it was only 8.6 bushels per acre, truly a case, so far as farming profits are concerned, of the lean kine devouring the fat kine. An impatient person, knowing but little of rusts or research, might conclude in view of these facts that all the labours of science in relation to the suppression of rust have been in vain. Such a conclusion is singularly ill founded. In order to show how erroneous it is, a brief account is given of recent progress* on the experimental investigations of rust and rust resistance. The problem of preventing attack by rust is a complex one, for there are several different species of rust fungus parasitic on Wheat. There is the Stripe Rust fungus, Puccinia glumarum, which is that investigated by Prof. Biffin in the researches already referred to; there is the Crown Rust, Puccinia coronarum, and the Black Stem rust, P. graminis, which though responsible for less damage to Wheat in this country than is caused by certain other rusts, works havoc, as has been shown in crops of spring Wheat in Minnesota. Each of these parasitic species does evil after its kind, and the power, unfortunately, of resistance to attack by one species does not mean power of resistance to all. Hence the plant breeder who desires to endow the world with rust-resistant varieties of Wheat must be content to deal with one rust at a time. Along these lines good progress has been made and it is well known that hybrid varieties of Wheat have been produced at Cambridge by Prof. Biffin which combined resistance to Puccinia glumarum—Stripe Rust—with other desirable qualities. These resistant varieties retain their resistance generation after generation. But in the case of other rusts, P. graminis, for example, it appears from the researches of Messrs. Hayes and Stakman (*loc. cit.*) and other investigations that the problem of resistance is not so simple. The reasons why the solution is proving more difficult are two: the versatility of the rust species and the sterility of potentially resistant hybrids. Puccinia graminis, among the recognised multitude of fungi known to bring about disease in plants, was one of the first to be discovered. So long ago as the seventeenth century, relation was discovered between the presence of the Barberry and the prevalence of the pest, and laws were passed both in France and North America requiring the extirpation of the common Barberry from the neighbourhood of corn-land—laws which it is to be feared were more honoured in the breach than the observance. In any case, Puccinia graminis, which is now known to belong to that class of organism to which a change is essential, still flourishes. It spends the spring of each year in the Barberry, goes away for the summer to the Wheat field, does nothing in the winter and resumes its Barberry existence in the following spring. Whether it is due to the stimulating effect of change of habitat or to some other cause is not known, but the fact is certain that Puccinia graminis is a species composed of numerous races and that these different biological races may be distinguished from one another if not by size, or shape, or colour, yet by their power of attacking the Wheat plant. It is as though some were more savage than others—able to enter and maintain themselves in the tissues of a given variety of Wheat, whereas a less savage race of the rust might not enter alive. This being the case the problem of breeding varieties of Wheat which shall possess powers of resistance to P. graminis becomes at once clearer and more complex. Restated, it means the breeding of Wheat varieties resistant to all—including the most "savage"—biological races of Black Stem rust known to occur in the country in which the Wheat is to be grown. To do this, however, means that the different biological races have to be discovered and their powers of infecting Wheat of the varieties to be used for cross breeding have then to be ascertained. The magnitude of this task on which Messrs. Hayes and Stakman are engaged may be judged from the fact that the number of biologic races of P. graminis is very large—in Minnesota upwards of thirty-six races have been isolated. Fortunately, the races, although numerous, appear to be stable. Their appetite does not, as was once believed, grow by what it feeds on; in other words, a race does not apparently work itself up into a state of greater virulence by living on a variety of Wheat which falls an easy victim to it. Each race appears to retain a fixed power of infection so that it may be investigated, ticketed and put away for further experimental use. Once a set of the biological races has been obtained and their relative powers of infecting a variety of Wheat ascertained, it is, of course, easy to ascertain, *e.g.*, by cultivating a few seedling Wheat plants in a greenhouse, the degree of resistance of other varieties (and species) of Wheat. This the authors have done in the case of several varieties of common Wheat. It is a relief to find from the result of their experiments that varieties exist (of winter Wheat) which are absolutely immune to nearly all the biological races of P. graminis; such a variety is Kanrid, used for breeding purposes. This variety was crossed with Marquis—which is a susceptible spring Wheat. In the third generation varieties were obtained which combined the "earliness" of Marquis with the resistance of Kanrid. Investigations carried out by inoculating seedlings with spores of the different biological races of P. graminis show that varieties belonging to certain types of Wheat, *e.g.*, Triticum durum and T. dicoccum, also possess great powers of resistance to the rust, but the difficulty of making use of this desirable quality is rendered very great by reason of the high degree of sterility which exists in the hybrids between these types of Wheat and those of common Wheat. Nevertheless, in spite of the complexity of the problem, such good progress is being made towards its final solution that the more sanguine, at all events, may hope that there may come a time even in this world when moth and rust shall not prevail.

* "Wheat Stem Rust from the Standpoint of Plant Breeding." By H. K. Hayes and E. C. Stakman. Minnesota Experiment Station. No. 360. *Journal Series.*

John Snell Memorial Medal.—The National Institute of Agricultural Botany announces that the medal to commemorate the late Mr. John Snell has been awarded for the year 1922 to Mr. G. C. Gough, an Inspector of the Ministry of Agriculture, in recognition of the fact that the full development of immune forms of Potatos was due to his original observations of the existence of immune forms in certain infected gardens.

Henry Eckford Memorial Medal.—On the occasion of the Annual General Meeting of the National Sweet Pea Society, held at the Royal Horticultural Hall, Westminster, on Tuesday, the 30th ult., the announcement was made that the Trustees of the Henry Eckford Memorial Fund had awarded the Henry Eckford Memorial Medal for 1923 to Mr. Charles H. Curtis, Managing Editor of the *Gardeners' Chronicle*, for "good work done in connection with Sweet Peas." Mr. Curtis was one of the founders of the N.S.P.S., and for many years acted as its Hon. Secretary; during the year just ended, and during the Society's coming-of-age year, he was Chairman of Committee. He has also been Chairman of the Society's Floral Committee, and in former years was one of the Editors of the Society's *Annual*.

Celmisias and Olearias.—A neat little booklet dealing with two prominent genera of New Zealand plants* has been issued by the *Otago Daily Times*. These genera are Celmisia and Olearia, and the former is dealt with in a most interesting manner by Sir G. Fenwick, whose contribution gains additional interest from the copious notes by Mr. James Speden, an acknowledged authority on these Mountain Daisies of New Zealand. Nine illustrations accompany the text, in which about two dozen species are described. Sir G. Fenwick writes

* *New Zealand Native Flora.* 1, Celmisias, by Sir G. Fenwick; 2, Olearias, by James Speden. Otago Daily Times and Witness Newspapers Co., Ltd., Dunedin, New Zealand.

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in high praise of the fine spirit of those men who year by year make trips to those scattered regions where Celmisias and other alpine plants may be found. He quotes from one collector who was successful in obtaining plants of Celmisia Adamsii at Coromandel: "Sunday dawned bright and fair—a rarity at this time of the year here. At about 9 a.m., I set out on a horse from the stables, rode six miles and then walked along a spur for two or three miles to the edge of the bush, headed for the top. I believe there is a track through, but I never struck it. After a very short climb, to my surprise I found myself at the base of the castle-like rocks, which stand out boldly on the summit. Here, within fifty or one hundred feet of the top, grew about a dozen plants of Celmisia Adamsii, the only ones as far as I could see. Their location was in the crevices of the rocks. The height of Castle Rock is 1,250 feet. On the way back I got bushed, and fell down several mine shafts or depressions which were overgrown with scrub; but I got back safely about 8 p.m. A search party had been sent out for me, but I missed them, having struck out of the bush several miles to the right." The second part of the booklet is concerned with Olearias, and is from the pen of Mr. James Speden, who occupies ten of its forty-two pages. Twenty-one species are described, and the one most popular in the British Isles, O. Haastii, is disposed of in a few words, as though it does not compare favourably with other kinds in its native home. Mr. Speden refers to O. Forsteri (the Akiaho), as being usually grown as a hedge plant, but it also "makes a beautiful shrub or small tree, with lovely, light green foliage, and although the flowers are not conspicuous, they give off a fine fragrance. As an ornamental hedge plant up to four feet high, it is the prettiest thing that I know." The wide range of difference is noted between certain species, *i.e.*, O. insignis and O. fragrantissima, O. lacunosa and O. nitida, O. virgata and O. Colensoi, and O. operina and O. nummularifolia var. cymbifolia. Mr. Speden adds: "There is one thing about most of the species which strikes us all the first time we see them in flower, that is, their delicious fragrance." Those who cultivate Celmisias and Olearias in Great Britain and Ireland will accord this little book a hearty welcome.

Summer Time, 1924.—The Early Closing Association organised a deputation to meet the Home Secretary on Wednesday, October 31, for the purpose of urging the extension of summer time in 1924. Besides employers and employees in wholesale and retail distributing trades, the deputation included allotment holders, athletes, boat builders, and visitors to public parks and gardens. Sir Kingsley Wood, Parliamentary chairman of the Association, introduced the deputation.

Leaflets on the Cultivation of Brassicas.—The Ministry of Agriculture has published two leaflets on the cultivation and marketing of Cabbages and Savoys, and Brussels Sprouts respectively. The Cabbages are classified by the writer into four groups, those with pointed heads, the drum-headed type, Savoys and Red Cabbages. The best time recommended for sowing seed of Spring Cabbages is from the 23rd-25th July in the Eastern Counties, the last week in July in Worcestershire, the end of July or early in August in Kent, and the 1st-5th of August in Middlesex. The earliest plants of the first sowing would, it is stated, be ready to plant in the third week in September, and these earliest plants may be set from nine to ten inches apart, whilst for later cutting October planting is recommended, putting the plants from twelve to fifteen inches asunder, allowing some a greater distance—fifteen to eighteen inches, to be left to stand for summer Cabbages. With respect to Brussel Sprouts, raising the plants early in cold frames is recommended to obtain as long a growing season as possible, which, in our opinion, is most essential with this crop. The practice of sowing the seeds in September or early in October and planting the seedlings in April is condemned, as the method is said to fail frequently. Brussels Sprouts require plenty of manure, and before the seed is sown or the plants set phosphates and potash should be applied to the soil. On light soils it is recommended to use five hundredweights per acre of bone meal or steamed bone flour, together with four hundredweights per acre of kainit, and on heavy soils five to ten hundredweights of good fish guano. When the plants are well established a top dressing of nitrate of soda at the rate of two hundredweights per acre is recommended.

Mr. T. Pateman.—Mr. T. Pateman, whose success as a gardener is well known to most of our readers, has had the happy experience of remaining almost continuously in the one garden during the whole of his professional career. As most readers are aware, Mr. Pateman is gardener to Sir Charles Nall-Cain, who has recently purchased the estate of Brocket Hall, Hertfordshire, quite close to his old residence at The Node, Welwyn. Mr. Pateman commenced his career in the latter gardens and remained there for nearly six years, serving under three Scotch and two English gardeners. He left

MR. T. PATEMAN.

The Node to gain further experience at Little Heath House, where the gardener was Mr. Foulger, a noted cultivator of florists' flowers. Subsequently Mr. Pateman became gardener to Montague Price, Esq., at the Manor House, Knebworth, but in 1896 he returned to The Node, as gardener to the same gentleman. The Node estate was purchased by Sir Charles Nall-Cain in 1909, and Mr. Pateman continued in his service as gardener, and he has served the same employer ever since. When he took charge of The Node gardens, the whole of the place was in a much neglected condition, and offered scope for such an enthusiastic and skilful cultivator as Mr. Pateman, to show his abilities in reorganising the place. Most of the hardy fruit trees were grubbed up, and the whole of the fruit and kitchen gardens trenched about three feet deep. Fresh fruit trees were planted, and new glasshouses erected, so that in a short time The Node gardens ranked amongst the finest in the country. Mr. Pateman has met with remarkable success as an exhibitor; he has won five hundred and fourteen first prizes, two hundred and sixty second prizes, and one hundred and fifty-eight third prizes. In 1915 he was awarded four Standard Cups at one of the R.H.S. exhibitions on the one day. Beside fruits, Mr. Pateman ranks amongst the foremost cultivators of plants, and exhibits of Begonias from The Node have been awarded Gold Medals at the Royal Horticultural Society's meetings. He is also a prominent exhibitor at important Chrysanthemum exhibitions. At the recent Holland Park show he won the Hogg Medal for a collection of choice indoor fruits, and the Silver-gilt Medal of the Worshipful Company of Fruiterers for a collection of twenty-four dishes of Apples, besides numerous other prizes. Mr. Pateman has a keen eye for the beautiful, and the improvements which are being effected in the gardens and estate at Brocket Hall under his supervision promise to restore this famous old estate to its former rank as one of the show places of the country.

National Potato Exhibition.—The National Potato Society of Great Britain and Ireland will hold its exhibition at Bingley Hall, Birmingham, in conjunction with the annual exhibition of the Birmingham Chrysanthemum Society, on Tuesday, Wednesday and Thursday, November 6, 7 and 8.

Journal of the Royal Horticultural Society.—The *Journal* of the Royal Horticultural Society, Vol. XLVIII., Parts 2 and 3, contains much matter of interest, including articles on "Autumn Crocuses," by Mr. E. A. Bowles; "Anglo-Saxon Plant-lore," by Miss Eleanour Sinclair Rohde; "Some Early Italian Gardening Books," by Mr. E. A. Bunyard; "Methods of Propagation in an Amateur's Garden," by Mr. C. T. Musgrave; "The Flora of the Tibetan Marches," by Mr. F. Kingdon Ward; and "Some Hardy Bulbs," by the Rt. Hon. Sir Herbert Maxwell. There are also descriptions of the following plants, which have received the Award of Garden Merit:—Viburnum fragrans, Jasminum nudiflorum, Hyacinthus azureus, Tulipa Kaufmanniana, Forsythia intermedia spectabilis, Osmanthus Delavayi, Viburnum Carlesii, Corylopsis pauciflora, Pyrus floribunda, Pyrus × purpurea, Berberis × stenophylla, Magnolia stellata, Philadelphus grandiflorus, Genista virgata, Spartium junceum and Genista aethnensis. The *Journal* gives the results of trials at Wisley in 1921-22 and 1923, and the proceedings of the various Committees from July to December, 1922, and also the deliberations of the Narcissus and Tulip Committee from February to May, 1922.

The Potato Crop.—According to the International Institute of Agriculture of Rome the crop of Potatos generally shows a decrease of 18 per cent. From data furnished by countries representing slightly over half of the world's production, it is estimated that the total yield will be 65.5 million metric tons, as compared with 80.1 million metric tons last year, which, however, was one of the best years for Potatos within memory.

Hailstorm Damage in Colorado.—According to our American contemporary, the *Seed World*, a destructive hailstorm occurred on a limited area at Rocky Ford, Colorado, in August last. The storm destroyed crops of Maize and Cantaloup Melons over an area eight miles long, and one-third of a mile wide. An illustration shows Maize stripped to the stem, or beaten to the ground, and the soil so thickly covered with hailstones as to present a winter snow scene.

New Secretary of the Chamber of Horticulture.—We understand that Mr. S. W. Hale, formerly Assistant Secretary, has been appointed Secretary of the Chamber of Horticulture in succession to Mr. C. M. Matthews.

The Hop Crop.—The total production of Hops in this country for 1923 is estimated at 229,000 cwt., which is 72,000 cwt. less than in 1922, and 38,000 cwt. below the average production in the 10 years 1913-22. In the south-eastern counties the yields per acre are considerably lower than those of 1922, particularly in Sussex, where the crop of the preceding year was very heavy. In Kent the yield is 2½ cwt. per acre less than in 1922, and 1½ cwt. per acre lighter than the mean of the previous ten years. Yields in the western counties are, on the whole, rather better than in 1922, the Worcestershire crop being ½ cwt. per acre heavier than that of last year, which was an average crop, and the yield in Hereford is of practically the same weight per acre as in 1922, and about ½ cwt. short of the ten-year mean.

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European Orchids. — The *Album of European Orchids*, published in 1889, and already out of print by 1905, has been so frequently asked for since that date that the author, M. Henri Correvon, of Floraire, Chêne-Bourg, Geneva, has decided to bring out a new edition, with six fresh plates in colour from originals by M. Godfrey, representing seven species from the Mediterranean littoral. Thus 67 species of European Orchids are illustrated in 66 plates, with descriptive text. The text in the new edition has been slightly abridged. The price, to purchasers obtaining copies before December 31, 1923, will be the same as in 1899, namely 20 francs; from January 1, 1924, onwards, the volume will be sold at 25 francs. The coloured plates, admirably produced, comprise a complete representation of all the Orchids indigenous to Europe, except some types of Ophrys, Serapias, etc., belonging to the most southerly regions of Italy, Greece, and Spain.

Appointments for the Ensuing Week.—Sunday, November 4: Wakefield Tulip Society's meeting. Tuesday, November 6: National Potato Show in conjunction with the Birmingham Chrysanthemum Society's show (three days); West of England Chrysanthemum Society's show (two days); Brighton, Hove and Sussex Horticultural Society's show (two days); Royal Caledonian Horticultural Society's meeting. Wednesday, November 7: Royal Oxfordshire Horticultural Society's show (two days); Forest Hill Chrysanthemum Society's show; Mitcham, Tooting and District Horticultural Society's show; Sevenoaks Chrysanthemum Society's show; Marlow and District Chrysanthemum Society's show; Guildford and District Chrysanthemum Society's show (two days); Gainsborough Chrysanthemum Society's show (two days). Thursday, November 8: Bedford and District Chrysanthemum Society's show; Jersey Gardeners' Chrysanthemum Society's show; Finchley Chrysanthemum Society's show (two days); Hitchin Chrysanthemum Society's show; Taunton and District Chrysanthemum Society's show; Nottingham and Notts Chrysanthemum Society's show (three days); Coventry and District Chrysanthemum Society's show (three days); Doncaster and District Chrysanthemum Society's show (three days). Friday, November 9: Gloucestershire, Root and Fruit Society's show; Derbyshire Gardeners' Association's Chrysanthemum show (two days); Sheffield Chrysanthemum Society's show (two days). Saturday, November 10: Hawick Horticultural Society's show; Burton-on-Trent and Shobnall Chrysanthemum Society's show; Accrington and District Chrysanthemum Society's show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Japan Lilies.* Has it ever been remarked that all the varieties of Lilium lancifolium degenerate or go back to the white variety? For these last three years I flowered with success L. l. album, l. punctatum, and l. roseum, all of which, in November, 1847, were repotted as usual by myself. My stock consisted of four pots of L. l. album, two of punctatum, and one of roseum. This autumn all the seven plants have produced white flowers! I may state that I am my own flower gardener, and that it is impossible that any substitution of roots could have taken place, and that the pot of L. l. roseum was remarkable and unmistakeable, from the following circumstance: I had originally received the plant from Mr. Van Houtte, of Ghent. Observing that it had been grown in pure black peat, or rather heath soil, I always replanted it, and that bulb alone, in similar soil: therefore, without any label, that particular pot was always distinguishable, and so it continues to be at this moment. I would further observe that in making its growth this summer, the ex L. l. roseum retained its former dwarf habit, flowering at the height of about 2½ ft., whilst all my true L. l. album attained as usual an altitude of nearly five feet. *H. D., Junr., Beau Séjour, Guernsey, October* 15. *Gard. Chron., October* 28, 1848.

HARDY FLOWER BORDER.

A LARGE ANTIRRHINUM PLANT.

DOES any record exist of a bigger plant of Antirrhinum than the one illustrated herewith (Fig. 93)? The plant first appeared as a self-sown seedling in the kitchen garden here last year, growing to an average size and flowering as usual. It was left undisturbed and continued to increase in size early this season until at the time it was photographed it carried upwards of 300 flower spikes, large and small. It measured 3 ft. 6 in. across one way and 3 ft. another way, and was approximately 7 ft. in circumference. Being a rounded plant only the flowers of one side and the top spikes are visible in the picture. Around the base of the plant a cluster of young growths has appeared, while the whole root-stock looks extremely vigorous and the top is still green.

Two other Antirrhinum fine plants came up in other parts of the garden—self-sown—one carrying about 30 spikes and the other 50 spikes.—*C. Turner, Ampthill Park Gardens, Bedfordshire.*

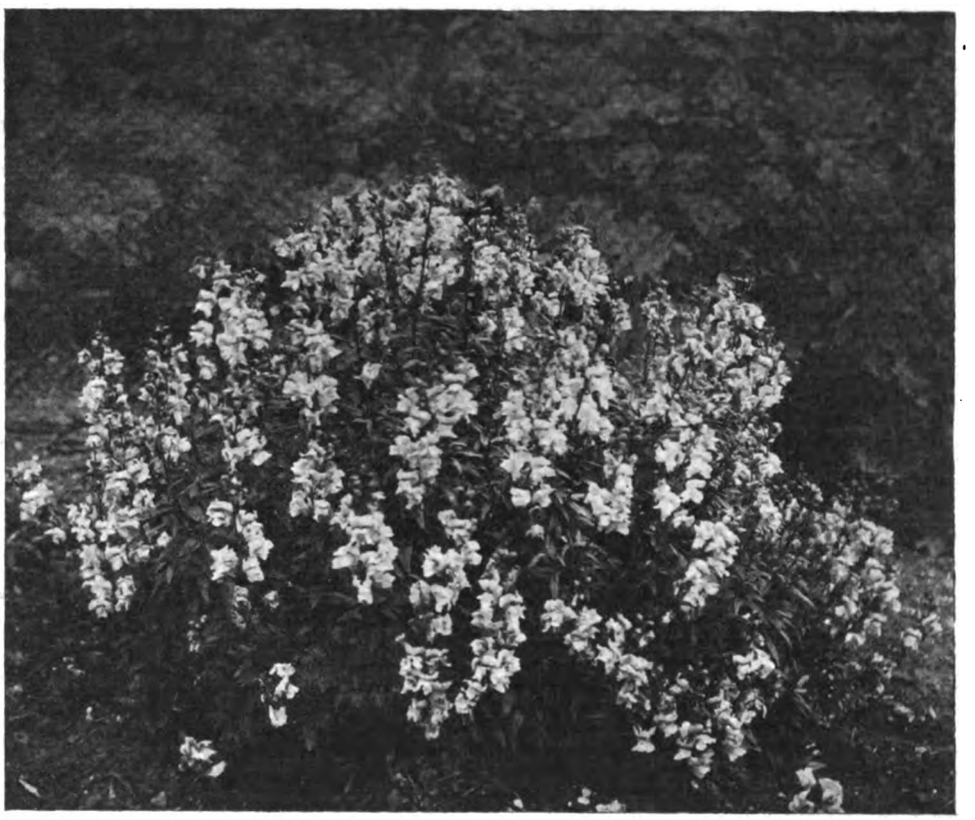

FIG. 93.—A LARGE, SELF-SOWN ANTIRRHINUM.

RHEUM NOBILE.

I SEND a photograph (Fig. 94) of a plant of Rheum nobile, which flowered in the Royal Botanic Garden at Edinburgh either in 1886 or 1887, which hitherto has not been published. I am not quite certain whether it was in the former or the latter year that it flowered. It was in the spring of 1886 that I commenced photography, and as the negative is on a 5 by 4 plate, which size I discarded for the quarter plate in the following year, it could not have been later than 1887. The label attached to the plant bears, in the handwriting of the late Mr. Robert Lindsay, the Curator of the garden at that time, the following inscription—"Rheum nobile, Hook. fil., Sikkim (H. J. Elwes, Esq., 1882)." The date, 1882, would no doubt refer to the year in which the seed was received from Mr. Elwes, so that four or five years must have elapsed between the sowing of the seed and the flowering of the plant.

I have a quite vivid recollection of the plant, which would, I think, be somewhere between four and five feet in height, and the flower stem, with its delicate, beautifully imbricating bracts of a pale straw colour, with a slight tinge of pink at the edges in the upper part of the spike, formed an almost perfect cone arising from the centre of a ring of large, glossy-green normal foliage leaves at the base.

It would be interesting to know if any other plants of this species have flowered in this country. It is a remarkably beautiful plant when in flower, or rather when it produces its flowering stem, for the flowers themselves are quite inconspicuous. *A. D. Richardson, Edinburgh.*

[Rheum nobile flowered in the Royal Botanic Garden, Edinburgh, in 1880, and an illustration of the plant was given in *Gard. Chron.*, June 19, 1880, Fig. 138.—EDS.].

HARDY GERANIUMS IN AUTUMN.

MANY of the hardy Geraniums may be counted upon to give colour at this season, and the best of them is G. Wallichianum, var. E. C. Buxton, whose clear blue, white-centred flowers never look so charming as they do in the waning light of these shortening days. This plant is, of course, by nature a somewhat late bloomer, but the much earlier G. grandiflorum is also an autumn flowerer of no small merit, its large, blue-purple blossoms adorning the handsome foliage which freshens up with renewed vigour when the autumnal rains begin.

G. Endressii, with flowers of a full-toned pink, also revives at this season, and the prettily veined blossoms of G. striatum are doubly welcome at a season when flowers grow daily fewer.

Then there are the numerous hybrid offspring which these two Geraniums produce and which, in every conceivable shade of pink, appear as self-sown seedlings to brighten the woodland and garden until winter has approached.

Where it does well G. Traversii will often yield some lovely blossoms in October, but those who are unable to grow this somewhat fastidious plant will find in its offshoot, G. "Russell Pritchard" an admirable substitute of most remarkable vigour and one that will be in bloom with the very last. *N. Wales.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, late Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Temperatures.—The following temperatures should now be maintained: East Indian house, 60° to 70°; Cattleya house, 55° to 60°; Mexican and intermediate house, 50° to 60°; cool house, 45° to 50°. No harm will follow if the temperatures fall a few degrees lower for a short period during periods of extreme cold or high wind. For the next few months the heating apparatus will have to provide most of the warmth in the various houses, and it should be used carefully. Most plant diseases are attributable to faulty conditions of temperature of the houses in which the plants are grown. The injurious effects of artificial heat during unusually cold weather should be so far as possible counterbalanced by the admission of fresh air, and the use of a moderate amount of water in damping the paths, stages, and immediately under and around the pipes. In order to economise heat, it is a good practice to cover the house with canvas or lath roller blinds, which may be let down whenever necessary; these make a considerable difference to the temperature. In cold, windy weather these coverings should be made secure, so that they cannot break the glass. Canvas blinds should only be placed on the hottest houses, as it often happens that they become frozen so stiff on cool houses that they cannot be rolled up again for several hours, and the plants may thus lose a considerable amount of light, of which Orchids never have enough during the short winter days. Wash the glass periodically, especially if the houses are near trees or the gardens near big towns. cleanliness is one of the greatest aids to good cultivation, and should be practised in all departments.

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HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Fruit Storage.—The gathering of late keeping Apples now being completed, every care must be taken of the fruits stored during the first few weeks. Decaying fruits should be removed immediately they are seen. Make sure there is a free circulation of air during the "sweating" period. Airing the house as much as possible in the early days, and as little as possible later, is a good plan to follow. Should the fruits shrivel, it means they have been gathered too early, or are stored in too dry an atmosphere. The difficulty of keeping mice out of a storeroom often presents itself. We have recently adopted a plan which we hope will effectively prevent these vermin from finding an entrance. The windows open outwards. A square framework is built out from the sill equal to the width and height of window, etc. Over this frame small-mesh wire is fixed. The window thus opens in, as it were, a wire cage. Perforated zinc has the disadvantage of not allowing a sufficiently free passage for air. Extra care should be given to fruit to be stored in litter, sand, or other medium until early summer. Late keeping varieties should be carefully selected, and only thoroughly sound fruit used. Certain cooking varieties, such as Newton Wonder, are quite good for dessert should other sorts not be available during May and June. From March to June there are several dessert kinds, which include Easter Orange, Court Pendu Plat, King's Acre Pippin, Lord Hindlip, and Sturmer Pippin.

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Orange Trees.—Gardeners generally regard Orange trees as dirty plants, as they commonly suffer from attacks of scale, and frequent sponging is necessary to keep them clean. However, by frequent spraying with a paraffin and soft soap emulsion the attacks of scale may be largely prevented or reduced.

Pernettya mucronata.—Well fruited plants of this hardy evergreen shrub are very bright and useful for furnishing the cool greenhouse during the winter months. The plants should now be placed in pots of suitable size, using a compost consisting of light loam and peat for potting purposes. After they have done duty in the greenhouse they may be planted out in the reserve garden for future use; if it is desired to keep the plants small they should be divided before they are planted out.

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THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Endive.—Plants of late sown Endive should now be lifted and placed in cold frames, or in cold fruit houses, if the former are not available. If the latter are used, place some old potting soil on the borders to plant the Endive in, so as not to injure any fruit tree roots that may be near the surface. The Endive may then be blanched by placing a 6-inch pot over each plant, first carefully folding the outer leaves. Plants in frames coming to maturity should be kept clear of dead leaves and loosely tied up to assist blanching. If watering is necessary, do this in the morning on a bright, windy day if possible, so that the plants become dry before night.

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Vegetables in Store.—On wet days examine the crop of Onions, and remove for present use any specimens that are not quite sound, and turn the others over carefully, allowing as much room as possible between them. Onions quickly deteriorate if stored in a damp place, therefore the driest situation possible should be reserved for them. Examine the Potatos and remove any that are diseased or in any way faulty, at the same time picking out any that are required for seed purposes, placing these upright in shallow trays, and remove them to a light frost-proof shed. Carrots, Beets and Turnips stored in sand or soil outside should not be allowed to become too wet; place some sheets of corrugated iron over them to ward off heavy rains, or, failing this, place a good straw thatch over the heaps.

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Roses in Woodlands.—Many Roses are well adapted for planting in those woodlands or semi-wild parts of gardens found in the majority of garden enclosures. Certain species and varieties are better suited for such positions than for the trim and often unavoidably more confined places they are planted in. Under these conditions the plants may be allowed more freedom, which in most cases improves their effect, and in all instances is in perfect keeping with wild garden surroundings. Roses so grown may be loosely secured to rough tripods, branches of trees fixed in the ground to act as supports, encouraged to cover old tree stumps, or be trained against the trunk of a dead tree that has been left standing. Planted as bushes in the open ground, without support, many kinds produce a delightfully natural feature that is particularly attractive if the site occupied be sloping ground. The chief points to be kept in view when planting under these rougher conditions are an avoidance of shade, and to see that the plants have a fair start. Some Roses suitable for either or all of the above purposes which I strongly recommend are:—Carmine Pillar, Crimson Rambler, Dundee Rambler, Felicité Perpetue, Gardenia, Jersey Beauty, Madame Plantier (excellent for grouping), Réné André, Una and Wichuraiana. Other types available for grouping in woodland spaces are the rugosa Roses and Penzance Briars, while they also form good hedges. Rose Hugonis is another strong-growing species useful for the latter purpose, and for planting in shrubberies.

Rose Cuttings.—Practically all kinds of Roses may be grown from cuttings, but in view of the cheap prices of Rose plants it is questionable whether time and space necessary to root and transplant them for a year before planting permanently is justifiable. Some years ago I experimented with many varieties in this way, and with a fair measure of success, with strong growing sorts; but weak growing varieties were too slow in becoming large plants. An illustration of Caroline Testout was given in *Gard. Chron.* at that time, showing the result of this variety on its own roots. Cuttings may be put in now, where there is a wish to do so, in open ground.

NOTES FROM TORQUAY.

EUPATORIUM glabratum is a name under which a very distinct and pleasing species of Eupatorium—tender no doubt in most parts of the country—is not uncommonly grown. It forms a dense growing, roundish shrub which I have seen up to the height of five or six feet; the leaves are somewhat oval, perhaps three inches long, tapering at both ends, firm in texture and very shiny. The small, white, rayless flower-heads form loose cymes and are produced very freely in later summer, about late October. It is a quietly ornamental shrub and lends itself as well as anything to the rough and ready method of pruning by trimming up with shears, which I have noticed in use for a whole collection of shrubs bordering a walk!

Leycesteria formosa is a well-known shrub, and although it does its best to live in various parts of the country it is rarely seen in a satisfactory condition, except under very special circumstances or in localities at least as mild as Torquay. At Cambridge it was always nipped back and rendered stubby by cold, but I do not think it ever died. Here it is sometimes very striking, and one sees what it may become with a little care. There may be circumstances under which it requires to be cut back, but as a rule it requires regulation rather than pruning, and certainly its appearance would be ruined by the treatment which the Eupatorium seems not much to mind. Shoots no doubt may sometimes be thinned with advantage, and useless growth may perhaps be cut away, the object being to produce those strong and graceful natural shoots and branches which arch over and carry the pendulous racemes under a canopy of bright green foliage. The fairly old stems are bright green, and there is nothing among shrubs to surpass in attractiveness the lively green of the leaves. These are several inches in length, quite smooth, ovate-lanceolate in outline, but variable, strongly acuminate, with reddish petioles, mid-rib and margin.

The pendulous racemes which give the plant its characteristic effect are both terminal and axillary; the purplish-red bracts are large and broad at the base of the raceme and taper in size down to its point; they are now strung along with the red fruits like a piece of necklace, on slender stems in place of string, in short bits or on a length of several inches. A few weeks ago—and still they come—the small white corollas were conspicuous against the red setting, but the effect was good, and so it will remain while bracts and fruits last. The planting of this shrub is worth consideration, and from what I have seen I would suggest the planting of several in a large round bed, or in any position which allows the racemes to be seen against a light rather than against a dark background, but wherever it will grow satisfactorily it is worth planting. It is a native of Nepal.

A single flower of Rosa bracteata—the Macartney Rose—on a pot plant in the Rosery Nursery, Torquay, compels me to draw attention to this very fine but much neglected Rose. It is, of course, more or less tender, but many years ago there was a fine specimen on the east side of the wall of the herbaceous ground at Kew, and I remember it for many years in east Cornwall as a shrub under a rustic porch. It is noteworthy if only for its deep green, highly polished, evergreen foliage, but from June to late autumn, when this is contrasted with a profusion of large white flowers, it stands out as one of the finest and most distinct of all Roses. Of somewhat rambling habit, its best place is against a wall where it can attain a height of about 20 feet. The branches are stout and sturdy, well provided with strong, hooked prickles and bristles. The leaves are composed of some five to eleven obovate leaflets, from ¾ inch to 2 inches long and ½ inch to 1 inch wide, of firm texture, with the stipules laciniated. The flowers are handsome in form, three to four inches across, each on its own short stalk and surrounded by several large and downy laciniated bracts; they have a delicate fruity perfume. The calyx tube and sepals, which are ¾ inch long, are covered with a pale brown wool. The fruit, which has a diameter of about 1½ inch, is globose, orange-red and woolly.

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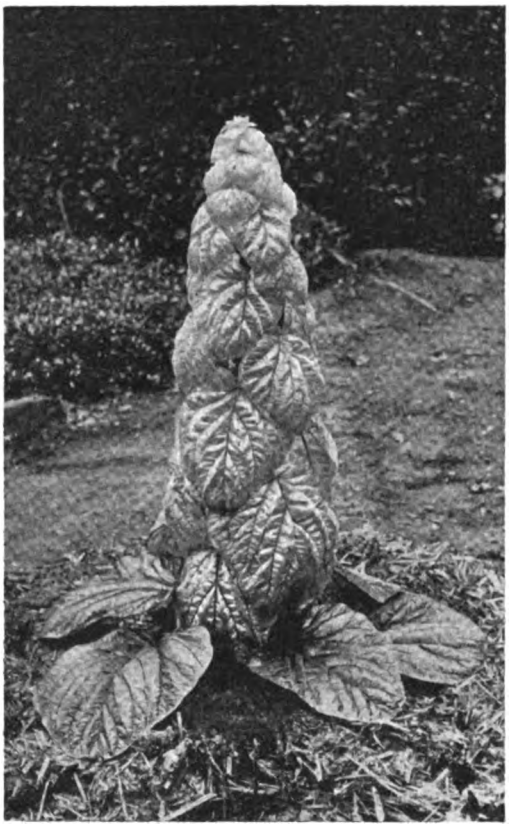

FIG. 94.—RHEUM NOBILE (SEE P. 257).

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Endive.—Plants of late sown Endive should now be lifted and placed in cold frames, or in cold fruit houses, if the former are not available. If the latter are used, place some old potting soil on the borders to plant the Endive in, so as not to injure any fruit tree roots that may be near the surface. The Endive may then be blanched by placing a 6-inch pot over each plant, first carefully folding the outer leaves. Plants in frames coming to maturity should be kept clear of dead leaves and loosely tied up to assist blanching. If watering is necessary, do this in the morning on a bright, windy day if possible, so that the plants become dry before night.

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Rose Cuttings.—Practically all kinds of Roses may be grown from cuttings, but in view of the cheap prices of Rose plants it is questionable whether time and space necessary to root and transplant them for a year before planting permanently is justifiable. Some years ago I experimented with many varieties in this way, and with a fair measure of success, with strong growing sorts; but weak growing varieties were too slow in becoming large plants. An illustration of Caroline Testout was given in *Gard. Chron.* at that time, showing the result of this variety on its own roots. Cuttings may be put in now, where there is a wish to do so, in open ground.

NOTES FROM TORQUAY.

EUPATORIUM glabratum is a name under which a very distinct and pleasing species of Eupatorium—tender no doubt in most parts of the country—is not uncommonly grown. It forms a dense growing, roundish shrub which I have seen up to the height of five or six feet; the leaves are somewhat oval, perhaps three inches long, tapering at both ends, firm in texture and very shiny. The small, white, rayless flower-heads form loose cymes and are produced very freely in later summer, about late October. It is a quietly ornamental shrub and lends itself as well as anything to the rough and ready method of pruning by trimming up with shears, which I have noticed in use for a whole collection of shrubs bordering a walk!

Leycesteria formosa is a well-known shrub, and although it does its best to live in various parts of the country it is rarely seen in a satisfactory condition, except under very special circumstances or in localities at least as mild as Torquay. At Cambridge it was always nipped back and rendered stubby by cold, but I do not think it ever died. Here it is sometimes very striking, and one sees what it may become with a little care. There may be circumstances under which it requires to be cut back, but as a rule it requires regulation rather than pruning, and certainly its appearance would be ruined by the treatment which the Eupatorium seems not much to mind. Shoots no doubt may sometimes be thinned with advantage, and useless growth may perhaps be cut away, the object being to produce those strong and graceful natural shoots and branches which arch over and carry the pendulous racemes under a canopy of bright green foliage. The fairly old stems are bright green, and there is nothing among shrubs to surpass in attractiveness the lively green of the leaves. These are several inches in length, quite smooth, ovate-lanceolate in outline, but variable, strongly acuminate, with reddish petioles, midrib and margin.

The pendulous racemes which give the plant its characteristic effect are both terminal and axillary; the purplish-red bracts are large and broad at the base of the raceme and taper in size down to its point; they are now strung along with the red fruits like a piece of necklace, on slender stems in place of string, in short bits or on a length of several inches. A few weeks ago—and still they come—the small white corollas were conspicuous against the red setting, but the effect was good, and so it will remain while bracts and fruits last. The planting of this shrub is worth consideration, and from what I have seen I would suggest the planting of several in a large round bed, or in any position which allows the racemes to be seen against a light rather than against a dark background, but wherever it will grow satisfactorily it is worth planting. It is a native of Nepal.

A single flower of Rosa bracteata—the Macartney Rose—on a pot plant in the Rosery Nursery, Torquay, compels me to draw attention to this very fine but much neglected Rose. It is, of course, more or less tender, but many years ago there was a fine specimen on the east side of the wall of the herbaceous ground at Kew, and I remember it for many years in east Cornwall as a shrub under a rustic porch. It is noteworthy if only for its deep green, highly polished, evergreen foliage, but from June to late autumn, when this is contrasted with a profusion of large white flowers, it stands out as one of the finest and most distinct of all Roses. Of somewhat rambling habit, its best place is against a wall where it can attain a height of about 20 feet. The branches are stout and sturdy, well provided with strong, hooked prickles and bristles. The leaves are composed of some five to eleven obovate leaflets, from ¾ inch to 2 inches long and ½ inch to 1 inch wide, of firm texture, with the stipules laciniated. The flowers are handsome in form, three to four inches across, each on its own short stalk and surrounded by several large and downy laciniated bracts; they have a delicate fruity perfume. The calyx tube and sepals, which are ¾ inch long, are covered with a pale brown wool. The fruit, which has a diameter of about 1½ inch, is globose, orange-red and woolly.

B

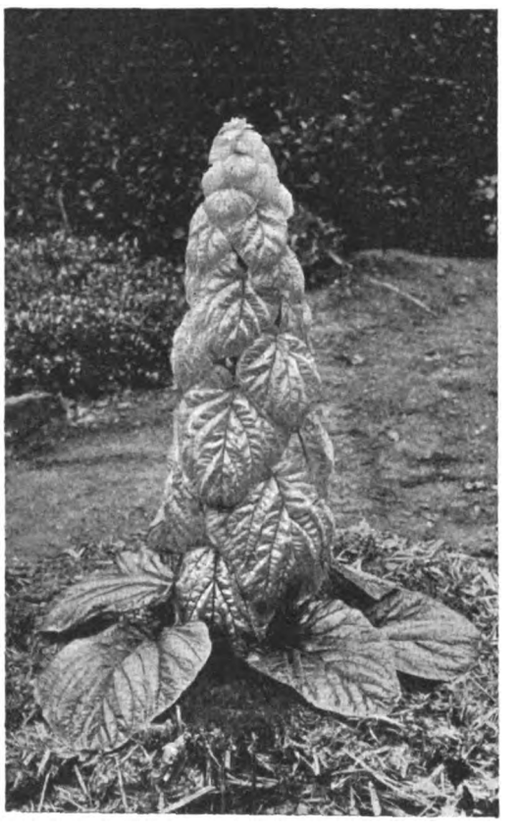

FIG. 94.—RHEUM NOBILE (SEE P. 257).

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This interesting Rose was introduced from China by Lord Macartney, 130 years ago, and is now one of the most striking and remarkable of all the wild types. It is figured in the *Bot. Mag.*, Tab. 1377. Mr. Bean, in *Trees and Shrubs Hardy in the British Isles*, draws attention to a cross between R. bracteata and R. laevigata—the Cherokee Rose—and it must be very fine indeed. It is the R. alba odorata of gardens, known also as the Marie Leonida Rose.

I believe Viburnum Tinus var. lucidum is by far the finest form of Laurestinus for planting in the milder parts of the country. It has glossy foliage, larger than that of the common Laurestinus, and the flowers are much larger and whiter and in finer trusses. Here it commences to flower about mid-September and continues in bloom through the winter and spring, judging from its last flowering season. I know it with pleasure flowering on a bank within view of my bedroom window, and against a background of light green Cupressus macrocarpa there could be nothing better in winter. Unfortunately it appears to be comparatively tender, and I have noticed its attractiveness only in the west. Like the common Laurestinus it is used for hedges, but except for stronger growth it appears to present no advantage for this purpose.

I cannot refrain from referring to Fuchsia Scarcity, though it is only of a common greenhouse type. Of this type, however, it must be one of the best, and it has the advantage here of being hardy enough to form a shrub as readily as F. Riccartonii or F. gracilis. It is of sturdy habit and much dwarfer than these, and conspicuous on account of its fine clusters of large flowers; the tube and sepals are crimson, the petals purplish red. The name I have from a well known Fuchsia grower, who speaks of it as a market kind, one he grows himself. If the brighter and lighter colours and greater size of the indoor Fuchsias could be combined with the habit and hardiness of the so-called hardy kinds, the result might be good for the summer and autumn brightness of shrubberies. I once made a cross or two with this object in view, but it was not the kind of work I could pursue, and the only result I got was a flower with unprecedentedly long stalk, sepals and stamens, which might well have been called The Spider. The subject of this note—now late in October—is still in great beauty.

Some time ago I was much interested to find a plant of the fine but uncommon Hawkweed—Hieracium aurantiacum—struggling in turf. More recently I have been further interested to notice its use as an ornamental border plant, and for this purpose it must be very unusual. It is, however, very effective, and nothing could be more easily grown.

The flower heads of this Hieracium attain a height of about 18 inches, and they form a showy mass of dark orange or reddish yellow. It is known as Grimm the Collier. I find it described in the *Student's Flora* as naturalised in copses of the north of England and Scotland. *R. Irwin Lynch, V.M.H.*

INDOOR PLANTS.

CAMELLIAS.

Camellias are old-established greenhouse favourites, and as subjects for the greenhouse and conservatory during the darkest days of the year they are hard to beat. They come into bloom at a time of the year when flowers are comparatively scarce, and their wax-like blossoms show up against the dark, glossy foliage in a pleasing manner.

Those who grow Camellias in pots, and favour standing them out-of-doors during the summer months will have moved them indoors to flower. Very little heat is needed for Camellias during their flowering period; in fact, the cooler the house the longer the blossoms will last, so long as frost is excluded. Camellias grown in this way will usually finish flowering by the end of December, when they should be removed to a newly started Peach-house or vinery. If a plant needs a larger pot, then will be the time to pot it. First examine the roots and act accordingly, remembering, however, that the Camellia does best if under-potted rather than over-potted. A mixture of peat and loam is used by some growers, while others prefer loam alone. I find that the plants do well in loam and peat used in equal proportions, to which is added a fairly liberal amount of silver sand and clean leaf-mould. Newly-potted Camellias should be kept in a temperature of 55° to 60° until their growth is made and flower buds are formed. During this period they should be frequently syringed and kept in a humid atmosphere.

Towards the end of April move the plants by easy transitions to a cool house or cold pit, and during the last week in May place them in a sheltered situation out of doors.

Large specimens may be grown to perfection in beds in high, span-roofed houses. Some fine specimens may be seen in the big houses at Kew. Two that are always fresh in my memory are, or were (and I hope they are still), in one of the beds in the conservatory there; they were Camellia japonica var. Kimberley, carrying vivid scarlet blooms, with a delightful centre of yellow stamens, and C. j. var. magnoliaflora—with delightful flowers of glistening pink.

Cuttings of free growing varieties will usually strike freely if taken when the wood is nearly ripe, towards the close of the growing season; inserted in pots of sandy peat and plunged in bottom heat, they will root in five or six weeks.

A few outstanding sorts may here be mentioned: Camellia reticulata, often termed the Queen of Camellias, is a beautiful form carrying large semi-double flowers of bright rosy-pink colour, with large golden anthers; C. alba-plena, imbricated, and C. noblissima, paeony-flowered, are two of the best white varieties; eximia is a fine form of crimson-scarlet; C. Donkelaarii, with light red, semi double flowers, and golden stamens, is much favoured for furnishing cut blooms; imbricata produces beautiful crimson flowers that are delicately imbricated; Marchioness of Exeter is an old favourite, its large flowers of fine rose-colour being very striking; Mathioliana is a fiery red, imbricated variety that seems to be somewhat rare; C. M. Hovey and C. H. Hovey, the former of vivid crimson-scarlet and the latter with deep crimson flowers, are two fine sorts; Chandleri elegans is a great favourite among lovers of Camellias, its semi-double blooms being of large size and light-rose in colour.

Camellias are becoming more and more popular for outdoor planting, but it is only in the warmer parts of this country that they will do really well in the open. Plants grown out-of-doors bloom in the early spring, and the flowers are liable to be injured by frost and wet. *H. W. Stenning, Ebrington Hall Gardens, Gloucester.*

THE BULB GARDEN.

MAY-FLOWERING COTTAGE TULIPS.

Under this heading may be included Dutch breeders, some of which are very like Darwin Tulips. This section of late Tulips is as valuable a one as the Darwin section, and by many the flowers are preferred, as they are—or some of them are—less stiff and more gracefully formed. In one respect they are inferior to Darwins, namely for pot culture. The stiff-stalked Darwins are quite good for pots, provided one does not object to their long stems. The ideal position for them is on the ground level. I should say that placed on the floor of one of the old-fashioned conservatories, with suitable foliage plants to hide the pots, they would be very effective. One often sees Cottage varieties exhibited at the early spring meetings of the R.H.S., but they nearly always look weak and rather unhappy; their flower stalks are not stiff enough to withstand the heat necessary to flower them early, and I think the best of the Dutch forcing varieties are much to be preferred, such, for instance, as the grand old Prince of Austria, Keizerskroon, Ophir d'Or, Lady Boreel and Couleur Cardinal.

I give the best varieties of this Cottage section—taken alphabetically:—

Bacchus: A very handsome Dutch breeder; flowers large and well formed, colour richest purple, outer petals having a "bloom" like a ripe Plum; height 20 in.

Bouton d'Or: Cup-shaped, very bright rich yellow, strong, stiff stalk, very useful as a cut flower, 20 in. This variety must be well grown to be seen at its best, though the small flowers are equally valuable for cutting.

Dom Pedro: Another of the breeders; a fine large flower, coffee-brown, shaded maroon, very sweetly scented; 22 in.

Faerie Queen: Deep rosy heliotrope, pale yellow edges to petals; a large firm flower; better for cutting than for beds or borders.

Gesneriana lutea: Beautiful clear yellow; fine form; 20 in.

Gesneriana major (spatulata): Large bold flower, deep glowing crimson-scarlet. One of the finest late Tulips in existence; makes a most telling effect when planted in bold groups. A long-lasting flower; 23 in.

Inglescombe Pink: A fine large flower, pale rose, shaded salmon; young blooms have a distinct buff tint; very distinct; 24 in.

Inglescombe Yellow: A large, perfectly formed cup-shaped bloom, of wonderful lasting quality, very late, one of the last to bloom; 20 in.

Jaune d'Oeuf (Sunrise): Golden yellow, outside petals shaded apricot, distinct and attractive, but flowers are rather easily spoilt by bad weather.

John Ruskin: A very long flower, yellow, shot rose, base yellow and green; a very attractive flower, but rather inclined to "break"; 18 in.

La Merveille: A very lovely variety, colour soft salmon shot with vermilion, most difficult to describe; a long flower with an elegant

NEW HYBRID ORCHIDS.

(*Continued from September 22, 1923, page 171.*)

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Alexandrina	B.-C. Digbyano-Mossiae Queen Alexandra × C. Cowaniae alba	McBean.
Brasso-Cattleya Viscount Sohma ...	C. Moira × B.-C. Ilene	Flory & Black.
Brasso-Laelio-Cattleya Alfred Mollet (Baron Ohara)	B.-L.-C. Morna × C. Hardyana	Flory & Black.
Cattleya Daedalus	Portia × Hassallii	Cowan.
Cattleya Mrs. Gratrix	Lady Veitch × intertexta Juliettae	Sanders.
Cattleya Phoebe	Dowiana aurea × Lady Veitch	Cowan.
Cattleya Queen-aurea	Dowiana aurea × Queen of Sheba	Sanders.
Cattleya Rotunda	amabilis × Freya	Sir J. Colman.
Cattleya Stella	Enid × Thurgoodiana	McBean.
Charlesworthara Rajah	Miltonioda Ajax × Oncidium monachicum ...	Charlesworth.
Laelio-Cattleya Alceste	C. Warneri × L.-C. luminosa	Charlesworth.
Laelio-Cattleya Baron Coffinet	C. Hardyana × ?	Armstrong & Brown.
Laelio-Cattleya Golden Eagle ...	L.-C. luminosa × C. Rex	Armstrong & Brown.
Laelio-Cattleya Nancy var. Edith Gentle	L.-C. Miss Louise Fowler × C. Hardyana ...	A. M. Gentle, Esq.
Laelio-Cattleya Rosy Morn	C. Armstrongiae × L.-C. Olivia	Armstrong & Brown.
Odontoglossum Bedouin	illustrissimum × Dusky Monarch	Charlesworth.
Odontoglossum Clonius	Aquitania × The Czar	Charlesworth.
Odontoglossum Matador	ardentissimum × Georgious Rex	Charlesworth.
Odontonia aurata	M. Bleuana × Odm. luteopurpureum aureum ...	Charlesworth.
Odontonia Stelpae maculata	M. Bleuana × Odm. Harwoodii	Charlesworth.
Vuylstekeara Medea	Oda. Zenobia × M. Charlesworthii	Charlesworth.

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"waist," like Picotee and Mrs. Moon; delightfully scented; 20 in.

Mrs. Moon: A stately Tulip, petals long and pointed, slightly reflexed, rich golden yellow and of fine substance; very late; height 26 inches.

Orange King: Flowers long, bright orange shot with pink on the outside; very sweetly scented, reminding one of a Maréchal Neil Rose; 24 in.

Parrot Tulips: A quaintly beautiful race, with serrated petals and gaudy colouring; unfortunately rather uncertain as to flowering, sometimes every bulb will flower, at other times half or more will be blind.

Picotee: A charming Tulip, the flowers are long and pointed with a graceful "waist"; white with narrow margin of carmine, with age the whole bloom becomes more or less flushed with carmine; a beauty for cutting; 18 in.

Purple King (Breeder): A rare variety, very like a Darwin; flower large and well formed, a beautiful old wine purple; strong grower; 25 in. Years ago I discovered this as a rogue, and after growing it for a year or two discovered "Bacchus" among it, so obtained two good things quite by chance. It is very slow to increase, like several of the best purples—hence its scarcity.

DISCARDED LIST.

Parisian White: Not a very good plant. Golden Crown: A showy Tulip, but very fleeting, dropping its petals easily, and when fully out is rather a coarse-looking flower. Inglescombe Scarlet: A lovely flower, but very thin and does not last well. Walter T. Ware: A gorgeous yellow when well grown, but such a slow propagator that it is useless to a trade grower. T. retroflexa: A beautiful and distinct flower, but a poor grower, and not so good as T. retroflexa superba. Flame: A fine variety, but greatly given to "breaking." Louis XIV.: A huge and glorious flower when seen at its best, but the whole of my stock "broke," so it was cast out! Biscuit (Clio, Bronze Queen, Sensation, or Duc d'Orleans): A distinct and attractive flower, when not injured by weather—which happened so often with me that it found a resting place in the sand pit, where many things go that are not quite up to the mark!

Gesneriana ixiodes: A pretty and very distinct flower, but too slow in increase. Glare of the Garden: Too short in the stalk to cut. Elegans alba: Also too slow; it would take a man a lifetime to obtain a stock, and Picotee is quite as attractive. Isabella: Too quickly becomes flushed all over the bloom and loses its beauty. Parisian Yellow: Not wanted with Gesneriana lutea and Mrs. Moon. Elegans: Rather small flower, weak stalk, and given to "breaking."

There are several good varieties which I have not mentioned, but they are at present very scarce, and consequently expensive, and I think the list given should supply the wants of all but the keenest growers who are on the look-out, like the men of Athens, for something new. *J. Duncan Pearson, Lowdham, Nottinghamshire.*

DIERAMA PULCHERRIMA.

DIERAMA PULCHERRIMA is a graceful, late-flowering, bulbous plant, with pendant, rosy-purple, bell-shaped flowers, 1½ inch long. These are of much substance, and remain in good condition over a period of from four to six weeks.

The beautiful flowers are borne on slender, silvery scapes, 4 feet long, delicate in appearance, but tough and wiry. Like the Sparaxis, in which genus it was at one time included, Dierama pulcherrima thrives best in a warm and well-drained, sunny position. Unlike the Sparaxis, however, it is impatient of removal, and should be planted somewhat thinly where it may remain undisturbed. Dierama pulcherrima atropurpurea is a form with darker-coloured flowers than the type, and D. p. alba is a desirable white-flowered variety. *Fred W. Jeffery, Dalserf, Lanarkshire.*

THE ALPINE GARDEN.

GENTIANA SINO-ORNATA.

I ENCLOSE a photograph of Gentiana sino-ornata growing in my garden at Glendevon, Perthshire. This photograph was taken six weeks later than that of Gentiana Farreri, which you published on p. 185, September 29. You will see (Fig. 95) that Gentiana sino-ornata flowers very freely with me; it increases very quickly, but being so late in coming into flower sets very little seed, and I find the best way to propagate it is by division in the spring. *A. H.*

RAOULIA AUSTRALIS.

OF the numerous Raoulias known to botanists there is only one which has as yet found its way into many gardens, and it must be said that its charms should give it a ready passport for admission to even the choicest collection of the flowers we know as alpines. Raoulia australis deserves a spot in the rock garden where carpeting plants are required for covering the ground under other subjects. For this purpose it is exquisite, but it has beauties of its own which entitle it to high favour. It is not a plant for strong, rich, heavy soil, in which it is unhappy even should it live, which is not at all likely in severe winter conditions. It seems to creep closely to the soil, which it covers with a multitude of little silvery leaves, starred in due season with white flowers, reminding one of those which adorn some of the Helichrysums. To give it a fair chance this Raoulia ought to be planted on a moraine or a stretch or pocket of light loam, sand and grit, in a sunny position. It delights in the dry moraine. With a plant so free in spreading (although it is not too aggressive) it seems needless to say anything about propagation, as a small piece taken from a plant and put in sandy compost will root very readily.

With regard to its hardiness one must speak with some reserve. It is, I believe, fairly hardy, but in exceptional winters may suffer badly in certain districts where spring frosts coming after a wet and open winter are rife. I have lost good plants which had survived unscathed for a period of years; and I think the winter of 1919-20 was about the worst in my experience for plants such as this. A few of the New Zealand and Tasmanian plants, of which the Raoulia is one, appear to suffer from such climatic conditions to an exceptional degree.

HELONIOPSIS GRANDIFLORA.

ACCORDING to the *Index Kewensis* this plant is referred to H. breviscapa, but it appears to be a better form of that species and is a desirable plant for the rock garden. I had it some years ago and cultivated it successfully for a considerable time in a low, moist position at the base of a rockery. Here it flowered well, but did not increase so rapidly as I would have desired. It was a plant which appeared to suffer much from drought, and I lost it when from home one very dry season, when other plants also succumbed from lack of moisture. In my opinion it likes a shady place with plenty of moisture during spring, summer, and autumn, and had I to cultivate it again I should prefer to give it bog treatment. It is quite a neat and distinct little plant with good leaves and short, stout spikes of rose-coloured flowers. It appears always scarce in commerce, and this is generally a sign that it is difficult to grow, as the enterprise of our nurserymen is so great that any accommodating plant soon becomes lower in price. This does not seem to be the case with Heloniopsis grandiflora. It is a native of Japan. *S. Arnott.*

THE ROSE GARDEN.

FRAGRANT ROSES.

THE common Moss Rose has a most pleasing odour and the shape of the flower is very fascinating. The Cabbage or Provence Rose, which was introduced about 1596 and is still favoured by many as a very choice Rose and one that every garden should contain, is delightfully perfumed. The Noisette Maréchal Neil, an old variety that requires a little protection, will produce a crop of well-shaped flowers of lasting properties, exquisite in outline, and with pleasing fragrance. Many Roses of rich and varied colours are lacking in perfume, but there are some gloriously coloured varieties that have a delicious scent.

Many Hybrid Perpetual varieties have strong perfume, including Hugh Dickson, Mrs. John Laing, La France, Louis Van Houtte, Horace Vernet, Ulrich Brunner, and Chas Lefebvre.

Many H.T. varieties may be selected for their fragrance, and the plants are, as a rule, in bloom for a long period. General McArthur is a variety that possesses the true Attar of Rose perfume; its colour is dark, the growth free and the plant is always in full flower. Richmond is a fine dark Rose with a pleasing odour. Gorgeous, of orange-yellow colour, veined and flushed with deep reddish copper, is a splendid Rose for pot cultivation or bedding and one with a perfume that is most pleasant. Golden Emblem is a very fragrant variety. The growth of this deep yellow variety is strong, the flowers large, the flowering period lasting and the perfume unsurpassed, making it an ideal Rose that is already a great favourite. Independence Day has all the good qualities of a bedding and decorative variety with, in addition, a pleasant perfume. The deep crimson-coloured Roses possess, as a rule, a pleasing odour. Most sorts of Tea Roses have perfume, but as these varieties require nursing and protection. I have omitted to mention them. *G. L.*

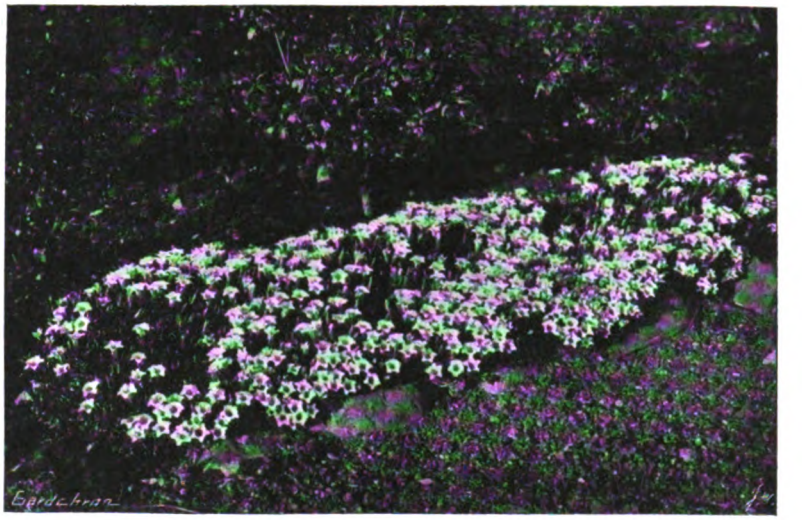

FIG. 95.—GENTIANA SINO-ORNATA, IN A PERTHSHIRE GARDENS.

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. 23.—OVER THE TARU TRA.

THERE was but one more range of mountains between us and the endless wet forests of Indo-Malaya. That day we climbed out of the Taron gorge and reached the last village—if three empty huts could be called a village—we were to see for several days. But the climb of a 1,000 feet was wasted; for on October 30, after a difficult march along the face of the mountain, buried in thick grass, we descended to cross a big stream, and had to make the climb again.

However, on October 31 we began the serious ascent of the Taru Tra, marching up the valley, but keeping well up on the flank of the range. Endless deep gullies had to be crossed, and in the course of seven hours' hard marching we covered barely four miles.

At first we were enveloped in forest, consisting largely of Oaks, Bucklandia, Michelia, Magnolia, a Schima, with creamy-white flowers; a Stamineum Rhododendron, and several species of Araliaceae. Then, coming out into the open park country, we found Pines and Alders again, with the usual tangle of shrubs. A species of Akebia, with black seeds embedded in an edible pulp, was found here. On the trees were several Orchids (Coelogyne) in flower.

As we got higher Rhododendron sino-grande reappeared in a rather squat and gnarled form, with capsules half destroyed by grubs. In the deep wooded gullies were dense thickets of a violet-flowered Strobilanthes forming big bushes 6 or 8 feet high. A few miserable species of Impatiens were also in flower. The going was bad, and I gathered unto myself numbers of forest ticks, which stabbed shrewdly, with a proboscis like a blunt fish-hook.

There were few shrubs, those which came under my notice being species of Euonymus, Ilex and Rhododendron sino-vaccinioides, the last often epiphytic, or growing on granite cliffs. The only other Rhododendron met with during the day's march was the common Irroratum type (K.W. 5474)—probably R. eriogynum.

We camped in the forest, not far above the torrent, at the lower limit of the real temperate forest. Altitude about 8,000 feet. On November 1 it rained in the night, and the temperature only fell to 43° F. We descended to the torrent bed and continued up the valley. Here the forest consisted chiefly of candelabra-like R. sino-grande and immense, moss-clad Pseudotsuga. In the gullies were thickets of shrubs, Lilium giganteum 12 feet high, and Polygonum; also bushes of sticky Strobilanthes, rather pleasantly scented, like Angelica.

As we ascended, a sprawling bush Rhododendron of the Haematodes type took the stage—the rust-red felt on the underleaf was a conspicuous feature. There was also a small epiphytic yellow-flowered species of the Boothii type. This was actually in flower!

Crossing the stream, we turned up a side valley, choked with bushes, amongst which Rhododendrons were conspicuous. But there was also a terrible lot of Bamboo, and the higher we climbed the more this Bamboo predominated, and the less chance there was for anything else. Nothing would grow under its shadow, except a few small Rhododendrons of the Sanguineum and Haematodes type. On the rocks were small bushes of a species like R. glaucum, with a poisonous smell; and in the open a few miserable plants of Primula serratifolia lingered on in flower. A species of Akebia dangled big purple Potatos in our faces as we forced our way through the thickets; but the pulp of this species was not nearly so tasty as that we had found in the morning.

It began to rain heavily, and before we reached a draughty shelter-hole under a big rock we were wet through. The altitude was not more than 9,000 feet, but it was quite chilly, and the outlook, with the mist swirling round the cliffs, was depressing. The temperature had fallen to 37° by early morning, but the weather looked brighter. However, we were soon drenched forcing our way through the dense Bamboo brake to the head of the valley. We were now faced with a lofty granite wall, which looked absolutely sheer; and it certainly was abominably steep. We mounted by a scree. There were practically no Rhododendrons here, only Bamboo, and, in the open, thickets of tall herbs, such as Polygonum, Rodgersia, Astilbe and Umbelliferae, with tangles of Rubus, Viburnum and dwarf Juniper; but mostly Bamboo.

It was not encouraging.

At last we reached the knife-edge summit and had a clear view westwards over the wide wet hills and vales of Indo-Malaya, soft and green in the mist. It was snowing, but the sun came out and shone on the wads and strips of cloud below. We were now 4,964 feet above the Mekong, or nearly 11,000 feet above sea level.

But we were in a sea of Bamboo, and there seemed to be hardly anything else on this barren granite except a small Saluenense Rhododendron; and most of the capsules of that had aborted. (K.W. 5434). A little lower down, however, we came to open alpine slopes, covered with bushes of a Trichocladum species. (K.W. 5489).

The descent now followed a well-wooded ridge, and Rhododendrons became more numerous, if less accessible. But it was already clear that we had seen the best of them; another thousand feet descent into that all-devouring jungle, and hardly another plant should we see, except a few hopelessly soft Irroratums and Stamineums. In the middle of the afternoon we reached the valley, and followed the stream which clattered down a steep stony gulch, lined with forest. Nothing much was visible. I picked up the milk-white corollas of an epiphytic Maddenii Rhododendron, but it was a couple of days before I could secure a plant; it was just coming into bloom and was deliciously fragrant, and about as hardy as a hot-house Orchid.

We camped under a rock, in the gloomy forest which was presently illuminated by a heavy thunderstorm; but the storm cleared the air, and when we started again next morning, the weather looked far more promising.

We continued to descend, and there was no disguising the fact that the forest was now tropical. The big Musa plants, the tree Ferns, Figs, Aroids, Melastomaceae, and Palms told us that. In the afternoon we reached a village and halted for the night. On November 4 we resumed the march, crossing a river and so over the shoulder of a spur, from the top of which we saw the Taron again, now galloping up from the south. Like the Yangtze, it forms a loop here, and must be crossed twice; or rather, we did not cross it a second time, but followed it westward for a day. The jungle here was hot and sticky, for we were barely 4,000 feet above sea level. There were climbing Palms and huge Bamboos, and lovely Englehardtia trees, and many Leguminosae with queer pods—conspicuously Entada, Bauhinia, and Cassia species. I found a form of Rhododendron indicum with bright carmine flowers, and there were plenty of Orchids on the trees, big Screw Pines, and a great variety of trees unknown to me. After crossing a river called the Tazu-wang, by a cane suspension bridge, we looked back and saw the high mountains for the last time—the glorious Rhododendron-covered mountains of the frontier. Ahead lay the jungle.

We marched for a day in the steamy valley of the Taron, and I learnt that we were now only twelve marches from Fort Hertz. Then in quick succession we crossed two big tributaries, still in the dense jungle. I found a magnificent Clematis in flower here, with wine-coloured petals and cream stamens.

The Taron was fairly thickly populated, to my great surprise, and I had no difficulty in getting porters and supplies; it was necessary to lay in stocks, because a considerable stretch of almost uninhabited country lay between us and the plains of Hkamti Long.

It was sad to have crossed the mountains so quickly—as it seemed now; though at the time it appeared a toil. We left Chamutong on the Salween, on October 20, and by November 3 had crossed the Gompa La, the Taron, and the Taru Tra, and were marching through the jungles of the lower Taron, with no more serious mountain ranges ahead of us, only hills, hills, hills, and rivers, endless rivers; and everywhere the hot, sticky jungle. Even in November the heat in these deep valleys was oppressive. Rain fell nearly every day, though this was the fine weather season! But the rainfall here exceeds 120 inches a year, and though the bulk of it falls during the six summer months, there is plenty left for the winter!

F. Kingdon Ward.

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17, July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, March 10, 24, April 7, 21, May 5, June 2, 23, July 7, 21, August 18, September 1, 29, and October 20, 1923.

PLANTS NEW OR NOTEWORTHY.

SYMPLOCOS PANICULATA.*

THE gardens of New England are denied the wealth of hardy, broad-leaved evergreen plants which thrive exceedingly in Old England, and the variety of plants that can be grown out of doors here is much less, but there are compensations. Plants that do thrive grow more rapidly, flower more freely and fruit much more profusely than they do on the other side of the Atlantic Ocean.

Nothing we have growing in the Arnold Arboretum impresses a gardener from Great Britain more forcibly than the wealth of fruits developed on the shrubs and trees. Such visitors find that many old and familiar plants possess a world of beauty hitherto quite unknown to them, and certain it is that the perfectly hardy, woody plants put forth their ornamental qualities to the maximum in the climate of New England.

Another interesting fact is that quite a number of plants considered not fully hardy in England flourish here quite unprotected, the much more severe winters notwithstanding. An excellent example of this is Symplocos paniculata, the Sapphire-berry, more generally known as S. crataegoides. In the mild climate of Great Britain this is usually regarded as a tender plant, whereas in the rigorous climate of Massachusetts it is perfectly hardy. The explanation of this is to be sought for in the greater summer-heat enjoyed here, which properly ripens the wood. In the Arnold Arboretum this plant is 18 ft. tall and 15 ft through, and has been growing in a fully exposed situation since 1880. Not only is it

* Wallich, ex D. *Prodr. Fl. Nepal.*, 145 (pro. synon.) (1825).

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quite unaffected by winter's cold, but each spring it flowers profusely, and each autumn fruits abundantly.

The Sapphire-berry is a shapely, much-branched bush or tree-like shrub with hard wood clothed with pale grey fibrous bark, and has rigid, twiggy branchlets. The leaves vary greatly in size and shape, and are more or less ovate or elliptic to obovate, shortly stalked, from two to four inches long and one to two inches broad, finely serrated on the margin, and often with a short, acuminate apex; the veins are deeply impressed above and raised below, and the underside of the leaf is more or less hairy. The flowers, produced at the end of May or early June, are white or cream-coloured with a conspicuous mass of stamens; they are borne many together in a short, erect, paniculate inflorescence at the end of the current season's leafy shoot.

yolk Shrub," as it is called in Korea. It was introduced into cultivation in 1875 by Thomas Hogg, who sent it from Japan to the Parsons' Nursery at Flushing, Long Island, New York, and the plants growing in the Arnold Arboretum are of the original stock. In flower the Sapphire-berry, with its profuse, erect, paniculate masses of star-like blossoms, is a lovely plant, and its lustrous blue fruit is as handsome as the gem from which I have coined a common name for general usage. The foliage is good, and the plant is not attacked by any pest, although starlings have an uncanny fondness for the ripe fruit. *E. H. Wilson, Arnold Arboretum.*

ALOCASIA MACRORHIZA.

The seeds of this plant were collected by Mr. Reginald Farrer, in China, in 1919, and sent home under "No. 1445, Alocasia Species." The seedlings were planted in the open in May, 1922, and some protection was given them last winter. The large leaf, 3 ft. 7 in. long and 2 ft. 9 in. across at the end of a 6 ft. stalk, is a fine object in itself, and is known as the Elephant Ear owing to its resemblance to the ear of that animal. Flowers were produced on several of the plants late this summer; they are like the spathes of a large Arum, purple and yellow on the outside and butter yellow inside.

Alocasia is a plant of the tropics, and though this species was found at an altitude of 6,000 feet on the Burmo-Chinese frontier, the climate of its home must be a fairly warm one.

Farrer's note on the plant is: "Huge and very handsome Aroid foliage, but not very likely to be hardy, though I got this seed off specimens on a high, bare slope about 6,000 feet. It need not be either despised or deplored."

This Alocasia (Fig. 97, p. 265) was recognised by Mr. E. H. Wilson as A. macrorhiza (or macrolisa?) when he saw it growing in the garden here last summer. *Kenneth McDouall, Logan, Scotland.*

SOIL SOURNESS.

Among the most stimulating and useful of the discussions held in the Botanical Section during the recent meeting of the British Association in Liverpool was one on soil sourness. This is indeed not surprising, since, in addition to its theoretical interest to the botanist and the chemist, the subject presents many problems of great importance to the farmer and, albeit, less urgently owing to smaller scale and more intensive culture, to the gardener also.

Attention was directed to the fact that soil "sourness" and soil "acidity" are not interchangeable terms. The conditions described do not necessarily occur together, although some degree of acidity is commonly a feature of "sour" soils.

FIG. 96.—FRUITING BRANCH OF THE SAPPHIRE BERRY, SYMPLOCOS PANICULATA.

The fruit of Symplocos paniculata (Fig. 96), which ripens in September, is an ovoid drupe about one-third of an inch long, of a lovely deep sapphire-blue colour, and is borne erect. The plant is really polygamo-dioecious, and so it happens that while some plants fruit abundantly others fruit very sparingly.

This uncommon plant in gardens belongs to a genus rich in species and widely distributed over the warmer parts of the world, very few of which are in cultivation. Nearly all are evergreen, but S. paniculata has deciduous leaves, and is the only member of the genus that is hardy in the Arnold Arboretum. It has a remarkably wide distribution in eastern Asia, being found wild from the north-west Himalayas eastward through China, Korea, Formosa and Japan. The plant is partial to scrub-clad rocky slopes, and is fond of full exposure, though frequently it grows on the edge of woods and in glades. It varies considerably in size of foliage and flowers, but the gradations are so even and so complete that it is impossible to distinguish any really distinct forms.

When dried in the sun the leaves always turn yellow, hence the name of "Egg-

In practice, soil "sourness" is recognised by the characteristic failure of certain crops; by the dominance of certain weeds, e.g., Field Spurrey and Sheep's Sorrel; by the prevalence of certain diseases, notably Finger and Toe of Cruciferous crops; and, lastly, by the rectification of all these conditions that immediately follow an application of lime or chalk to the soil.

Now the cause of "sourness" is not acidity or hydrogen-ion concentration, since this may be high when "sourness," as above defined, is absent.

The following features are associated by the soil chemist with soils of this class:—(1) Acidity on high hydrogen-ion concentration; (2) a high power for absorbing lime; (3) characteristic ratios expressing the proportions of the various soil bases present—calcium, magnesium, sodium and potassium on the one hand with the so-called weak bases—aluminia, iron, manganese, etc., on the other.

That the problem is a very complex one is indicated by the fact that, although the peculiarities just cited are invariably found in "sour" soils, cases are not lacking of

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certain soils, rich in organic matter, which possess these characteristics without the corresponding phenomena of "sourness." While the practical grower associates the problems arising from soil sourness more especially with the failure of certain crops, the plant ecologist finds that the prevalence of certain species in the field is a reliable indication of sourness, although he is puzzled at present to know whether the characteristic healthy type of vegetation so frequently found on these soils is correlated directly with the scarcity of lime salts or with the acidity and deficiency of oxygen usually coupled with this scarcity of calcium.

Much experimental work bearing directly or indirectly on the problem is in progress, both in this country and in the United States. More especially may results of special interest be looked for from the three following lines of research:—(1) The significance of acidity (hydrogen-ion concentration) in relation to plant growth; (2) the effect of variation in the proportions of the various soil bases, more especially calcium, magnesium, sodium, potassium and aluminia; and, closely associated with the latter, (3) the real significance of the so-called lime-shy or calcifuge habit in certain groups of plants.

Bearing on the first of these, Dr. E. F. Salisbury contributed a paper at Liverpool in which the results of numerous observations on the degree of soil acidity associated in nature with the distribution of particular plant species were expressed as curves. It was suggested that certain species, e.g., the Bracken, has a natural distribution closely associated with the degree of soil acidity, a well-marked "optimum" being recognisable in the curves. On the other hand, discussion elicited the fact that no experimental data were available to support the view that the soil reaction behaved as a critical factor.

Both in this country and in the United States data are rapidly accumulating recording the association of particular species with varying degrees of soil acidity, and experimental work is in progress to test the existence or not of critical degrees of acidity for individual species.

At present no sure conclusions can be drawn, and it must not be forgotten that many difficulties of interpretation arise. For example, the presence of certain plants, e.g., Sheep's Sorrel is often regarded as an indication of sourness. Experimentally, it is known that Sorrel will grow quite well on calcareous soils, and in general it must be recognised that a plant may grow well on "sour" soil, not because the condition is specially favourable to it, but because, being relatively tolerant of sourness, it flourishes owing to lack of effective competition.

Similarly, a plant species may be absent from natural vegetation, not because it cannot tolerate the soil conditions, but because its toleration is less than that of any of its competitors.

In another field of research, a group of workers attaches great importance to what may be called the "basic ratio" of the soil. It was pointed out by Dr. Comber that the cause of sourness is not merely the ratio of calcium to other bases (e.g., potassium and sodium), since the addition of neutral calcium salts does not reduce the sourness, and the addition of potassium and sodium salts does not enhance it.

In the rather special case of Heath plants, which so commonly form the natural vegetation on sour soils, it is held by certain workers that the important basic ratio in the soil is the proportion of sodium, potassium and magnesium, to calcium, on what is termed the

$$\frac{K + Na + Mg}{Ca}$$

There is also some evidence that the ratio of basic lime to weak bases, especially aluminia, may be a fundamental cause of sourness—a view which fits in well with the known toxicity of aluminium under certain conditions.—*M. C. R.*

THE RELATIONS BETWEEN HORTICULTURE AND PHYTO-PATHOLOGY.*

IT is certain that in the future growers will demand seeds free from disease. The more natural way seems to be that florists and vegetable growers should use sterilised seed themselves before they are made to do so. It is an astonishing fact that seed disinfecting is not already more popular. One of the reasons is that the methods of destroying seed parasites have not been worked out carefully. Most of the larger experiments have been made with agricultural seeds; with the vegetable and flower seeds we are far behind. It is true that several treatments which control the dissemination of seed diseases have been worked out by phyto-pathologists and agriculturists. I need only mention to you the copper treatment for bunt of Wheat, the formalin method for loose smut of Oats. More up to date are the experiments with compounds of chlor-phenol mercury, the uspulun-fusuriol and germisan group being popular in Germany. Even for parasites that live inside the seed-coat, the hot water treatment solved the problem, as i.e., for the loose smut of Barley. On the other hand, several methods are recommended by chemical industries, whose representatives are often obliged to make hypothetical statements of the results. There is a lack of faith, with or without reason. Here there is a large field for phyto-pathology, which surely will be ploughed with success. How far advanced are we with regard to horticultural seed?

The life history of some of the fungous parasites of vegetable seeds is well known. The anthracnose of Beans and Peas, caused by Colletotrichum Lindemuthianum and Ascochyta Pisi, form their pycnospores on the seed and their mycelium lives inside. This seed contamination gives rise to seedling infection, and later to serious attacks of the stems, leaves and pods. The leaf disease of Celery, Septoria Apii, develops its spores on the seed and the mycelium in the seed-coat. We find it mentioned that the Cucumber seeds carry the spores of Corynespora. But no scientific worker has yet brought any real proof in support of this supposition. The same is probable for Colletotrichum lagenarium. The facts have not been stated, and disinfection seems superfluous before we are well aware of these facts. We find evidence of the Hollyhock rust resting in the seed, but the statements have never been made in a faultless way.

So it is with the rusts of many vegetables and flowers. We find "sayings," but no statements, that Onion seed carries the spores of the Onion smut fungus, Urocystis cepulae. Orders against seed importation are issued. It seems very improbable that the smut spores formed at the base of the bulbs of young plants should ever reach the seed and stick to it. But there is a necessity to solve this problem, in order to avoid unnecessary trouble for seed growers. Phyto-pathologists should prove in a faultless way whether the seed carries smut or not. We should be well aware that this is not a task easily solved. Smut spores of Onions do not germinate readily; it will be a hard task to grow them in artificial culture, and only such cultivation of the fungus from the seed will solve the matter. The fungus of the Tomato canker, Diplodina lycopersici, produces anthracnose of the fruit, and is likely to attack the seed. However, we must state our ignorance.

The investigators of the genetics of the genus Antirrhinum or "Snapdragon" are well aware of a fungus trouble, which is a typical anthracnose of the stem, that kills the plant either in its seedling stages; or destroys the foot of the stem, so that the plant dies out. It is Phoma antirrhini which causes these losses.

* Abstracted from a paper on "The Relations Between Horticulture and Phyto-pathology," read by Prof. Johanna Westerdijk, Baarn, Holland, at the International Horticultural Congress, Amsterdam, Sept, 1923.

There is a possibility of the fungus living in the soil, as sometimes we see the disease reappear in the same places in hothouses; but, on the other hand, the fungi that produce pycnidia like the Phoma generally live on seeds, so I suppose we must class it with the Septoria, the leaf disease of the Celery, and try to look for control through the seed.

The case, probably, is somewhat different with the Phoma disease of the Phloxes, also a pest of some of the newest varieties. It is characterised by the same stem anthracnose as with the Snapdragon, and the same symptoms of the young, succulent shoots, which are so easily affected. But the Phlox, being a perennial, is probably always reinfected from the soil or by way of pycnidia from its own roots. Seed carriage may be possible, but has less importance for the culture of this plant. The same may be said of the Lavender Phoma, well known in England, and, like the former, causing a dying-out of the stem.

I only mention several examples out of many. These show that the plea for research is urgent. Nevertheless, they illustrate the great number of open questions concerning seed contamination; the fact that our seed-testing station has developed a department for mycology means that greater interest is being taken in these problems. Not only the occurrence of spores on the seed, but also the seed treatment, should be better understood. Next to a disinfecting influence, several of the toxic agencies stimulate the germination process and growth. Mercury-compounds, phenolic acids, and the more modern chlor-phenol mercury compounds are known to work in this direction. For the parasites living inside, the method of applying heat may be used. For Celery seed 48° is sufficient.

The present difficulty is that in different soils and under different conditions the results were never the same. Laboratory, greenhouse and field tests should be made on a large scale, so as to attack the question at its base. As soon as safe methods have come to our knowledge, regular disinfection of the seeds that want it may help horticulture to ensure healthy seed. Severe epidemics must disappear. Seed anthracnoses should become as rare as bunt of Wheat in countries where grain seeds are treated. The international importance of this question has, I think, hardly been realised.

Among methods of checking diseases in "sick" soil, the one the Americans have been following is the most successful and the most promising. They conquer diseases by growing immune varieties. When we consider the well-known and tested cases of immunity against fungous diseases we are obliged to admit that the most notable instances are chiefly found amongst wilt diseases, which are soil borne. American investigators have selected, with great success, types that resist wilting on the "sickest" soil possible.

Taking as an example the breeding of the Tomato, concerning resistance against Fusarium lycopersici, it must first be mentioned that wilting of Tomatos here is generally caused by Verticillium albo-atrum, but, on account of higher soil temperatures, in the U.S.A. the wilt caused by Fusarium is prevalent. The investigators selected individuals that possessed a marked resistance when grown on heavily infected soil.

The Tomato in America is in general self-fertile. Crossing with susceptible varieties seldom occurs, and so it is easy to keep the resistant strains pure. At present the U.S. possesses several strains of Tomatos that may be grown on infected soil with a very high degree of resistancy. The same has been done by Jones and his pupils with Cabbage, against the Fusarium soil disease. (F. conglutinans). After selecting resistant strains, it remains necessary to apply a certain selection throughout successive generations.

As with the Cabbage and the Tomato, resistance was bred into Watermelons, Cow-peas, Flax and Cotton. In some cases hybridisation was necessary, as with Cotton and Water-melons, in others selection was sufficient. In the case of soil parasites these resistancy experi-

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ments are easily handled, because the parasite conditions than fungi exposed to wind, rain is more steady in attack under different and drought.

Breeding against soil fungi is more promising than breeding against different rust diseases, as rust resistancy depends largely on climatic conditions, and we know that in different climates or even in similar climatic conditions different strains of a parasite may prevail. This fact has not yet been stated in regard to parasites, but it may at any time complicate our trials and experiments.

Not many attempts have been made in Europe to breed resistancy against soil fungi. Asters, Lathyrus, Tomatos, and Cucumbers are in want of such attempts. There is need for securing strains of Tomatos fit for continuous cultivation under glass in the same houses. Meanwhile one Tomato variety after another is passing away, and nobody fully understands why. If it be true that Verticillium, our most common soil parasite, is such an omnivorous species, it is questionable whether breeding for resistancy in Western Europe will be so successful as in the case of Fusarium in America. We know that the more specialised the parasite, the smaller the chance that we may find or breed resistant forms of our plants. This statement, however, should not discourage. Other unknown factors may favour such selective work.

(To be continued.)

DEVELOPMENT OF THE DAHLIA.*

(Concluded from page 251.)

The Paeony-flowered and Decorative Dahlias.

About 1900, Mr. Hornsveld, a Dutch florist at Baarn, showed a new strain of Dahlias he had raised. The flowers were mostly half-double, and were borne on very stout, rigid stems. They were somewhat or even very irregular of outline in some cases, and hence could not at once charm the severe Dahlia critics, who were accustomed to judge flowers after a prescribed standard of qualities. Under the auspices of well known Dutch firms the new strain was repeatedly shown in England, France, Germany and elsewhere. The first reception in England was rather cool.

So high an authority as the Editor of the oldest English horticultural trade paper condemned them to death without any hesitation. "The blooms," he states in a report of a R.H.S. meeting, "consist of huge, long, ragged florets in one or two rows round a yellow centre, and violate, as far as form goes, every canon both of the florist and of good taste. They are of no use for cutting, as they evidently flag quickly after being removed from the plant, and their only use appears to be to produce a vivid splash of colour in the garden; however, the exhibitor tells us they are 'selling like hot cakes,' so we suppose we shall have to endure them for some time to come."

Mr. Hornsveld, however, soon followed by others, not only in Holland, succeeded in improving the strain from year to year. The first varieties offered, Queen Wilhelmina, Queen Emma, Duke Henry, Baron de Grancy, and others, were successively discarded and replaced by Princess Juliana, which has proved an ideal white in every respect, and many others which have been and still are the glory of our autumn shows and the delight of the garden.

Meanwhile Mr. Pfitzer, of Stuttgart, had raised a similar strain of single and half-double varieties, which were offered under the name of Semi-Double Giant Dahlias, of which he published new varieties almost every season till 1910. The increasing success of this type of flower naturally led to the production of similar seedlings elsewhere, but Mr. Hornsveld rightly claims to be the pioneer raiser, and it cannot be denied that he and the other Dutch growers have made this section what it is now.

The new strain proved to have excellent qualities for decorative purposes and not to cause disappointment in the garden. The flowers are not hidden in the foliage, as with so many Cactus varieties, and the stems are strong and upright. Modern taste did not require flowers manufactured after a theoretical scheme dictated by some florist's flower maniac, but graceful flowers, freely produced and naturally growing without special care or management, and the newer Paeony Dahlias answered to such expectations.

It has always been somewhat difficult to exactly define the qualities of the flowers of this strain, and this difficulty was increased because numbers of varieties were not semi-double but full, and originally were distinguished as "Decorative Dahlias" from the former. In later years both types have become so much mixed up that it is almost impossible to distinguish them.

This, however, is a matter of secondary importance. The chief point is that the Paeony and Decorative Dahlias are now universally recognised as the leading varieties for garden and decorative purposes. Holland may be proud of this result. The seedlings of Hornsveld, Kroon, Ballego,

FIG. 97.—ALOCASIA MACRORHIZA (SEE P. 263.)

Wouters, Kriest, Carlee, Vianen, van Waveren, Glasbergen, Ludwig, Eveleens, Maarse and others of my fellow countrymen have spread everywhere, and are to be found in Dahlia collections in all parts of the world. These varieties have obtained certificates of merit after examination in trial grounds, and hence have proved to be real acquisitions of merit.

In addition to these Paeony and Decorative Dahlias several forms were raised of Cactus shape, but having stems as solid and rigid as those of the former. Such varieties are grouped as Garden Cactus Dahlias

The success of the Dutch garden varieties excited the production of similar varieties elsewhere. The United States at once recognised the important qualities of this section, and the novelties raised there mostly belong to the same group. More than one Dahlia society has been formed there by the numerous amateurs in the States, who have devoted themselves to the Dahlia cult with all the energy which Americans display, not only in matters of business, but also where their hobbies are concerned.

The Collerette Dahlias.

The same principle of producing useful garden plants, which prevailed in the raising of the Paeony and Decorative varieties, led to the improvement of the Collerette Dahlias in Holland. The first Collerette varieties came from France in 1900. Two seedlings raised at the Lyon City Park had single flowers of a dark colour with a row of small white florets round the golden central disk of the flower, which suggested a sort of collar; hence the name. The two varieties were followed by others, but all had very thin, drooping stems, and not until the Dutch and other growers succeeded in obtaining a strain with wiry upright stems were the Collerettes generally appreciated and used. The Dutch strain is distinguished by musical names, and Fuga received the highest honours in Holland.

New Starry Single Dahlias.

Another French strain has recently been offered for the first time. The type was discovered in a French amateur's garden, and it was Monsieur Martin, a nurseryman at Digoin, who succeeded in developing this type into the strain which has since been offered under the name of Etoile Digoinaise. The flowers are single, very much starry shaped, and the coloured florets are more or less tubular shaped at the top, which gives a novel appearance to the flower. Several varieties have gained awards of merit at Paris. They have not existed long enough for us to know whether they will maintain a position in future.

The Clematis-Flowered Dahlias.

This review of the modern Dahlias would be incomplete without mentioning a new type produced by the Dutch grower, Mr. Wouters, and somewhat suggesting the old Anemone-flowered forms. His seedlings, which have been offered under the names of Ada Finch (white) and Clematis (violet), more remind one of a Clematis flower than of anything else. The shape of the flower is absolutely distinct from any known older variety, and both sorts are very free bloomers, and hence good garden plants.

Conclusion.

The Dutch Dahlia Society deserves high credit for the excellent way it has advertised the Dutch Dahlias in other lands. Thanks to their artistic arrangement under the able management of Mr. Ballege, the standard varieties, as well as the new conquests, were shown to their best advantage in the Horticultural Hall in London, at the Société Nationale d'Horticulture de France, and at Antwerp. Everywhere those exhibits have been greatly admired, and even the critic of the trade paper referred to above became enthusiastic in his praise. Certainly those decorative sorts produce vivid splashes of colour in the garden—for which he seemed to reproach them—as every Dahlia ought to do, but does not. The future is for those varieties which give satisfaction in the garden. The new Star type raised in England has already proved its immense value in this respect.

In Holland no new Dahlia can obtain a First Class Certificate unless it has first gained a Certificate in a trial garden. In Germany the National Dahlia Society, still earlier, laid out Dahlia gardens in several large towns, where the garden varieties could be demonstrated at their best, and the public learn to appreciate them. These excellent ideas were followed by the R.H.S. when they arranged Dahlia trials in their garden at Wisley, and decided not to give a certificate or award for new varieties before they have proved to be free flowering and effective as garden plants. This is the only criterion, and it is the claim of the Dutch varieties, whether they belong to the Paeony, Decorative, Garden Cactus or Collerette sections, that they are real garden plants.

They are not show flowers after the ideals of the conservative florist, who used to present his blooms, without stems, on boards, in stiff rows, and, later, on wire frames in compact pyramids. Nevertheless they are the glory of our gardens, and our autumn shows, and the Amsterdam exhibition has demonstrated again how the Dutch varieties have increased the importance of the Dahlia as an object of commerce, but above all, as a flower of beauty and refinement.

* A paper read by Mr. Ernst H. Krelage before the International Horticultural Congress at Amsterdam, on September 18.

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AUTUMN SOWN PEAS.

Early dishes of Peas are always highly appreciated, and any method of cultivation which will advance, by even a few days, the gathering of pods of this vegetable is of value to the grower.

On heavy clay soils autumn sowing has little chance of being successful, but on light, sandy soils, in all but exceptionally bad winters, autumn-sown seeds develop plants which are able to withstand the winter, grow away vigorously in the spring and produce pods a week or ten days ahead of any that are sown outside in the spring.

The essential factor is to produce strong, sturdy and not too large plants before mid-winter, which will withstand the adverse climatic conditions of our winter season. For this reason sowings should not be made too early or growth will become too advanced and succumb to the severe conditions. It is not easy to fix a date for sowing; seasons and other conditions vary so much that this must be determined by the judgment of the grower; a good plan, however, is to make two sowings, the first early in November and the second about ten days later. I this means it is often possible to winter at leas one sowing, whereas if a single sowing is relied on the plants might be subjected to abnormal conditions, which would unfit them for withstanding bad weather.

The seeds should be sown in well-prepared trenches in which the soil has had time to become consolidated, and they should be covered to the depth of two or three inches with a prepared compost of old potting soil. It is important that thin sowing should be practised to enable each individual plant to develop freely under natural conditions and become robust and strong; plants which have to fight for their existence under crowded conditions cannot be expected to survive the winter.

If trouble from mice is anticipated, it is a good plan to moisten the seeds and roll them in red lead before sowing. If this precaution has not been taken and trouble arises after sowing, fine coal ash steeped in paraffin and scattered over the surface of the trench is an excellent deterrent.

The plants should be supported when a few inches high by means of small, twiggy sticks, which keep them from being blown about and also act as a protection; the final staking may be done when growth becomes active in the spring.

I find the variety Pilot is the best for autumn sowing, as its hardy constitution enables it to withstand the rigours of our winter better than most other varieties. Its flavour is admittedly not equal to that of some of the marrowfat varieties, but it is not often that the flavour of very early dishes of Peas is called into question. *W. Auton.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Gardeners and the Imperial War Graves Commission.—I desire to draw the attention of your readers to the use and abuse of the title "Gardener" as applied to men working in France for the Imperial War Graves Commission. What few real gardeners are engaged will, I am sure, be glad to have public attention drawn to the official methods of making a gardener. Of some 2,000 men engaged on the work, only about one per cent. are actually gardeners, in knowledge and pre-war employment. Considering there are so many skilled gardeners unemployed I consider the cemetery work should be given to them. I was for twenty months in the employ of I.W.G.C., and began to find how scarce actual gardeners were. The "Head Gardeners" or foremen were for the most part ex-policemen, old army men, naval men, and costers, and rarely those who had earned their living as gardeners. Coming lower down there were men who had been barbers, carmen, waiters and paper boys, dignified by the title of "Gardener." Most of the men go out as "Gardeners' Assistant," and in order to get the extra 10s. weekly paid to "Gardeners" they go through a farcical gardening examination; this examination is also open to clerks in offices, who, having known the answers to questions, soon pass the test, and are "Gardeners" on the wage sheet. Investigation will show that on the I.W.G.C. "Gardener" is a title held in contempt and derision. I know many good labourers on this work who should be made gardeners, and who have knowledge and experience. I held a sub-foremanship for a time, but, disgusted with official methods, I resigned, and I was replaced by an ex-fitter by trade previous to his employment with the Commission. After my resignation I was induced to remain in my employment, but as a result of unfair treatment I had cause to make a complaint to the London office; unfortunately, however, the London office does not investigate, but simply passes complaints back to the officials, consequently I found myself being ordered to push a barrow for labourers—although a skilled gardener of twenty-three years' experience. I did not remain with the I.W.G.C. I am not the only gardener who has had a similar experience. In my opinion, the whole business is bad, and what few skilled, decent men there are, are compelled to resign. A former comrade left to go to Kew; others returned to England after only two months' service. Those who are conscientious, skilled and of good conduct stand little chance under the scheme. The whole business of the Commission needs overhauling from top to bottom, and only the best men should be employed; at present men employed under the I.W.G.C. are forbidden to write to the Press, so, on behalf of those who are skilled and honest, I write for them. It may interest your readers to know that the following wages are paid: Head foreman, £3 10s.; sub-foreman, £3; gardener, £2 10s.; labourer, £2; plus, in all cases, 30s. board allowance, one month holiday yearly with wages, and fares paid; ordinary English festival holidays, and also French ones are allowed, and, of course, for about fifty days in the winter no work can be done. There are many things requiring to be made public concerning the Commission, but I particularly wish to draw attention to a grievance that is essentially one for gardeners *J. W. Martin, Lavethan, Blisland, Bodmin, Cornwall.*

Pea Senator.—On April 1 I sowed a row of Pea Senator. The plants grew very well, and on June 30 I gathered well-filled pods with nine or ten Peas in a pod. By July 7 the crop had been gathered. I usually pull up the haulm to make room for Broccoli, which do well with me between rows of Peas. However, this year I did not remove the plants and they flowered again in late August, and this week (October 16) I am again pulling good pods of well-filled Peas from the old row. Other Peas were sown on the same plot on the same date, namely, Daisy and Improved Queen, but these dried off. The land grew Potatos last year, but was given no manure this year. I shall grow the variety Senator again and leave it, but give it better treatment, as it may give me a few good dishes of late Peas. My garden is very cold, and to sow late Peas is practically useless. I should very much like the opinion of others on this matter. *G. H. S.*

[*G. H. S.* may not have a similar experience for 20 years. The Pea Senator is at least two weeks earlier than Daisy or Improved Queen. The haulm is also more slender; the pods are narrower and not so fleshy; the plant is more branching, and the pods more numerous and produced all over the plant, right up to the top. It has also a better constitution, is not so liable to mildew, and is not so easily damaged by unfavourable seasons. It is a poor man's Pea as regards its cropping qualities and fit for a king as regards flavour and appearance. It has only one fault, the skin of the seed sometimes splits in the pods that are being saved for seed. Daisy and Queen are both Peas of extra fine quality and appearance, but the plant of each is very luxuriant in growth and needs favourable conditions to develop it to perfection. A drought or a cold rainy spell would injure the plants badly. Senator would far more easily recover, as it has done in this case, and nine times out of ten would give the largest crop of shelled Peas.—Eds.]

Holland Park Hall Show.—Allow me to thank you for your able leader in the *Gard. Chron.* (page 213) on the R.H.S. fruit and vegetable show. I know I am only doing what hundreds would like to do in thanking you, especially for drawing attention to the miserable value of the prizes offered. The amateur element was sadly lacking, as you rightly observe, and the reason is given in Mr. Lewis Smith's letter (*Gard. Chron.*, p. 238). I thoroughly agree with Mr. Smith that the show was the worst seen for sixteen years. I have known the R.H.S. shows for over forty years, yet never have I seen such a poor display as at the one in question, and I have never heard so much complaining at previous exhibitions. The present season has been one of the worst for fruit growing, but even that would not have made such a difference to the show if the would-be exhibitors had been allowed to place their produce on the tables. Mr. Smith sent fifty-two entries. I sent fifty-seven; thus there were one hundred and nine entries from two potential exhibitors. I know other gardeners who were not permitted to enter, and I hope they will come forward and state their case, so that the general public, at least, may know where the fault is. I had not the slightest idea that the date of entry was advanced a fortnight. I made application for a schedule to the R.H.S. secretary at the end of May, writing thus: "Please forward fruit and vegetable schedule when ready." To this I received no reply. Another postcard was sent early in July, with the same result, and again early in August, but I did not receive a schedule in reply to my applications. I managed to secure one at last from the Wisley Gardens, which are not far from us. Then I found I was too late, according to the advanced date for entries; however, I posted my entries, and explained why I was late. The answer came back—"Too late." Correspondence ensued, and ended by the secretary stating that no application had ever been made for a schedule by me. I can only say I did make application by postcards; but, of course, I am unable to state whether these reached Vincent Square. I receive schedules from all parts of the country, without applying for them. Why not from the R.H.S.? Surely it would be wise to forward copies to all old exhibitors. Mr. Smith draws attention to the pilfering that was carried on at Holland Park Hall. I may add that the employees of one firm had over £14 stolen during the staging of their produce. I suggest the R.H.S. fruit and vegetable schedule be made more easily understandable in future, and, in conclusion, I protest against amateurs' exhibits being placed away in the galleries; several visitors to the recent show saw nothing of the up-stair exhibits, and were surprised to learn afterwards that they had not seen the whole show. *G. Carpenter, West Hall Gardens, Byfleet.*

Phygelius capensis.—The articles respecting this shrub by *A. T. J.* and *J. P.* induce me to add a few remarks respecting it. It is described in nurserymen's catalogues as herbaceous, and in the majority of cases it is planted in the herbaceous border. With the annual cleaning of the border, the plant is cut down with the rest of the subjects, to develop fresh shoots from the roots the following season, without ever a thought of trying it as a flowering shrub. No matter how grown, it is well worthy of a place in every collection, but to be seen at its best it requires to be trained against a wall. I have seen it grown in this way in Co. Down to a height of about 9 feet, and I understand it is to be seen in some of the southern counties grown as a wall shrub. Our winters of late have not been too severe, and I consider, in a number of places where this plant is grown as an herbaceous subject, if tried against a south or west wall, it would prove hardy enough to be grown as a shrub, and a very profuse flowering one. *J. T., Glasgow.*

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SOCIETIES.

IMPERIAL FRUIT SHOW, MANCHESTER.

There is no doubt that the exhibition of hardy fruit which opened at the Belle Vue Gardens, Manchester, on the 26th ult., was the finest ever seen north of London, and a tremendous amount of credit is due to the various sections of the fruit industry for bringing about this satisfactory state of affairs. Except for the small exhibits section, the show was essentially commercial, and, though it was not to be expected that in a season when the Apple crop is below the normal the exhibits would be as numerous as they were last year at the Crystal Palace, the average quality was equally good, and the improvement in the packing of the home-grown fruit very marked.

But for the enterprise of the trade, the Imperial Fruit Show might have ended with the second exhibition, and Manchester, at least, has done its best to ensure its continuation, and all that seems to be wanted to make the Imperial Fruit Show an annual event is a continuation of the spirit shown on this occasion. The building at Belle Vue—a relic of war-time—lent itself well for the purpose of the show, the overhead light being good, and with the competitive exhibits arranged down the centre and the trade stands on either side the effect was highly pleasing. In addition to affording a display of splendidly grown fruit, the show was educational to a degree, there being demonstrations in grading, packing, cooking, and other things, as well as lectures and conferences, and the whole of the arrangements were carried out in a manner that reflected great credit on the Committee and the officials.

British Empire Section.

There was a very keen competition in this section, which is open to *bona-fide* commercial growers in any part of the British Empire, and in the class for ten boxes of any dessert Apple premier honours were won by the Associated Growers of British Columbia, Ltd., who showed McIntosh Red in perfect condition; Mr. F. P. Norbury, Malvern, came a close second with splendid Cox's Orange Pippin; third, Macdonald College, St. Anne de Bellevue, Canada, with McIntosh Red; fourth, Mr. F. P. Norbury, with Cox's Orange Pippin; and fifth, the Hollesley Bay Colony, with the same variety.

In the cooking section, Mrs. Norris Bomford, Salford Priors, Warwick, won with splendid specimens of Blenheim Pippin; Mr. F. P. Norbury coming a close second with Lane's Prince Albert in fine condition; and Mr. S. W. Mount, Patrixbourne, Canterbury, third, with Lord Derby. The Associated Growers of British Columbia took the fourth prize with Wagener; and Mr. F. P. Norbury won the fifth award.

In the Overseas section there were many fine exhibits of Apples which are familiar in the home markets, the awards for which took the form of medals.

Kent and Southern Counties Section.

There was little competition for six boxes of Cox's Orange Pippin, and the first prize was awarded to Mr. G. W. Layley, Beconham, Berkshire. Mr. Spencer W. Mount, Patrixbourne, Canterbury, had the best six boxes of Worcester Pearmain, his fruits being exceptionally fine; and Mr. H. G. Klienwort, Boughton Monchelsea, Maidstone, was second. In the Allington Pippin class, Mr. H. M. Cobb, Higham, Rochester, led, followed by Messrs. H. G. Klienwort and Mr. S. W. Mount. The boxes of Blenheim Pippin which won for Mr. Mount the first prize were of wonderful colour and quality. In the "any other variety" class, Mr. H. G. Klienwort won first place with King of the Pippins; Mr. S. W. Mount, second, with Gascoyne's Scarlet; and Sir Walter W. Berry, Faversham, third, with Charles Ross.

There was a poor competition in the class for nine half-sieves of Cox's Orange Pippin, and Mr. G. W. Layley was the only prize-winner, but his Apples were good. Worcester Pearmain of exceptional quality won in the class for half-sieves of "any other variety," and was shown by Mr. S. W. Mount; Mr. H. M. Cobb, Higham, Kent, was second with Allington Pippin; and Mr. H. G. Klienwort, third.

Bramley's Seedling Apples, in barrels, were very good, and here again Mr. S. W. Mount won, followed by Mr. H. M. Cobb, with fruits less well coloured; Mr. F. I. Neame, Chilham, third. In the Newton Wonder class (barrels), Mr. Mount was also the victor with splendid fruit, and Sir Walter W. Berry, second. For Lane's Prince Albert, in barrels, Mr. S. W. Mount won with splendid specimens; Mr. F. I. Neame being second; Mr. Selby Smith, Barming, third. In the class for barrels of "any other variety," Mr. Mount won with Lord Derby; Mr. H. M. Cobb, second, with Gascoyne's Scarlet; and Mr. S. W. Mount, third, with Bismarck. Mr. S. W. Mount had splendid sieves of Bramley's Seedling which won first prize; Mr. W. L. Hubble, Faversham, being a good second; and Mr. O. Ellis, Bramley, Surrey, third. With bushels of Newton's Wonder, Sir W. W. Berry won well, his Apples being very fine; Mr. H. M. Cobb was a good second; and Mr. S. W. Mount, third. For "any other variety" in sieve baskets. Mr. H. G. Klienwort led with Bismarck; Sir W. W. Berry, second.

Eastern and Northern Section.

The best six boxes of Cox's Orange Pippin Apples were shown by Mr. H. Granger, Maldon, Essex, the fruit being nicely finished and well packed. The Hollesley Bay Labour Colony came second, and Messrs. W. Seabrook and Sons, Chelmsford, third. In the Worcester Pearmain class, Col. B. J. Petre, Westwick Fruit Farm, Norwich, was deservedly placed first for highly coloured and well-packed fruit, followed by the Hollesley Bay Labour Colony, and Mr. W. P. Hartley, Holwell Bury Fruit Farm, Bedfordshire. The last-named exhibitor won first and second prizes in the class for Allington Pippin in boxes, Col. B. J. Petre coming third. Boxed Blenheim Pippins from the Eastern Counties were only of very moderate quality, and the Hollesley Bay Labour Colony won the premier award. In the class for "any other variety," Miss K. M. Courtauld, Earls Colne, won with Gascoigne's Scarlet, and the Hollesley Bay Labour Colony was placed second with Charles Ross.

Messrs. Gardner Bros., Wisbech, had the best nine half-sieves of Cox's Orange Pippin, the Hollesley Bay Labour Colony coming second, and Mr. H. Granger third. For half-sieves of "any other dessert Apple," Col. B. J. Petre won with choice fruits of Allington Pippin, followed by the Hollesley Bay Labour Colony with the same variety, and Mrs. J. C. Blofield, Wroxham, Norwich, with Worcester Pearmain, in this order.

Some fine Bramley's Seedling-Apples in barrels came from the Eastern Counties, and Mr. F. J. Cunningham, Wisbech, well won the first prize, Col. B. J. Petre being a close second and the Hollesley Bay Labour Colony third. Mr. J. E. Morton showed the best half-barrels of Newton Wonder, Col. B. J. Petre being second, and Mr. W. P. Hartley, Hitchin, third. In the half-barrel class for Lane's Prince Albert, Col. Petre was again at the front, followed by Messrs. B. Hull and Son, Ely.

Newton Wonder Apples, in bushels, were well shown by Mr. W. P. Hartley, Col. Petre, and the Hollesley Bay Labour Colony, who won prizes in the order given, while for Bramley's Seedling, in bushels, the Hollesley Bay Labour Colony was first, Mr. F. Clayton, King's Lynn, second, and Mr. F. J. Cunningham, Wisbech, third. Messrs. Gardner Bros., Wisbech, won in the class for bushels of "any other variety" with good specimens of Lord Derby, the Hollesley Bay Labour Colony being second with Blenheim Pippin, also good; and Col. B. J. Petre, third. For any other variety of Apple shown in barrels, Mrs. J. C. Blofield, Wroxham, Norwich, won with fine examples of Lord Derby; Mr. S. T. Sharp, Wisbech, being second, with Bismarck; and the Hollesley Bay Labour Colony, third, with Mère de Ménage.

West and Midlands Section.

Here, again, there was a shortage of Cox's Orange Pippin in boxes, and Mr. J. Morton, of the Aston Fruit Farm, Newent, Gloucestershire, received the premier award, followed by Mr. B. J. Harding, Kilcot, Newent. Worcester Pearmains were very good for the season, Mr. A. Coldicott, Evesham, having the best boxes, and Mr. J. Morton coming second. Mr. B. J. Harding was a good first prize winner with Allington Pippin, followed by Mr. F. Paget Norbury, Sherridge, Malvern. Mr. B. M. Bomford, Salford Priors, won first prize for Blenheim Pippin, in boxes, with splendid fruits; the second prize exhibit, staged by Messrs. B. Bomford and Co., Evesham, was almost as good. In the "any other variety" class, in boxes, Mr. B. J. Harding won with splendid samples of King of the Pippins; Messrs. B. Bomford and Co., second, with the same variety; and Mr. J. Morton, third, also with King of the Pippins.

In the class for six half-sieves of Cox's Orange Pippin, the fruit from the Western Counties was well up to the average of this variety in the show, and Mr. C. R. H. Weekes, Bradninch, won the first prize, followed by Mr. B. J. Harding and Mr. B. Morris Bomford, Salford Priors, Warwick, in the order mentioned.

The half-sieves of King of the Pippins shown by Mr. J. Morton in the class for "any other variety" was one of the best exhibits in the show, and the fruits of Worcester Pearmain shown by the Erdiston Farming Co., Stockton, Worcester, which came second, were also very good; Mr. B. J. Harding was third with nicely coloured King of the Pippins.

In the Bramley's Seedling, barrel, class, Mr. F. P Norbury was a good first; the Erdiston Farming Co., second; and H. J. Pewtress, third. Mr. F. P. Norbury had the best Newton Wonder Apples in barrels, followed by the Erdiston Farming Co. For Lane's Prince Albert, Mr. J. Morton was the chief prize-winner; and Mr. F. P. Norbury, second. For "any other variety," in half-barrels, Messrs. B. Bomford and Co. won with fine Blenheim Pippin; and Mr. F. P. Norbury came second with Lord Derby.

Splendid fruits of Bramley's Seedling, shown by Mr. B. J. Harding, won first prize for sieves of that variety, the Erdiston Farming Co. being second, and Mr. W. T. Allen, Glastonbury, third, with fruit showing less colour. Mr. A. Coldicott, Evesham, won well with Newton Wonder, in sieves; Mr. H. J. Pewtress coming second. In the class for "any other variety," in bushels, the first and second prizes were divided between Mr. B. M. Bomford and the Erdiston Farming Co., who showed Blenheim Pippin and Warner's King respectively; Mr. F. P. Norbury was placed third.

Channel Islands Section.

Fruit from the Channel Islands was not extensively represented. Mr. E. Bull, St. Heliers, Jersey, was the only exhibitor in the class for six boxes of dessert Pears, and was awarded the first prize. There were no Grapes, and in the class for seven baskets of Tomatos, indoor grown, Mr. C. J. Summer, St. Aubyns, Jersey, excelled; while in the class for outdoor Tomatos Mr. J. Michell, St. Saviours, led.

Ulster Section.

It must be placed to the credit of the Irish growers that they showed better Apples than they did last year at the Crystal Palace, and these were also packed much better, but the Ulster men have yet a long way to go before they will be able to compete successfully with English growers.

Pears.

As might have been expected this year, Pears were not strongly represented, and the chief prize-winners were Mr. E. Bull, Jersey; the Hollesley Bay Colony; Mr. B. M.

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Bomford, Mr. H. M. Cobb, and Messrs. F. and T. Neame.

Special Prizes and Trophies.

There are so many special prizes, trophies, challenge cups, and medals offered at the Imperial Show that an exhibitor hardly knows what he stands to win, and this year the number has been added to. Amongst the numerous trophies are the gold cups presented by the *Daily Mail*. The one in the United Kingdom section was won by Mr. S. W. Mount, and in the Overseas section by the Associated Growers of British Columbia. Mr. S. W. Mount won the gold cup presented by Mr. C. H. Deakin, and a similar cup presented by Messrs. Dingleys, Ltd., went to Mr. H. M. Cobb, Higham, Kent. Many other silver cups, pieces of plate, trophies, and medals were awarded to different prize-winners in the various sections.

Small Exhibits Section.

The long length of tabling devoted to single dishes of Apples reminded one of the R.H.S. Fruit Shows, but we failed to see fruit in this division that was in any way superior to that shown in bigger lots in the commercial division, while some of the exhibitors won prizes in both sections.

In the class for a dessert Apple in season in November and December, Mr. C. R. H. Weekes, Bradninch, won with a fine dish of Cox's Orange Pippin, Mr. H. Hales, Sittingbourne, coming second with Allington Pippin, and Col. A. S. Fitzgerald, Lockerley, Romsey, Hampshire, third, with Blenheim Pippin. For a dish of dessert Apples in season after Christmas, the first prize went to a dish of Lord Hindlip, shown by Mr. H. J. Pewtress, Hereford, the second award being won by Mr. J. A. Stidston, Bishops Teignton, Devon, with a fine dish of Sir John Thornycroft; Mr. H. J. Phelps, Tibberton, Gloucester, third, with Court Pendu Plat, which were fine specimens of the variety.

In the dual purpose class there were Apples of different sizes and many varieties, and the first prize was given to some large specimens of Gascoyne's Scarlet, with a fine skin, but very poor colour; Mr. H. L. Thompson, Ottawa, Canada, was placed second with Wealthy, which were quite good; Mr. F. P. Norbury, Malvern, third, with Newton Wonder.

For a dish of an early, cooking variety, Mr. R. W. Thatcher, Market Harborough, won with Peasgood's Nonsuch; Mrs. J. Bond, Olantigh Gardens, Wye, second, with Lord Derby; and Col. C. R. Rowley, Felixstowe, third, with Peasgood's Nonsuch. Mr. W. T. Allen, Glastonbury, had the best dish of a late culinary variety, showing Bramley's Seedling; Mr. D. W. Ivison, second, with Alfriston; and the Coldstream Ranch, British Columbia, third, with Rome Beauty.

Pears only made a moderate show, and the Hon. Mrs. Pike, Westwick House, Norwich, won with very fine fruits of Doyenné du Comice, second, Mr. J. Michell, St. Saviours; third, Mrs. C. M. Solley Flood, Crickhowell.

Trade and Miscellaneous Exhibits.

It was a matter for regret that at a show of such commercial importance exhibits from many leading nursery firms and appliance manufacturers were conspicuous by their absence, but we saw evidence, nevertheless, of the commercial enterprise of Manchester and district. In the centre of the building, Messrs. Geo. Monro, Ltd., Covent Garden, had one of their characteristic displays of fruit most tastefully arranged; and Messrs. W. Seabrook and Sons, Chelmsford, also made a very fine display of fruit and fruit trees. Mr. John Swift, Manchester, who worked so hard in the interests of the show, had a fine stand of fruit; and Mr. C. H. Deakin's Watercress bed, showing how the salad is grown under hygienic conditions in spring water, was highly interesting.

Various organisations, including the Federation of British Growers, the National Farmers' Union, and the Wisbech and District Fruit Growers' Association, had exhibits; and there were educational stands from the Ministry of Agriculture, the Botanical Department of the University of Manchester, East Malling Research Station, and Long Ashton, while the various Overseas Dominions were represented by wonderful displays of fruit. Individually and collectively, the "miscellaneous" exhibits, which were of a varied character, added a feature of interest to the show, which appeared to be appreciated by the visitors.

ROYAL HORTICULTURAL.

October 30 and 31.—The display at Vincent Square on these dates was a magnificent one, and very largely composed of groups if Orchids. The exhibition was a special one in that Orchid growers were encouraged to exhibit, and they responded with great enthusiasm and great purpose. Not so very many years ago such a display of Orchids would have been impossible at this time of year. Other notable features were the Carnations, Chrysanthemums, hardy flowers, Scabious, stove plants, vegetables and fruits. The attendance was large.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), The Hon. H. D. McLaren, Messrs. Jas. O'Brien (Hon. Secretary), Gurney Wilson (Assistant Secretary), J. E. Shill, R. Brooman White, H. G. Alexander, Arthur Dye, Richard G. Thwaites, Fred. K. Sander, C. J. Lucas, Frederick J. Hanbury, S. W. Florv, H. T. Pitt, H. H. Smith, J. Cypher, W. H. White, W. H. Hatcher, T. Armstrong, A. McBean, E. R. Ashton, J. Wilson Potter, Pantia Ralli, Charles H. Curtis, and W. J. Kaye.

Awards of Merit.

Odontonia Philosopher (*M. St. Andre* × *Odm. Harwoodii*), from H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood). A very distinct hybrid of Odontoglossum shape, with light yellow ground, evenly spotted with claret red, and with claret-red lines at the base of the lip.

Sophro-Laelio-Cattleya Pervanch (*C. Syros* × *S.-L.-C. Marathon*), from H. T. Pitt, Esq. A grand flower of true Cattleya shape; the broad sepals and petals are rose-coloured, flaked with gold, and the front of the lip is deep crimson.

Cypripedium Phantasy var. Sobriety (*Gloriata* × *Actaeus Bianca*), from H. T. Pitt, Esq. A flower of fine form, the Holfordian C. Actaeus Bianca giving both fine shape and colour. The ground colour is yellow tinged with purple; the upper half of the dorsal sepal is pure white.

Brasso-Cattleya Floss Flora (*L.-C. Soulange* × *B.-C. Ilene*), from H. T. Pitt, Esq. A flower of perfect form, coloured rosy-mauve, with a crimson purple lip and broad, yellow disc.

Laelio-Cattleya Profusion (*L.-C. Serbia* × *C. Hardyana*), from Messrs. J. and A. McBean, Cooksbridge. One of the finest and most perfect of hybrids raised at Cooksbridge, good in shape, size and colour. The sepals and petals of the plant shown were bright rosy mauve, the broad lip ruby-crimson, with yellow disc.

Odontoglossum Desdemona var. Rubens (*Rossii* × *illustrissimum*), from Messrs. J. and A. McBean. A charming and very distinct Odontoglossum, with spotted sepals and petals, and broad, rose-pink-coloured lip.

Cattleya Pittportia, var. Lady Leon (*Mrs. Pitt* × *Portia*), from Sir Herbert Leon, Bletchley Park. A very pretty hybrid, nearest to C. Portia, with fine trusses of mauve flowers and a purple lip.

Groups.

Baron Bruno Schroder, the Dell Park, Englefield Green (gr. Mr. J. E. Shill), was awarded the large Challenge Cup for one of the finest groups ever staged, perfect in the fine culture and profuse blooming of the plants, most of which had been raised at The Dell. In the centre was a noble specimen of Laelio-Cattleya Tiresias (L.-C. elegans × C. Bowringiana), with twelve spikes bearing together over two hundred bright mauve-purple flowers. Other Bowringiana crosses were equally well displayed, with the Dell forms of Laelio-Cattleya Ivanhoe, L.-C. Schröderae and others of the large-flowered hybrids for which The Dell gardens are famed, and grand Brasso-Cattleyas and Brasso-Laelio-Cattleyas, especially of the yellow type. Mr. Shill was awarded a Silver-gilt Lindley Medal for the excellence of cultivation shown in this exhibit.

Sir Jeremiah Colman, Bt., Gatton Park (gr. Mr. Collier), staged a selection of cut spikes of Gatton hybrids in which blue tints have been evolved by long selection. Cattleya Portia, Gatton Park variety; C. Ariel var. coerulea and others well exemplified the nature of the work: Brasso-Laelio-Cattleya Antoinette, Gatton Park variety, a model flower, and Laelio-Cattleya Copper King were also of new colours. The pretty tassel-like Bulbophyllum lemniscatoides was also shown.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), who gained most of the awards made by the Orchid Committee to novelties, staged a very fine group rich in good Odontoglossums, Odontiodas and Cypripediums, with an interesting selection of species, amongst which were forms of Bulbophyllum and Cirrhopetalum, including the graceful, copper-red C. Mastersianum.

Pantia Ralli, Esq., Ashtead Park (Orchid grower, Mr. Farnes), staged an excellent group, in the centre of which were fine Vanda coerulea and graceful yellow Oncidium varicosum, the sides being filled with showy Cattleyas, Laelio-Cattleyas, and other hybrids (Gold Medal).

J. J. Joicey, Esq., The Hill, Witley, staged a good group of Cattleyas, Laelio-Cattleyas, and Odontoglossums. The central plant was a grand specimen of the large, pure white Miltonia vexillaria Lambeauiana, with a heavy spike of many large flowers. Of the Laelio-Cattleyas, L.-C. Linda splendens was one of the best. Some good white Cattleyas were also shown, and among species the elegant white Coelogyne Veitchii, the blue Dendrobium Victoria Regina, the singular Oncidium longipes, and graceful Cirrhopetalum gracillimum were noticed (Silver-gilt Flora Medal).

Messrs. Charlesworth and Co., Haywards Heath, were awarded a Gold Medal for a grand group occupying about 250 square feet, and in which the best selection of most of the popular Orchids of the day and their new hybrids were well displayed. The centre of the exhibit contained about twenty-five fine forms of the firm's home-raised Odontoglossum crispum of their "Doin" type, which far surpass imported forms, as their richly-coloured, blotched forms raised at Haywards Heath have the coloured type. A number of the large white Phalaenopsis amabilis Rimestadiana, and some fine white Cattleyas and Miltonias also effectively enhanced the display, and their yellow-petalled Laelio-Cattleyas and Brasso-Cattleyas included good new forms. A selection of new Odontoglossums and Miltonia hybrids with their first flowers was also shown.

Messrs. J. and A. McBean, Cooksbridge, in their select group, had as the main feature plants of their beautiful Laelio-Cattleya Profusion (C. Hardyana × L.-C. Serbia), which they consider to be one of the finest crosses they have made. The plants shown had their first flowers, and it was evident that they are free growers and profuse in flowering, the trusses of large richly-coloured blooms being evidence that it is a standard florists' flower. Several forms were shown, all good in every respect. Messrs. McBean also showed some good forms of their L.-C. Linda and other of the Cooksbridge hybrids, including Brasso-Cattleya Lisette; B.-C. Ilene delicata and superb forms of Cattleya Luegeae and Hardyana crosses (Gold Medal).

Messrs. Sanders, St. Albans, staged a very fine group, replete with good hybrid Cattleyas, Laelio-Cattleyas, and Odontoglossums, with a very interesting selection of rare species. Outstanding plants were the new Odontioda Aurora Borealis, a large Odontoglossum-like flower, with white ground, tinged with mauve and blotched with purple; Cattleya Fabia Dreadnought, of

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fine size and shape and rich colour; Brasso-Cattleya Ilene October, a model mauve flower, with round, crimson-purple lip; some good yellow Brassavola hybrids, and a selection of rare species (Gold Medal).

Messrs. COWAN AND CO., Southgate, staged a fine group in which their hybrids of the season were well shown, and especially their fine, white-petalled varieties of Cattleya Hassalii and C. Hardyana. Good Brasso-Cattleyas, for which this firm is famous, and a selection of Cypripediums were also shown (Silver-gilt Flora Medal).

Messrs. STUART LOW AND CO., Jarvisbrook, Sussex, staged a good group of Cattleyas, Laelio-Cattleyas, and other hybrids, with some pretty species. Laelio-Cattleya Cumbe var. Rainbow, is a model flower of fine colour. A choice form of their Brasso-Laelio-Cattleya Truffautiana was also noted (Silver-gilt Flora Medal).

Messrs. J. CYPHER AND SONS, Cheltenham, had a fine group in which Cypripediums were shown better than in any other exhibit. The collection included a selection of rare species. The best of the Cypripediums were C. Elatior, Shrubbery variety, the finest of its class; C. Dreadnought, of the best old type; C. Felicity, a modest, but distinct, light form. Varieties of C. insigne crosses and other leading types were also shown, with specimens of the elegant Platyclinis Cobbiana, bearing numerous sprays of white flowers. A fine plant of the now rare Selenipedium macrochilum giganteum was also shown (Silver Flora Medal).

Messrs. MANSELL AND HATCHER, Rawdon, Leeds, had a very effective group of finely flowered Miltonias, Cattleyas and Odontoglossums. Great variety and good culture was shown in the group (Silver Banksian Medal).

Messrs. FLORY AND BLACK, Slough, staged a very effective group, with good Odontoglossums, Cattleyas, Laelio-Cattleyas and Brasso-Cattleyas, for which a Silver Flora Medal was awarded.

Mr. HARRY DIXON, Wandsworth Common, had a very effective group of Cattleyas, Laelio-Cattleyas and Cypripediums. The group was well staged, and the plants in fine condition (Silver Banksian Medal).

Floral Committee.

Present: Mr. H. B. May (in the chair), Sir W. Lawrence, Messrs. J. F. McLeod, A. Williams, J. W. Barr, W. J. Bean, G. Reuthe, John Heal, W. Howe, C. R. Fielder, G. Harrow, J. B. Riding, Donald Allan, Reginald Cory, Sydney Morris, R. C. Notcutt, W. P. Thomson, D. B. Crane, W. B. Gingell, W. G. Baker, Chas. E. Shea, Chas. E. Pearson, J. W. Blakey, Andrew Ireland, Hugh Dickson, T. Hay, James Hudson, and W. B. Cranfield.

AWARDS OF MERIT.

Buddleia auriculata.—A free-growing, long-branched shrub, with twigs that extend horizontally. The lanceolate leaves are green above and white beneath. The small pinkish-white, green-tubed flowers are borne in terminal and axillary clusters, and as these clusters are freely borne, the effect of a shrub in full bloom is graceful and effective. As a late flowering shrub this Buddleia is desirable provided it can withstand inclement weather in most districts. Shown by the DIRECTOR, Royal Gardens, Kew.

Berberis Comet.—A gorgeous Berberis, and if any complaint is to be laid against it, it must be that it fruits too freely, for on some of the growths the coral-coloured berries were so thickly clustered that they made the slender shoots appear stiff. Where the shoots are branched the effect is finer, as there is less rigidity and far more grace. Nevertheless, Comet is certainly one of the finest of the hybrid Barberries. Shown from the ROYAL HORTICULTURAL SOCIETY'S Gardens, Wisley.

Nerine White Knight.—In this large-flowered variety the white, waved segments have in most cases a thin, median band of green. The tips of the segments recurve slightly. Shown by Messrs. BARR AND SONS.

Chrysanthemum Golden Marvel.—A handsome, decorative variety of medium size, and with flattish florets of a rich orange-gold colouring.

Chrysanthemum Mrs. E. Reeves.—A very pleasing decorative variety, with slightly curled and narrow golden yellow florets. It is a very attractive Chrysanthemum, and the blooms are carried on stiff, dark stems. These two varieties were shown by Mr. G. CARPENTER, West Hall Gardens, Byfleet.

Chrysanthemum Raleigh.—This handsome single-flowered variety has blooms of a brilliant crimson colour with golden centre. The florets are flat and regular.

Chrysanthemum Exmouth Pink.—A medium-sized, single-flowered variety; its pleasing colouring is a lively shade of rose-pink. The two last-named varieties were shown by Messrs. GODFREY AND SON.

Chrysanthemum Mrs. T. Hancock.—A grand, large-flowered single variety, with two or three rows of flattish florets. The basal colour is primrose, but this is heavily overlaid with rich pink, and the effect is very fine. Shown by Messrs. GODFREY AND SON, and Messrs. K. LUXFORD AND CO.

Chrysanthemum Nona. Another fine single variety, with several rows of broad, slightly recurving, white florets. Shown by Messrs. KEITH LUXFORD AND CO.

GROUPS.

No doubt in anticipation of the annual show of the National Chrysanthemum Society later in the week Chrysanthemums were a prominent feature of the groups which came before the Floral Committee. Mr. H. J. JONES set up a very imposing collection, which included a great number of very good blooms. Against the wall he had tall stands of such exhibition Japanese varieties as Majestic, Mrs. R. C. Pulling, Mona Davis, and an excellent seedling. A large stand of mixed incurved sorts, chiefly Buttercup, was also very effective. As a groundwork, and in front Mr. JONES arranged decorative masses of Uxbridge Pink, Golden Glory and Pink Delight, of the market Japanese type, and such singles as Sandown Brilliance and Mrs. Edwards (Silver-gilt Flora Medal).

Messrs. KEITH, LUXFORD AND CO. used large quantities of spray-flowered varieties to good effect. These were mostly arranged in baskets, with a back row of tall stands. Their principal varieties were Almirante, Betty Sparkes, Lichfield Purple and Goldfinch (Silver Flora Medal). Undisbudded sprays were also shown by Mr. WM. YANDELL, who had gorgeous masses of Red Almirante, Crimson Pride, Shrapnel and Hesperus (Silver Banksian Medal).

Nina Blick, Almirante, Perle Chatillionaise, Verona, and similar decorative varieties of Chrysanthemum were shown by Messrs. CARTER, PAGE AND CO. (Silver Banksian Medal). Messrs. J. GODFREY AND SON had mostly singles, and these included Exmouth Pink, Laura Vickary, Distinction and Ruby, of perfect form and beautiful colouring (Silver Banksian Medal).

Just inside the entrance Messrs. L. R. RUSSELL had set up a group of magnificently grown stove plants. There was a great variety of Codiaeums (Crotons) and Cordylines (Dracaenas) bearing brilliant colours. Amongst other plants of merit there was an Aristolochia, Passiflora princeps, and, raised on stands, plants of Columnea gloriosa, particularly well flowered, also Nepenthes Sir W. T. Dyer, bearing "pitchers" over a foot long (Silver Flora Medal).

Col. H. C. ELWES, D.S.O. showed a small group of the excellent Nerines for which Colesborne is famed. The plants were all of great merit, and their beauty was enhanced by a decoration of berried sprays of Berberis Wilsonae (Silver Flora Medal).

Mrs. SOFER WILBURN (gr. Mr. A. S. Gooden), Amport St. Mary's, Andover, exhibited a group of splendidly grown winter-flowering Begonias. These were in relatively small pots and carried immense heads of beautiful flowers. The chief varieties were Elatior, Flambeau, Eclipse and Optima (Silver Flora Medal).

A small collection of Primula obconica Eureka, salmon pink, was shown by Messrs. HURST AND SON. The plants were very sturdy and bore large and shapely flowers, illustrating an exceedingly desirable strain.

Particularly good Carnations were staged by Messrs. ALLWOOD BROS., who set up many of their own varieties, with also a quantity of the graceful Dianthus Allwoodii. At the corner of the Carnation group there was a particularly attractive bowl of Mrs. C. F. Raphael (Silver Flora Medal). Mr. C. ENGELMANN included Topsy, Tarzan and Maine Sunshine in a good collection of Carnations (Silver Banksian Medal).

Roses were shown by the Rev. J. H. PEMBERTON, who had vases of Moonlight, Mermaid, Mary Monro, Mrs. Christie Miller, and Sammy (Silver Flora Medal). Messrs. WHEATCROFT BROS. included Emma Wright, The Queen Alexandra Rose, Lamie and Golden Emblem in their collection (Silver Banksian Medal). Mr. E. J. HICKS brought several vases of the new H. T. America, which is a very shapely pink variety, and has long, stout stems. Violets were shown by Mr. J. J. KETTLE (Bronze Banksian Medal), and by Mr. H. B. PINNEY, who included several pinkish-coloured varieties, which attracted attention (Bronze Flora Medal).

The new Chrysanthemum Golden Marvel was shown in moderate quantity and considerable beauty by Mr. F. C. WOOD, who also had good plants of Primula capitata and the double-flowered Daisy, Dresden China. He also showed miniature rock gardens (Bronze Banksian Medal).

Messrs. BAKERS, LTD., filled a long stretch of tabling with hardy border flowers, chiefly Michaelmas Daisies, Scabious and Kniphofias (Silver Banksian Medal). The Misses HOPKINS made an attractive little rockery, which they planted appropriately, and also showed hardy border flowers. Messrs. WALLACE AND CO. displayed several vases of the pink-flowered Schizostylis coccinea Mrs. Hegarty.

A large collection of their Scabious hybrids was arranged by Messrs. I. HOUSE AND SONS. These illustrated a long series combined with considerable beauty (Bronze Banksian Medal). Messrs. LOWE AND GIBSON exhibited a small collection of Gladiolus hybrids. The spikes were smaller than earlier in the season, but many of the colours were very attractive.

Fruit and Vegetable Committee.

Present:—Messrs. C. G. A. Nix (chairman), J. Cheal, H. S. Rivers, Geo. F. Tinley, S. B. Dicks, W. F. Giles, G. Reynolds, P. D. Tuckett, A. C. Smith, E. Neal, G. Woodward, W. H. Divers, E. A. Bunyard, H. N. Rawes, and A. W. Metcalfe.

Mr. J. T. GOOD, Bushy Grove Road, Bradfield, Hertfordshire, sent specimens of his new Apple Bushy Grove, which received an Award of Merit on January 31, 1922, for the higher award of a First Class Certificate. The variety is said to be available for use very early in the season and keeps until June. It is included in the trial of commercial varieties at Wisley, and it was left to see how the variety compares with others in the trial. Mr. GEORGE WOODWARD brought from Barham Court Gardens, Kent, splendid fruits of Doyenné du Comice Pear, observing that the fruits were less regular in contour than usual this season. They were, however, of remarkably fine quality, and in the opinion of many of the Committee some of the best Pears they had seen in this season of scarcity for Pears. Mr. WOODWARD stated that his finest cropping varieties this year were Durondeau, Conference, and Doyenné du Comice, all the trees of these varieties having borne profusely.

Messrs. BARR AND SONS, King Street, Covent Garden, W.C., were awarded a Silver-gilt Knightian medal for a remarkably fine collection of vegetables staged in a most attractive manner. The collection was a very comprehensive one, almost all kinds of vegetables being represented. At the back were some exceptionally fine heads of Autumn Giant, Autumn Mammoth, and Early London Cauliflowers, with splendid Leeks and fine heads of Celery. Plants of Brussels Sprouts were also very good. The Onions included large bulbs of Froxfield, Nuneham Park, and Ailsa Craig varieties, and other fine dishes were Silver Moss Curled Endive, New Intermediate Beets, Early Nantes and New Red Intermediate Carrots, Alderman Peas, Purple-eyed Potatos, and Cucumbers. In the centre of the exhibit was a collection of ornamental Gourds.

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Mr. E. J. Parsons, Worcester, again showed a collection of Apples and Pears, for which a Silver Hogg Medal was awarded. Fruits of Gascoyne's Scarlet, Wm. Crump, Newton Wonder, Tyler's Kernel, Lord Hindlip, Bramley's Seedling, Chas. Ross, and Allington Pippin Apples were all of large size and fine quality generally. The Pears included large, luscious-looking fruits of Pitmaston Duchess.

Mrs. Reid, Devizes Castle, Devizes (gr. Mr. Thayer), showed a very good exhibit of Apples, Pears and Grapes. Amongst the Apples we noticed some very fine old sorts, including Tom Putt, Lemon Pippin, Bess Pool, Beauty of Kent, and Flanders' Pippin; whilst the Pears included exceptionally large fruits of Pitmaston Duchess and the old Bishop's Thumb. The Grapes were of the Black Alicante and Ryton Muscat varieties, both large of bunch and fine of berry (Bronze Hogg Medal).

Mr. W. Lane, Rickwoods, Cowden, Kent, showed eight dishes of Apples.

Messrs. Sutton and Sons showed types of Cabbages and Savoys; a very interesting and educative exhibit. They were of main crop and autumn varieties, and included Winningstadt, Imperial and Favourite Cabbages, the two last being splendid for both spring and autumn sowing; Rosette Colewort, a hardy winter green and Hardy Colewort, which is even hardier. The Savoys included Sugar Loaf, with very conical heads, Dwarf Green Curled, Perfection and Best of All. Of the Red Cabbages the finest sort was Large Blood Red.

Mr. Jasper Davis, Chippenham, showed large, shapely tubers of Potatos Victoria, Edward VII., Laing's Imperial, White City, Up-to-Date, and Ally.

Obituary.

Rev. H. J. Bidder.—We regret to announce that Henry Jardine Bidder, Fellow of St. John's College, Oxford, died on the 19th ult. after a brief illness following a long period of ill-health. By his death the University loses one of its most gracious and conspicuous ornaments and horticulture has to mourn the loss of a true and devoted friend. The Rev. H. J. Bidder, who was the son of a distinguished engineer, Mr. George Parker Bidder, was born at Mitcham, Surrey, in 1847. He was educated at Harrow and Oxford and became in 1873 a Fellow of St. John's, which position he held at the time of his death. Soon after the completion of his University undergraduate career Mr. H. J. Bidder took Orders, and thenceforth devoted his fine gifts and great energy to academic pursuits and the service of the Church. In the eighties the Rev. H. J. Bidder became Bursar of St. John's and rendered great service to the College by placing its finances on a firm basis. Always keenly interested in agriculture, forestry and gardening, he exerted himself strenuously and with great effect to interest his College and the University in these subjects. Thanks to him and other men of wisdom, the Sibthorpian Professorship of Rural Economy was re-endowed and a Professorship of Forestry was established. Always determined and often persuasive, he was able to secure the powerful support of his College on behalf of forestry, with the result that Bagley Wood was put at the disposal of the Forestry Department of the University as a training ground and Arboretum. But conspicuous as were his services to forestry and agriculture, those which he rendered to horticulture were no less remarkable. He cultivated the tradition of horticulture, kept it alive, fostered it when it might have languished, and made of St. John's garden one of the most beautiful places in the world. There he maintained the broad lawns and was wise to interfere but little with the shrubberies—knowing well that people have passionate predilections for those things and plants to which they have been accustomed. Gradually, here and there, almost imperceptibly he introduced among the shrubby relics which had grown old under the eyes of generations of Fellows and undergraduates choicer plants —climbers and flowering shrubs and herbs like the Meconopsis, so that by almost unperceived degrees the garden changed from commonplaceness to beauty. So gradual was the change that none resented and all enjoyed it. Then as his crowning triumph, discreetly —round the corner as it were—he faced an old wall with rockwork cunningly made with many pockets for alpines and underground water to keep them fresh, and so, in an impossible situation, he made one of the most famous rock gardens. Professional gardeners may and often do possess a far larger fund of knowledge than Mr. Bidder owned, but none knew better how to use it. It was as a guide in the St. John's garden that the Rev. H. J. Bidder was at his best. Proud of his plants and loving them, he would in later days, as his sight became dimmed, pore over them and with a pretended querulousness chide "gardener"—who like us all, loved him and the garden they had made between them—with some imaginary neglect. When we laughed at him in perfect friendliness he used to laugh too, for he had the genius for friendship. Gracious and charming and authoritative, with a large generous heart, he would never let a true gardener leave him without a present of rare plants. Nor might any go away without admiring again the true Dittany of Crete, the Broom from Mt. Etna, his fine specimens of Fabiana imbricata, which he liked, not only because of its beauty, but also because of its Heath-like habit and its alliance with the Potato family. As we left the garden laden with gifts and gracious memories he would accompany us to the gateway, and the last recollection of a memorable visit would be the tones of the kindly and beautiful voice advising us if we would cultivate alpine gardens to remember the three P.s of Horticulture—Propagate, propagate, propagate! Bidder was a great friend. Fools perhaps did not suffer him gladly, for he was armed against them with a firm impatience; but to those who loved him he was sweet as summer, a great personality, a great scholar and gentleman, and a great gardener. There was none of the numerous company that attended the memorial service at St. Giles' on Monday, the 22nd ult., whose eyes were not dim and whose hearts were not heavy, when with sad appositeness the choir sang :—

Thy Gardens and Thy gallant walks
Continually are green
There grow such sweet and pleasant flowers
As nowhere else are seen
There trees for ever more bear fruit
And evermore do spring.

May it be that the College which he served so well will evermore preserve the rock garden of St. John's as a memorial to the man who made and loved it.

TRADE NOTES.

The Technical Committee of the Chamber of Horticulture met on the 17th ult. The Secretary reported the receipt of a letter from the Controller of Horticulture stating that arrangements had been made for further investigation into the disease caused by Plasmodiophora brassicae, also a letter from the Ministry's mycologist with reference to diseased Tulip bulbs sent for investigation.

The Secretary then reported that, with a view to more efficiently replying to correspondents' technical questions and compiling technical reports, he had suggested to the chairman the advisability of appointing an honorary secretary having technical knowledge. Mr. T. Parker had been approached and had agreed to act in this capacity should the Committee wish. The Chairman expressed his agreement, and pointed out that such an appointment would further the Committee's work, and formally moved that Mr. Theodore Parker be appointed Hon. Secretary to the Technical Committee for the purposes of noting the Committee's deliberations, drafting replies to correspondents thereon, and compiling reports. The motion was carried unanimously.

The Secretary also reported that he had drawn up a scheme for closer co-operation with affiliated associations, and that the Federation of British Growers already had the scheme in working order, as could be seen by the number of questions now submitted by that Federation. Special forms for use by applicants for technical advice had been printed and circulated.

It was also proposed to strengthen the Committee by the addition of representatives of the above-mentioned Federation and the Horticultural Trades Association. Mr. W. P. Seabrook, having been nominated as the representative of the Federation of British Growers, was unanimously co-opted as a member of the Committee.

ANSWERS TO CORRESPONDENTS.

Celery Diseased : *R. F.* Your Celery plants are suffering from a bad attack of the infectious disease caused by the fungus Septoria petroselina Apii. As a preventive measure against attacks of Celery leaf blight, the seed should be treated with hydrogen peroxide, the twenty-volume solution being the best strength. Affected plants in the rows should be sprayed with Bordeaux mixture on the first appearance of disease.

Edible Australian Passion Fruit : *G. H. S.* We know no edible Passion fruit that is native of Australia. Your plant is most likely to be Passiflora edulis, a native of Brazil, which has been introduced to many sub-tropical countries. In England it requires to be grown in a warm greenhouse, or a house with an intermediate temperature of about 50° to 55°. It is a strong-growing plant, and requires plenty of room, and may not produce flowers until it is several years old. If grown in a large pot or tub in which growth is somewhat restricted, it should flower earlier. There are several other species of Passiflora which produce edible fruits, but they require tropical treatment.

Germination of Tomato Seeds : *Sceptic.* The average time for the germination of Tomato seeds sown in pots or boxes and placed in a temperature of about 70° is from six to eight days.

Names of Plants : *S. S. B.* Chrysanthemum Balsamita (Costmary).—*F. A. F.* Garden varieties of Pentstemons are so numerous and so much alike that we cannot undertake to name them.—Z. Calocephalus (syn. Leucophyta) Brownii.—*A. W.* 1, Yucca aloifolia variegata; 2, Y. aloifolia tricolor; 3 Ophiopogon japonicus argenteo-marginatus; 4, O. Jaburan variegatus; 5, Nephrolepis Whitmannii; 6, Coelogyne asperata; 7, a form of Laelia elegans; 8, Oncidium species (send in flower); 9, Dendrobium, send in flower; 10. Coelogyne cristata, with slightly variegated leaves; 11 and 12, send when in flower; 13, Begonia President Carnot; 14, Alyssum saxatile.

Pink-flowered Azalea Mollis : *P. P.* There are no pink-flowered varieties of the true Azalea mollis. For this colour the hardy Ghent Azaleas are the best; Roi des Belges, pink, and Bouquet de Flore, rose pink, are beautiful varieties. The nearest to this colour among the Azalea mollis forms are Compte de Papadopoli, rose, shaded orange, and Mrs. J. J. de Vink, creamy-rose.

Twin-flowered Cypripediums : *J. E. P.* The production of two flowers on a stem in the class of Cypripedium you indicate is the outcome of vigorous growth. If to have flowers so large as possible is the object, the second bud, usually the smaller, should be removed as soon as it appears; otherwise your plants seem to be well able to bear two-flowered scapes. The size of your Cypripedium Hestia mentioned is equal to the best that hybrid can attain.

Communications Received.—R. M. P.—W. T.—E. H. B.—W. L.—Aylwin—A. E. J.—Ride—H. J. B.—J. L.

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THE

Gardeners' Chronicle

No. 1924.—*SATURDAY, NOV.* 10, 1923.

CONTENTS.

Alpine garden, the—
Androsace 280
Erodium corsicum ... 280
Bidder, the late Rev. H. J. 282
Books, notices of— 271
Bulb garden, the—
Camassias 276
Nerines 266
Chickweed, the eradication of 282
Cocoa, the cultivation of 271
"Gardeners' Chronicle," seventy-five years ago 273
Grass orchards ... 281
Holland Park Hall show 282
Horticulture and phytopathology, the relations between ... 280
Indoor plants—
Bignonia grandiflora 273
Loss of scent in the Musk 273
Jackson, Mr. B. Daydon 282
King of Sweden's visit to the Linnean Society 272
Mexico, large estates in 272
Obituary—
Begg, Wm. Robertson 286
Harris, James ... 286
Orchid notes and gleanings—
Abnormal Odontoglossum flowers ... 275
Cattleya ardens ... 275
Laelio-Cattleya Golden Eagle 275
Orchid notes and gleanings—
Odontoglossum Desdemona II, var. Rubens 275
Parks and gardens, public 280
Plants, new or noteworthy—
Buddleia auriculata... 270
Prunus Dielsiana, var. laxa 279
Royal Gardens, Kew ... 271
Scottish plant names, some old 278
Societies—
National Chrysanthemum 283
National Sweet Pea... 284
Portsmouth Hort. ... 285
United Horticultural Benefit and Provident 285
Trees and shrubs—
Pyrus Malus Gibbs's Golden Gage ... 277
Tuberisation said to be due to the association of the plant with fungi 273
Vegetable garden—
Soot as a cheap Potato fertiliser 282
The culture of Asparagus 282
Week's work, the ... 274
Welsh garden, notes from a 276
Wound dressings ... 278

ILLUSTRATIONS.

Buddleia auriculata 279
Chrysanthemum Jean Pattison 273
Chrysanthemum Majestic, a vase of large-flowered ... 283
Coutts, Mr. J., portrait of 272
Odontoglossum Desdemona II, var. Rubens 275
Pyrus Malus Gibbs's Golden Gage 277

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 43.0°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, November 7, 10 a.m.: Bar. 30.25; temp., 43°. Weather—Bright.

The Biochemistry of Plants.

Everyone who is interested in the chemistry of plants will welcome the appearance of a second edition of The Hon. Mrs. Onslow's book.* Although this work is primarily intended for the botanist, horticulturists who possess some knowledge of the elements of modern chemistry will find large stores of valuable information in its pages. Among the subjects treated of most calculated to interest them are the plant enzymes, those specialist agents of the plant—and of the animal—which bring about rapidly and at ordinary temperatures in the living organism, chemical changes which can generally be performed outside the body only by the use of drastic reagents or high temperatures. Thus, as is well known, the starch which accumulates in leaves exposed to sunlight and passes away from them to be used or stored in other tissues is prepared for its passage through the plant by being converted by starch hydrolysing enzymes into sugar. And the sugar, moreover, arriving in some storage organ is reconverted into starch, probably by the action of the same enzymes. For the changes which enzymes set up are reversible. Hence they are expressively termed balanced reactions. With increasing knowledge of plant chemistry additions are continually being made to the number of the enzymes which may be extracted from plant tissues, and the essential and varied parts which they play in the life of plants becomes more and more clear. Thus there is evidence that enzyme action plays a part in the obscure series of changes brought about by chlorophyll and sunlight whereby from water and carbon dioxide organic substances, *e.g.*, sugar, make their appearance in the leaves. There is evidence also that enzymes play a great part in the down grade, respiratory changes, whereby sugar in the presence of oxygen, resolved into carbon dioxide and water, liberates energy for the conduct of the work of the plant. Though only the green cells of the leaves absorb effectively the sun's energy, all parts of the plant share in the benefits. The energy—derived from sunlight which disappears when the sugar of the leaf is manufactured—reappears when that sugar, caused to combine with oxygen, gives rise to those same compounds, carbon dioxide and water, whence in the green leaf it was derived. Another subject which will appeal specially to the horticulturist is the chemistry of the plant pigments concerned in the production of flower colour. Of the colours in flowers reds and blues are now known to be due to a class of complex chemical compounds known as anthocyans. Yellows, on the other hand, are often due to pigments contained in living granular structures, the plastids, and of different chemical composition from that of the anthocyans. Sometimes, as in brown Wallflowers and Gaillardias, bronze and crimson Chrysanthemums, and orange-red Nasturtium, the colour is due to a combination of the optical effects of both. Although knowledge of the chemistry of these pigments has grown and is growing rapidly, it has not yet reached the point when it can explain in detail how it is that different colour varieties of plants maintain each their several colours and transmit them often unfailingly to their descendants. Nevertheless, though the field which still awaits experimental exploration is vast, the record of achievement as shown in these pages is already so great as to encourage the belief that it will not be long before the chemist will illuminate by his discoveries all the obscure phases of the lives of plants.

* *Practical Plant Biochemistry* by Muriel Wheldale Onslow. Second edition, 1923. Cambridge University Press. Price 12s. 6d.

Rothamsted Experimental Station.—The following account of the history of the Rothamsted Experimental Station at Harpenden, Hertfordshire, is given in the Report of the Station for 1921-22. The Rothamsted Experimental Station was founded in 1843 by the late Sir J. B. Lawes, with whom was associated Sir J. H. Gilbert for a period of nearly 60 years. Lawes died in 1900 and Gilbert in 1901; they were succeeded by Sir A. D. Hall from 1902 to 1912, when the present Director, Dr. E. J. Russell, was appointed. For many years the work was maintained entirely at the expense of Sir J. B. Lawes, at first by direct payment, and from 1889 onwards out of an income of £2,400, arising from the endowment fund of £100,000 given by him to the Lawes Agricultural Trust. In 1904 the Society for extending the Rothamsted Experiments was instituted for the purpose of providing funds for expansion. In 1906 Mr. J. F. Mason built the Bacteriological Laboratory; in 1907 the Goldsmiths' Company generously provided a further endowment of £10,000, the income of which is to be devoted to the investigation of the soil, thus raising the total income of the Station to £2,800. In 1911 the Development Commissioners made their first grant to the Station. Since then Government grants have been made annually, and for the year 1922-23 the Ministry of Agriculture have made a grant of £22,030 for the work of the Station. Viscount Elveden, M.P., has generously borne the cost of a chemist for studying farmyard manure since 1913, and until his death the late Mr. W. B. Randall defrayed the salary of a biologist. The Sulphate of Ammonia Federation and the Fertiliser Manufacturers' Association jointly defray the cost of a Guide Demonstrator for the field plots. The laboratories have been entirely rebuilt. The main block was opened in 1919, and is devoted to the study of soil and plant nutrition problems; a new block is being erected for plant pathology. The library has been much expanded and now contains some 20,000 volumes dealing with agriculture and cognate subjects. The equipment of the farm has also been expanded. The most important development of recent years has been the reorganisation of the work of the Station so as to bring it into touch with modern conditions of agriculture on the one side and of science on the other. The general organisation of the laboratory is now completed; it is hoped to reorganise in the near future the farm and field work and to improve the field technique. The general method of investigation at Rothamsted is to start from the farm and work to the laboratory, or *vice versa*. There are four great divisions in the laboratory—biological, chemical, physical and statistical—which may be regarded as the pillars on which the whole structure rests. But the method of investigation differs from that of an ordinary scientific laboratory where the problem is usually narrowed down so closely that only one factor is concerned. On the farm such narrowing is impossible; many factors may operate and elimination results in conditions so artificial as to render the inquiry meaningless. In place, therefore, of the ordinary single factor method of the scientific laboratory, liberal use is made of statistical methods which allow the investigation of cases where several factors vary simultaneously. Thus in the crop investigations a large number of field observations are made; these are then treated statistically to ascertain the varying degrees to which they are related to other factors—such as rainfall, temperature, etc.—and to indicate the probable nature of the relationhips. Thus the complex problem becomes reduced to a number of simpler ones susceptible of laboratory investigation. It has been found desirable to widen the scope of the work by repeating some of the more important experiments elsewhere, and some twenty centres in different parts of the country have been selected for this purpose. In October, 1921, the Station undertook, so long as its funds should allow, to carry on the continuous Wheat and Barley experiments at the Woburn Experimental Farm, till then conducted by the Royal Agricultural Society, and Dr. Voelcker gives his services as Honorary Local Director. In December, 1922, E. D. Simon, Esq., generously placed his Leadon Court farm at the disposal of the Station for experimental purposes. This is being used as a large scale test of the soiling system for keeping dairy cows.

Royal Gardens, Kew.—Dr. A. W. Hill, F.R.S., Director of the Royal Botanic Gardens, Kew, will lecture on "The Work of the Royal Botanic Gardens, Kew," before the Royal Society of Arts, Adelphi, W.C., on Wednesday, December 5. Mr. Chas. A. Seward, Professor of Botany at the University of Cambridge, will preside at 8 p.m.

Challenge Cup for Orchids.—Owing to a printer's error, the award of the small Silver Challenge Cup to H. T. Pitt, Esq., Stamford Hill (gr. Mr. Thurgood) was omitted from our report of the R.H.S. meeting on November 3, p. 268. The fine and varied group shown by Mr. Pitt was a record amateur exhibit, and four out of the seven Awards of Merit recommended by the Orchid Committee for novelties were gained by this exhibitor, as well as the Challenge Cup. The group included a specially fine selection of Odontoglossums, some new Cypripediums, and an interesting selection of species.

Cocoa Cultivation.—One of the series of Cantor lectures to be delivered before the Royal Society of Arts this season is to be given by Mr. Samuel Davies, on November 12, at 8 p.m.; it is entitled "The Cultivation of Cocoa in British Tropical Colonies."

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King of Sweden's Visit to the Linnean Society.—His Majesty the King of Sweden found time in the forenoon of the wedding-day of his son, the Crown Prince of Sweden, to honour the Linnean Society with a visit to inspect the relics of the great Swedish naturalist, Linnaeus, otherwise known as Carl von Linné, which are there preserved. Accompanied by Baron Palmstierna, Swedish Minister, and attended by his suite, the King arrived a few minutes after 10 a.m., and was received by Dr. A. B. Rendle, the President, the Officers, members of Council and staff. His Majesty examined the herbarium of Linnaeus, containing so many plant-types, the insects, fish-skins preserved as if they were plants, shells, the artificial pearls produced by Linnaeus, the copiously annotated volumes, rare books, and similar treasures. His Majesty graciously accepted a copy of the recently issued volume *Linnaeus*, by Dr. Daydon Jackson, with other books illustrative of the Master's labours. Before leaving the King signed the Roll and Charter-Book, on a specially illuminated page.

Cedar Chests.—Chests made of the heartwood of Red Cedar, Juniperus virginiana, are recommended by an American entomologist, Mr. E. A. Back* for keeping clothes from injury by moths. The characteristic odour of Red Cedar is due to a volatile oil present in the wood to an amount ranging from one to two per cent., and there is more of the oil in the heartwood, sometimes as much as two to four per cent. The aroma from the oil kills any newly hatched or young clothes moth larvæ that may be confined in the boxes with the clothing, and if the chests are made to fit tightly, so that none of the female moths can enter, such chests render clothes almost immune from attack. The oil cannot be depended upon to kill the moths or their eggs, or the worms after they are one-half to full grown, or after they are three or four months old. Neither will the chests kill all the pupae or chrysalids, but if the clothes are thoroughly cleaned, brushed or beaten just before they are placed in the chests, they should be tolerably safe from attack. Tight chests or cabinets made of other wood, the walls of which may be made to absorb as much Cedar oil as is found in the wood of containers of equal size made from Cedar wood, are said to be as valuable as the Cedar chests themselves. Amongst the preparations recommended by Mr. Back for treating clothing to protect fabrics, etc., from moths are naphthalene, paradichlorobenzene, carbon disulphid, and carbon tetrachlorid. The simplest of all methods is enclosing articles of clothing, furs, etc., in unbroken paper to form moth-proof paper bags. Clothes moths do not eat through paper to reach clothing, and if no other kind of paper is available, several thicknesses of newspaper will serve.

Swedish Prize Awarded to a British Scientist.—A prize fellowship of one thousand Swedish kronor, offered for research in science by the Swedish Federation of University Women, has been awarded to the Hon. Mrs. Muriel Wheldale Onslow, whose work on the biochemistry of plants is referred to on p. 271. Mrs. Onslow has already been an "N" Fellow of Newnham College, Cambridge, and in 1915 was awarded a fellowship of the British Federation of University Women. We congratulate Mrs. Onslow in gaining such a notable award, for the fellowship was open to the university women of eighteen countries.

The French Luxury Tax on Flowers.—The florists of Paris, combined in two syndicates—one national, the other comprising Parisian traders only—have won what they consider a notable victory, in that they have succeeded in getting the regulations relating to the luxury tax on flowers altered, so that the upward limit of value for funeral wreaths is placed at 150 francs. It will be remembered that for many years the luxury tax has been operative in France, and has weighed heavily on florists, flowers being considered in most instances a luxury and taxed accordingly. For a year past the Paris florists have fought to get the tax on funeral wreaths reduced, and their victory, though only a partial one, has been hailed with delight. Flower wreaths are now exactly on a level with artificial wreaths made of celluloid, "pearls," wax, etc., which, not used much in this country, are exceedingly popular on the Continent. A condition, however, is imposed in the case of wreaths of natural flowers, namely, that in every invoice the vendor must name the address of the buyer and of its destination, and the date and place of the funeral, in order that there can be no doubt as to the destination of the flowers in question. A writer in our contemporary, *L'Horticulture Française*, dealing with this point, waxes sarcastic over this restriction, and asks if the Government is afraid that a wreath ostensibly intended for a funeral is very likely to be sent, for instance, by a young man to his favourite dancer?

* Clothes Moths and Their Control, U.S.A. Department of Agriculture, *Farmer's Bulletin*, No. 1353.

Mr. John Coutts.—A native of Aberdeenshire and born on the Hill of Coull, Mr. John Coutts first learnt the art of gardening from his father, a keen amateur who was for many years a successful exhibitor of vegetables and florists' flowers. He served an apprenticeship at Haddo House, the Aberdeenshire seat of the Earl of Aberdeen, under Mr. J. Forrest, who taught his pupils the principles of gardening in a very thorough manner. From Haddo House Mr. Coutts went to Brentham Park, Stirling, under Mr. David Bruce, a fine old gardener. Here he served for two years as journeyman before going to Newstead Abbey, Nottingham, under Mr. A. McCulloch, where he had the advantage of assisting in several schemes of garden development and also obtained a knowledge of a very large collection of plants. His first position as general foreman was at Grantully Castle, Perthshire, where his experience was further increased as a consequence of considerable alterations and additions to the garden. From Grantully Castle Mr. Coutts went to Kew, where he was employed for four years in the flower garden, conservatory, tropical fernery and stove. For one year he was deputy foreman in the Palm House and for another year acted as deputy foreman in the decorative propagating department. From Kew he obtained an appointment as head gardener at Killerton Park, Exeter, the beautiful Devonshire seat of Sir T. D. Acland, Bt., and a garden famous for its collection of choice trees and shrubs and its extensive collection of Apples and Pears—the first tree of Doyenné du Comice Pear brought to this country is in the kitchen garden at Killerton. Sir Thomas and Lady Acland took a keen interest in their garden and during Mr. Coutts' stay of eight and a half years with them he made a new Rose garden, formed a rock garden and remodelled the pleasure grounds. In 1909 he was invited to return to Kew to take charge of the Decorative Department. He accepted the appointment, which he still retains, although his position has been improved and he is now one of the Assistant Curators at the Royal Gardens. Few men have such a wide knowledge of plants as Mr. Coutts, and few are better cultivators than he, consequently as chairman of the Kew Mutual Improvement Society since 1911 his knowledge has been of the greatest possible assistance to the young men at Kew. All old Kewites will know that Mr. Coutts has been treasurer of the Kew Guild since 1910, and they, better than all other horticulturists, know and appreciate his kindliness of heart and his readiness to render help in every possible way to those who are ambitious.

MR. J. COUTTS.

Gothenburg Exhibition.—According to our contemporary, *Die Gartenwelt*, the horticultural exhibits at the Gothenburg Exhibition were almost exclusively by Swedish, Norwegian, and Danish growers; and visitors to the exhibition are of opinion that the Danes have shown superior skill to either of their Scandinavian neighbours, the Swedish exhibits in especial showing little merit of form or colour. Among German firms, Teschendorff and Hermann Neuhoff were represented chiefly by Roses, while from this country, Mr. C. Engelmann, of Saffron Walden, had a display of excellent Carnations.

Cedars of Lebanon.—Our French contemporary, *Jardinage*, reminds us of the interesting fact that the Lebanon district now comprises only three Cedar plantations, of which one, situated on the eastern slopes of the Djebel Barouk, is composed not of the true species, but of Juniperus phoenicea. The second plantation, near the Hadebh, contains about six thousand young trees, and the third, which clothes the sides of the Makmel, contains the last vestiges of the Biblical Cedar forests, in which the four oldest trees measure between seventy and eighty feet in circumference.

Large Estates in Mexico.—Some of the estates in Mexico are, according to a correspondent in the *Times*, of immense extent, and he gives an example of one known as the Terrazas estate in the northern state of Chihuahua, estimated at over seven million acres, belonging to General Terrazas; "a horseman could ride across this kingdom for months without seeing a village, a mine, forest, pasture, orchard or vineyard, maguey or corn field, herd or flock, river or hill, that did not belong to General Terrazas." The Mexican Government decided that ten thousand square miles was more than one family could utilise, and proceeded to break up the Terrazas property. The owner was prohibited from completing negotiations for sale to an American company, six million acres were sequestrated and an army of engineers and surveyors employed by a semi-official organisation which has taken the land over at a price of about 5s. an acre. Another estate, known as the Durango property, covered more than a million acres, and there are two others of 600,000 and 400,000 acres respectively in the same State, whilst in San Luis Potosi, an American sugar-growing company's property extends to over one million acres, which is even eclipsed by the three million acres owned by an American cattle company in Lower California. The correspondent states that estates of two or three million acres are, or were, common. The distribution of estates is still proceeding, and in July it was announced that half a million hectares had been divided in one week. On August 2 last, a decree was issued by the Mexican Government enunciating the principle that every Mexican over eighteen years of age has a right to national lands; a minimum of three hundred acres may be owned by the simple act of occupation and giving notice to the Government, care being taken not to trespass upon private property, common lands of villages, or land already occupied.

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Tuberisation said to be due to the association of the plant with fungi.—In a paper read by Dr. George H. F. Nuttall, of the British Association, reference was made to the origin of tubers in various plants. Prof. Nuttall referred to the occurrence of endotrophic mycorrhiza in the roots of species of Solanum and stated that Molliard, in experimenting with the Potato, found that tubers were not formed in aseptic cultures. Another investigator, Magrou, planted Potatos in a poor soil and found that only when the fungus present on Solanum Dulcamara infested the Potato plants, were tubers formed. Magrou investigated tuberisation in Orobus tuberosus and in Mercurialis perennis, and stated that when the Potato plant and Orobus were raised from seed the establishment of symbiosis leads to tuberisation of the sprouts at the base of the stem, and the tubers are not formed in the absence of symbionts. He further found that in developmental differences between the two plants, symbiosis in the Potato plant is intermittent, whilst in Orobus it is continuous.

Appointments for the Ensuing Week.—Monday, November 12: National Chrysanthemum Society's Floral Committee meets; United Horticultural Benefit and Provident Society's meeting. Tuesday, November 13: Royal Horticultural Society's Committees meet; St. Neot's Chrysanthemum Society's show. Wednesday, November 14: Lewes and District Horticultural Society's show (two days); Aberystwyth Chrysanthemum Society's show; Wimbledon and District Gardeners' Society's show; East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting. Thursday, November 15: Aylesbury Chrysanthemum Society's show; Grange-over-Sands and District Chrysanthemum Society's show. Friday, November 16: Blackburn and District Horticultural Society's show (two days); Dunfermline Horticultural Society's Chrysanthemum show (two days); Bolton Horticultural Society's show (two days); Leeds Paxton Society's Chrysanthemum show (two days). Saturday, November 17: Stocksfield Chrys. Society's show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Cultivation of Potatos.*—About the beginning of November I commenced planting, trenching the ground to the depth of eighteen inches as the operation proceeds. When the first trench is filled within six inches of the surface, I plant a line of Potatos, and sprinkle on the tubers equal portions of quicklime and soot (this is done to prevent slugs and other insects eating the Potatos), covering them with a layer of unfermented horse-dung, and then the soil; taking care not to tread on the fresh-planted ground. In the following March, as soon as the surface becomes dry, I have it either forked or hoed, and this operation is repeated as often as required. With respect to saving seed, my practice is to dig a sufficient quantity as soon as the skins are set firm, preferring the middle size for planting whole. Previously to the disease in 1845, I used to leave those intended for seed in the open-air to green, but by so doing in that year I lost half my seed; since that time I have them carried into the fruit-room or some other convenient situation, being careful to exclude the atmosphere as much as possible. The varieties I cultivate are Ash-leaved Kidneys, Early Frame, Early Manly and Fox's Seedling; but I believe any other sort would answer equally well, provided they were as early and dwarf in habit. The counties I have grown Potatos in are Staffordshire, Hertfordshire and Surrey; and whenever I have planted according to the above practice, the crop has always equalled my expectations, being ripe early and free from disease. *John Toy, Oatlands Garden. November* 1. *Gard. Chron., November* 4, 1848.

Publications Received.—*Lawns, Links and Sportsfields.* By James MacDonald. "Country Life," Ltd., 20, Tavistock Street, W.C.2. Price 5s. net.—*Flowers: A Garden Notebook.* By Sir H. Maxwell. MacLehose, Jackson and Co., 73, West George Street, Glasgow. Price 25s.

INDOOR PLANTS.

BIGNONIA GRANDIFLORA.

ALTHOUGH introduced so far back as 1800, Bignonia grandiflora is not common in cultivation, yet its ornamental character and exuberant growth make it a most valuable plant for covering walls or arbours. The fact that it has no fewer than five synonyms, given to it by various botanists, proves that it was at one time much sought after.

In growth it is very similar to B. radicans, but the flowers, which are borne on terminal, dichotomous panicles, are much larger and brighter. Young plants are less effective than older ones, as they are not so floriferous, but a wall furnished with a plant ten or twelve years old is a remarkable sight when in flower in July and August.

FIG. 98.—CHRYSANTHEMUM JEAN PATTISON. N.C.S. FIRST CLASS CERTIFICATE, NOV. 1 (SEE P. 283).

The plant is not exacting as regards soil, but a warm, sunny position is essential. Hard pruning should not be practised, as its effect is to produce very strong growths, which remain flowerless. When plants have filled their allotted space the only pruning necessary is to remove all dead wood and faded inflorescences. *W. Auton.*

LOSS OF SCENT IN THE MUSK.

THOUGH in recent years attention has been drawn from time to time to the loss of scent in the Musk (Mimulus moschatus) I am not aware that the matter has been thoroughly sifted. The view I have seen put forward that the loss of this fine perfume has been due to the introduction of a large-flowered scentless variety will not bear scrutiny. I know of several old-world gardens in this neighbourhood in which there has been no recent introduction of Musk—in fact, the plant in these is semi-wild, springing up here and there of its own accord—and yet in every case tested no perfume could be detected.

I well recollect as a boy the fragrant Musk, and how in passing the plant one almost involuntarily tore off a bit, and held it up to one's nose to enjoy its odour. If it had not been for its fragrance, which appears now to have vanished, it would never have become the favourite it was as an inmate of the garden and as a pot plant for the window.

When, it may be asked, was it first observed to have lost its scent? Does anyone now in this or other country possess the old-fashioned fragrant Musk? Nurserymen's catalogues, I see, still call attention to its fragrance! Has the plant in its wild state also lost its odour?

If this Musk, wherever it occurs, is now scentless, it seems to me that, from the point of view of evolution, the fact is one of great significance. It looks as if a character can suddenly drop out of a species beyond recall—in this case a regrettable mishap, for the Musk without scent is a weedy thing. I trust the Mignonette will not play us such a trick! It is easy to imagine a scentless race of Musk arising from a chance seedling; but the sudden and total disappearance of this perfume throughout the species, if a fact, is so novel as to demand full investigation. *J. P. Carlisle.*

[We hope that this note may result in some reader, at home or abroad, restoring this delightful old plant, with its fragrance, to our gardens.—*Eds.*]

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The Week's Work.

THE FLOWER GARDEN.

By G. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Ranunculus.—A bed or border of Ranunculuses is very showy in the spring, and the flowers are useful as cut blooms for indoor decoration. The Turkish or Turban section of Ranunculus is admittedly the hardiest, and may be planted from now onwards through the winter in open weather. Other types may be planted in February. While any ordinary soil will suit this plant, the enhanced floral results will more than justify the improvement of ground that is poor.

A Late Shrub.—Always late in flowering, Clerodendron trichotomum will, this season, fail to open with us, for now, the last week of October, only one or two signs of the reddish bracts are visible—so there can be no chance for the fragrant white blossoms that should follow. In spite of this failure, however, it is a shrub that should be planted in a sheltered, warm spot, for in such a situation it will flower in most seasons. Its saving grace is in its lateness of blooming, when other shrubs are over.

Planting.—On all but quite light ground planting has been impossible, owing to the heavy rains of October, which have made the soil too sticky to work pleasantly. When the soil is drier the work of planting should be proceeded with; practically all shrubs and trees require to be made firm in the ground at planting time, and this is impossible when the soil sticks to the feet of the operator. It may not everywhere be practicable, but it is a good plan to have to hand a load of fine, dry soil at planting time in order that a quantity may be worked in about the roots of choice or special subjects.

Spanish Irises.—These lovely flowering bulbs have flowers of varied and rich colouring. They will succeed in almost any kind of soil, and a few arranged in groups or massed in a bed make a gorgeous show in early summer. Planting may be done until the third week in December. This Iris does not object to partial shade. For supplying cut blooms the Spanish Iris is a most valuable plant.

English Irises.—These, too, may still be planted but should be afforded rather better soil than the former. The range of colouring is not so great as in the Spanish section, but the flowers of the English Iris are larger and they are later by two or three weeks—a valuable asset where Irises are planted for their garden value.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Early Figs in Pots.—Two excellent Figs for early forcing are St. John's or Pingo de Mel, and Violette Sepor, as these are not so liable to cast their fruits as others. Given a suitable structure and proper treatment, they seldom fail to produce a good crop of fruit. Now that the foliage has fallen, the trees should be closely examined for insect pests, the most troublesome being scale and mealy bug. White scale adheres tightly to the bark, and requires a moderately stiff brush to remove it effectually, using as an insecticide either paraffin emulsion or Gishurst compound. The immature tips of the branches are rather tender, and require careful treatment; it is always advisable to look over the trees a second time for any stray scales that may have been overlooked during the first operation. Mealy bug may be treated in a similar manner; this pest hides in the cracks and crevices, and it is therefore essential to thoroughly work the insecticide into such places.

Potting Figs.—This is best done before growth is completed, but it may still be done if carefully carried out. The compost should consist of turfy loam, thoroughly broken up, a liberal amount of old lime rubble or broken plaster, and a 6-inch potful of bone meal to each barrowload of soil. During the active season of growth the roots require copious supplies of water; it is therefore essential to use a potting compost which will not become sour through frequent applications of water. It is advisable when shifting trees into larger pots to allow a liberal amount of room to permit of a good top dressing when the trees are swelling their fruits. The fermenting material for plunging purposes needs to be of a mild and lasting nature, and should consist principally of leaves. If the bottom heat is principally derived from hot-water pipes, it is still advisable to use leaves for packing round the pots, and the warmth arising from them will be sufficient to start the trees steadily into growth. Very little, if any, heat will be needed from the hot-water pipes to maintain a temperature of 55° by day, and 60° at night during severe weather. Syringe the trees with tepid water on bright days and damp the floors and walls to create a humid atmosphere. Little watering will be required if the pots are plunged in moist, fermenting material.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Broccoli.—Broccoli plants have made very strong growth this autumn owing to the excessive rainfall and the mild weather; over four inches of rain fell in these gardens during October. If sharp frosts should occur before Christmas, the plants will be liable to injury owing to the growth being soft. It will therefore be wise to lay the plants in with their heads to the north. Take out a spit of soil close to the stems on the north side of the rows, bend the plants over, and place the soil on the stem behind them. Have plenty of protecting material at hand to spread over the stems in the event of very cold weather occurring.

French Beans.—If a supply of these Beans is required during the winter, sow five seeds in each eight-inch pot. The receptacles should be well drained, and about half filled with a good, friable compost. Water the soil after the seeds are set, and germinate the latter in a temperature of 65°. Damp well between the pots, but guard against an excess of water at the roots. The seeds will soon germinate, and, as soon as the seedlings have made a pair of rough leaves, topdress them with rich soil, and place a few Birch broom twigs in the pots to support the plants. Keep the latter well syringed, and do not place them very near the hot water pipes, otherwise red spider will appear.

Carrots.—Carrots raised from seed sown in frames in the early autumn to provide small roots will now be ready for lifting and storing in sand. The frames may be lifted from the beds, and the old material wheeled on the garden to make room for forming fresh beds for early forcing. Frames in continual use on hotbeds should be overhauled, and any that need repairing attended to before they are required again. Two or three good coats of paint will help to preserve the woodwork, and the painting should be done, and broken glass made good, before the weather is very bad.

Trenching and Digging.—Advantage should be taken of fine weather to undertake these two operations as other work will be pressing in the New Year. It may not be possible to trench as much ground as one would like, but a certain amount should be trenched every winter. In trenching, much garden refuse may be buried with advantage to the ground, which is not possible in ordinary digging, and the resultant crops will be greatly benefited. In a dry summer, such as in 1921, the advantage of deep trenching was apparent to anyone who took notice, as, not only did the crops require less water, but they lasted longer and finished in better condition. The reason is the plants had a large area from which to draw moisture, for the roots were able to grow deeply and near to the damp sub-soil.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Shrubs for Forcing.—Numbers of hardy shrubs may be forced during the winter and spring. In cases where they are purchased they should be potted as soon as they are received from the nurseryman. If grown on the establishment the plants should be lifted and placed in suitable sized pots or tubs. After potting them they should be stood in the open until such time as they are required for forcing, protecting the pots from injury by frost by plunging them in ashes, or packing them round with hay. While some plants, such as Rhododendrons, Azaleas, Forsythias and Spiraeas may be lifted direct from the ground and potted at this time with good results, others, such as Lilacs, Pyrus, Prunus, Wistaria and Laburnum, give the best results when they are grown in pots, for they force more readily, and remain in flower for a much longer period when they are not disturbed at the roots. Hardy Azaleas, in their many beautiful varieties, are very popular, and may be had in flower over a long period. The early flowering Ghent or mollis varieties should be selected for early forcing. In forcing hardy plants it is important to select species and varieties that flower early naturally.

Other Good Shrubs for Forcing.—Spiraea arguta, S. prunifolia var. fl. pl., and S. Van Houttei are all excellent for forcing. Forsythia suspensa is popular and useful for forcing, but the best of all is the newer F. intermedia var. spectabilis, which is the earliest, and produces its deep golden yellow flowers in wonderful profusion. It may be had in flower about Christmas; it will remain in good condition in a conservatory for several weeks, and is ideal for furnishing a supply of cut flowers. Viburnum Opulus var. sterlis, and V. macrocephalum, have long been popular for forcing, but the fragrant V. Carlesii is not so well known. The last is a charming plant for growing in pots, and is best when allowed to develop slowly in a fairly cool house. Well budded plants of Magnolias are very beautiful for conservatory decoration, but they require careful handling, as they are impatient of disturbance at the roots.

Camellias.—These shrubs frequently set far more flower buds than the plants are capable of expanding; where this is so they should now be disbudded, as neglect in this respect generally results in wholesale dropping of the flower buds. Another common cause of bud dropping is dry conditions at the roots; although water should be given sparingly at this season, care should be taken that the plants do not suffer from lack of sufficient moisture at the roots. Camellias frequently suffer from attacks of scale insects, which should be removed by sponging with an approved insecticide, but a vigorous use of the syringe during the summer months will do much towards keeping the plants clean.

Pyrus and Prunus.—The best members of the Pyrus family for this purpose are P. floribunda and its varieties atro-sanguinea and purpurea; Pyrus spectabilis and P. Scheidekeri; while the Prunus include the many beautiful varieties of Japanese Cherries, P. Pissardii, P. japonica fl. pl. in pink and white varieties, and P. triloba var. fl. pl., while some of the beautiful double varieties of P. persica are very popular.

HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Pruning.—Where there is a considerable amount of pruning to be done the work should be commenced with a view to getting as much accomplished as possible before frost and snow render it impossible. Pressure of other work is always great in spring, and if all the trees, save the newly-planted ones, are pruned between now and then, it will be a great advantage. The theory that it is beneficial to prune transplanted fruit trees the same season as they are planted is gaining favour, and the belief is strengthened by the improvement of shrubs thus treated. A corresponding reduction of shoots appears to balance the check to the

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roots. There is no necessity to wait until the leaves fall before pruning is attempted. The presence of the foliage may, in some cases, be of help in determining the amount of room required by the shoots it is desired to retain. It is advisable to defer pruning if frost threatens, or the bark of the newly-cut growth may split.

Planting.—The continued heavy rains have soaked the soil and reached the roots of most trees, and those who have been unable to lift their trees earlier through lack of a water supply will find them in good condition for removal. Trees that are suffering, but not very badly, from canker, should be lifted without a ball of soil, and replanted on a raised position. The following season may show even a more pronounced condition of the disease, due to the check caused by transplanting, but if the tree thrives the disease may gradually lessen each year, and the tree ultimately produce clean fruit, with the stems showing no tendency to canker. It is important that cankerous growth should be removed at an early stage. At this time of year the spores are liable to be washed down the tree stems or branches and enter any cut or bruised part of the bark. Badly-affected parts should be cut away and gas tar applied to the cut surfaces immediately. This is very important. In the case of Dumelow's Seedling (syn. Wellington) on a heavy soil every cut stem of this variety, however small, should be treated with tar, if spores of the fungus that causes canker are likely to be blown near the trees. Worcester Pearmain is also very subject to this disease

THE ORCHID HOUSES.

By J. T. BARKER, late Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Dendrobium formosum.—This Orchid flowers during the late summer and autumn, and requires a long season of rest. This species does not require large supplies of water, even during the growing season, and in winter very little moisture will suffice for its needs.

Calanthes.—The foliage of most of the earlier flowering Calanthes is fully ripened, and the plants will require very little water at the roots. If they are grown in a position where the soil becomes dry quickly, it is not advisable to deprive them of water entirely, even when the foliage has ripened. Whilst the roots of these plants are alive, they undoubtedly continue to give some sustenance to the newly-made pseudo-bulb for some time after the leaves have fallen, and without doubt some water is beneficial in assisting the plant to throw up its spikes of bloom. These Orchids are usually grown in a house with a dry atmosphere when they are in flower, and in houses of this description the plants often suffer for want of water at this season. Specimens with strong spikes which overhang the pots should be neatly staked, as no matter what purpose it is intended to use their flowers for, the spikes are better if kept in an upright position. Plants of choice varieties that have only made small, weakly pseudo-bulbs should not be allowed to flower, as flowers from weak plants are always unsatisfactory, and the benefit of resting the plants will be readily seen when they start into growth next season. The later flowering varieties, such as C. Regnieri, and some of the hybrids, should still be watered so long as the foliage remains green, gradually reducing the amount as the foliage ripens. As soon as the flowers are over the plants should be placed in their resting quarters, where they may receive all the light possible, but no water, and in a temperature which does not fall below 55°.

Chondrorhyncha Chestertonii.—This beautiful and interesting species is often classed amongst the difficult and troublesome Orchids, but recently it has been seen in better condition owing, chiefly, to its requirements being better understood. Doubtless the trouble in the past arose from the fact that the plant was grown in too much warmth, whereas it should be grown in a cool house, where air is admitted on all favourable occasions, and the roots never allowed to become excessively dry. This Orchid will succeed potted in a mixture consisting of equal parts of fibre and Sphagnum-moss, with plenty of small crocks and coarse sand added to render the compost porous. Potting may be done whenever the plant is throwing up new growths or developing fresh roots. During the greater part of the year the plants should be sprayed overhead and underneath the leaves, as a preventive against attacks of thrip and other pests.

Mexican Laelias.—These Orchids delight in more sunlight than most others, and during their growing season should only be shaded sufficiently to prevent scorching during the hottest part of the day. Fresh air should be admitted at all seasons whenever possible. The early varieties are opening their flowers; others are later, and by judiciously manipulating them the blooming period may be considerably extended. L. autumnalis and its variety alba. with L. albida and L. furfuracea are also in bloom. These need to be kept slightly cooler whilst making their growth, than the L. anceps section, whilst L. majalis should always be grown in the lightest position possible. When their flowering season is passed, these Laelias enjoy a good rest, and only sufficient water to prevent shrivelling should be given them. They should be grown in a night temperature of about 55°, and a comparatively dry atmosphere during the winter.

FIG. 99.—ODONTOGLOSSUM DESDEMONA II. VAR. RUBENS. R.H.S. AWARD OF MERIT, OCTOBER 30.

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM DESDEMONA II. VAR. RUBENS.

THE illustration reproduced in Fig. 99 represents (reduced in size) part of the inflorescence of the pretty hybrid between Odm. Rossii and Odm. illustrissimum, for which Messrs. J. and A. McBean, Cooksbridge, received an Award of Merit at the Royal Horticultural Society's meeting on October 30. The hybrid is one of the most distinct of the thirty or so crosses with Odm. Rossii which has yet appeared, the sprays of flowers being elegantly displayed, and showing in a marked degree the claret red spotting on the sepals and petals which is a conspicuous feature in Odm. Rossii and the same lilac-pink tint on the lip which, however, is broadened by the influence of the hybrid parent. Odontoglossum Desdemona (ardentissimum × Hallii) was shown by Messrs. Sanders in 1914, and the second, now illustrated, which was shown in 1921, was inadvertently recorded, but distinguished as Desdemona II. The Rossii crosses are great favourites, being compact in habit, profuse flowerers and distinct from other classes of hybrid Odontoglossums.

LAELIO-CATTLEYA GOLDEN EAGLE.

THIS charming hybrid was raised between Laelio-Cattleya Luminosa and Cattleya Rex. The flower, which is of good shape, has golden-yellow sepals and petals, and the lip, which is crimped at the margin, is violet-purple, the extended lines of yellow from the base bearing evidence of the Cattleya Rex parentage.

ABNORMAL ODONTOGLOSSUM FLOWERS.

A STRONG spike of Odontoglossum of the O. amabile class with eight flowers, all of which are malformed in different degrees, is sent by Messrs. Sanders, St. Albans. Some of the flowers have the parts fully developed, but contorted so that the labellums are uppermost. One flower has the sepals nearly normal, but the upturned lip incorporates portions of the petals, the remaining parts not being produced. The column in each flower is abnormal and more or less divided, small petaloid blades being attached. The colour of the sepals is mauve with dark spotting, and the petals white with purple spots. The plant should be marked and its subsequent flowering observed.

CATTLEYA ARDENS.

THE first flower of this very brightly coloured hybrid between C. Dupreana (Warneri × Warscewiczii) and C. Hadyana (Dowiana aurea × Warscewiczii) is sent by Messrs. Sanders, St. Albans. Cattleya Warscewiczii in fine size and shape is the main feature, but in the labellum the rounder outline of C. Warneri and the deep tints of C. Dowiana bring great improvement. The sepals and very broad petals are bright violet-mauve, the exterior of the base of the lip being of the same tint. The front of the lip is deep ruby-crimson, and the disc chrome-yellow, changing to white on the side lobes. Thin purple lines extend from the base of the lip to the centre.

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THE BULB GARDEN.

NERINES.

WHAT the Tulip is to late spring or early summer the Nerine is to autumn. Those who have never seen Nerines except at shows, or those who have only seen them in small numbers in a glasshouse, cannot realise what a sight it is to see a hundred umbels of Nerine sarniensis in full bloom in the open on a warm sunny autumn day—one glorious mass of shimmering rose, with ever-changing points of light glistening here and there. I have never done so; but I have enough imagination to realise that it must be something very wonderful and quite out of the common, even in that Nerine paradise—the favoured island of Guernsey—for even such an old inhabitant as my friend Mr. William Mauger must have been surprised, or he would not have taken the trouble to write and tell me about what he had suddenly come across in a small cottage garden. It no doubt came as a very welcome surprise, for no one mourned more than he the effects of the prolonged frost of 1895, when almost every Nerine on the island was killed.

Rose is not a popular colour nowadays, so perhaps it is a little difficult to realise the enthusiasm that the flowering of what I believe to be the same variety (sarniensis rosea) occasioned when for the first time European eyes saw it in "full blow" in the middle of the seventeenth century in the famous gardens of the Brothers Morin in Paris. No wonder General Lambert wanted to try it in his garden at Wimbledon. No wonder John Evelyn busied himself about its culture—please note, it was "difficult" then. No wonder Pére Rapin let himself go when he came to describe it in his celebrated poem on gardens:—

"Purple Narcissus of Japan now flow'rs,
Its leaves so shine as if with golden show'rs
It had been wet, which makes it far outvy
The lustre of Phoenician tapestry.
Therefore, t'augment the grace of France 'tis fit,
This flower into our gardens we admit."

The foregoing is from the translation by the famous Evelyn's son, which was published in 1673. James Gardner's translation is more enthusiastic. It appeared in 1706, and perhaps represents the increase in the fame of what had then become a much better known flower. It ends:—

"For should she but her conquering charms display,
From every fair she bears the prize away."

The true Guernsey Lily is, I believe, Nerine sarniensis rosea, described in 1729 as having flowers which, "in their prime, look like a fine gold tissue wrought on a rose-coloured ground." Alas! it is this fascinating beauty which has given the whole family a bad name. It is a shy bloomer in Guernsey itself—it always has been. I have read that in or about 1800 only from fifteen to eighteen bulbs would flower out of a hundred. About the middle of last century importations annually came from Guernsey. The bulbs were flowered once and then thrown away. Times have changed. Many will remember the choice exhibits staged from time to time at the autumn meetings of the R.H.S. by the late Mr. H. J. Elwes; those wonderful spikes from Oxford; the Bowdeni hybrids from Mr. Peter Veitch, of Exeter, and the displays of Messrs. Barr and Sons. Whence came all these new varieties I do not know. More than one species must have gone to their making, but as Mr. E. H. Krelage once said at a Horticultural Club dinner when questioned about the origin of the Darwin Tulips, which for so long remained a mystery, so must I say about the present race of hybrid Nerines: "It is sufficient that we have them."

These notes are written with the object of trying to persuade those who have room in glasshouses to "go in" for them. A neighbour three miles away has at the present time one empty glasshouse. In pre-war days it was a warm greenhouse. There are probably many who have suffered somewhat in the same way. All that Nerines ask in the way of heat is to be kept free from frost. So if what once were stoves and warm houses could be turned into cool houses, Nerines are among the subjects which the owners might grow. The newer varieties are far more free flowering, and as my own records show, there are some that may be counted upon to flower every year or twice in three years if only the simple requirements of the race are duly carried out. The two great essentials are care of the foliage and mild feeding with a weak liquid stimulant during the winter months, and a thorough drying off and baking from the time the leaves turn yellow until the beginning or middle of September, when the dormant bulbs begin to show us they are alive by putting out their little, sharp-pointed "tongues." Water may then be given. As the bulbs do best if they are allowed to remain without repotting for three or four years, I have found nothing better than virgin Kettering loam, with the addition of a fair quantity of silver sand and some dried and pounded cow-dung as a potting compost. They should be only half buried in the soil, as this allows their dry and loose outer coats to be removed when growth restarts in the autumn.

I have had several discussions with the late Mr. Elwes about the advisability of doing this. The conclusion we came to was that it ought to be done. My war experience has confirmed the benefit of this treatment.

The one great enemy of Nerines is mealy bug. So long as I had labour sufficient to strip the bulb coats off every year, never a pest did we see. After three years of neglect we had a visitation, which I am glad to say we have managed to conquer by taking heroic measures. The first outward and visible sign of the little pests is white marks on the foliage, which look just as if there was a small suspicion of lime in the water with which they are watered. It is then time to examine the base of the leaves and the roots closely. In our case we did little but pick the insects off; but in July, when the bulbs were dormant, every potful was turned out and all the worse cases burnt. If only two or three bugs were found the roots were carefully washed and all the loose outer coats of the bulbs taken off, and the latter repotted. The next growing season, hand picking was vigorously followed, with the pleasing result that we have now quite got the better of the pest. We have found an invaluable ally in Garner's Nicotine Wash, with which we water the foliage. It seems to reach the pests among the lower interstices at the bases of the leaves, where fingers are of no avail. By this means my collection has entirely regained its fine, healthy, pre-war condition. I have seen mealy bug in both large and small collections of Nerines; in some cases in considerable numbers, while in others there were only very few.

I would like to say something about the best varieties, but I have come to the conclusion that with a few exceptions names mean very little. Messrs. Barr and Sons, who make a speciality of them, list about a hundred varieties, but I recognise very few, although it is likely I have exactly the same under another name or with just the description of the cross on the label, inasmuch as we both had a great many of our bulbs from Colesborne.

Of those that I know, I would recommend for a start N. Fothergillii major, an early flowerer with large scarlet and orange-red umbels, and N. sarniensis corusca, a dwarfer grower with smaller umbels and flowers of a beautiful soft salmon-red. The description in Barr's catalogue as "a brilliant, fiery orange-scarlet" must refer to one I have as corusca major, which in turn is similar to Meadowbankii and Miss Willmott. Lady Mary Shelley is a good pink with a rosy centre, similar to and, I think, finer than, Miss Shelley. It is one of the freest to bloom. Lady Bromley is a curious blend of rose and a deep blue-mauve, one of the freest to bloom, and a lady's favourite. I have had it for many years, but it seems more like Barr's Miss Cecily Elwes than their Lady Bromley. The practical politics of this uncertainty of names is either to trust the seller or to go and pick out the varieties while they are in flower. The best time to buy is when the bulbs are dormant. The next best is immediately after or during their flowering. In this latter case the purchaser can himself see that the treatment of the plants is what it should be from start to the finish. *Joseph Jacob.*

CAMASSIAS.

THESE attractive and graceful North American bulbous plants are very valuable for June flowering, and should be planted as early as possible in November. Although beautiful in the border while in flower, they are apt to become untidy afterwards, and the ideal place for them is a partially-shaded glade of the woodland, where they may remain undisturbed for years. C. Cusickii is a handsome species forming a rosette of broad, glaucous leaves, and throwing up tall, elegant spikes of large, pale lavender flowers with yellow anthers.

C. Leichtlinii produces tall spikes of starry, creamy-white flowers with pink anthers.

Two garden forms of C. esculenta, Royal Purple and Silver Queen, also produce handsome spikes of dark blue and light blue flowers respectively, and are well worth growing. When left in the same position for several years they should be given an annual top-dressing of rich compost, and as soon as signs of exhaustion appear they should be lifted and divided. *W. Auton.*

NOTES FROM A WELSH GARDEN.

THE most delightful plant in flower in our woodland garden during these autumn days is Polygala chamaebuxus. The dark green, leathery foliage of this little creeping shrub is cheerful at any season, but when the plant is covered with blossom, as it is for so many weeks in succession, both in spring and autumn, it is singularly attractive. This is a very variable plant, some forms being much broader in leaf and larger in flower than others, and though the variety purpurea is deservedly more popular than the type, there is room for both. Whether the beautiful P. Vayredae is simply a geographical form of the above I do not know. It has narrower leaves than any forms of P. Chamaebuxus which I have seen and is not nearly so robust with us.

Although I am writing at the end of October, the Heath slope is still full of colour, the most noteworthy groups being those of Erica ciliaris, the somewhat similar E. Watsoni (tetralix × ciliaris), E. Maweana, and E. cinerea atropurpurea. This last is later and dwarfer than rosea, and in both colour of blossom and stature comes between that fine variety and the gorgeous little E. c. coccinea, which is still quite gay. This beautiful dwarf Heath is the only one of its race known to me which has any orange in the coloration of its flowers. But the rich crimson-scarlet of its "bells" shows a distinct trace of that colour just before the corollas fade.

At any other season the russet hue that now dominates the ranks of E. vagans, as the long racemes of blossoms at last become spent, might be considered unsightly. But the red-brown of these withered flowers blends very happily with the tints of autumn, and with such blossom colour as still remains among the Heaths in general. Worthy of note also is the warm coppery hue which at this time of year returns to Calluna vulgaris var. cuprea, and hardly less attractive is the deep gold of the var. aurea.

Down by the water, where the handsome foliage of Galax aphylla and the Shortias is being touched with the "hectic red" of autumn, some Gentians of the asclepiadea set are still as fresh as ever, the pale luminous blue of Perry's Blue being especially lovely. Here also are several happy colonies of Cyclamen neapolitanum, whose rosy-carmine affords patches of colour of an unusual but not inharmonious note among the prevailing yellows and duns of fallen leaves. Omphalodes cappadocica brings a sheen of springtime azure to a half-shady bed by the stream-side, where the tall fronds of Osmundas and the large round leaves of Saxifraga peltata are aglow with

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tawny yellow. Also hereabouts, draping the mossy stones along the margins of the paths, the pretty foliage of Tiarella cordifolia is stained with those bronze and crimson shades for which this charming woodland plant is so well known and appreciated.

Fragrant flowers being uncommon at this season, some clusters of blossom on Daphne Dauphinii (hybrida) are especially welcome. Another lowly shrub which has broken into a second blooming almost as liberal as the first is Rosmarinus prostratus, one of the most delightful of rock-garden evergreens. This year it promises (weather permitting) to keep in colour until Lithospermum rosmarinifolium, which occupies the same dry, sunny ledge, opens its wonderful flowers. Here also is Lavendula dentata, throwing up a late crop of long, lilac-tipped bloom spikes which are hardly likely to achieve development. At best they are not so attractive as those of the Common Lavender, but the foliage of L. dentata easily excels the latter and all its varieties in the important matter of fragrance.

Still showing their bright fragments of colour are Salvia Grahamii and S. Greggii, and always among the latest bloomers are the shrubby Veronicas of the Andersonii group. These are not really hardy here, even in a sheltered spot, and their attractions do not appeal to me personally. The silvery V. Andersonii variegata is welcome enough when it gives a display of its long, flue-brush flowers in a pale violet blue when we are nearing winter, and there is a decided charm about Mt. Blanc, with snow-white blossoms against dark green foliage. But a white Veronica of more distinction which we like better and which flowers earlier (July-November) is V. macroura. This is a semi-prostrate shrub, with large leaves and curiously curled, cylindrical spikes, densely set with white blossoms. This is a good deal hardier than the above varieties.

Two hardy Geraniums are interesting just now. One of these is G. atlanticum, whose round, deeply-cut leaves are appearing in a fresh spring green dress, the plant having been quiescent since summer. The other is G. anemonaefolium, which at this season establishes its right to be regarded as a foliage plant of much merit. Unlike the former, this Madeiran species never "rests" at all, for as soon as the last of its beautiful flowers are passing it commences sending up its large, palmate, fleshy leaves on their stout, rigid stems, and this handsome foliage will not cease growing, save during cold spells, throughout the winter. *A. T. Johnson, Talycafn, N. Wales.*

TREES AND SHRUBS.

PYRUS MALUS GIBBS'S GOLDEN GAGE.

Pyrus malus Gibbs's Golden Gage is one of those come-by-chance hybrids, like Cox's Orange Pippin, which can never get into the stud book as no one can do more than guess as to its pedigree. Nevertheless, like most hybrids, it is a fine, robust, vigorous plant, with foliage and blossom very like those of the typical Apple tree. Its outstanding merit consists in the fruits, which are very freely produced year after year. These are egg-shaped, and about the size of a bantam's egg; in colour they are of a bright clear yellow, faintly flushed with red, moreover, their surface is waxy and translucent, so that when the sunlight catches them they look almost as if one could see through them. There is one last advantage that ought to be credited to this variety, that as late as November 3, when this note was written, not one of the Apples had yet fallen, although all other fancy Crab trees had shed their fruit, and some, like "Beauty of Montreal," did this more than a month ago. *V. G., Aldenham.*

FREMONTIA CALIFORNICA.

There are few more handsome wall plants than this Malvaceous shrub. Its orbicular, bright, shining green leaves and clear yellow, bowl-shaped flowers, often three inches across, with orange stamens in the centre, make it an object of striking beauty. Its season of flowering is early summer, but it often remains in bloom for months, and a young specimen in these gardens is now (October) still carrying flowers.

The plant thrives in light, sandy soil, and soon attains a height of 8 feet to 10 feet, but it does not appear to live to a very great age. It is, however, readily propagated by means of cuttings of the young shoots inserted under a bell-glass, or seeds may be sown in sandy soil in a cold frame in spring.

CISTUS.

The members of the genus Cistus possess a brightness and charm all their own, and although the individual flowers are short-lived, they are produced in such abundance and in such quick succession that a fine floral display is continued over a long period.

These elegant shrubs, or sub-shrubs, are natives of the Mediterranean region, and should not be placed in exposed or wet positions, but most of them will withstand our

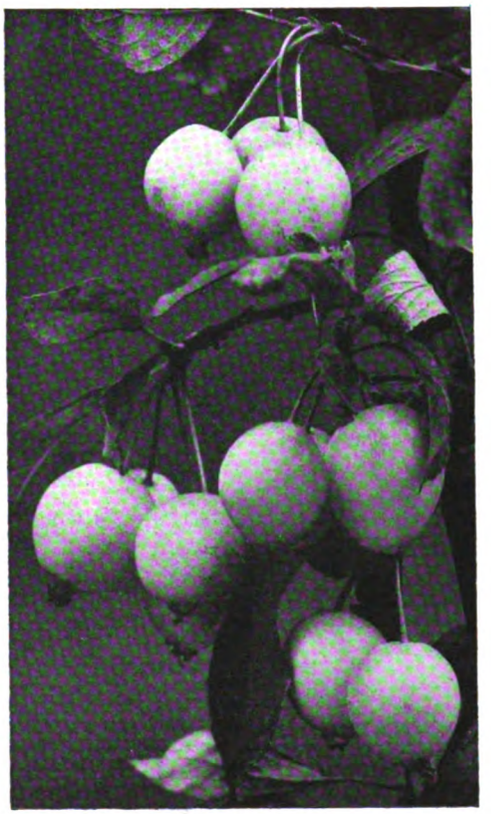

FIG. 100.—PYRUS MALUS, VAR. GIBBS'S GOLDEN GAGE.

winters in the southern counties provided they are planted in freely drained soil. They are especially valuable for the wild garden, and seem to love places despised by other plants, for no soil seems too poor and no position too dry or sunburnt for them, while for quickly clothing dry, sunny banks they are ideal.

The Cistuses delight also in a groundwork of Heather, and a beautiful effect may be obtained by planting some of the taller varieties in free, carpet-like masses of Heaths.

C. ladaniferus, one of the finest members of the genus, has large white flowers with a bold, crimson blotch at the base of each petal. Its leaves are deep-green above and silvery-white beneath, and the leaves and stems exude a resin which has suggested the name of Gum Cistus. C. laurifolius is a tall grower, very hardy and easy to grow. It has a good habit and lasts for many years, producing its white flowers with yellow markings throughout the summer.

C. cyprius is a beautiful species, producing flowers 3½ inches wide of the tenderest white, with a red-purple blotch at the base of the petals. C. florentinus is a good grower and quite hardy. It has wrinkled leaves and large white flowers with yellow base. C. hirsutus is a low-growing species, with oblong, blunt, hairy leaves, and white flowers with yellow base. C. monspeliensis is a compact grower, with medium-sized, white flowers and dense foliage. C. purpureus is a very beautiful kind, with neat, erect habit, pale green foliage and reddish stems; the flowers are very large, rosy-purple, with darker spots at the base of each petal, and they continue in succession till quite late in the summer.

C. formosus (syn. Helianthemum formosum) should be included in this group, as it gives variety in colour. It has hoary foliage, and bright yellow flowers with bold black markings. C. immaculatus is somewhat tender, and should be given a very sheltered position. Where such can be provided it is well worth growing, as its magnificent white flowers are most attractive.

The propagation of Cistuses is easily effected by cuttings or seeds. Cuttings of half-ripened wood, inserted in sandy soil in August, and given the protection of a bell-glass or cold frame, root freely, and may be planted out the following spring. Seeds may be sown in early spring, in a cold frame, where they germinate in a few weeks. When ready, the seedlings should be potted into 3-inch pots, from which they should be planted into their permanent positions, as they dislike transplanting. *W. Auton, Pyrford Court Gardens, Woking.*

PIERIS FORMOSA.

Few will deny this fine shrub its claim to be the most beautiful member of its genus, its only drawback being that flowering early, and a little tender, its buds and blossoms are apt to be injured by frost. Nevertheless, it is quite hardy enough for almost any of our more favoured westerly and southern counties, where it has the reputation of being a robust, long-lived subject.

P. formosa is usually seen as a bushy shrub of 8 feet to 10 feet in height. Its ample evergreen foliage consists of handsome, lanceolate leaves, often 6 inches long, of a dark, burnished green, and firm in texture. In autumn the flower buds appear in bold reddish tufts at the tips of the branches, the blossoms opening in May or earlier, according to weather and locality. These latter are large, pure white and urn-shaped, and they are disposed in elegantly arched, or drooping, panicles some 5 inches to 6 inches in length. Then, when the flowering season is over, the new growths appear, and these being a bright, glossy vermilion, and eminently graceful, they constitute no small part of the attractiveness of the species.

This fine shrub is by no means difficult to grow in a suitable locality. It doubtless enjoys peat and leaf-mould, but it will prosper in any well-drained, lime-free loam, and in such established specimens have been known to carry on for years without any attention beyond perhaps a mulching to prevent undue evaporation at the roots.

ERICA CILIARIS VAR. MAWEANA.

This handsome Heath may claim to be the finest of all the later flowering kinds, but though discovered in Portugal nearly fifty years ago by the late Mr. George Maw, it has never become common in gardens. This is the more difficult to understand when one realises that it is as robust and hardy as the type species (Dorset Heath), itself among the best of the species, and it is, moreover, quite distinct.

Compared with E. ciliaris, this beautiful Heath is more upright in habit, its foliage is a darker green, being less hairy, and the flowers, borne on stiff, erect racemes, are, individually, about half an inch in length, and a full-toned, rosy crimson. E. Maweana will prosper in any good lime-free loam and leaf-mould, or sandy peat, in which other Heaths grow. It is desirable, however, to give this variety—and others of the ciliaris group for that matter—a sheltered place, since they dislike wind. Being late in flowering, they are likely to get not only rougher weather but less sun than the earlier Heaths, a fact to be kept in mind when planting. *A. T. J.*

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SOME OLD SCOTTISH PLANT NAMES.

SCOTLAND produced no Herbals, and its old plant names must be sought for elsewhere. The earliest book one would expect to find such names in is one published two and a quarter centuries ago, entitled *The Poor Man's Physician*, by W. Moncrieff, of Tippermalloch, commonly known as Tippermalloch's Receipts. But Scottish plant names are singularly absent from its pages, and I have to thank two perfervid Scots who owned sixteenth-century Herbals for inscribing in the crabbed caligraphy of the period the Scottish names of the plants therein. Some of these names are long ago obsolete, some have to be searched for among French names, while most are still doing duty in Scotland.

They are interesting on another account, inasmuch as quite a number of old Scottish plant names are not mentioned at all, due, perhaps, to the localisation of these even so long as three centuries ago. Nothing can be more expressive than some of these long-forgotten vocables. There is, for instance, Gritt Stonie Thirl. "Thirl" exactly defines the way Stonecrop, the plant in question, attaches itself to the stones on a dyke. To be "thirled" to anything or anyone means to be completely and absolutely attached thereto, just as the people on an estate were thirled to the mill on the property. There and nowhere else dared they send their corn to be ground into flour. Sneezing is given for Achillea Ptarmica. The name occurs under another herb as Neesing Powder, which is quite good English, as a reference to the Book of Job demonstrates. The herb was reduced to coarse powder and snuffed up the nostrils to induce sneezing in order to clear the brain of noxious humours! Later, when Nicotiana displaced all other herbs as a snuff, the Scot still continued to call the powder of that titillating herb "Sneishin."

Under Galium verum is Chesewort, a name that associates that pretty herb with the production of cheese, a decoction having been employed to coagulate milk when a calf's stomach was unavailable for the purpose. Chesbow, another old name, is distinct, and distinguished the Poppy, as in the *Eneados* of Douglas. There are two Purpies noted, the garden and the wild. These names long maintained a place in the Scots vernacular for Purslane, and are the French Pourpier. Brooklime was known on the Borders as Water Purpie, and all three were eaten raw or in salads. Foxglove in one Herbal is named Fuller's Thystell, not improbably in mistake for Dipsacus Fullonum. In the other, Foxtrie is the name, and this is found elsewhere as Foxter-leaves. Even at that period Digitalis had its physical uses, having been given to sick children, some think, for convulsion fits, but so far there is no assurance that that was the complaint. Anyhow, the mothers who were caught using it were subjected to ecclesiastical censure and forbidden its use. Why is also obscure, and most probably owing to the impression that the Good Folk or Fairies had a strong attachment to the plant, the ministers may have thought it necessary to check any intercourse, however well-meaning, with that shadowy people.

We come on another French name in Rayfort, which long kept its position in colloquial Scots, and it is Robert Chambers who, I think, mentions Raiforts being cried by the women of his day who hawked vegetables in the streets of Edinburgh. Though in France the name included Horse Radish as well as Radishes, the latter were those only that were so-called in Scotland, and it is not a little interesting that someone, when Mary Stuart was queen, should make a note of its being then a name current in her country. One would be dubious about the French Marigold being cultivated at that period, but it is recognised by the unknown scribe as "Tansie of India." Names that are still familiar in Scotland are Fou for Sempervivum tectorum, though it is more usually called Fouats; Mylds for Atriplex hortensis; Bourtrie for Elder; and Blewe-blawe-wort for Centaurea Cyanus. Some names seem to have been guesses. Such are Englyshe Rubarbe for Veronica Chamaedrys; Cucu pintill for Polygonum Bistorta; Wyld Beets for Pyrola rotundifolia; and De Netell for Urtica "romana." There can be no mistake regarding the identity of these and other plants, for the names are all inscribed under their figures Flaergras for Galium Aparine and Phuonole for Nepeta Glechoma are, however, names that I do not understand.

Even earlier than the above are a few more. Catcluke is one. The last syllable defines a pronged implement for dragging, and the plant may be Lotus corniculatus or one of the associated plants, which, when in seed, has the appearance of that implement in miniature. Earlier still is Jonet, "the Jonet Swete of smell" and "floure Jonettis." Quite obviously these are the French Jonette, and the flower they represent is either Narcissus biflorus or another of that genus. While, however, the French name continued long in use, the Scots one must have lapsed very long ago. Not so late as any of the above is the strange-looking name Doudlar, the Phragmites communis, which, however, has become obsolete. It recalls a time when the country lad of musical affinities had to solace himself with a sort of Pan's pipes composed of the old stems of this grass, and the playing of this simple instrument was called "doudling," a designation somewhat similar being still employed to describe bagpipe-playing. "Tootle" is, no doubt, another form of the word. Of less age, for the same plant is the name Bog-reed, applied to the same musical instrument, and also to another composed of a single reed and the shank-bone of a sheep.

One might dilate on the names, now out of use, of vegetables—the Bowkale, applied to Cabbage, meaning short-stemmed; another sort the Langkale Greens, not as in England, applied to winter stuff generally, but to the Scotch or Curled Kale. Then there was the Costie, in various ways of pronouncing the word, but all descriptive of the pith of the Cabbage stock, which was eaten as a delicacy by bygone generations of Scots. The name is directly from the Latin *Caulis*. The stock or stem itself was a Kale Runt. Not long gone out of use is Syboe for young Onions. This also has a Latin derivative—*Cepa*. I will only further mention the curious circumstance of the Turnip being regarded as a fruit, a fact that Sir Walter Scott enlarged upon in *Rob Roy*! The reason, no doubt, was that young Turnips were eaten like Radishes, the number of instances noted by writers, novelists, travellers, and horticulturists, proving that the custom was quite common well into the eighteenth century. *R. P. Brotherston.*

WOUND DRESSINGS.

THE importance of protecting wounds in trees, whether caused by sawing off large boughs or by the heavy pruning of second year or older wood, is becoming more and more recognised; *Market Grower* refers to some protecting agents that have been tried (p. 223), and perhaps I may be permitted to add others.

The most useful preparation that I have tried is what we call "sulphur oil"; my first trials were made in 1912, and it has been in use ever since, not only by myself but by several friends to whom I have distributed it. Small canker wounds have healed entirely, and larger ones have ceased to increase under its use; moreover, as an application for American blight it has been found that renewed attack at a site is rare during the same or a second season after one application; put with a brush on the colonies, it is my standard antidote for this pest. Where boughs have had to be sawn (mostly from breakages due to undue weight of Plums), the cut surface rough from the saw is treated; when crown grafting on larger wood, only the site of the grafts is smoothed with the knife, and their neighbourhood only waxed, the remainder of the surface is left rough and given a smearing of the sulphur oil. In treating canker, nothing is cut away—against the stock advice; if there is much chippy dead bark, it is rubbed off a bit with the hand, plenty of scaly bits being left to make a binding.

The preparation is founded on the *rasolimentum sulphuris* of pharmacy, and is prepared by thoroughly boiling linseed oil with sulphur (preferably flowers of sulphur) and stirring occasionally; the prescription gives the proportion of 3 of sulphur to 37 of oil, that is, about 8 per cent. by weight; a larger quantity of sulphur will not combine, but crystallises out on cooling. As some smell is evolved in the boiling, it is best carried out in some outbuilding. Care should also be taken that the vapours do not ignite. It is essential that the boiling be carried on to complete dissolution of the sulphur; the fluid then has the dark colour of Stockholm tar, but is more fluid.

For use, this stock solution is generally diluted with some 9 parts of linseed oil. When dabbed on in patches, even on young shoots infested with Schizoneura lanigera, I have never known any harm accrue; but I may add that a friend's gardener thought to tackle mealy bug with it on an indoor vine, and painted the whole rod freely with it. As seen a month or so later, the vine evidently did not like it, but I do not know whether it eventually recovered. Anyhow, it was too heroic an application. From its fluidity the preparation does not make a visible varnish, though protection seems to be good notwithstanding. No doubt the lubricating or softening effects of the oil promote healing of hardened bark, and the mere fluidity must help to promote soakage into deeper parts. With a view to making a more varnish-like preparation, a compounding of rosin with sulphur was made; the rosin or colophonium was found to take up about 20 per cent. of sulphur, but somehow the results obtained with the plain oil method have been so good that the rosin-sulphur-oil has not been used very much. Still, it offers a field to experimenters who wish a more varnishy product. Cacao-butter will take up about 20 per cent. of sulphur, and might be thinned with oil; beeswax also affords a compound, neither of which has been actually used yet.

It may be added that mineral oil, e.g., *paraffinum liquidum*, will combine to a dark fluid with sulphur, but ordinary paraffin oil (burning oil) merely dissolves it with crystallisation on cooling. Probably the boiling point is not high enough to engender combination.

Though another line of business, I may add that these preparations were also tried as emulsions for spraying in 1912; a note before me in July of that year gives a mixture which

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was tried on Roses of rosin-sulphur-oil dissolved in plain oil and emulsified with soap and gelatine. How long it has taken for the popularisation of "spreaders," as they are now called! And yet in France their importance (gelatine, quillaia and sapindus saponins, etc.) was known many years ago.

In another series of substances copper was selected as the fungicidal agent, but there was some difficulty in getting satisfactory solutions of some products. Copper carbonate was heated with twice its weight of colophonium; the resulting "resin soap" dissolved best in rosin oil; alcohol, even hot, refused to take it up. This, with some dilution with linseed oil, was used as an application to cut surfaces on three indoor vines, as it was noticed that these points showed much sporing mildew; possibly the varnish alone would not be without effect. Other copper soaps, prepared by precipitating soft soap with copper sulphate, were made. One preparation showed about 6 per cent. Cu (n.b. Cu stearate contains 10 per cent.). Here again the solvent question gave trouble, and on the whole, rosin oil seemed best for the purpose of solution. Such preparations were tried both as varnishes and as emulsions for spraying; no damage was noted.

In the form of watery applications, some chinolin or quinolin compounds were first tried about the same year (1912). These were founded upon Cazaneuve's vine spray (1912), consisting of chinolin-(2), pyridin-(1), mixture 200 grams, copper acetate 1 K.000, water 1 Hl. I fancy that one of the chief uses of the pyridin is to get more solution of the chinolin As a spray, the absence of scorching was noted, but the knowledge of copper-sensitive varieties was not known in those days. In 1917 a Plum tree (Impériale de Milan) was moved from where it had grown since 1899; it started gumming very badly, and looked altogether decrepit. In 1918 the branches and trunk were somewhat laboriously painted over with a fairly strong mixture of the above formula. Later they were hand-smeared with clay to close the apertures through the bark; last year it was sufficiently well to bear a couple of fruits.

Brooks has lately tried quinoline compounds (*Journ. of Pomol. and Hort. Sci.*, vol. III., 1923, p. 133). He found superol, otherwise known as chinosol, and consisting of oxyquinoline sulphate, to be the most efficient fungicide for stereum. Besides quinolin, other bodies such as aniline have been tried, but my notes are too scanty for reproduction. But I may more especially allude to nitrobenzol (oil of Mirbane), which is so largely used as a preservative in pastes, shoe-polish, etc.; it is rebellious stuff to emulsify, which is perhaps best done by preliminary solution in oil and subsequent emulsification with soap, and rather dangerous on leafage when not well emulsified, but it has insecticidal powers as well as fungicidal. It is now too late for trial this season, but I would commend wrapping a piece of wadding round a thin stick, moistening it with say half a teaspoonful of the above compound, and thrusting it into the entry hole of a wasps' nest and stamping down the aperture. By its aid, the use of cyanide may perhaps fall into oblivion, even on a waxing moon (which, I am told, is no time for taking wasps' nests, "as the grubs will continue to hatch"). Next day it is safe to dig out the nest. Naturally, the use of vapours in houses may be thought of. Nitrobenzol, as well as chinolin, has also been added to the "sulphur oil," but I am unable to say whether it has been advantageous. *H. E. Durham.*

The Hay Crop.—According to the returns of the crops for 1923, compiled by the Ministry of Agriculture, the yield per acre of Meadow Hay, 22.3 cwt., was also above average, being about 1½ cwt. per acre above the decennial mean, and 4 cwt. per acre heavier than in 1922. The total production of 4,865,000 tons is 800,000 tons greater than last year. Taking both kinds of Hay together the production is estimated at 7,693,000 tons, compared with 5,789,000 tons last year and 5,339,000 tons in 1921.

PLANTS NEW OR NOTEWORTHY.

BUDDLEIA AURICULATA.

Being a native of South Africa it is not to be expected that this shrub will be really hardy anywhere in the British Isles except in the south-west and similarly mild localities. It will, nevertheless, survive mild winters, such as that of 1922-3, even near London. The plant at Kew from which the branches shown at the R.H.S. meeting on October 30 were cut (fig. 101) is growing in one of the recesses in the outer wall of the Temperate House. There, although facing east, the building gives it a certain amount of protection. A severe, or even moderately severe, winter will no doubt kill it to the ground.

FIG. 101.—BUDDLEIA AURICULATA. R.H.S. AWARD OF MERIT, OCTOBER 30.

The flowers are pale pink with a slender downy tube ¼ in. long and are crowded on short panicles, both axillary and terminal, the whole forming a leafy inflorescence 1 ft. to 2 ft. or even more long. The leaves are lanceolate, sparsely toothed towards the slender points, dark green above, glaucous beneath, and 1½ in. to 4 in. long. In habit the shrub is loose and graceful, and will grow 10 ft. or probably more in height. The fact that it blossoms in late October and November adds much to its value; still more does its charming Primrose-like fragrance.

Mr. Reginald Cory grows Buddleia auriculata in his garden at Duffryn, near Cardiff, where it is likely to be almost permanently safe from destruction by cold. He states that its fragrance is perceptible several yards away. Like all the Buddleias it grows well in loamy soil and is easily increased by summer cuttings placed in gentle bottom heat. *W. J. B.*

PRUNUS DIELSIANA VAR. LAXA.

This Cherry is still rare in gardens, although it has been in cultivation for a number of years. It was introduced by Mr. E. H. Wilson from China during his 1907-09 expedition. The collection number is 37, and this Prunus was found at the same time as Prunus Conradinae, P. tenuiflora, P. pilosiuscula and the varieties media and barbata, but is absolutely different from them all. It is the last to flower, and terminates the flowering season of the group.

I have every reason to think that this Prunus will thrive and the trees make very good specimens. The young wood is smooth and polished; the leaves are rusty hairy beneath, with a somewhat rough upper surface. The foliaceous bracts are margined with stipitate glands and are very conspicuous; the pink flowers are crowded on spur-like growths at the beginning of May. So many glands present may tend to mar the beauty of this Cherry if grown in the environs of smoky districts, as the sooty particles will adhere to the sticky secretion. At the time of writing the bronzed red and yellow colour of the foliage commands attention. *C. F. C.*

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THE ALPINE GARDEN.

ANDROSACE.

GIVEN free drainage, a light porous soil and a little protection under certain circumstances against wet and foggy weather, most of the Androsaces are quite easily managed. Such species as A. sarmentosa, A. s. Chumbyi, A. Chamaejasme, A. lanuginosa, A. l. Leichtlinii, and A. sempervivoides, are quite happy when planted in the crevices and interstices of rock-work or on rocky ledges; if in an almost perpendicular position, so much the better, for then protection against damp may be dispensed with.

A sandy and gritty loam is the best rooting medium, for very few of these high alpine plants, of which A. carnea is the best known, are peat-lovers. When they are grown in such a position as to be quite unprotected from rain and fog, sheets of glass raised a few inches above the plants will bring them safely through the winter. This protection should not be afforded until it is absolutely necessary, certainly not earlier than November, and should be dispensed with as soon as possible in the spring.

A surfacing of chippings is always advisable, and full sunshine is, of course, a great necessity. A. foliosa, the strongest-growing member of the genus and very near to Primula, is a fine plant and an "easy doer." A few of the smaller-growing species are rather difficult plants, and should be grown in the moraine; these include A. pyrenaica, A. helvetica, and A. (syn. Douglasia) Vitaliana.

A geraniifolia, a species of comparatively recent introduction, is quite distinct from the other members of the genus, and not so attractive as many of them; it is very easily grown. Some other excellent species are A. tibetica, A arachnoidea, A. villosa, A. primuloides, A. brigantiaca, and A. ciliata.

All the Androsaces are excellent subjects for the Alpine home, grown either in pans or planted out, and when grown under glass the small flowers are very bright and of pure colour.

Propagation is best done by means of seeds, and these, as in the case of the nearly-related Primula, should be sown when they are quite fresh. A. geraniifolia may be propagated by means of runners, which it produces much in the same manner as does the Strawberry. If pegged down the runners will root quickly and easily. The essentials in the successful culture of Androsaces may be summarised as: a maximum amount of sunshine, free drainage, a light, gritty soil, and immunity from stagnant moisture about the roots and from stationary moisture on the rosettes, when the species take this form of growth. *Ralph F. Arnold.*

ERODIUM CORSICUM.

THERE are few more charming rock plants than the Erodiums, or Herons' Bills. It is not easy to select among so many good little plants, and to assert that the one chosen for notice is the best. Nor, were I compelled to select one or two out of the race and say that these were the most delightful, would I, perhaps, include E. corsicum and grow it to the exclusion of most of the others. As a plant it does not seem to be so dowered with subtle refinement as some others, but it has a good claim to be reckoned among the best half-dozen of the family. It has the merit of succeeding in a dry, sunny, calcareous, well-drained soil, and, if allowed plenty of room, will grow into masses with charmingly formed, scalloped and crimped silvery leaves, which are quite downy in appearance. The plant will spangle the carpet thickly with rose-pink flowers, whose beauty is heightened by the deeper colour of the veining, while the flowers, unlike those of some of the other species, have all the petals of the same size. The plant makes a beautiful carpet, and a good-sized one, such as has been seen this summer in the Royal Botanic Garden, Edinburgh, has an unspeakable charm indeed. Its specific name of corsicum is not so inappropriate as that of some other plants with geographical designations, as it comes mainly from Corsica, although it is also a native of Sardinia. *S. Arnott.*

PUDLIC PARKS AND GARDENS.

THE Manchester Public Parks and Gardens, under the superintendency of Mr. W. W. Pettigrew, occupy a very important place in the municipal activities of that great city, and progress is being continually made both in adding to the City's open spaces and in the providing of new features and attractions in existing ones. The great use to which the Manchester Parks are put for the purposes of recreation is shown in the receipts from games in the half-year ending September 30. They are as follow: Bowls, £2,827; tennis, £3,981; boating, £3,606; golf, £2,111; putting green, £33; hire of chairs and sale of programmes, £1,117; and catering, £7,617. The total income for the half-year amounts to £21,293 19s. 10d., which is slightly below that of 1922, when the receipts were £21,592 7s. 3d.

A much larger income would have been derived from these sources but for the unfavourable weather, for, to cite an instance, rain fell on one hundred out of one hundred and fifty-three days on which the bowling greens (exclusive of Sundays) were open for play.

As is well known, inhabitants of towns in the Midlands very much appreciate good music, and the concerts provided in the various parks have been well attended by the townsfolk. The number of concerts given during the season was 417, embracing 341 of an instrumental and 76 of a choral nature, and they were rendered in thirty-seven parks and recreation grounds, including two school yards. The number of bands and choirs engaged was fifty-three.

Recreation for children is well catered for in the Manchester Parks, and provision is made for children's dancing, Punch and Judy performances and sand gardens, in which the juveniles find great delight; indeed, it is stated that during the season no fewer than 49,208 boys and 50,419 girls, making a total of 99,627 children, made use of the sand gardens. It is interesting to know that the children appreciate the dancing, which is organised by a lady supervisor, and a large number of adults find considerable interest in watching the children dance, thus providing pleasure for young and old alike. As in the case of the other outdoor sports, the dancing was affected by the unfavourable weather, but it is satisfactory to learn that well over 20,000 children attended the dances.

Perhaps the most novel of the attractions is that of providing the youngsters with Punch and Judy performances. These were given by three "professors" in twelve recreation grounds and one park on special afternoons and evenings during August. As showing how this form of amusement was appreciated, it is stated that as many as one thousand children were frequently present at a single performance of "Punchinello."

One or two special features have been introduced in the Manchester parks during the past half-year, including an indoor gymnasium for small children at St. George's Park, and an eighteen hole putting green at Heaton Park, and so successful have these been that it is probable they will be instituted in every park and open space where favourable conditions for their introduction exist. The laying out of the putting greens will provide work for unemployed men during the coming winter.

The share of the parks department in the City's scheme of providing work for the unemployed is seen in the following works which have been completed in the parks during the past six months:—The forming of shale tennis courts in twelve parks and recreation grounds; the construction of six bowling greens; path renovation in fourteen parks, playing fields and cemeteries; the construction of new paths in three parks; the drainage of football fields; the alterations of band stand enclosures; the removal of hedges; the construction of a promenade in Heaton Park; the making of golf putting greens in Heaton Park; the construction of a paddling pool and children's playground in Heaton Park, and the formation of a model yacht pond in Whitworth Park.

THE RELATIONS BETWEEN HORTICULTURE AND PHYTO-PATHOLOGY.*

(*Continued from p.* 265.)

SOME diseases interfere with flower breeding. The mildews of our flowering plants are good examples. They do not live on the seed, very often their hibernating places are unknown to us, and especially is this so with those mildews of which we never or seldom find the perithecia. They may only be controlled by measures applied to the plant directly. I have in view here the mildew of the new varieties of Delphinium. We see the tenderest colours affected in midsummer by the common mildew, Erysiphe Polygoni, which not only affects the leaves, but also causes deformations of the inflorescence. Breeders will be obliged to consider this white pest when raising hybrids and making selections. It is obvious that there is an increased susceptibility, and that ancient strains were most resistant.

A scientific study of the genetics of mildew-susceptibility has been made by Klaphaak and Bartlett, on account of the mildew of Œnotheras. They found immune and susceptible plants, produced in crosses between immune and susceptible parents. However, their research work did not enable them to find morphological characters as the expression of immunity factors. So here we are again in the dark about the basis of resistancy.

For many years mildew has been a problem for Rose breeders. Amongst the mass of Rose varieties there is a regular disappearance of too susceptible strains. Although we know that a shining leaf is somewhat less susceptible than a non-shining one, the breeder is never entirely sure of his new form. The mildews have the peculiarity of attacking some of the strongest growers. The Crimson Ramblers had to surrender the field to the Wichuraianas, which lack the susceptibility of the ramblers. To-day many mildew-resistant climbers adorn our homes and gardens. We know that raisers will supply us with new and healthy varieties, but it is the task of the pathologist to find out why on so many Roses the mildew patches are restricted in growth and why the young autumn shoots are, so to say, eaten up by mildew. So it is with another fungous trouble, the black spot, Asteroma rosae. This fungus resembles the scab of our fruit trees, blackens the Rose leaves and causes an early loss of leaf. The Pernettiana Roses are notorious for their susceptibility to this disease.

These considerations will show that we need pathologists working along the borderland between pathology and genetics, and that we need pathologists with a gardener's eyes.

Latterly, pathologists have been largely occupied by another type of disease, namely the so-called mosaics, and the numbers of publications on the subject have been overwhelming. In addition to agricultural crops, like the Potato, some of the other vegetables have received large consideration. The chequering, crinkling, patching, curling, variegating, blistering and mottling of Tomatos and Cucumbers have been a subject of study. Without any doubt, the investigation of these symptoms will be "modern" for several years to come, as it is the unknown and indefinite causes of these plagues that fascinate the investigator—or is it fear that stimulates? Whatever will be our conclusions we know the diseases are infectious, and that several are carried from one plant to another by insects. Some investigators presume that protozoa are the originators, but it may be that a bacterium will prove to be the cause.

However troublesome these curl and mosaic diseases are to Cucumbers and Tomatos, it cannot be denied that the subjects are most dangerous to crops that are propagated vegetatively. The so-called deterioration of these plants is

* Abstracted from a paper on "The Relations Between Horticulture and Phyto-pathology," read by Prof. Johanna Westerdijk, Baarn, Holland, at the International Horticultural Congress, Amsterdam, Sept, 1923.

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partly due to mosaics, *i.e.*, to a definite infectious disease.

The Raspberry mosaic disease (American Raspberry Yellows) seems more and more to find its way into Raspberry plantations. The variegating tops with the blistered leaves are to be seen from afar; the dwarfing of such shoots is evident, and the yield of fruit is small. The malady has not been subject to ample research, and the insect relations are not clear; but propagation by cuttings threatens a large dissemination of the disease.

Another mottling must be familiar to Dahlia growers. Mosaic is a trouble in several new varieties; the yellow patching of the leaves coincides with a stunted growth. I do not think the disease has seriously interfered with the breeding of new Dahlias, but it is there.

It has always been a marvel to me that our Apples and Pears have not been attacked by mosaic or related troubles. In the U.S. the Peach is suffering from an allied malady, which is called the "rosette." The destructiveness and danger of this disease on the other side of the Atlantic makes me draw your serious attention to this matter, as we are never sure that such a disease will not occur here. The Peach rosette, that was investigated by Erwin Smith, in 1881, was proved to be infectious. Smith transplanted diseased buds to healthy Peach trees. He also made a few experiments with Plum rosette, which behaved in the same way. We have in both these cases the common features of mosaic, the shortened internodal growth, together with the mottling of the leaves. McClintock did a great deal of research work, and transplanted the causal entity from one host to another. Buds of healthy Plums and Apricots were inserted on diseased Peach seedlings. The developing twigs, even after appearing clean for a year, showed rosettes and mottling. It is certain from these experiments that Plum and Peach rosette are identical. It has been possible to kill Plum and Peach trees within twelve months by inserting diseased buds into a susceptible host.

On the contrary it has been shown by different writers that the Marianna Plum is entirely immune. Some go so far as to indicate that the resistent stock exerted a marked influence on the virulence of the causal entity of rosette in the scion, which does not die out. The entity or virus cannot pass through the immune stock from one rosetted bud to another species inserted on the same stock. Almond and Cherry both are susceptible to rosette. Soil transmission does not seem to be of importance, but a sharp lookout for yellowing is advised to European gardeners.

And it seems to me that a mosaic is also a true qualification of the cause of the so-called "running-out" of Strawberries.

Much less known than the virus diseases is a malady called "reversion" or nettlehead, of the Black Currants, which possibly belongs to this group. As to its cause, one is absolutely in the dark. In England it has caused ravages, and in Holland it is called "bastardising." The bushes cease to bear normally, on account of the abnormal flowers. The leaves are reduced in form, in sub-main veins and marginal teeth.

The only control measures against these diseases consist in the careful selection of stock for propagation. We know that a Dahlia suffering from mosaic will retain the infection in its roots and give rise to new diseased plants. It should, however, be mentioned here, that Miss Wilbrink in Java has tried to purify "cuts" of sugarcane, suffering from "Sereh" disease, by hot-water treatment. These first trials have been a success. If investigations are carried along this line, they may become of great interest to horticulturists. Apart from this, every grower should be on the watch, and remove the worst infected plants.

We now consider a fourth congeries of diseases which requires serious investigation; the so-called physiological diseases, better called "inorganic." The first name is misleading, as every disease, be it parasitic or non-parasitic, is "physiological." Whatever be the name, these troubles require the help of a physiologist. Every pathologist should have "physiology" in his blood; without it he will not succeed. The parasitic diseases, on account of their epidemical character and their influence upon international commerce, have nearly entirely absorbed the labours of the pathologist. Moreover, a good gardener in many cases can cure or prevent these troubles himself. He knows often better than the man of science that the cause is a lack of manure, too heavy watering, drought or frost. But in other cases, the judgment of pathologists is needed. On behalf of fruit culture, I wish that pathologists would find the cause of "lithiasis" in Pears, and of "stipping" in Apples. An exact method for measuring hail injury is wanted. The gardener wishes to get rid of the various spots on his Orchid leaves did he only know how. This is a problem for the plant pathologist, who has to combine anatomical examination with physiological experiment.

GRASS ORCHARDS, OLD AND NEW.

THE beginning of grass orchards dates back to the early days of fruit culture in this country and long before Paradise stocks were discovered, and dwarf trees became more or less popular. The culture of Apples and Pears as standard trees in grass orchards was an institution in those counties which nature seems to have particularly adapted to this type of culture. Indeed, it may be said that orchards are part of our national history, so closely are they associated with the steady development of the country, its poetry and folklore. It was doubtless what he had seen in the orchards around Stratford, and the way trees were propagated in his time, that led Shakespeare to describe grafting as "the art which does mend nature."

Change it rather, for the art itself is nature, and it may be that the immortal bard saw, as one may see in many an orchard to-day, cases in which branches on trees have come into contact with each other, chafed and rubbed together for some time, until at length they have united and formed a natural graft—the art in fact which, as Shakespeare puts it, is nature. Many quaint legends are associated with Apple trees and orchards, in which witches hid and fairies danced, and childish though they seem in these days they belonged to an age of superstition and romance, and it seems a pity that they should be forgotten in the passage of time.

After all, there is something very charming in these old orchards, such as one finds them, in the Vale of Severn, for instance, where every farmstead has an orchard attached to it. These grass orchards are beautiful in the spring, when the grafted trees are masses of pink and white blossoms, and equally beautiful in the autumn, when the sun shines on the brilliantly red, striped and golden yellow Apples. There is neither law nor order about the typical old farm orchard; the trees seem to have been dropped in anywhere, with Mistleto growing on their limbs. Many of the trees are far too close together, some erect, others leaning this way and that, and others again with their stems flat on the ground, these trees having been blown over at some time, but with some of the roots still in the ground, and enough vitality in them to enable them to continue growing. If one looks carefully at the thick stems of many old Apple trees, and particularly Pear trees, one may observe a swelling which marks the point where the variety was grafted on the wild Crab or Pear stock, and grafted by the same methods as are employed to-day.

I venture this opinion, because last winter I rescued a log out of the stem of an old Apple tree that was being cut up for firewood, and there, in the middle of the stem, was the top of a stock about the circumference of a broom handle. Hundreds of years ago that stock was grafted by the notch system in the rind; one graft had grown and formed the tree which, in its long life, had doubtless produced many tons of fruit, but the other graft had died, and thus I found it, just as it had been put in after being hidden for years and years in the middle of the stem of the tree.

In some of the orchards there seem to be almost as many varieties as there are trees, and in view of the commercial requirements of to-day one wonders why the planters put in so many sorts.

It has to be remembered, however, that when these orchards were planted there was no commercial demand for Apples; the trees were planted to produce Apples to make cider, then the staple beverage in the western shires, and there were few nurseries in which fruit trees were propagated for sale. As a matter of fact, many of the local Apples in west country orchards that are known by quaint names, and known only in their particular districts, were raised in the first place from the seedlings which grew from the pips that were thrown out with the pomace from the cider mill, and while many of the Apples are of little value when judged by the standard of to-day, it has to be remembered that some of our best Apples originated in the same accidental way. The original object of the Apples and Pears was to make cider and perry, and if the tree cropped, this was the chief thing that mattered, but while in most of the old orchards vintage fruit may predominate, there are almost sure to be found a few others such as Blenheim Pippin, Ribston Pippin, Wyken Pippin or Ashmead's Kernel, the presence of which suggests that some farmer long ago had a taste for a good Apple, and took care to plant or graft a few varieties of the best quality then known for his own eating. Blenheim Pippin was a general favourite, and the vitality of this grand old Apple is amazing. In spite of all modern methods of cultivation, the best flavoured and most highly coloured fruits of Blenheim Pippin come from old orchard trees, and they come in quantity in a good season.

I am aware that there is a lot to be criticised in the old orchards, and some of them, according to modern views, might be taken as object lessons of how not to grow Apples. And yet they do grow, and grow in quantity, for whether it be for filling the cider casks or selling the fruit in the market, the revenue from the orchards compares favourably with that of any other branch of the farm. The value of an orchard is realised when one is put up for sale, even if it is old, or when the rent is being fixed for a farm with a big area of orcharding.

Hundreds of acres of new orchards have been planted in recent years, with standard trees raised in nurseries, and orchard planting in suitable districts has a lot to recommend it, because Apples as good as any that are produced under any other method of culture can be grown on standards in grass orchards, and what is all important they are grown at the least cost of production. There is no labour bill to be met for cultivation, the grazing pays the rent and a bit over, and when the trees come into bearing they continue increasing in profit for a generation to come. The varieties have been whittled down a good deal, but there are still too many, and growers continue to make the mistake of planting Apples like Lane's Prince Albert and Worcester Pearmain in grass orchards. I say this is a mistake, because the above Apples and others of similar habit fail to make big trees, which is the first requirement of an orchard standard. Bramley's Seedling, Newton Wonder, Blenheim Pippin, and Warner's King are the best type of Apple, and sufficient should be grown of each to count the crop in tons when the trees are in full bearing. In passing, I would mention a variety grown in the Severn Vale which is one of the best half-dozen Apples I know for orchard planting. In Hogg's *Fruit Manual* it is correctly described under the name of New Bess Pool, and one of the biggest Apple trees I have ever seen is of this variety, growing in a farm orchard at Kemerton, near Tewkesbury. The tree in question has a perfect habit, requiring very little pruning; moreover, it never flowers until June, and bears consistently every other season. The Apples are a convenient size for commercial purposes, even in colour, and in the best condition for market after Christmas. *G. H. Hollingworth.*

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VEGETABLE GARDEN.

SOOT AS A CHEAP POTATO FERTILISER.

HAVING proved the value of soot in fruit houses, and especially in vineries, where I consider a three-bushel bag of soot costing 1s. 6d. is equal in manurial value to a 30s. bag of fertiliser, I resolved to try the effect of soot on Potatos on a piece of land of which my tenancy expired last September; this same land has been cropped with Potatos and Brassicas for the past thirty years.

As the ground became vacant it was ridged two feet four inches apart by spade. In April the soot was sown between the ridges, the Potatos set and the trenches filled in by the use of a hoe, thus minimising labour as much as possible. The experiment surpassed my greatest expectations. The growth of the Potatos was strong and of good colour; the haulm of Arran Comrade grew three feet high, and that of Kerr's Pink four feet tall. I have had the crop lifted, and from a hundredweight of each sort of seed have obtained the following results: Kerr's Pink, fourteen cwt.; Arran Comrade, thirteen cwt.; Dalhousie, thirteen cwt.; Eclipse, twelve cwt. Considering the dry season, a crop from twelve tons to fourteen tons per acre I consider very satisfactory. The tubers are a fine, clean sample, free from scab and disease. The land is of a slaty nature, and infested with a small black snail which in other seasons has made the tubers practically unsaleable. The soot was applied at the rate of six bushels to each hundredweight of seed, which was all Scotch grown. The cost of farmyard manure, 12s. per load, would be at least 24s. per hundredweight of seed, and its use entails much more labour. I have never had anything like these results from dung, and its cost, as compared with soot at 3s. per cwt. of seed tubers, is a consideration. Having secured the land for another year, I purpose planting the same varieties under similar conditions again, and shall anxiously await the results. *T. E. Furnell.*

THE CULTURE OF ASPARAGUS.

THE early part of November is a suitable time to prepare the site for a new Asparagus bed. This valuable vegetable succeeds best in a deep, sandy loam, but where the soil is not of this nature, it is necessary to prepare the ground specially to meet the requirements of the plant.

Trench the soil three spits deep in autumn, burying a thick layer of decayed cow or pig dung between each spit of mould. If the soil is of a light, sandy nature, raised beds are not required, but if the ground is heavy in texture and damp, with a clay subsoil, it will be necessary to trench the ground three spits deep, working in an abundance of fresh horse dung, plenty of old mortar, road grit, and decayed vegetable refuse. These materials will render the soil much more porous. An ample supply of decayed manure and leaf-mould should be well mixed in the top spit, and the surface left rough until the spring; on such ground it is beneficial to raise the bed slightly; the addition of the materials recommended will then ensure better drainage.

In March, beds three or five feet wide, with two-feet alleys between, should be formed. The alleys should be taken out a foot deep, and the excavated mould thrown on top of the bed.

Assuming the bed to be three feet wide, mark off two rows with a line, nine inches from each side of the bed, and put in sticks at fifteen inches apart along each line. If the bed is five feet wide, mark off a row down the centre, and one on either side of this, at a distance of eighteen inches.

Asparagus should be planted along ridges, where the rows are marked out along the bed; the tops of the ridges should be six inches above the proposed surface of the bed. Select a plant, place the base of its crown on the ridge, and spread the roots out on either side; let the ridge form a kind of saddle for the plant to rest on. Cover the roots at once with soil, as they are very sensitive to dryness, and should not be exposed longer to the air than is absolutely necessary. When all the plants are in position, add sufficient soil to raise the surface of the bed four inches above the crowns.

One-year-old crowns are the best for planting; if two or three-year-old crowns are used, they feel the check of transplanting very keenly. The best time to plant Asparagus is early April.

Under no circumstances should Asparagus shoots be cut until the fourth year after planting. It should be clearly recognised that the presence of large shoots is extremely essential to enable the plants to assimilate and manufacture the food for forming roots, and attaining the needful vigour to yield fine shoots.

For a light, sandy soil, the best natural manures are cow, pig, or moss litter dung; seaweed is also a first-class manure for such soils. For those of a heavy nature, horse dung, poultry manure, and decayed vegetable refuse are the best.

The most suitable concentrated fertilisers are guano, nitrate of soda, sulphate of ammonia, and sulphate of magnesia. Either of these may be applied at the rate of one ounce per square yard, in May, June and July. Salt may also be used liberally, say four ounces per square yard in April.

The best variety for early use is Connover's Colossal. Late Giant Purple Argenteuil is also a very fine sort. *W. Miller, Mill House, Horse and Groom Lane, Warley, Essex.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Eradication of Chickweed.—Perhaps some of your readers can give me advice as to a method of eradicating Chickweed. This weed is a perfect pest with me. During the dry period of this year I put in some intensive work cleaning, and had hopes that I had cleared it out. As soon as rains came, however, the growth appeared as thickly as ever. The wretched weed has not seeded here for the last three years. I dug it in and consoled myself that I was green-manuring my land, but, unfortunately, it is growing amongst bush Apple trees and Raspberries. I find a use for a limited quantity of it, for it is much relished by chickens kept intensively, but for this purpose I do not need so much of it. A good second to it is the Stinging Nettle. Seedlings of this weed come up in thousands in parts of the garden, although I have not tolerated seeding Nettles these three years. Still, I begin to wonder how long it takes to clear the ground of seeds. I certainly get more Nettles each year. A few years ago the owner of an estate near by tried to establish Nettles as a cover for game. The running stems of the plant were planted in quantity, but not one grew, which shows the perversity of Nature towards poor humans. *E. Brown, Hillside, Doddington, Sittingbourne, Kent.*

Mr. B. Daydon Jackson.—I was pleased to see the portrait of my old friend in *The Gardeners' Chronicle* of October 27, with whom I was associated in botanical work during the last century. He is one of the most amiable men I ever had the pleasure of knowing, ever ready to help, while he was the mainstay of the Linnean Society's council, and many contributors, including myself, are largely indebted to him; there can be no question that the Linnean Society owes its present satisfactory condition to him He is a great worker, and conducts personally the correspondence of the Society with unfailing promptitude; he is justly proud of the distinction conferred upon him by the Scandinavian naturalists on the anniversary of the Society in London. I should like to write more, but, unfortunately, cannot. *W. Botting Hemsley, Broadstairs, Kent.*

Holland Park Hall Show.—Until the year 1916, I was a regular exhibitor of fruit at the Royal Horticultural Society's autumn fruit show, and I should like to point out to Mr. B. J. Mercer, Chart, Sutton, Kent, why the R.H.S. adopted the rule that if any exhibitor had a fruit plantation, apart from their private garden, and where fruit was grown for market, he was debarred from showing as a private grower. I believe it was the last show I exhibited at that an exhibitor entered in twelve classes, and, I believe, obtained eleven firsts and one second prize; he had 68 acres of fruit grown specially for market, besides trees in his private garden. I protested against his entry in one class, as I contended that no private grower could compete with a man who has 68 acres of fruit to gather from, and I myself had only 1½ acre. As I understand it, owners of private gardens from which surplus fruit is sold, are not debarred from showing; but those who have both private and commercial plantations are debarred. I was never dissatisfied with the judgment of the judges of fruit exhibits, but was often disgusted in the class for nine varieties of vegetables of the size and quality which cooks prefer in everyday cooking. I once had second prize pasted on my exhibit, and at the end had nothing at all, as I believe the chef considered my produce was not large enough! The times are not as they were before the war for gardeners, and that may have a good deal to do with the falling off of exhibits. The expenses are higher and many employers do not care for their gardeners to be spending much time in exhibiting. *A. Humphrey, The Bungalow, Bramshott, Liphook.*

The late Rev. H. J. Bidder.—May I supplement your splendid obituary notice on p. 270 with an account of the earlier associations of myself with the late reverend gentleman, whose versatility knew no bounds? When he was first appointed a fellow of St. John's College I was solo chorister there. I spent many weeks in the long vacation at his first vicariate's abode at the village of Fyfield, which was his first clerical appointment in the gift of the College, situated about eight miles from the city of Oxford. I believe he ranked music next to horticulture, for he was by no means amateurish in his manipulation of the organ and piano. He trained the village choir himself, and on all festive occasions solicited from his then president (Dr. Bellamy) the loan of two of the college boys to assist at his services, so that I became intimately acquainted with his personal charm and most varied gifts—indeed, he it was who persuaded me to engage in horticulture for a livelihood, by his recommendation of myself to the late Mr. Geo. Prince, the rosarian. At the tender age of ten years I was oft mystified at the then terrible botanical names he reeled off to me when parading the Fellows' garden at St. John's, adjacent to which, in the back quadrangle, his rooms were situated. The manner in which he would unpiece some floral specimen and explain its component parts was instructive, and helpful in many ways, in my later pursuits. His love of the river and boating was also very pronounced, whilst his attachment to the horse was a conspicuous part of his character. I was for many years the happy possessor of many letters of wise counsel from his pen; and I still possess a valuable present from him on my wedding day. Reverting to his love of music, I believe I am correct in stating that he alone was instrumental in securing Sir Walter Parratt, Bart., as his organist, when later Vicar of St. Giles', Oxford, at which time also Sir Walter was organist and choirmaster at Magdalen College. Dr. Wild, the present Bishop of Newcastle, succeeded him as Vicar of St. Giles', which Mr. Bidder had vacated to become bursar of St. John's College. His expositions from the pulpit were always scholarly. He was always brisk in his manner and speech, and keen to discern lapses in the younger generation, to whom he was not slow to administer advice in a kind but decisive tone. I very much doubt if it would be possible to find anyone more interesting in general conversation, or better addicted to ready wit of a kindly nature. As an old pupil I feel it an honour to add my tribute to the memory of a typical gentleman, scholar and guide. *Albert Upstone, Rotherham.*

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SOCIETIES.

NATIONAL CHRYSANTHEMUM.

NOVEMBER 1 AND 2.—The officers, committee and exhibitors of the National Chrysanthemum Society deserve heartiest congratulations on the unqualified success of the annual exhibition held at the Royal Horticultural Hall on the above dates. The hall was filled with fine displays from traders and amateurs, and it was no misfortune that the show was held at an early date, and that the season is a late one, because, while the exhibits were numerous, they were somewhat fewer than last year, and therefore there was more space for the proper display of the flowers. The Chrysanthemum specialists filled the whole of the space against the walls all round the hall, and these magnificent contributions made a grand setting for the competitive classes in the body of the hall. In the matter of quality the blooms were as fine and in some instances finer than ever seen previously at Westminster. The attendance was very large, and during the middle of the afternoon of each day the hall was inconveniently crowded. It must be remembered that all Fellows of the R.H.S. were admitted free, as well as members of the N.C.S.

The Floral Committee met at 11 a.m. on the first day and made several awards to novelties. Judging of new sorts and of the classes was completed in excellent time, and the doors were opened to the public ten minutes before the stated time of opening.

FIRST-CLASS CERTIFICATES.

Jean Pattison (II. 1.B.). A useful and attractive decorative variety, with sturdy, pointed florets that make up a firm flower suitable for market use. Colour, orange-bronze. (See Fig. 98.)

Aldyth (II. 1.B.). A handsome medium-sized flower of very attractive bright Chestnut-red colouring.

Felicia (II. 1.B.). A decorative variety of excellent form for floral arrangements and for market. Colour, a pleasing shade of pink.

The Wizard (II. 1.B.). This is a sport from Sorcerer, and, as in the case of the parent, the flowers are compact and travel well. Colour, pale Chestnut-red.

These four varieties were shown by Messrs. CRAGG, HARRISON AND CRAGG, who obtained four First-class Certificates and showed only five varieties.

Gloriosa (II. 1.B.). In this shapely and attractive variety the blooms are a pleasing shade of golden-bronze.

Gigantic (II. 1.A.). A large variety of exhibition style, with broad, curling and loosely incurving florets of silvery-pink colouring.

These two varieties were shown by Mr. H. SHOESMITH.

Progress (I. A.). It is not often a new incurved variety is shown, but this one was welcomed as it has good form and the colour is soft silvery-mauve. Shown by Mr. H. THORPE, Worthing.

Mrs. E. W. Catlow (V. 1.A.). A large-flowered single variety, with broad, rich yellow florets. Shown by the BRIDGEWATER NURSERIES, LTD.

Flame (V. 1.A.). A glorious single variety, elegant and large, the petals slightly pointed. The colour is rich Chestnut-crimson, with yellow zone round the deeper yellow eye. Shown by Mr. P. LADDS.

Mrs. A. B. Hudd (V. 1.A.). Another very fine large-flowered single variety, with broad florets of very rich golden-yellow colouring. Shown by Mr. G. CARPENTER, West Hall Gardens, Byfleet.

Norman Davis (II. 1.A.). An attractive large-flowered Japanese variety, with long, broad, drooping florets of deep crimson colouring, with old gold reverse, which is shown on the slightly unturned tips of some of the florets. Shown by Mr WALTER JINKS, Thames Ditton.

Mrs. W. Seymour (II. 1.A.). A large exhibition Japanese variety, with loosely curling florets; colour, soft lemon-yellow. Shown by Mr. BAXTER, Lockerly Hall Gardens, Romsey.

Dorothea Edwards (II. 1.B.). A medium-sized Japanese variety of decorative style. The colour is a pleasing shade of pearly-pink.

Framfield Orange (II. 1.B.). A very beautiful decorative Japanese variety of useful size and good form; colour, golden amber, tinted orange. These two varieties were shown by Mr. NORMAN DAVIS.

COMPETITIVE CLASSES.

There were twenty classes for cut blooms open to competition amongst all amateurs, and in nearly the whole the general quality of the Japanese blooms in six varieties of stipulated colours. Here the first prize was won by the DOWAGER LADY ANNALY (gr. Mr. D. Cameron), Holderby Hall, Northampton, with a superb collection, which included in the vase of Majestic the finest blooms in the whole show. The specimens of Mrs. George Monro, Princess Mary, Mrs. G. Gibson and Victory were also of great merit. The second prize was won by the LORD WANDSWORTH COLLEGE (gr. Mr. E. H. Pearce), Long Sutton, with a very meritorious collection of such sorts as Sir E. Letchworth, Majestic and Mrs. George Monro.

FIG. 102.—A VASE OF LARGE-FLOWERED CHRYSANTHEMUMS (MAJESTIC) IN THE FIRST PRIZE "HALL DECORATION" EXHIBIT AT THE NATIONAL CHRYSANTHEMUM SOCIETY'S SHOW, NOVEMBER 1 AND 2.

blooms was very high. This was particularly so in the larger classes. The William Wells' Memorial Class required thirty-six Japanese blooms in twelve varieties, three blooms of each, and as these were set up in vases placed on low tabling they made a splendid effect. The first prize was won by Capt. R. B. BRASSEY (gr. Mr. J. G. Quinn), Cottesbrooke Hall, Northampton, with blooms of the largest size and of high quality. The very best were Rosemary Simmonds, Majestic, Mrs. George Monro, His Majesty and Princess Mary. The second prize was awarded to E. A. MOCATTA, Esq. (gr. Mr. W. Holden), Addlestone, for a very good collection, which included almost perfect blooms of Majestic, Peace, Mrs. R. C. Pulling and Mrs. George Monro.

Good as were the blooms in the previous class, they were even better in that for eighteen

The Holmes' Memorial Challenge Cup class retains all its popularity with exhibitors and the public alike, and the collections of thirty-six distinct Japanese blooms illustrated a high standard of cultivation. In nearly every instance the blooms were decidedly too large for the regulation show boards, so that the outer florets overlapped. But, although the blooms were of immense size, they were also of first-rate quality. The cup and first prize were won by E. A. MOCATTA, Esq., with a magnificent collection. His very best sorts were A. F. Tofield, Wm. Rigby, Mrs. P. Murray, Mrs. G. F. Shawyer, Majestic, Ryecroft Triumph, Princess Mary, Mrs. D. Andrews, Peace and Shirley Golden. The LORD WANDSWORTH COLLEGE, which was second, included especially good blooms of Peace, Shirley Golden, Mrs. George Monro, Renown, Rose Day and Thorpe Beauty; 3rd, Col. THOM-

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son (gr. Mr. D. Barnard), The Manor House, Effingham.

MAJOR DALGETY (gr. Mr. W. Baxter), Lockerly Hall, Romsey, proved to be the winner of the President's Silver Trophy with twenty-four well-finished blooms. Mrs. George Monro, F. Spring Watts, Majestic and Mrs. R. C. Pulling were the very best. Major DALGETY also won first prize in the class for twelve Japanese blooms, but these contained too many white and yellow varieties (there were four of each) to be an ideal collection, though the quality was very high. The second prize collection of ALICK MEDEN, Esq. (gr. Mr. G. Pound), North Hall, Cuckfield, also lacked colour. In this class LADY ANNALY showed the most perfect bloom of Mrs. George Monro in the show. Major DALGETY continued his successes by also winning first prize with six excellent Japanese blooms of such sorts as Lady Talbot, F. Spring Watts, Caroline Soer and Majestic. W. H. ALLEN, Esq. (gr. M. H. Blakeway), Bromham House, Bedford, was second.

Incurved blooms, shown on boards, were only of moderate quality, and not nearly equal in merit to the first prize specimens of last year. The best twelve were shown by H. T. KERR, Esq. (gr. Mr. J. J. Horne), The Moat, Ascot, and his best were Buttercup, Romance, Clara Wells, C. H. Curtis, and Emblem Poitevine.

The EXORS. OF THE LATE MARQUESS OF RIPON (gr. Mr. T. Smith), Coombe Court, Kingston, were first with six vases of Decorative Chrysanthemums, for Anemone varieties, and for a vase of small-flowered singles. Mr. J. H. HUSSEY, Malford Lodge, Exeter, had the best Pompons, both disbudded and naturally grown. The first prize for nine vases of large singles, shown by Mr. CHALMERS, included especially good blooms of Supreme, Mavis, Susan and W. Wingfield. This was a very good class, and the second prize collection by F. J. YARROW, Esq. (gr. Mr. A. Robertson), St. John's Wood, was also of great merit. His vases of Crimson Velvet, Mrs. W. Smith and Reginald Godfrey were excellent. Mr. CHALMERS was also first with six splendid vases of large singles.

The George Monro Cup competition was open to all members, trade and amateur, and this year it was won by F. J. YARROW, Esq., with twelve particularly good vases of large Singles. As in the other class, his vases of Crimson Velvet were greatly admired, while Phyllis Cooper, Mrs. W. Smith, Molly Godfrey and Lizzie Roberts on were also of superb quality. In the same section the EXORS. OF THE LATE MARQUESS OF RIPON were first with six vases of very pretty Anemone Singles: Thora, Ceres and Cordelia were very charming. ALICK MEDEN, Esq., won the first prize with three excellent vases of Large Singles.

The amateurs' exhibits in section six were of gratifying quality and, for the most part, the competition was very good. The chief first prize winners were Mr. R. BARBER, Mr. J. H. GODDARD, Mr. J. H. HUSSEY, Mr. R. J. JOLLIFFE and Mr. J. B. PROCTOR.

FLORAL DECORATIONS.

When viewed as a whole the various classes for decorative display were particularly successful, and there were some charming arrangements. The first prize vase of Single Chrysanthemums, arranged by F. J. YARROW, Esq., was very imposing, though arranged with a trifle too much formality. The EXORS. OF THE LATE MARQUESS OF RIPON were second, and were awarded the first prize for a highly decorative vase of large incurved blooms. F. J. YARROW won first prize with an imposing vase of magnificent large Japanese blooms. In the class for a basket of Chrysanthemums Mrs. ROBINSON was placed first with a basket of very large size, while the EXORS. OF THE LATE MARQUESS OF RIPON were second with a pleasantly restrained arrangement.

The new class for "An Arrangement of Chrysanthemum Blooms, suitable for a Hall Table, or Sideboard Decoration," resulted in a good competition, but it did not bring any arrangement of outstanding value. G. RICHARDSON, Esq., was first for a large ornamental jar of excellent blooms of Majestic (see Fig. 102), but the accompanying small show jars of blooms were entirely out of harmony. Mrs. ROBINSON was awarded second prize for a large, spreading arrangement in which grasses and foliage predominated. With beautiful blooms of Dawn of Day, R. BARBER, Esq., won first prize in the class for a vase of five blooms of any Japanese variety. G. RICHARDSON, Esq., had the best large vase of Chrysanthemums and the best bowl of Singles, while C. E. THOMPSON, Esq., Forest Hill, was first with a well-arranged vase of large Single varieties.

The Affiliated Societies class resulted in very good competition, and the representative collections were of considerable merit. The trophy and first prize were won by the SUTTON, KINGSTON, THE DITTONS AND DISTRICT SOCIETY; 2nd, EASTBOURNE HORTICULTURAL SOCIETY; 3rd, BERKHAMSTED HORTICULTURAL SOCIETY.

TRADE GROUPS.

Practically all the large trade growers supported the show with extensive collections of well-grown blooms, which were arranged on a wall space around the hall.

Mr. H. J. JONES had a very imposing group composed of tall stands of the best exhibition varieties against the wall, and lower arrangements, chiefly of decorative sorts, in front. An enormous number of excellent blooms were arranged with great skill. The principal exhibition Japanese varieties were Rose Day, Mrs. R. C. Pulling, Princess of Wales, Mrs. Gilbert Drabble, Majestic, Mona Davis, Mrs. George Monro and Wm. Rigby. His Singles included Mrs. A. B. Hudd, Absolute and Golden Marvel (Large Gold Medal and the Clay Medal for the best trade display).

A particularly attractive collection was set up by Messrs. K. LUXFORD AND CO., and in this tastefully arranged group the principal Japanese sorts were Poulton's Climax, Princess Mary, Majestic, Rose Day, Harry Clements, F. Spring Watts and Mrs. John Balmer. These useful market-sized varieties included Raffinesque, gold-tipped pink, and Sorcerer, orange-bronze, while amongst the excellent Singles there were Alberta, Barbara, Mrs. W. J. Godfrey, Phyllis Bryant and Mrs. Thos. Hancock (Gold Medal).

The large group arranged by Messrs. W. WELLS AND CO. included many splendid blooms, and their beauty was enhanced by the association of brilliantly-coloured sprays of Scarlet Oak. Amongst the many valuable Japanese sorts, Viscount Chinda, Mrs. George Monro, Mrs. Gilbert Drabble, Mrs. B. Carpenter and Wm. Rigby were very prominent. The Anemone varieties Mabel Weston and Aphrodite were particularly graceful (Small Gold Medal).

Near the gallery Messrs. CRAGG, HARRISON AND CRAGG had an excellent collection of market varieties, which would also be of great value in the private garden. They included J. H. Blythe, a well-formed Single with a narrow golden zone and of crimson-red colour with a rosy sheen; Jean Pattison (see awards), Enid Elder, deep yellow; Felix, a rosy amaranth Japanese, and Elspeth, a very decorative satiny-mauve Anemone flowered variety in spray form (Silver-Gilt Medal).

Mr NORMAN DAVIS had a smaller collection, which included Framfield Orange: Madame H. Foreau, of rich purple colour: Norman Fairs, Mrs. Fred Fairs, several valuable seedlings, and In Memoriam, a splendid Japanese variety of Mrs. George Monro type, but brighter in colouring (Silver-Gilt Medal).

Singles predominated in a collection set up by Messrs. W. J. GODFREY AND SON, and in addition to a large number of good cut blooms, they had excellent plants of Exmouth Sunset, stippled with red, Exmouth Glory and October Gold, growing not more than eighteen inches high in six-inch pots and particularly well flowered (Large Silver Medal).

A pleasantly arranged collection from Mr. H. WOOLMAN included Oda, Viscount Chinda, Mrs. George Monro and Rose Day, of the large Japanese type, and Mary Richardson, Bertha Fairs and Jessica, of the Singles (Silver-Gilt Medal). Mr. Wm. YANDELL set up an attractive group of small decorative varieties. The massed vases of Red Almirante, Cranford Yellow Hesperus, Harvester, Uxbridge Pink and Cranfordia were very successful (Large Silver Medal).

Such excellent Singles as Absolute, Mrs. R. H. Harris and Mrs. Thos. Hancock with the market Japanese varieties Mrs. Rupert Wilks, Miss Verona Chichester and Hon. Mrs. Dalgetty were well arranged by Messrs. J. W. COLE AND SON (Silver-Gilt Medal). Mr. L. MILLS had a corner group of very floriferous dwarf pot plants (Silver-Gilt Medal), and Messrs. CARLTON WHITE exhibited a pleasing table decoration of Chrysanthemums.

NATIONAL SWEET PEA.

ABOUT fifty members of the National Sweet Pea Society were present at the annual general meeting held at the Royal Horticultural Hall early in the afternoon of Tuesday, October 30. Mr. Robert Bolton presided.

The Annual Report of the Committee for the year 1922-23 was presented and showed that the Society had had a very successful floricultural year notwithstanding climatic difficulties. Special and kindly reference was made to the Bath exhibition and to the very able assistance given to the Society by the Mayor and Mayoress and the Corporation of that city. It appears there has been a slight increase of membership, but chiefly owing to the fact that the expenditure on the Society's trials both for 1922 and 1923 came into the present year's accounts, there was a deficit of £83 on the year's working, the total turnover for the year being £531 8s. 2d. The Society has, however, £100 invested, besides numerous stands and other show properties. The Trustees of the Henry Eckford Memorial Fund notified the award of the Henry Eckford Medal to Mr. Charles H. Curtis.

The report and accounts, as presented, were adopted by the meeting.

Mr. J. S. Brunton was elected President for the ensuing year, and Mr. Robert Bolton was thanked for services rendered as President during the year just ended. It was with regret that the members learnt that Mr. Edward Sherwood desired to be relieved of the duties of Hon. Treasurer, owing to pressure of business, but they were pleased to learn that Mr. J. M. Bridgeford was willing to undertake the duties of that office. Mr. Bridgeford was unanimously elected. The eligible retiring members of Committee were re-elected, and Messrs. R. Bolton, C. H. Curtis, F. Wheler, W. Dixon, C. Unwin, R. Ascroft, and W. Coates were appointed to fill vacancies arising. Mr. T. Jones and Mr. B. Peyman were appointed corresponding members of Committee. Mr. A. C. Bartlett was unanimously re-appointed Secretary; Mr. England, Syon House, Brentford, appointed Trials Superintendent for the ensuing year, and Mr. J. S. Brunton re-appointed Editor of the Society's *Annual*. In this latter connection an amateur member present asked that more practical advice should be given in the *Annual* to amateur cultivators. This matter was referred to the Publications Committee to deal with.

The meeting then proceeded to elect the Floral Committee for 1924. There were twenty-one nominations for nine positions; the members receiving the largest number of votes in the ballot were Mr. Robert Bolton, Mr. A. Ireland, Mr. C. H. Curtis, Mr. C. Unwin, Mr. T. Stevenson, Mr. J. Stevenson, Mr. H. D. Tigwell, and Mr. Donald Allen. Three members tied for ninth place, and in the second ballot Mr. T. Jones was successful.

Thanks were accorded the officers and Committee for services rendered during the year, and a special vote of thanks accorded Mr. R. Bolton for his generous support of the Society and for presiding at the meeting.

READING AND DISTRICT GARDENERS'.

THE fortnightly meeting of this Association was held on Monday, October 22, when the president, Mr. Councillor Frank E. Moring, presided over a large attendance of the members. The lecturer for the evening was Mr. W. Auton, gardener to the Rt. Hon. Viscount Elveden,

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Pryford Court, near Woking, and his subject was "A Substitute for Farmyard Manure." The keenest interest was manifested in his discourse, and this was shown by the animated discussion which followed the lecture.

In the competitions for a collection of vegetables (four sections) there were seventeen entries, which made a splendid show, the finest seen in Reading for many years. The awards were as follow :—

Open to all, six distinct kinds (seven entries) : 1st, Mr. J. Wynn, Hammonds Gardens, Checkendon; 2nd, Mr. D. Turner, Coley Park Gardens, Reading; 3rd, Mr. A. W. Gower, Calcot Grange Gardens, Calcot. Members not employing more than one assistant : 1st, Mr. H. Goodyer, Stonham House Gardens, Calcot; 2nd, Mr. H. Goodchild; 3rd, Mr. H. Day, Westwood House Gardens, Tilehurst. Single-handed Gardeners : 1st, Mr F. Haines; 2nd Mr. H. Reeves, Broadfield House Gardens, Reading. Amateurs and Allotment Holders : 1st, Mr. A. E. Kirby, Reading; 2nd, Mr. R. Buller, Reading.

In the non-competitive section a First-class Certificate was awarded to Mr. C. J. Howlett, The Yews, Earley, for Figs in pots and Red Currants; and to Mr. W. Sharpe, Sidmouth Grange Gardens, Reading, for excellent specimens of Tender and True Parsnips. Other exhibits staged were Violets, by Mr. G. Tovey, Leighton Park Gardens; eight vases of Antirrhinums, by Mr. A. H. Fulker, The Gardens, Elmhurst, Reading; Capsicums by Mr. G. Wheeler, Reading, and a dish of Potatos grown from tubers planted in July, by Mr. E. Iles, Reading.

THE fortnightly meeting of this Association was held on Monday, the 5th inst. Mr. A. H. Fulker presided. A large number of members were present.

The subject for the evening was "Herbaceous Plants and Borders," and was introduced by Mr. W. Wiseman, Hare Hatch, Twyford. He stated that he wished to bring before their mind's eye the garden pictures of thirty years ago, with intricate bedding schemes, seldom varying in character, and contrast them with the ever changing pictures made by the best borders of to-day. Mr. Wiseman said that the planning and planting of herbaceous borders have by no means reached the bounds of possibility. Explorers are continually discovering new plants with which to enrich our gardens, while nature's wealth of colour and form is being always added to by hybridisation and selection. The lecturer then dealt with the practical side of the question, the shape of borders, paths, plants to use, grouping of plants, size and form of groups, and use of coloured foliage plants. An excellent and instructive discussion followed the lecturer's remarks. In the competition for three vases of decorative Chrysanthemums, there were no fewer than ten entries, and many choice blooms were staged. The awards were as follow : First, Mr. A. W. GOWER, Calcot Grange Gardens; second, Mr. A. H. FULKER, Elmhurst Gardens, Reading; third, Mr. F. J. GREEN, Aldermaston Court Gardens. In the non-competitive section, a First-Class Certificate was awarded to Mr. A. W. GOWER for excellent plants of Chrysanthemum Blanche Poitevene about eighteen inches high, and carrying nine or ten well formed blooms, also plants of Chrysanthemum W. Turner. A similar award was given to Mr. H. WYNN, Quern's House Gardens, Goring Heath, for excellent buttons of two varieties of Brussels Sprouts. Other exhibits were Cypripedium Spicerianum, by Mr G. WHEELER, Southcote Road, Reading, and finely berried sprays of Barberries by Mr. C. TERRY, Earley.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

SIR WILLIAM LAWRENCE, BT., presided at the annual dinner of the United Horticultural Benefit and Provident Society, held on November 1, at the Imperial Hotel, Russell Square, W.C. The attendance, including Lady Lawrence and many other ladies, numbered nearly one hundred, the members present being mostly those resident in the metropolitan district. The gathering was one of the most successful the Society has held for many years, and Sir William proved an able and humorous chairman. After the usual Royal toasts had been honoured, the chairman proposed continued success to the United Horticultural Benefit and Provident Society, and in so doing said he could not help but regret that the Society had such a large title. He had gone very carefully into the working of the Society, and was very gratified to find that it was rendering such a large amount of assistance to its members, and was being worked in the most economic manner possible. He was glad also to find that not one, but all classes of horticulturists were included in the Society's membership, and to a very large extent also in the managing body of the Society. Although not eligible for ordinary membership himself, he hoped to have the pleasure of being an honorary member, and promised that during his visits to the gardens of friends, he would do his best to interest employers in the work of the Society, so that they might place the advantages of membership before the members of their garden staff.

Mr. C. H. Curtis, Chairman of Committee, responded to the toast, and after thanking Sir William for his promise to act as a missionary on behalf of the Society, pointed out how invaluable the Society had been to gardeners. He stated that during its existence the Society had paid no less than £14,500 in sick benefits. The sum of £3,217 had been expended by the society in alleviating special distress, whilst the nominees of deceased members had received a total of £5,892. One member had received no less than £480 since he had been a member, and there was still £10 in his deposit account. There were several members who had received £300 in sick and distress pay during their membership, and quite a few who had received £100 each. Mr. Curtis further stated that the State Section had dispersed £3,355 in sick pay, and there had been no fewer than three hundred and thirty-five maternity claims on that section. The State section was managed so admirably that there was the considerable balance of £1,600 in hand, and it was proposed to utilise this over a period of five years, to help members who require dental treatment, surgical treatment, nursing, etc. The invested capital of the Society amounted at the end of last year to £65,686, and since then over £1,000 had been added, thus making a total of nearly £67,000 invested in good trustee stocks. Mr. E. F. Hawes proposed the toast of "The Visitors," to which Mr. A. Dawkins very ably responded, combining humour with practical advice, and suggesting that if the Annual Report was shortened, and the clear facts only mentioned, it would probably be read more. Mr. T. Slade, of Messrs. Protheroe and Morris, also responded to the toast of the visitors in his usual able manner, and referred to the extraordinary good management of the Society, which was much more practical than ordinary insurances. "The health of the Chairman" was proposed by Mr. Butler, Vice-Chairman of Committee, and was accorded musical honours. An excellent programme of music was provided throughout the evening, the artistes being Mrs. C. Lumley, Capt. C. Chatt, Mr. Frank Gale, Mr. Frank Jacobs, Mr. Fred Verity and Mr. W. Willmott.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

OCTOBER 18.—*Committee present:* The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Birchenall, A. Burns, A. Coningsby, J. Cypher, J. Evans, J. Howe, W. Morton Jackson, A. Keeling, D. McLeod, E. W. Thompson, and H. Arthur (Secretary).

FIRST CLASS CERTIFICATES.

Cattleya Mrs. Gratrix (*Lady Veitch* × *intertexta Juliettiae*). A pure white flower of good form and texture, with a deep yellow throat. From S. GRATRIX, Esq.

Odontoglossum crispum var. Orestes. A full round flower, with a deep blotch of colour on the large, flat lip. From P. SMITH, Esq.

AWARDS OF MERIT.

Cattleya Venus Orchidhurst var. and *Laelio-Cattleya Appam var. Golden Crown* (*C. Dowiana* × *L.-C. Scylla*). From S. GRATRIX, Esq.

Odontioda Helma (*parentage unknown*). From P. SMITH, Esq.

GROUPS.

S. GRATRIX, Esq., West Point (gr. Mr. J. Evans) staged a group for which a large Silver-Gilt Medal was awarded.

Mrs. BRUCE and Miss WRIGLEY, Bury (gr. Mr. A. Burns) were awarded a Silver-Gilt Medal for a group.

Messrs. J. CYPHER AND SONS, Cheltenham, staged a group in variety and were awarded a Silver Medal.

PORTSMOUTH HORTICULTURAL.

THE 32nd annual exhibition of Chrysanthemums, fruit and vegetables, arranged under the auspices of the Portsmouth Horticultural Society, was opened at the Town Hall, Portsmouth, by the Mayor, Alderman F. G. Foster, J.P., on Wednesday, the 31st ult., and continued for the two following days.

The total entries were not quite so numerous as last year, but the general quality of the exhibits was splendid. Considering the lateness of the season, and the adverse climatic conditions, the Chrysanthemums were exceptionally fine. The challenge cup offered for three dozen Japanese blooms of 18 varieties was won by Mr. J. LOVE, of Cowes, with a very fine collection. The exhibits of six single Chrysanthemums displayed in vases containing half a dozen blooms each were exceedingly attractive. The group of Chrysanthemums, in pots, arranged for quality and effect, covering a space of 60 square feet, with which Mr. W. B. JEFFREYS, of Clarence Parade, Southsea, won the challenge cup in that particular class, was a remarkable exhibit. Mr. JEFFREYS also secured the challenge cup offered for six pots of Chrysanthemums. This exhibit was not quite so good as last year, but at the same time was very creditable. The group of single Chrysanthemums arranged in pots for quality and effect in a space of 50 square feet made a very notable contribution to the show. The exhibits of one vase of 12 large single disbudded blooms was another fine feature. Mr. E. J. MEREDITH, of Osborne Road, Southsea, won the silver challenge cup for a group of Chrysanthemums in pots, in a class restricted to amateurs. This is the second year Mr. Meredith has achieved this success. He was closely followed by Mr. S. W. Wickens only a few points behind, which is all the more creditable in view of the fact that this was Mr. Wickens' first exhibit. The six sprays of single Chrysanthemums was another splendid class, and cut Japanese blooms were also well exhibited. The exhibits in the class for a vase of single Chrysanthemums were of outstanding merit.

The vegetables were the finest exhibited in the town for a number of years. The collections of fruit, although below the usual standard, were of excellent quality considering the bad season.

The opening ceremony, which was presided over by Councillor W. E. Gill, chairman, was attended by a large number of people. In calling upon the Mayor to open the exhibition the chairman explained that the object of the Society was the encouragement of the cultivation of flowers and vegetables. The exhibits were not quite so numerous in the fruit classes owing to the bad season, but the vegetables were up to the usual standard, while the flowers were in some cases considerably better. Nearly all the exhibits were grown by amateurs and working people inside the town, very few being grown outside. People who were interested in that sort of thing were always good citizens.

The Mayor congratulated the Society upon the excellent show.

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Obituary.

William Robertson Begg.—We regret to record the death at his home, Nursery Cottage, Burnside Nurseries, Aberdeen, on Wednesday, 31st ult., of Mr. William Robertson Begg, for many years a conspicuous figure in Scottish nursery circles. Born in 1833, deceased had attained the ripe old age of 90 years, during which period he enjoyed capital health up till quite recently, when a sudden illness proved too severe for the nonagenarian. Mr. Begg started his life work as an apprentice gardener at Woodhill House, Aberdeen, situated within half a mile of the house where he spent the evening of his days. Thirsting for more knowledge of his craft, he served successively as gardener at Cullen House, Fasque, Belhelvie Lodge, and Knockando House. About 45 years ago a manager was wanted for the nurseries at Burnside and Silverhillock, and the exceptionally fine qualifications Mr. Begg was able to submit secured him the post. The nurseries then were the property of Messrs. Cardno and Darling, but when that firm retired they were acquired by Messrs. W. Smith and Son, Ltd., Aberdeen, who still retain them. Mr. Begg was for nearly 40 years a partner in the firm. Mr. Begg had a remarkably successful career as a nurseryman, and during his long tenure of office superintended the planting and raising of more forest trees than any other nurseryman in Scotland. His wide experience in, and fine knowledge of, gardening and forestry made his counsel in great demand over a wide sphere, while landed proprietors from all quarters sought his advice in connection with the laying out of their estates. Although in semi-retirement for a number of years, Mr. Begg continued to take a warm and keen interest in all matters pertaining to his life's work. He was predeceased by his wife many years ago, and is survived by four of his family, all of whom occupy important positions. One son is in his father's firm.

James Harris.—We regret to learn of the death of Mr. James Harris, of Blackpill Nurseries, Swansea, which occurred on Saturday, October 27. Mr. Harris was seventy-eight years of age, and for over half a century has been one of the most prominent horticulturists in the west of England and South Wales. He was formerly head gardener to Mrs. J. H. Vivian, at Park Wern, and later gardener to Lord Swansea, at Singleton Abbey, a position he occupied for about twenty-one years. After relinquishing private service he took up the commercial side of horticulture, and managed the Blackpill Nurseries with great success. Among his most noteworthy achievements was the introduction of Sir John Llewelyn Potato. He leaves two married daughters and a son, who will continue to manage the nursery business at Blackpill.

TRADE NOTE.

Smaller supplies of Potatos are being marketed and, with trade showing a further slight improvement at several centres, recent quotations are generally maintained, while at London most varieties record an advance of about 5s. per ton on the week. At Liverpool nearly all descriptions of Potatos are from 5s. to 10s. per ton dearer, and at Manchester, several late varieties have advanced 10s. per ton. Trade continues quiet at Wisbech, but best white varieties are in better demand and have a firmer tendency. Imports of Potatos registered during the week ended October 27 amounted to 102 tons, of which 58 tons came from Holland. For the weeks ending October 6, 13 and 20, total imports amounted to 1,213, 146, and 178 tons respectively.

THE WEATHER.

THE WEATHER IN SCOTLAND.

October was, on the whole, comparatively mild, ground frost being only registered on one day, viz., the 14th. The highest maximum temperature of 61° occurred on the 1st, this being a continuation of the exceptional warmth of the last days of September. The lowest maximum of 49° was on the 23rd, the mean maximum for the month being 54°, which is just about normal for the district. The highest minimum of 48° also fell on the 1st, with the lowest of 34° on the 14th and a mean of 42° giving a range of 12°. The minimum was 2° above normal. Bright sunshine was registered to the extent of 109.1 hours, giving an average of 3.53 hours for each day and a percentage of 34, which is above the normal for October. Although rain days were frequent, the total of 2.01 inches was well below normal. The wettest day was the 26th, which yielded 0.58 of an inch. On nine days there was no precipitation. The temperature of the ground at 1 foot deep fell gradually from 54° at the beginning to 46° at the close. Moderately high winds, chiefly from the south-west, were frequent, with a severe gale on the 9th, doing structural damage. Barometric pressure was variable, the highest reading of 30.19 inches on the 4th and the lowest 28.51 inches on the 27th, the end of a week of low pressure. Rainbows were observed on the 9th and 31st at 4.3 p.m. and 9 a.m. respectively. The sky was often hazy, but there were no dense fogs. *John Davidson, Director of Studies, Training College Gardens, Mayfield, Dundee.* November 7, 1923

ANSWERS TO CORRESPONDENTS.

Cinders and Coal Ash in Soil: *R. M. P.* We can advise no method of removing cinders and coal ahes from your soil other than by the use of a sieve, but, if the area is of considerable extent, this would involve much labour. As, however, you state that the soil is very light, it might be possible to remove a considerable portion of the cinders in this way when the ground is very dry. Beyond any effect sulphur present in the ash might have, we do not think the materials will have any injurious effect on plants, although they may spoil the texture of the soil and render it too porous. If the soil is trenched to a considerable depth and the ashes placed in the bottom, they would not be in evidence.

Clematis, Early and Late Flowering: *P. P.* Clematis, Lady Northcliffe, deep lavender; alba Magna, pure white; Nellie Moser, light Mauve; Madame Edward André, velvety red, all flower from July to October; The Queen, lavender, flowers in May and June.

Correction.—A correspondent draws our attention to an error in our report of the last R.H.S. meeting. He states that the exhibit of winter-flowering Begonias was shown by Mrs. Sofer Whitburn, and not Mrs. Sofer Wilburn, as given in the report.

Exterminating "Cat-Tail": *S. A. E.* The plant you send is Equisetum or the Horsetail weed, which indicates a wet or damp and sour soil. If your land is wet you should drain it by putting down a line of small pipes on each side of the site, and at a depth of three feet. Then dress the ground with 4 to 6 ounces of quicklime to the square yard, and work it in by forking or hoeing. The next best way to exterminate the weed is to cut the stems below the surface with an old knife early in the season, and repeat this as often as the shoots appear on the surface. These young shoots are produced at the expense of food stored up in the underground rhizomes during the previous year, and the more often they are cut the more rapidly the plants will become exhausted and cease to appear. If the ground were trenched three feet deep and all the rhizomes and roots that can be seen were taken out, the trouble would be very largely reduced by the one operation. The first two operations above described should be carried out this season. The draining and liming will make the ground unsuitable for the weed; but if spores get carried on to the ground from wild Equisetums, and seedlings appear, cut them repeatedly below the surface, and they will soon cease to grow.

Grapes and Figs with Brown Markings: *W. L.* The brown markings on the Grapes are due to mechanical injury brought about probably by rubbing the berries when the bunches were being thinned. This may have occurred through the bunches coming in contact with the head of the operator. Send a specimen of the Fig in a more advanced state of the affection.

Grubs Attacking Cyclamen: *H. S. L.* and *J. H. C.* The grubs sent by *H. S. L.* had escaped from the box. We suspect that they are weevils, sent also by *J. H. C.*, and these should be trapped with pieces of Potato or other vegetable. Examine the traps at night, as weevils feed principally in the dark.

Lopping Plane trees. *J. W., London.*—Plane trees may be lopped severely without any danger of materially injuring them, and the lopping may be done at any time during the winter. After having been lopped the trees will make a number of twiggy shoots around the end of the cut branches. If let to grow these will become very congested and present a poor effect, so that it would be wise to thin them, but it is not advisable to cut them lopping has been done. Ash trees may also be lopped without any harm accruing to them, but it is not advisable to cut them quite so severely as may be done with Planes, though they may be shortened to near the bases of the secondary branches.

Names of Fruits: *J. S.* 1, Manx Codlin; 2, Adam's Pearmain; 3 and 5, not recognised; 4, King of the Pippins; 6, Ribston Pippin; 7, Emperor Alexander; 8, Cox's Pomona; 9, Duchess's Favourite; 10, Fearn's Pippin; 11, Pear Beurré Diel.—*J. A.* Green Apple, Waltham Abbey Seedling; red, Cellini.—*F. A. A.* 1, Beauty of Kent; 2, St. Sauveur; 3, D'arcy Spice; 4, Wyken Pippin; 5, White Nonpareil; 6, decayed; 7, Alfriston; 8, Gloria Mundi; 9, Winter Greening; 10, Cox's Pomona; 11, Royal Russet. *R. J. P.* Wyken (syn. Warwickshire Pippin).—*R. J.* 1, Nonesuch; 2 Small's Admirable.—*W. J. H.* 1, Lady Lennox; 2, Wealthy.—*F. A. W.* Mère de Ménage.

Names of Plants: *A. E. Y.* All the Asters were garden seedlings, and as they are florists' varieties we regret we cannot undertake to name them.—*J. C.* 1, Elaeagnus glabra; 2, Olearia macrodonta.—*W. T.* 1, Cotoneaster microphylla; 2, Abies Nordmanniana; 3, too small to identify; 4, Veronica speciosa var. purpurea; 5, V. speciosa var. alba; 6, V. speciosa var. atropurpurea.—*F. H. F.* Rhus Cotinus, Whig Tree.—*C. P.* We cannot undertake to name varieties of Roses; send specimens to a specialist.—*J. W.* Phytolacca decandra.—*R. M. P.* We do not undertake to name varieties of Michaelmas Daisies; send to some grower who specialises in these flowers. Perhaps Mr. H. J. Jones, Ryecroft Nursery, Lewisham, would be willing to assist you.—*Ride.* 1, Quercus acuta var. bambusaefolia. 2, Abelia triflora.—*Aylwin.* 1, Thuya plicata; 2, Deutzia crenata; 4, Cupressus Lawsoniana; 8, C. Lawsoniana var. ochroleuca. It is impossible to determine the others without flowers or fruits.—*J. H. J. B.* Probably Jamesia americana; send when in flower.—*W. T.* 1, Cupressus sempervirens; 2, Picea orientalis; 3, Veronica Andersonii; 4 and 5, too small to identify; 6, Cupressus pisifera var. plumosa; 7, Osmunda regalis.

Oak from Turkey: *L. P.* The specimen sent is the Kermes Oak, Quercus coccifera, a native of the Mediterranean region from Spain eastwards to Syria. September and early October, and late April or May are the best times to transplant this evergreen Oak. Select showery weather for preference, and move the tree with as much soil as possible adhering to the roots. Syringe the foliage morning and evening on dry days the first few weeks after transplanting. Cuttings only to 2 inches long, made from the ends of the young shoots, will root in a cold frame, or under a handlight placed at the foot of a west wall, during August and September. You may insert a few shoots now, though you will not be successful in rooting a large percentage of them at this late date.

Communications Received.—H. T. (Thanks for [illegible] for R.G.O.F. Box.)—H. B. T.—S. A. E.—F. S.—H. W. S.—G. H. J.—C. E. B.—M. N.—S. B. L.—L. and G.—W. E. W.—J. L.—E. H.—A. M.—J. W. M.—W. R.

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THE
Gardeners' Chronicle

No. 1925.—*SATURDAY, NOV.* 17, 1923.

CONTENTS.

Aconitum Fischeri ... 298
British Mycological Society 287
Bulb garden, the—
Calochorti 289
Muscari "Heavenly Blue" 289
Scilla peruviana ... 289
Chrysanthemums, the best twelve early-flowering 289
Clark Mr. W. 288
Croydon Horticultural Society and entertainment tax ... 289
Dahlia in America, the 288
Floral books, high prices for 288
Floral decorations ... 298
Fruit garden, the market 296
Fruit register— 297
"Gardeners' Chronicle" seventy-five years ago 289
Glasnevin, notes from... 295
Hawthorns, dwarf ... 287
Heath garden, the ... 293
Holland Park Hall Show 298
Horticultural College, Swanley 288
Indoor plants—
Anthurium 291
Iris garden, the—
Irises for successional blooming 292
Petroleum, the origin of 288
Phosphates in French Oceania, the production of 287
Plants new or noteworthy—
Asimina triloba ... 295
Plants, the nomenclature of cultivated ... 287
Potato crop, the ... 287
Rose garden, the—
Rose Elizabeth Cullen 292
Rose Léonie Lamesch 292
Rose Souvenir de Mme. Verschuren... 292
Single Roses 292
Societies—
Brighton Horticultural 301
National Chrysanthemum 300
Royal Horticultural 299
Royal Oxfordshire Chrysanthemum 302
Sheffield Chrysanthemum 301
Société Nationale d'Horticulture de France 298
United Horticultural Benefit and Provident 299
Soil acidity 296
Trees and Shrubs—
Cytisus kewensis ... 292
Deutzia Wilsonii ... 292
Eupatorium Weinmannianum ... 292
Ward's, Mr. Kingdon, seventh expedition in Asia 294
Week's work, the ... 290
Whitton, Mr. James, presentation to ... 287

ILLUSTRATIONS.

Anthurium Veitchii 291
Apple Loddington Pearmain 297
Asimina triloba; flowering branch of, 293; In the Cambridge Botanic Gardens 295
Chrysanthemum Mrs. T. Hancock 289
Clark, Mr. W., portrait of 288
Irrawaddy, the western branch of the, near Hkamti Long 294
Paris Chrysanthemum exhibition, view in the ... 299

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 42.0°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, November 14, 10 a.m.: Bar. 29.9; temp., 45°. Weather—Bright.

The Nomenclature of Cultivated Plants.

The difficulties of naming succinctly and systematically garden plants are great and perhaps insuperable. The impatient are apt to see in any attempt to improve nomenclature the fussiness of pedantry; but those who are aware of the variedly diverse origin of different kinds of garden plants recognise that there is need for a better system of nomenclature and are grateful to anyone who attempts to introduce it. Garden plants fall into numerous categories. Some are true species, the wild prototypes of which are known either in nature or in herbaria. Their nomenclature is decided by the botanist, and all the gardener need ask is that the systematist should not without the most cogent reasons change a specific or generic name which has passed into general usage by gardeners. Other garden plants are sports or mutants of a wild species or of a cultivated variety thereof, and the ordinary practice of adding a varietal name to the binomial would seem to meet their case. A third category of cultivated plants consists of those which are not identifiable with any known wild species. Maize is such a plant. Happily, in spite of its probable hybrid origin, it was named as though it were a legitimate species. Chrysanthemum, Dahlia, Apple, Plum and Peach and many other garden plants are not to be referred with certainty to wild species, nor in not a few of them may their origin be determined. Fortunately they already have their several names, and none will venture to alter them. But other garden plants are of undoubted hybrid origin; many of unknown and many of known parentage. The real problem of nomenclature of garden plants is presented in acute form by them. To style a garden hybrid, "Phlox paniculata x P. maculata, Brand," is to catalogue and not to name it. To call it by a fancy name is better, but that practice has the disadvantage of suppressing all indication as to its origin or parentage. This perhaps is no great matter and many may incline to the opinion that it is the solution of the problem. Yet Orchidists who are every year creating more and more astonishing hybrids, do not accept this method, but make descriptive portmanteau names by combining parts of the parental generic names. The advantage of the method is that it serves to indicate origins; the disadvantage, that the names become, as the hybridist brings new genera into the complex, ever larger and clumsier. The rosarian recognising the desirability of indicating origins, whilst giving a fancy name endeavours with more or less success to group Roses in categories indicative of their real or supposed origins. With wider hybridisation, however, the classification into groups becomes ever more difficult and conventional. It is not easy to suggest improvement on these methods, but it cannot be entirely satisfactory to a gardener to know a plant only by such names as Jessie or even Lady Hillingdon. Where the fancy name made be made descriptive it is obviously an advantage, and such names as Rayon d'Or are preferable to Ophelia or even Irish Elegance. Nevertheless it is clear that descriptive names are often impossible, and even when they can be applied they do nothing to define the plant for which they stand.

Prof. L. H. Bailey* has in the course of his prolonged studies of cultivated plants felt these and other difficulties of nomenclature acutely. He proposes the introduction of certain terms which will, if adopted generally, help matters a little. He would apply the word "cultigen" as opposed to indigen for any plant which is known to have arisen under cultivation. In the case of a *variety* which arose in cultivation he proposes the term cultivar. As to how these cultigens and cultivars should be named, Prof. Bailey appears to be of opinion that except in the case of those which may be designated by the addition of a varietal name, they should receive binomial status. Thus, for cultivated races of Chrysanthemum the wild origin of what is unknown or uncertain, he would propose C. hortorum, leaving it entirely open whether, as has been claimed, C. indicum or C. morifolium or C. sinense, all probably "cultigens," had any part or lot in the parentage of the garden races of Chrysanthemum. Similarly Zonal Pelargoniums he would name Pelargonium hortorum and Show Pelargoniums, P. domesticum. Systematic botanists might not perhaps like the ascription of binomial names to undoubted hybrids, but now that they are becoming less sure of the origins of anything, their objections might perhaps not be so strong as they would have been in former days. In any case it appears that the time is ripe for a conference on the subject of horticultural nomenclature, and in spite of the fact that it is a thorny subject we trust that the Royal Horticultural Society will take steps to inaugurate such a conference with the object of securing agreement as to the method of naming plants of garden origin.

* *Gentes Herbarum*, Occasional Papers on the Kinds of Plants. IV.: Various Cultigens and Transfers in Nomenclature. Ithaca, New York, 1923.

Presentation to Mr. James Whitton, V.M.H.—An especially interesting function was held at Glasgow on November 5 when their colleagues in the service of the Glasgow Corporation entertained four retiring officials to dinner and made a presentation to each. One of the number was Mr. J. Whitton, who recently retired from the position of director of the Corporation's parks and open spaces. Mr. Whitton was presented with an escritoire, and in making the presentation Mr. J. Sutherland observed that Mr. Whitton had latterly 2,700 acres under his care, or five times the area existing when he took charge, while the annual expenditure on Glasgow's parks and open spaces was now nearly six times the amount expended when Mr. Whitton took office.

Dwarf Hawthorns.—According to the *Bulletin of Popular Information*, No. 16, issued by the Arnold Arboretum, some eighty species of dwarf Hawthorns have been distinguished. They are most abundant in Pennsylvania, New York, Ohio and Michigan, occurring so far north as Massachusetts and southward to Alabama. Nearly all the species have large and conspicuous flowers in few-flowered clusters and handsome red or yellow fruit. Many of the dwarf plants are now well established in the Arboretum, and flowers and fruits are produced freely by several of them. Some of these plants are said to be worth cultivating for the beauty of their autumn foliage, which is not surpassed by that of any of the larger growing American Hawthorns. The Arboretum contains a collection of these dwarf plants, at the eastern base of Peter's Hill.

British Mycological Society.—A meeting of this Society will be held in the Botany Department, University College, Gower Street, W.C.1, on Saturday, the 17th inst., at 11 a.m. The programme is as follows:—Miss R. Bracher, M.Sc., "Observations on Rhytisma"; Mr. J. Jackson Clarke, F.R.C.S., "Notes on some Mycological Chromidia"; Mr. W. J. Dowson, M.A., "A Mould attacking Sweet Peas"; Dr. A. S. Horne and Mr. G. H. Jones, B.A., "Further contributions to the study of Eidamia"; Mr. R. Paulson, F.L.S., "Observations on Tree Mycorrhiza"; Mr. A. A. Pearson, F.L.S., "A Foray in Paris." Lunch will be arranged in the College Refectory.

Production of Phosphates in French Oceania.—The phosphate production of the colony of French Oceania, which is composed of the Society, Tuamotu, Marquesas, and scattered groups of islands, amounted, according to the *Journal of the Royal Society of Arts*, to 60,000 tons in 1921. Shipments to the value of over £11,000 were sent during that year to Honolulu, the balance going to Europe. According to the United States Consul at Tahiti, exact figures of the 1922 phosphate output are not yet available, but it has been conservatively estimated at between 80,000 and 90,000 tons. Material to the value of over £26,000 was shipped to Honolulu, the balance having been sent to Europe. The phosphate rock, as shipped, is said by company officers to contain about 80 per cent. of phosphate.

The Potato Crop.—According to the *Monthly Agricultural Report*, published by the Ministry of Agriculture for the week ending November 1, in the Midlands, East and South of England, about three-fourths of the Potato crop had been lifted, but in the North and in Wales this work is not so forward. The weather has been very unfavourable, and the crop is being stored in dirty condition. On the whole, the quality is fairly good, but the tubers are generally small. In most districts the yield is turning out a little better than was expected a month ago, but in Wales the crop has

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deteriorated considerably owing to the wet, and many tubers are rotting in the ground. The yield per acre is estimated at 5.7 tons, or half a ton less than the ten years' average, and nearly 1½ ton less than last year. On this estimate the total production in England and Wales will be about 2,667,000 tons, against 4,012,000 tons in 1922, and 3,160,000 tons the ten years' average.

Horticultural College, Swanley.—The annual report of the Governors for 1922-23 states that the year has seen the realisation of a further part of the scheme of development started about eighteen months ago, and assisted by the Ministry of Agriculture. The new features include a jam factory of twice the size of the former one, two additional offices, and a new Carnation house. The poultry department has been entirely reorganised; it has been decided to develop this subject further, and to provide special facilities for students wishing to gain a thorough practical and scientific knowledge of poultry husbandry. The development scheme also includes the extension of the reference library by the addition of a large number of books, and of a specially fitted room in which to house them. It is proposed to form an extensive rock and water garden, which will form an attractive addition to the educational facilities, and to the amenities of the College gardens. A third year's course of instruction at the College has been arranged for students working for their diploma. The number of students attending during the year was 80. Scholarships awarded by the following public bodies were held by students at Swanley:—The Central Committee on Women's Training, the Yorkshire West Riding County Council, the Middlesex County Council

The Origin of Petroleum.—A correspondent in the *Times* of the 13th inst. publishes some interesting facts on the formation of petroleum. The evidence, he states, seems to show that whilst coal has been produced almost exclusively from vegetation, petroleum is derived chiefly from marine organisms with a considerable preponderance of animal matter. Accumulations of these marine organisms at the bottom of saline or brackish seas or lagoons have been subjected to decomposition by aerobic bacteria, forming gases and soluble substances. The fats have been subsequently transformed to glycerine and fatty acids, and the presence of salt has modified the ordinary course of decay in the direction of the formation of the petroleum. Some of the deposits of marine organisms are immense; eocene beds in California include a broad area of marine shells more than 4,000 feet in thickness and containing organic matter sufficient for the origin of all the oil in those fields.

High Prices for Floral Books.—At a sale of coloured plate books at Messrs. Sotheby's on the 8th inst., Redouté's *Les Liliacées*, 1807, large paper edition, and *Les Roses*, 1817-24, realised £150 and £55 respectively, while F. R. de Tussac's *Flore des Antilles*, Paris, 1807-27, realised £100.

The Dahlia in America.—The increasing interest taken in Dahlias in America was reflected by the very successful exhibition of the American Dahlia Society, held in New York on September 26-29. Community Dahlia societies made several very attractive entries; there are twenty-eight local Dahlia organisations which are affiliated with the American Dahlia Society. So successful was the show that it is very probable that the Society will rent the great Central Palace in New York for next year's exhibition. Mr. Richard Vincent, Junr., has been re-elected president of the Society.

New Chrysanthemums.—Ample evidence of the activity of raisers of Chrysanthemums was given on the occasion of the recent exhibition of the National Chrysanthemum Society, when no fewer than seventy new varieties—practically all seedlings—were submitted to the judgment of that Society's Floral Committee. Further evidence was forthcoming on Monday, November 12, when the N.C.S. Floral Committee sat in judgment on fifty new sorts and awarded sixteen First-Class Certificates and four Commendations. Not only have novelties been numerous, but on the two occasions cited the high general quality of the flowers was the subject of general comment among growers. Apparently the old florists' spirit is dead, or submerged, on the R.H.S. Floral Committee, for this body granted only four Awards of Merit on the 13th inst, although it had before it a large proportion of the Chrysanthemums which secured the approval of the Chrysanthemum specialists on the previous day.

Mr. W. Clark.—The superintendent of the Public Parks and Open Spaces of the enterprising seaside town of Southport was born at Bannerfield, Selkirk, where his father has held the position of gardener to F. S. Roberts, Esq., for forty years. Mr. W. Clark served his apprenticeship under the late Mr. Wm. Fowler at Mertoun House, St. Boswells, then the residence of the late Lord Polwarth. His apprenticeship lasted three and a half years, and then he went as journeyman in the gardens of Dalkeith Palace, the residence of the Duke of Buccleuch, where he served under Mr. James Whytock for about three years. On leaving Dalkeith he became foreman under Mr. A. Brookfield, at Taymouth Castle, Perthshire, then the residence of the late Marquis of Breadalbane. After a short period spent in this position he took charge of the gardens at Auchmore House, Killin. Three and a half years later he came south, and in May, 1910, became foreman under Mr. N. F. Barnes, at Eaton Hall, Chester, where he had special charge of the pleasure grounds and the extensive alterations then being carried out at Eaton Hall. In August, 1914, he joined the Army, and served in France with the Black Watch from May, 1915. In May, 1917, he won the D.C.M., and in October, 1918, was awarded the Belgian Croix de Guerre. In November, 1919, he returned to Eaton Hall, but in the following March was appointed Assistant Park Superintendent of the Southport Corporation, and on the retirement of Mr. J. Hathaway, in December, 1921, was appointed Superintendent. Mr. Clark has made a great feature of the floral displays at Southport, where an herbaceous border half a mile long is a very fine and already greatly famous feature. As our readers are already aware, Southport Corporation is promoting a large horticultural exhibition to be held in one of its parks towards the end of August next.

MR. WILLIAM CLARK.

Town Planning.—In connection with the Commercial Motor Transport and Roads Development Exhibition, to be held at Olympia from November 22 to December 1, a Town Planning Conference has been arranged. This will be held on November 30, under the auspices of the National Housing and Town Planning Council, the Garden Cities and Town Planning Association, and the Town Planning Institute. The subjects discussed will be, at 11 a.m., "The Importance of Town Planning Schemes in Relation Particularly to Arterial Roads Construction and the Relief of Unemployment," and, at 3 p.m., "Regional Town Planning in Relation to Industrial Development." Models demonstrative of town planning schemes, with special relation to road schemes, have been loaned by Birmingham, Manchester, Liverpool, Leeds, and other large city corporations for this conference.

Treacherous Elm Trees.—That Elms are treacherous trees is fairly well known to horticulturists, but not so well known to the general public. As large limbs of old Elm trees may fall without the slightest warning, it is important that trees in positions where the public resort should be lopped to prevent loss of life. A fatal example of this sudden collapse occurred at the West Hertfordshire Golf Club, Watford, on Saturday last, when a player was killed by a falling branch and his wife severely injured.

Agricultural Credits.—In a written reply concerning agricultural credits, Sir Robert Sanders, the Minister of Agriculture, states no agricultural credit societies have so far been formed under the Agricultural Credits Act, and therefore no direct applications for advances under Section 2 of the Act have been received.

Proposed Tax on Imported Apples.—In view of the suggestion in some quarters that a tax of 5s. per hundredweight should be imposed on all foreign Apples imported into this country, the United Fruit and Vegetable Section of the National Federation of Fruit and Potato Traders' Associations has passed the following resolution:—"Resolved that this meeting of the United Fruit and Vegetable Section (Import and Export), representing importers and wholesale and retail dealers in fruit, protests against the proposal to impose a tax on food, namely Apples, and against putting forward such a proposal without any consultation with the fruit trade. This meeting requests that nothing further be done without a full discussion with representatives of the trade from the chief centres of importation—Liverpool, London, Glasgow, Manchester, and Hull." It was argued that, as the bulk of the exportable crop of Canadian Apples was sent to this country, and that Australasian Apples did not compete to any great extent with American Apples, the only effect would be to increase the price of Apples from the United States by 25 per cent. to 50 per cent. The support of the Scottish Retail Fruit Association and of the Hull Fruit Merchants' Trade Protection Society against the tax was announced by the secretary. The Committee of the United Fruit and Vegetable Section of the National Federation of Fruit and Potato Traders' Associations resolved to forward the resolution to the Board of Trade, and has appointed an emergency committee to deal with the matter.

Horticulture and Agriculture at Cambridge University.—The annual report of the Board for Agriculture and Forestry states that during the recent year 284 students presented themselves for the examinations in agriculture, estate management, and horticulture, and sixty-six per cent. of those who entered passed. The Board records that the work of the students was of a very high order. Mr. R. E. Priestley, fellow of Clare College, has been appointed lecturer in soil chemistry, Mr. E. T. Halnan has taken charge of the newly formed poultry section, Mr. A. Watkins and Mr. H. Hunter have been attached to the plant breeding institute, and Mr. W. A. R. Dillon Watson is associated with Mr. Petherbridge as mycologist to the department. Two notable events have taken place during the past year—namely, the completion of the purchase (with Government assistance) of the University farms and the appointment of a Professor of Animal Pathology.

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The Best Twelve Early-flowering Chrysanthemums.—During the progress of the extensive trial of early-flowering Chrysanthemums just concluding at Wisley, members of the Garden Committee were deputed to select the twelve varieties which, in their opinion at the time they saw the trials (when most of the varieties were in full bloom), were the most desirable for growing in the majority of gardens. Their choice fell upon the following:—(White) September White and Candida, sent also as Sanctity and Excelsior; (Pale yellow) Framfield Early Primrose, sent also as Southover Yellow and Willington Early Yellow; (Yellow) Hollicot Yellow, sent also as Goldfinder and Philip; Horace Martin, sent also as Elstob Yellow and Maggie; (Orange-yellow) Golden Almirante, sent also as Vinstone Bronze; (Bronze) Mrs. Jack Pearson and Bronze Goacher; (Chestnut) Almirante; (Chestnut-crimson) Red Almirante, sent also as Alcalde; (Pink) Normandie; and (Purple) Lichfield Purple).

Croydon Horticultural Society and Entertainment Tax.—The accounts of the Croydon Horticultural Society for the year 1923, presented at the annual meeting held on November 5, show that the Society has a deficit balance of £65 9s. 3d. Subscriptions for the year amounted to £93 6s. 6d., the total receipts for the year being £594 19s. 1d. Unfortunately the Society had to pay entertainment tax amounting to £65 16s. 6d., which accounts for the deficit on the year's working. Alderman W. B. Southwell was elected president for 1924 and Mr. W. E. Bream was appointed to succeed Mr. L. R. Welstead as Secretary. Mr. Welstead, who has been a prominent member of the Society for over forty years, was very heartily thanked for his long years of faithful service as Secretary.

Honour for a French Gardener.—M. Opoix, formerly head gardener at the famous Luxembourg Gardens in Paris, has been created an Officer of the Legion of Honour. He retired last year, to the great regret of all—colleagues and students alike—with whom he had been associated.

Appointments for the Ensuing Week.—Tuesday, November 20: Sevenoaks Gardeners' Chrysanthemum Society's meeting. Wednesday, November 21: Ayr Chrysanthemum show; Hull and East Riding Chrysanthemum Society's show (2 days). Thursday, November 22: Royal Botanic Society's meeting; Wargrave and District Gardeners' Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Royal Albert Rhubarb.*—Wm. Mitchell begs to call attention to the above excellent variety, which still retains its supremacy over all other sorts hitherto produced, being from two to three weeks earlier than any kind now grown. It has other qualities eminently entitled to notice; it is most delicious in flavour, of a bright red colour, a most prolific bearer and free-grower, with large fleshy stalks, and for early forcing is more suitable than any other variety. Specimens of this splendid vegetable have been inspected and highly approved of by Her Majesty, by whose commands it has been introduced into the Royal Gardens, Windsor. Also Mons. Soyer, of the Reform Club, and other eminent judges, have declared this Rhubarb to surpass anything of the kind ever eaten, and all the principal growers attending the London markets have pronounced it to be by far the best in cultivation. In addition, *W. M.* begs leave to observe that this Rhubarb is the same as was sold so early last season in Manchester, Birmingham, Liverpool, Cambridge, Brighton and other large provincial towns, where it gave universal satisfaction by its extreme earliness, quality, and beauty. Strong one-year planted roots will be sent out at the end of October at 2s. 6d. net. Also, Myatt's Linnaeus, 2s. 6d., and Victoria, 9d. each. The usual trade allowances. Remittances requested from unknown correspondents by post-office order, made payable to William Mitchell, Enfield Highway, Middlesex. Post Office, Enfield.—*Advertisement in Gard. Chron., November* 11, 1848.

Publications Received.—*A Report on Gooseberry Diseases in East Sussex.* East Sussex County Council, County Hall, Lewes.

THE BULB GARDEN.

CALOCHORTI.

THESE lovely Californian bulbous plants, popularly known as Butterfly or Mariposa Tulips, deserve a place in every hardy flower garden, and are particularly suitable for planting in open, sunny positions at the top of the rock garden where the soil is well drained. They throw up their beautiful, cup-shaped flowers in June and July, and for delicacy of texture and brilliance of colour they can scarcely be surpassed.

October and early November is an excellent time for planting, and the bulbs should be put 2 inches or 3 inches deep, and about 4 inches apart. The soil should be well prepared to a good depth, and enriched with a sprinkling of bone meal.

FIG. 103.—CHRYSANTHEMUM MRS. T. HANCOCK, R.H.S. AWARD OF MERIT, OCT. 30 (SEE P. 269).

It is good practice to plant in such a position that the bulbs can be protected against excessively heavy winter rains by a sheet of glass; but this should be removed as soon as growth becomes active in spring. After the flowering period the same protection may again be given if the rainfall is heavy, as, whether the bulbs are lifted or left in position, it is essential for future flowering that they are ripened perfectly. *W. Auton.*

MUSCARI "HEAVENLY BLUE."

I WOULD like to draw attention to this early-flowering bulb. It was introduced from Asia some years ago, and if grown in a mass, as it should be, it presents, when in bloom in March or April, a most beautiful effect in a rich, dark blue, like to that of an Italian sky. But it has to me a greater charm than this, for it is deliciously scented and well adapted for cutting, as the flowers last well in water. It is no trouble to grow, and seems to increase rapidly in almost any situation. The present is a suitable time for planting.

SCILLA PERUVIANA.

THIS fine plant was introduced from Spain about the beginning of the 17th century, and was known by old gardeners as the Hyacinth of Peru, although probably it is a native of Europe. Old John Parkinson, who knew the plant well, states that a severe frost in 1607 killed all his roots of this Squill, so he made a journey to Spain in order to renew his stock, which was an adventure not lightly to be undertaken in those days. He found the plant in full bloom in meadows near Cadiz and making a fine sight. Thus it is most probable that Spain is its native home.

The ordinary kind grows some eight or nine inches high, and bears dark blue flowers, but there is also a white variety not so decorative or showy and not known so well in cultivation. The foliage pushes through the ground with the advent of the autumn rains and remains green throughout the winter. The flowers are numerous and arrayed closely around the stalk in a pyramidal form; as fresh flowers are constantly opening, its flowering season, which is usually in May, lasts for some considerable time. The plant is said to be not quite hardy, but I have never given it any protection, and although I have it growing in heavy soil that is not well drained, it does not suffer either from frost or continued rains. A light, sandy soil, well enriched with old manure, and a sunny position, would probably be more suited to the plant. The bulbs are about the size of those of an ordinary Daffodil, and increase readily. The secret of obtaining good blooms appears to lie in a thorough ripening of the bulbs. Thus, if this Squill is planted in a hot, dry situation such as is afforded Iris stylosa and Amaryllis Belladonna reasonable success may be expected. *T. D. T.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, late Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Miltonia.—Miltonias of the vexillaria section and their hybrids, which were potted soon after their flowering was over, will now be in active growth, and rooting freely. Being well established in the new material they should have water afforded them whenever the compost becomes dry. Care should be taken that the water is not colder than the temperature of the house in which they are grown, as there is a danger of the roots suffering, and the plants getting a decided check if cold water is given them. Although strong sunlight during the summer causes the foliage to put on a sickly hue, at present the plants should be grown near to the roof-glass. This will prevent the leaves becoming drawn and attenuated; the cultivator should endeavour to produce short, robust growths, which will produce flowers of the best quality in the proper season. A moderately moist position in a Cattleya house, or a house of the same temperature, should be selected for Miltonias, and their surroundings should be kept humid, but too much water should not be applied direct to the compost during the dull days of winter. No attempt should be made to hasten the plants into rapid growth, but keep them growing steadily.

Autumn-flowering Miltonias.—The autumn-flowering varieties of M. vexillaria, such as Leopoldi and superba, with any of the hybrids which have just passed out of bloom, may be repotted, if the young growths are of sufficient strength and about to develop new roots. Should the growths be weak and the plants small this operation is best deferred until the spring, when the longer days and the more genial atmosphere will be more conducive to satisfactory growth. The form of M. vexillaria, known as robusta, flowers later than the type, and may be treated like the autumn-flowering varieties. Some of the hybrids are irregular in their flowering season, and may have new compost given them whenever the young growths are in the desired condition. Failure with these plants is often attributable to the compost being allowed to become sour and decomposed. Should cold weather prevail, necessitating the use of much fire heat, a strict watch must be kept for yellow thrips and other insect pests, which are very partial to these plants, and will soon disfigure their thin and delicate leaves if not eradicated. Although the flowers of these plants are not much used as cut blooms, the plants themselves are most useful for indoor decoration, where their flowers will last for a considerable time, without any harm accruing to the plants, especially if they are watered carefully.

HARDY FRUIT GARDEN.

By A. J. Hartless, Gardener to Major J. F. Harrison, King's Walden Bury, Hitchin, Hertfordshire.

Pruning.—This work should be proceeded with as weather and opportunity permit. Bush trees should have their leading shoots shortened two-thirds their length. Those left for extension (during the summer pruning), and to replace some of the taller main stems, may be reduced to the riper part, and the old stems cut away. Although extension shoots should, if possible, be selected growing at the same angle as the old stem, a shoot with a bad curve will straighten itself on all trees except Conifers, the woody tissue of the inside curve growing about three times as fast as that of the outer surface. In training young bush trees careful selection of permanent shoots should be made. Allow them plenty of room in order that light and air may enter the tree freely. Lateral shoots should, if not already done, be reduced to two or three buds. Spurs should not be encouraged to grow too closely together, and on older trees a reduction in the number should be made annually, necessitating, as a rule, the use of a saw. All saw wounds should be trimmed carefully with a sharp knife, and gas tar or tree styptic painted over them.

Bush Fruits.—These become rapidly exhausted if attention is not paid to them, and easily succumb to attacks of "die back" disease. A liberal supply of rotted manure should be at hand. The preparation of this can be done when unfavourable weather does not permit of ground operations. It is better, if it can be done, to prune and clear the ground before the manure is put on the land, and it may be wheeled to where it is required in frosty weather. In pruning bush fruits encourage extension shoots to develop to furnish the tree with young, vigorous branches. Black Currants need a somewhat different treatment to the Red or White Currant. The pruning of the Black Currants consists chiefly in reducing the old fruiting shoots as much as possible, and encouraging shoots of the previous year's growth from the base. These plants are gross feeders and require plenty of nourishment. It is often desirable, especially in woodland areas, to defer pruning Gooseberry bushes until late in the spring, because of the fondness of birds for the buds of these fruits.

Silver-leaf Disease.—Where silver-leaf is suspected the fungus (Stereum purpureum) may often be found at the base of the tree during November. Affected trees should be burned, also the soil around them to the depth of 2 inches.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Winter-flowering Begonias.—Plants in flower, if used for greenhouse or conservatory furnishing, should be given a position at the warmer end of the house. This observation applies to the Gloire de Lorraine varieties, as well as the hybrids resulting from crossing Begonia socotrana with the tuberous-rooted varieties. The latter are well represented at present by such fine sorts as Mrs. Heal, Fascination and Exquisite. The variety Mrs. Peterson, which belongs to the Lorraine section, has dark foliage, and is very effective for house decoration, showing up well under artificial light. It is rather slow growing, therefore it is a good plan to propagate it now, either from cuttings or leaves; the present is a better time to use leaves for propagating than after the flowering period.

Columnea.—The Columneas include a number of beautiful species and hybrids which are very useful for the stove or intermediate house. C. gloriosa and its variety purpurascens have been flowering with wonderful profusion for some weeks; the large orange and scarlet coloured flowers seem out of all proportion to the slender, drooping shoots they are produced on. This species and its varieties are best grown in Orchid baskets, using a compost of rough fibrous peat and loam, with charcoal and silver sand added to render the compost open. Some of the stronger growing species are best grown in pots, using a similar compost to that just recommended. C. magnifica is best grown in cooler conditions, and when in flower stands quite well in an ordinary greenhouse; while C. Lemoinei also succeeds under the same conditions. The hybrid C. Banksii needs an intermediate temperature. All the Columneas are easily propagated by means of cuttings dibbled in a bed of fibre and sand with slight bottom heat. Most of them may also be propagated by dividing the stems into short sections and using them as cuttings.

Episcia fulgida.—This plant, with its beautiful foliage and brilliant red flowers, is very useful for decorative work. Well grown specimens in small pots or pans are very suited for table decoration; while large plants in pans are suitable for furnishing the stages in the stove. The plant may also be grown in small baskets. It is easily propagated at any time by means of cuttings inserted in pots of sandy soil, and stood in a warm propagating case. A regular supply of plants may be had by putting in successional batches of cuttings.

THE FLOWER GARDEN.

By G. Turner, Gardener to Emily, Lady Ampthill, Ampthill Park, Ampthill, Bedfordshire.

Transplanted Seedlings.—Biennials and perennials not yet planted in their flowering quarters, nor likely to be before the end of the year, should be cleared of weeds and decaying foliage, and the surface soil loosened between the rows—the latter work should be done with a fork where the ground is too stiff to use the Dutch hoe. Where slugs are troublesome the rows should be dusted with well-seasoned soot or old lime from time to time. Given open weather and a workable soil it pays to get as many of these plants as possible in their permanent places before the New Year, for they certainly do much better than when left until the spring before transplanting them. It is not, however, always practicable to do so.

Paeony and Iris.—The foliage of the first-named is entirely dead and may be cleared away, afterwards pointing over the beds to make them tidy. Iris plants, being more or less of an evergreen nature, must not be so treated, but simply have the decayed part cut off. Owing to their spreading habit of growth and rooting, the forking of the border should be done lightly to prevent unnecessary injury. Most Irises are so good natured in their behaviour that no fear need be entertained in dividing or replanting them where this is desired.

Sedum spectabile.—This plant stands almost alone amongst herbaceous subjects both as regards the nature of its growth and the colouring of its flowers. The flatish corymbs of rosy blossoms provide one of the best effects in the border in autumn, beside which they last long in good condition. This Stonecrop is easily increased by division after flowering, and will grow well in most soils.

Lily-of-the-Valley.—The foliage having died, beds of Lily-of-the-Valley should be made tidy, the soil forked over, and then given a mulch of old manure. If a new border is to be made and planted, work in similar material during its preparation. Plant in rows, spacing the crowns about 2 inches apart, and give a covering of old leaf-mould afterwards. For successional purposes it is a good plan to plant some crowns in a warm, sunny place, and others in a cool and shady situation. Old plants are amenable to lifting and replanting, but in so doing the weedy growths should be discarded, planting the best pieces only.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Woolverstone Park Gardens, Ipswich.

Early Peach House.—Where ripe Peaches and Nectarines are required in April the house should be closed towards the end of this month. If the pruning, etc., has not been done already—as advised in a previous calendar—the work should be attended to at once. When pruned, untie the trees from the trellis, and tie the shoots into bundles, as this permits ready access to the roof for cleansing the woodwork and glass, or, if on a back wall, for limewashing. If the trees are troubled with scale, the bearing wood should be carefully sponged with an insecticide, and the old wood cleansed with a brush previous to its being bundled. It is a good plan to spray the trees with an insecticide before sponging them, as the pest is then the more easily removed. For a slight attack of red spider hot water applied at a temperature of 150° will be sufficient to clear the trees; but if seriously infested use paraffin emulsion, repeating the application before tying the trees in position again. When doing this work leave sufficient space for training in young wood without danger of the leaves overlapping each other; for the same reason it is advisable to allow rather more space between the shoots on trees trained on a back wall. Due allowance for increase of growth must be considered; young, vigorously-growing trees are often seriously injured by tying the shoots too tightly. Clear the surface of the border of any rubbish, and examine the soil and roots; if these are found to be satisfactory, simply remove an inch or two of the sur-

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face soil, and apply a top-dressing of good loam mixed with old mortar rubble and wood ash. Old, established trees will be benefited by a dressing of a suitable artificial manure. Any necessary transplanting should now be done, and, where a reserve stock of home-grown trees is available, these will, if carefully lifted and replanted, give a crop of fruit without detriment to the future well-being of the tree. Newly-planted trees should receive a thorough soaking of water at the roots, and be allowed time to settle into position before securing them finally to the trellis. It is advisable, when starting the trees, to close the house for a week or ten days without using fire heat, weather permitting, and then apply sufficient artificial warmth to maintain a night temperature of 45°, with a rise of 10° during the daytime; if the days are bright dispense with fire heat as far as possible, closing the house early to conserve the sun heat. Damp the trees, paths, and walls at the same time. During the early stage of forcing guard against an excess of atmospheric moisture, as much moisture in the air tends to force growth before the flowering period is over, and disbudding cannot be properly done without danger to the embryo fruits. Admit air when the temperature of the house rises to 60°, but prevent cold draughts. If the borders require water give them a good soaking.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Celery.—Late batches of Celery should by now be earthed up finally; if any remain to be done, take full advantage of fine days to complete the work. The soil at the final earthing should be placed well up to the bottom leaves, and the sides of the ridges made firm with the back of the spade to facilitate the throwing off of winter rains and snow. Any plants that have been blanched with brown paper still remaining undug should have rough straw or litter placed around them in the event of sharp frosts, or they may be lifted and heeled in in some convenient corner.

Seakale.—Young roots of Seakale that were planted out in the spring for forcing purposes may now be lifted, and four or five put in an eight-inch pot, covered with old potting soil made fairly firm, and brought into a mushroom house or shed, where they can be kept in absolute darkness. These young roots should not be forced too hard. If early produce is desired, it is better to dig up roots that have been growing two years in the open, as these will naturally throw stronger heads. The permanent plants in beds out-of-doors may be forced by placing Seakale pots over the crowns, and filling between these with leaves and stable litter, well trodden down as the work proceeds. This fermenting material may get very hot in the centre, and if this happens, the lids of the pots should be raised slightly to allow the moisture to escape. Two beds of plants should be grown for this method, forcing them in alternate years. Growing roots and lifting them for forcing under cover is much the best system, as one has the produce under better control, and the flavour of heads forced indoors is also superior.

Garden Paths.—Now is a good time to attend to garden paths that require renovating, and also to make new ones. Loosen the surface with a pickaxe, and remove any rough stones before placing the new gravel in position. In doing so, take care to keep the middle of the path an inch or two higher than the sides. Roll the gravel firmly, and if any wheeling has to be done, place some nine inch boards on the paths, so as not to injure the surface. If new paths are to be made, attention must be paid to efficient drainage by placing some four-inch drain pipes well under the surface along one side of the path with iron trap drains at intervals. The foundation of such paths may consist of clinkers from the stokeholds, brickbats, and other rough material. On the foundation place rough stones, finishing with good binding gravel.

INDOOR PLANTS.

ANTHURIUM.

PRIOR to the introduction of A. Scherzerianum (The Flamingo Plant) from Costa Rica, and A. Andreanum from Columbia, with the ornamental-leaved species A. Veitchii (see Fig. 104), A. cristallinum, A. illustre, A. Warocqueanum, and others in the sixties and seventies of the last century, Anthuriums were very little cultivated except in botanic gardens, as they were considered of very little value to horticulturists for the decoration of the plant houses or other decorative purposes. Since that date the flowering type has been much improved, both in size of spathe and colour, by careful selection and fertilisation. The spathes of the different varieties of A. Scherzerianum are of various shades of colour, including delicate rose, deep coral red, pink, rose carmine, and white, and differ greatly from the bright orange-red of the small spathes of the type. The Anthuriums have not proved very amenable to hybridisation. An interesting hybrid was raised between A. Scherzerianum and its white variety album; the progeny had white spathes spotted and freckled with red, and was named A. Rothschildianum. The finest and most distinctly spotted were again selected and fertilised with their own pollen, the hybrids of this cross including some extra fine spotted varieties of rich colours; some were very heavily spotted, whilst others had a creamy-white ground dotted with fine spots. Many choice varieties have been raised and put into commerce by fertilising a plant with its own pollen, and selecting the finest and best of the seedlings. Amongst them is A. Wardianum, one of the finest and still one of the best of the scarlet-spathed varieties. The foliage is very distinct, and can be easily recognised amongst any other Anthuriums. A. Madame Dalliere and A. Parisiense have bright rose-pink coloured spathes. A. Duvivierianum is by far the best white variety, and it forms a splendid contrast to the scarlet sorts. A. Le Flambeau has a spathe of deep crimson colour, and is very distinct. A. album is a white variety with yellowish-white spadix. A. Souvenir de Louis de Smet has an extra large and round spathe; it is a splendid variety. Large numbers of fine seedlings have been raised from time to time, and put into commerce without having any distinctive name given to them.

All the members of the A. Scherzerianum type do well in a moist atmosphere, and a temperature of about 60°. When in flower they may be grown in a lower temperature in the conservatory, or used for indoor decoration. They provide a mass of gay colour and are a great feature in groups at flower shows. The spathes are invaluable as cut blooms, and last a very long time when cut, for all kinds of decorative purposes.

A. Andreanum is an extremely beautiful species, quite distinct from A. Scherzerianum, with rich scarlet spathes and yellowish-white spadix. This species requires a higher temperature than A. Scherzerianum.

Numerous varieties and hybrids of this plant have been obtained, some of which are distinct, whilst others are of no commercial value. Amongst the best are album, with a pure white spathe, one of the most effective of the type, delicatum having a beautiful delicate rose-coloured spathe; giganteum, with an extra large brilliantly coloured spathe; atrosanguineum, dark coral-red, one of the finest dark red varieties; A. Ferrieriense, a strong growing hybrid from A. ornatum, with white spathe and purplish tinted spadix. It was introduced from Venezuela. This plant is a strong grower.

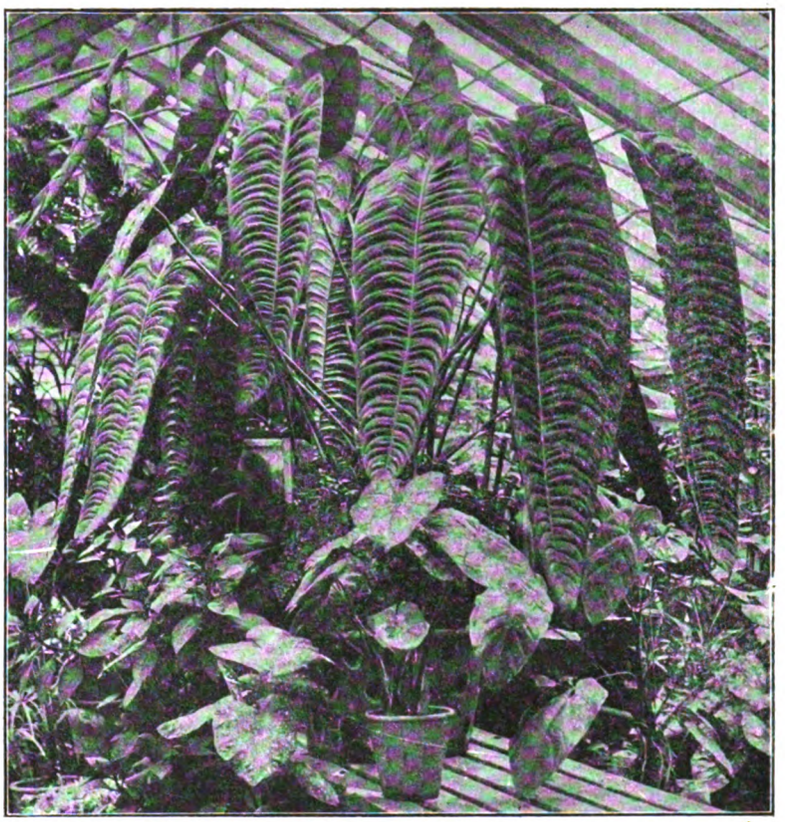

FIG. 104.—ANTHURIUM VEITCHII, ONE OF THE LARGEST-LEAVED SPECIES.

The following crosses are of no commercial value:—A. Andreanum × spathiphyllum Minahassae (commutatum). A. Andreanum × A. Scherzerianum Wardianum. A. album × own pollen, A. Ferrieriense × Andreanum, A. Ferrieriense × spathiphyllum Minahassae.

The members of the A. Andreanum type thrive well in a moist atmosphere and a temperature ranging from 65° to 70°. The spathes are greatly in demand as cut "flowers" for filling large vases, and other decorative requirements, on account of their lasting properties.

The ornamental-leaved species are unequalled for the beauty of their noble foliage, but are not suitable for indoor decoration owing to their

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delicate texture, as they suffer very much when subjected to a dry atmosphere, or draughts, but where suitable accommodation can be found, they present a very attractive and ornamental appearance amongst any collection of plants. The inflorescence is insignificant, but the foliage is superb.

Amongst the most admired are A. Veitchii (Fig. 104), a magnificent Aroid, and without doubt the finest and noblest of all, the leaves often attaining a length from 4 feet to 5 feet, with a breadth of not less than one-third of these dimensions. The waved appearance of deep green with a brilliant metallic lustre adds to the beauty of the foliage.

A. Warocqueanum is a magnificent species with leaves 3 feet to 4 feet long, of rich deep velvety green, with a light green midrib and secondary veins. A. cristallinum is a very striking plant; it grows dwarf and compact, and has leaves of rich dark olive-green, with the principal veins elegantly banded with silver. A. illustre has creamy-white leaves in various forms. A. magnificum is a handsome species, with large, richly coloured leaves, marked with white, and a silvery midrib along the principal veins. A. Brownii is another noble species, with dark green, shining foliage, on tall stalks. This plant is suitable for growing in a large stove, or conservatory.

All the Anthuriums are of easy culture, provided they are grown in a suitable temperature with a moderately moist atmosphere. They should be repotted when necessary in a mixture of good turfy, fibrous peat, a small quantity of light loam, a little charcoal if procurable, with silver sand added. In repotting the plants use clean pots or pans of suitable sizes, and let them be well drained with good clean crocks, covering the latter with fibrous peat or Sphagnum moss to prevent the fine soil getting mixed with crocks. Press the soil firmly but do not make it too hard. Remove all the loose, decayed soil. Keep the base of the plant well above the rim of the pot, for they will not thrive if potted too deeply in the soil. Light is essential to develop the leaves, but the plants should not be exposed to bright sunshine. When well rooted a covering of thick cushion Moss over the soil is beneficial to the roots; which will penetrate into the Moss until it becomes a perfect mass of roots. Covering the soil with Moss also adds to the smart appearance of the plant. The spring is the best time for repotting. The plants should be syringed two or three times daily in the summer. Be careful not to overwater them, especially after they are potted, or the soil may become sour before the new roots are growing freely. After that stage they will need a liberal quantity of moisture until the end of the summer, when the supply should be lessened, as during the winter months they should be kept comparatively at rest. *John Heal, V.M.H.*

TREES AND SHRUBS.

EUPATORIUM WEINMANNIANUM.

ALTHOUGH not a flowering shrub of the highest merit, this Eupatorium is very useful, as it flowers late in the year, the large, flat clusters of small white blossoms appearing in succession throughout the autumn and often into winter in favourable weather. The heads of bloom, which are nine inches or so in diameter, are fragrant, and may be effectively used for table decoration. They are succeeded by the fluffy seed pappus characteristic of most species of this genus.

This shrubby Agrimony is a rapid grower, with attractive, glossy, evergreen foliage. It makes a bush up to 10 feet in height and as much through, but as it grows freely from the base when cut back in March, it may, if desired, be kept down to a much smaller size. Since it is not hardy everywhere, the frost often nips its unripened wood, thus rendering hard spring pruning desirable. It is said to need the shelter of a wall in the London district, and this is probably advisable in all but our milder counties. A fairly rich, moist, well-drained soil appears to suit it admirably. *N. Wales.*

CYTISUS KEWENSIS.

THIS is one of the best members of the large family of Brooms. It is of dwarf, rather spreading, habit, and covered in spring with creamy-white flowers. Purchasers should, however, be careful to obtain the true form, as some plants sold as Cytisus kewensis are not true to type, having a stronger habit of growth, and flowers of a deeper shade of colour. C. kewensis is an ideal shrub for planting on the top of a rockery or bank, and when its shoots droop over the edge, there is no more effective shrub for such a position. *R. W. Thatcher.*

DEUTZIA WILSONII.

THIS vigorous growing species, introduced from China, has branches which arch gracefully, and are covered in due season with large trusses of pure white flowers. The foliage is large for a Deutzia, long and pointed; the young shoots are pale green, and contrast well with the brown stems of the previous year's flowering-growths. The plant should be staked when young, as rough winds are apt to snap the tender, quickly growing shoots. As soon as flowering is over the old wood should be cut away at the base, and the young growths neatly tied in. *R. W. T.*

THE ROSE GARDEN.

SINGLE ROSES.

SINGLE flowering Roses are very popular for use as table or room decoration, lending a charm of grace and fine effect unsurpassed by any other flower. The prizes for decorations at most horticultural shows prove the great value of this class of Rose, and those with such art shades as are possessed by Irish Fireflame and Irish Elegance, or single Roses with blended colours as Isobel, Queen of the Belgians, and Ethel James, never fail to please. Varieties of deeper colour include Waltham Scarlet, Princess May and Ulster Standard, whilst Yellow Ulster Gem and Mermaid are fine single yellow sorts. White single Roses are rare, and the only variety I have seen really useful is Simplicity.

ROSE ELIZABETH CULLEN.

THIS crimson Rose has been under my notice for a couple of seasons, and I have high opinions of it as a bedder and for furnishing cut blooms. The colour is dark crimson; the buds are long and pointed, and the bloom is deliciously scented. The growth is of moderate strength and the foliage is dark green, making it an ideal bedding Rose; the habit of growth is very regular. The blooms are splendid for use in table decorations. Another great point in favour of this variety is that the colour does not bleach or turn a magenta shade as those of many dark Roses do. It is splendid grown as a bush and equally good as a standard. The flowers are not over full, but it has more petals than either Red Letter Day or K. of K. *G. L.*

ROSE LEONIE LAMESCH.

YOUR correspondent's eulogy (p. 249) of this old Rose is quite refreshing, for it is seldom one hears it praised. I have some large bushes in my own garden, but most people dislike it, and some even go so far as to call it ugly. I remember years ago being told that it was a great favourite with Queen Alexandra, but the general public will have none of it. Evidently it needs special taste to appreciate it! *A. H. Pearson, Lowdham.*

ROSE SOUVENIR DE MME. VERSCHUREN

THIS new Rose is said to have been one of the outstanding features of the California Nurserymen's Association's show. It is the progeny of an unnamed seedling from Sunburst crossed with Golden Ophelia. According to the *Florists' Exchange*, it is one of the finest of yellow Roses, and does well both in the open and when forced under glass. It is said to have the habit of Sunburst, but is more vigorous. The colour of the bloom is cadmium yellow, shading to orange, and the flowers are large, full and of perfect form.

THE IRIS GARDEN.

IRISES FOR SUCCESSIONAL BLOOMING.

THE first Iris to bloom in the New Year is the pretty, dwarf, bulbous Iris alata, which has large blue flowers with a golden crest. This species is followed closely by I. Danfordiae, with golden flowers. In close succession follows I. reticulata, which has rich violet-blue flowers that are delightfully scented.

I. persica has a strange combination of pale silvery-blue and sea-green coloured flowers, which are produced during March and April, whilst I. histrioides is sky-blue, with yellow markings.

The above are charming when grown in pots for the Alpine house, and most effective in the rockery, preferring a sharp, gritty soil, and a sunny aspect, for preference under a warm wall, or in selected pockets on the rockery.

Iris pumila, the Crimean Iris, is a very desirable dwarf-growing species which flowers from March to early May, and it closely resembles the tall Bearded Irises in miniature. Being dwarf, it is well adapted for growing on the rockery, or as an edging to borders. Attaining a height of from six inches to nine inches, I have seen varieties of this dwarf Iris used to good advantage on old walls and ruins, making a very pleasing effect.

Some of the best sorts are Bridesmaid, sulphur-white; Cyanea, violet-blue and purple; lutea; Orange Queen, yellow and orange; Princess Louise, soft pearly-blue; Snow Cup or Schnaecuppe, snow-white; and Statellae, with pretty, globular, creamy-white flowers, which have a most delightful fragrance.

The Intermedia or May-flowering Irises comprise a group of hybrids, the result of crosses between the early-flowering Crimean I. pumila and the tall bearded I. barbata. The plants are of medium height (from 12 inches to 18 inches), and produce large flowers that are sweetly scented. This early Iris has a vigorous constitution, and is well adapted for planting in front of the taller bearded Iris. Brunette, pale yellow; Halfdan, canary-yellow; Ingeborg, ivory-white; Ivorine, pure white; Prince Victor, rich blue; and Walhalla, light blue and purple, are all most beautiful sorts, that will succeed in any well drained sunny border.

The June-flowering, tall Bearded Irises, the most popular group, follow the last closely in flower. Their stately habit, and the gorgeous, regal splendour of the varied coloured flowers, set off by the broad sword-shaped, glaucous leaves, render them most desirable garden plants. They grow from two feet to five feet tall, and will succeed in almost any ordinary ground, yet few plants respond more kindly to well trenched, well worked soil, and if lime is absent from the staple, the addition of a little of this material is very desirable. Their names are legion, and the cost of a few of the new varieties is rather high, but I may mention a few which were noted at a June R.H.S. show, viz., Belladonna, self china blue; Cassandra, rosy-violet and crimson; Dejah, silvery-blue and mauve; Duke of York, blue and mauve; Eden Phillpotts, lavender-blue; George Yeld, Apricot-rose and rosy-crimson; Harpalion, lavender-bronze and blue; Lady Sackville, silvery-blue and violet-purple; Lord Lambourne, a combination of rosy-bronze and madder-crimson; Marjorie Tinley, lavender-blue and mauve; Mrs. Marion Cran, light rose self; Ruby Perry, dark rose; and Troades, old rose and crimson. Less expensive sorts include Albatross, white and crimson-purple; Alcazar, bluish-violet and purple; Ambassadeur, reddish-violet; Aurea and Sherwin Wright, two good chrome-yellow varieties; Bazaria, purple; Benoni, rosy-purple; Black Prince, violet-purple; Caprice, reddish-purple; Clara Curtis, heliotrope and rosy-purple; Edward Michael, wine red; Flamenschwert, yellow and crimson-maroon; Hemodus, lavender-blue; Iris King, old gold and crimson; Jacquesiana, crimson-copper and maroon; Lady Foster, pale blue and bluish-violet; La Tendresse, rosy-white; La Neige, snow-white;

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Lord of June, lavender and dark blue; Magnifica, violet-blue and reddish-violet; Mdlle. Schwartz, pale mauve; Prosper Langier, copper and crimson; Rhein Nixe, white and violet-purple; Richard II., white and violet; Standard Bearer, reddish-purple, and White Queen.

The best time to transplant the June-flowering Irises, including the Intermedia and pumila varieties, is immediately after flowering, or failing then, during autumn. I have known successful planting operations during spring, the plants flowering well, but growing dwarfer in consequence of late transplanting. It is, however, important to remember that the Pogoniris or Bearded Irises do not thrive in cold, wet soils; they are sun-loving subjects, and should be planted shallowly in well drained soils, although it is surprising what an astonishing amount of neglect they will endure.

In June and July the Xiphium or Spanish Irises give a grand display, and the flowers are highly valued for cutting for table decoration. The new Dutch or large-flowered hybrids are well worthy of attention, their flowers being much larger, the growth more vigorous, and the flowering fully a fortnight earlier than the Spanish type. Iris xiphioides or English Irises are later than the Dutch and Spanish, and thrive in a much colder and wetter soil. They soon become naturalised and bloom well for two to three years, when they may be lifted and transplanted. The colours are very varied in self shades, from white to dark purple, while many are beautifully mottled and flecked.

In July and August the Beardless forms predominate, and are well adapted for growing in the back row of herbaceous borders, in isolated groups in various parts of the border, or for planting by the side of lakes, streams or semi-moist spots, where they are very effective, having handsome grass-like foliage, and tall spikes bearing handsome flowers. A selection of these Irises includes aurea, yellow; Monnieri, deep yellow; orientalis, white; Shelford Giant, white with yellow lip; and Guldenstadtiana. Iris Kaempferi, the Japanese Iris, in many beautiful shades, is splendid for a warm, sunny position by the side of a lake or stream. The Siberian Irises comprise another fine group, and of this species there are some vastly improved varieties, far superseding the old forms, such as Duchess of York, dark violet; Lady Northcliffe, Mrs. Sanders, Nora Distin, Perry's Blue, Purple Emperor and Snow Queen. *W. Logan.*

THE HEATH GARDEN.

A NATURAL grouping of Heaths and kindred plants will give most pleasing results, and if a wise choice is exercised in regard to varieties a continuity of flower may be maintained during the greater part of the year, consequently a well-planned Heath garden is attractive at any season, and for a considerable period of the year it is full of beauty.

If the site for the Heath garden is of an undulating nature, the planter starts with an advantage, but even on flat land a Heath garden may be made very attractive, especially where Pines and Birches exist with which Heaths associate admirably.

The paths in a Heath garden should be of an informal nature, with no suspicion of artificiality, and may consist mainly of stepping stones around which the growth of the dwarfer Heaths should be encouraged.

The arrangement of planting should be such that bold groups of the taller-growing kinds and varieties are placed at irregular distances, with the dwarfer kinds filling the intervening spaces. By this means the flatness of the land is broken and the beauty of the garden increased.

The number of Heaths in cultivation is large, and only a very big planting scheme would include all the varieties that are worth growing, but the following are among the best and include varieties for each flowering season.

Erica australis is a loose, straggling bush reaching a height of 4 ft. or 5 ft. The flowers are rich red and remain in beauty from March to May. Although not perhaps quite hardy in the North, it is perfectly so in the southern counties and is an excellent plant to grow as its loose growth adds variety among those of denser habit.

E. carnea is one of the best of the dwarf kinds; it grows quickly and soon forms a carpet 6 or 8 inches high. Its season of flowering is February to May, during which time its red flowers are most attractive.

E. cinerea, the Common Heath of our moorlands and commons, is a very showy species, which grows from 9 to 12 inches high and flowers profusely from July to September. There are many varieties varying in depth of colour, and all are worth growing.

FIG. 105.—FLOWERING BRANCH OF ASIMINA TRILOBA (SEE P. 295).

E. codonodes is one of the most beautiful of the larger-growing Heaths, and quickly develops into a large bush with plumose branches clothed with bright green leaves. It flowers with great freedom, the blossoms being pink in the bud but white when open. Its normal season is from March to May, but in mild weather flowers may frequently be found in winter.

E. mediterranea is an excellent plant which by a little care in pruning and training may be grown into a noble specimen several feet high and through. It bears its pinkish flowers from March to May. E. m. carnea is the best variety and the best winter-flowering Heath in cultivation. It is a hybrid between E. mediterranea and E. carnea and flowers more profusely than either. This Heath grows to a height of 15 or 18 inches and spreads rapidly. It frequently commences to flower in November and does not cease until May, and during most of this period it is a mass of red bloom.

E. tetralix is a very beautiful and refined species, not uncommon in Britain, but well worth growing. It cannot fight for its existence like many others, but under good conditions grows quite freely, and it should have an open position where stronger varieties cannot crowd it. Its terminal inflorescences of drooping, pale red flowers are very distinct and appear during late summer and autumn.

E. vagans and its varieties are amongst the best of the late-flowering Heaths, their season extending from August till October.

Calluna vulgaris, the common Ling, which flowers with delightful freedom during August and September, has given several varieties which are valuable for autumn display. Among the most useful of these are alba; Serlei and Hammondii, pure white; Alportii, crimson; and cuprea and aurea with copper and golden leaves respectively, these being very attractive in winter.

Daboecia polifolia, the St. Dabeoc's Heath, is exceptionally useful for massing on a large scale. The type bears red flowers and there are white and red and white varieties, thus giving much scope for effective colour arrangements. It usually grows from 9 to 12 inches high, but under good conditions it is sometimes double this stature. The flowering period is a long one, for the first flowers open in May and the plant continues in flower during the whole summer. In the early months the flowers are somewhat sparingly borne, but in August and September the masses of blooms produce a very fine effect, and under favourable conditions the floral display is frequently carried on until November or even December. *W. Autom, Pyrford Court Gardens, Woking.*

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. 24.—THE BACKBONE OF THE IRRAWADDY.

AFTER crossing the four rivers which unite to form the 'Nmai-kha, or eastern branch of the Irrawaddy (of which, as already remarked, the Taron is the greatest) there was no more serious climbing left. The whole country is one vast reeking jungle, crumpled into hills and crawling with rivers. A mountain range, nowhere attaining 9,000 feet altitude, still separated us from the basin of the western Irrawaddy; but that would be a picnic. As a matter of fact, we crossed it and descended far down towards the Nam Tisang in the course of a day's march.

It was almost uncomfortably hot in the deep valleys now, the minimum temperature at the beginning of November never falling below 50° F., while the day temperatures exceeded 70° F. in the shade. But the early mornings were chilly, nevertheless, on account of the damp mist. The path, though better than anything we had sampled yet, was not good; and as most of the streams were not bridged, it was a mercy we had brought no four-footed transport. In the rainy season—that is, during eight or nine months in the year—it would have been almost impossible to get along. As it was, the river being low, I was carried over pick-a-back by the natives. The watershed between the eastern and western branches of the Irrawaddy is crossed by an easy pass at an altitude of about 7,000 feet above sea-level. The forest on this range is filled with magnificent trees of Tsuga, Oak and Castanopsis; and the Oaks especially were festooned with Orchids, which were now breaking into flower. A lovely pale purple Pleione, very sweet scented, frilled every tree trunk. Another genus hung out long sprays of milk-white blooms, with chocolate beards. Other trees, noticed here were species of Maple and the usual Stamineum Rhododendron. The pure white flowered epiphytic Maddenii Rhododendron was also common here, forming clots of colour high up in a Babylonian garden of Ferns, Orchids, Aroids and climbing plants.

All the trees were draped with long streamers of pale Lichen, which waved gently to and fro, like seaweed in a tideway. Their trunks were wrapped in Moss.

From the other side of the pass we had a fine view over the endless hill ranges which hedge in the Nam Tisang, one of the two rivers which combine to form the Mali-kha, or western branch of the Irrawaddy; but the plains of Hkamti were buried in the clouds.

However, we were now only nine marches from Fort Hertz, and I walked with buoyant step.

No sooner had we crossed the divide and entered upon the last long descent into Indo-Malaya, than the real climate began to assert itself. It rained. When we camped in the jungle that night fire-flies valsed round us, and insect life generally became active.

On November 9 we went down into the bowels of the sweltering valley. By the streams, within splash of the water, were plots of Impatiens, yellow-flowered and purple, and speckled; there were pink and white-flowered Begonias in flower also, and the gigantic Aeschynanthus grandiflora. Vegetation struggled and strove everywhere; even the leaves of the big trees were crusted with epiphyllous Lichens and Moss. The smooth trunks of the trees, buttressed at the base with radiating plank roots, shot straight up unbranched for sixty or seventy feet. Climbing Palms abounded, and tall Screw Pines, hoisted up on their flying buttress roots. The ground was strewn with fallen fruits, which germinated immediately, or provided food for army corps of grubs. Amongst them were recognisable the broad thin pods of a Bauhinia, the wheel-shaped schizocarps of an Illicium, Nutmegs (Myristica), cones of Michelia, at least six kinds of Acorn, Castanopsis, the winged seeds of Securidaca, and the nuts of various Dipterocarps, with their long, plume-like streamers.

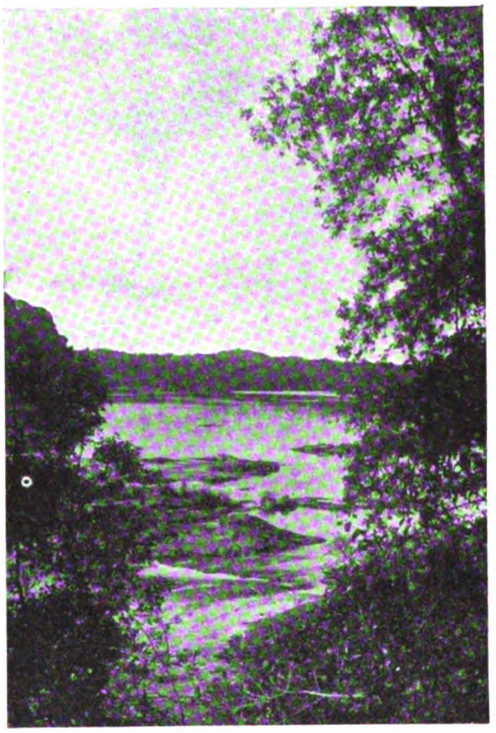

FIG. 106.—THE WESTERN BRANCH OF THE IRRAWADDY, NEAR HKAMTI LONG.

It rained and rained, and the path was an appalling quagmire. Crossing the streams, we picked up leeches, which are the nightmare of the Burmese jungle.

On November 11 we reached the Nam Tisang, and another village. It was four days since we had seen a village; it would be four days before we saw another; so we made a fuss over this one. The Nam Tisang is broad, placid, and at this season shallow. Here we saw endless seas of Bamboo, and wide plains covered with Elephant Grass, and divers Melastomaceae (Osbeckia spp.) and climbing Fern (Lygodium) and Bamboo Orchid.

After crossing yet another range at 6,000 feet altitude, we descended to the Nam Ti, which is the usual rocky jungle torrent. On this range I found Rhododendron vaccinioides in fruit, and collected seed of it. (K.W. 5545.) The seeds are curious—golden yellow, with appendages at each extremity like silken threads, instead of the usual wing. Unfortunately the Rhododendrons met with in this jungle are not likely to be very hardy; this applies only to the half-dozen species met with since leaving the Taron—namely, R. vaccinioides, R. indicum form, the epiphytic Maddenii, the Irroratum (R. facetum?) and the Stamineum.

The epiphytic Orchids at 5,000-6,000 feet were a fine sight, one of the commonest being a white and yellow Coelogyne. A beautiful chocolate Cypripedium was also seen in the forest. Unfortunately rain fell without ceasing and there was no view.

Amongst the forest trees here were numerous species of Garcinia, easily recognised by their milk-white or bright yellow latex (gamboge); several of them had been tapped for the purpose of obtaining this valuable pigment. Beneath one tree I found a quantity of cadmium yellow fruit, and being thirsty (and curious) ate some. Each was about the size of a Horsechestnut (fruit, not seed), and had a soft outer skin, not like the hard outer shell of Garcinia Mangostana (Mangosteen); the seed was inside.

Although the flavour was rather tart, it was quite a good fruit, and no bad effects followed from eating two. I enjoyed them, and indeed marvelled that no one had thought of cultivating them in India or Burma!

It is almost impossible to distinguish the trees in this jungle maze directly—especially in the winter. Recourse must be had to indirect methods. In the hills, an open ridge sometimes enables one to look down on the forest, whence, with the aid of field glasses, some trees may be recognised by their foliage, or habit, or flowers. Similarly the beds of rivers enable one to see tree Ferns, Pandanus, Palms and similar unmistakable types of vegetation. Birds, monkeys, and even insects may furnish valuable clues, though this method requires esoteric knowledge. Some species of Ficus are betrayed thus. Notched trunks from which latex has flowed are useful; better still are fallen trees, which bring down with them climbers otherwise inaccessible, as well as Orchids. But they are not abundant, and often do not fall, being held up by lianas. Flowers may sometimes be picked up; some species bear flowers and fruit at the same time. Fallen branches and cauliflory are invaluable for bringing both flowers and fruit within reach of the harassed collector. But by far the most generally useful and available key to the problem is furnished by the immense numbers of fallen fruits of all kinds which carpet the forest. From these one can at least be certain of the genus, and sometimes of the species.

Of several dozen species of fruit picked up, including, besides those already mentioned, the flattened one-seeded winged pod of a Derris, and the fruit of Sloanea (Tiliaceae), nothing was more astonishing than the cast-iron fruits of a Parinarium—the fleshless Plum of Indo-Malaya.

The thin curved, plate-like embryo is embedded in a shell of the toughest wood imaginable. It is like iron. The "stone"—for the fruit has a thin fleshy jacket—is two inches long, and an inch in circumference. It is rounded at the ends like a sausage. A heavy blow with a hammer just cracked, but did not break, one of these queer Plum stones.

The method of dispersal—for the species are well distributed—is not known. It has been suggested that the fruit, falling like a bullet, and hitting somebody on the head, causes a mild sensation; sufficient at any rate to prompt the victim to pick it up, examine it, and cast it idly aside. The only other method one can suggest—less romantic but possibly, more effective—is that it rolls down the steep hills. "Ah!" you say, "but how did it get up the hills?"

If the method of dispersal is an unsolved problem, the mode of germination appears an insoluble one—short of actual trial. How the embryo ever gets through that half inch armour-plate is a mystery.

After crossing the Nam Ti we marched through the foot hills and in the evening the Hkamti plain burst suddenly upon us. We stood on a ridge which runs out in a long spur to melt down into the plain below. There were sheets of old gold, where the ripening paddy caught the sun, and a broad blade of silver for the western Irrawaddy itself. For miles and miles the plain spread away to more distant horizons, where the mountains began again.—*F. Kingdon Ward.*

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17, July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, March 10, 24, April 7, 21, May 5, June 2, 23, July 7, 21, August 18, September 1, 29, October 20, and November 3, 1923.

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NOTES FROM GLASNEVIN

It is many years since we had so much autumn colour at Glasnevin; the display lasted for a month or more and was a source of much enjoyment to visitors. Nearly every deciduous tree and shrub was more than usually attractive in some way, and I find it very difficult to particularise. Among those specially noted, the following are worthy of mention:—Acer platanoides Reitenbachii and A. Schwedleri, bronzy red; A. nikoënse and A. griseum, scarlet; Cercidiphyllum japonicum, golden yellow and crimson; Fothergilla major and F. monticola, glowing scarlet; F. Gardeni, golden yellow; Berberis Thunbergii, bright crimson; Euonymus americanus, cerise pink: and E. atropurpureus, coppery red. Many other shrubs were almost equally good, especially among the vast number of Barberries, named and under number, and now the fruits of Berberis aggregata, B. Prattii, B. brevipaniculata, B. Wilsonae, B. parviflora, B Stapfiana, and others are much in evidence, and will keep the display going for some time.

There is not quite so lavish a display of fruits as usual this year, but Cotoneasters are attractive, particularly C. frigida, C. rugosa salicifolia, C. applanata, and the older species, C. buxifolia and C. rotundifolia. The hips of Rosa Davidii and some of its forms and those of R. Moyesii are of great beauty. Symphoricarpus racemosus laevigatus with its ropes of white fruits is also very effective.

The comparatively mild weather all through October was favourable to many late-flowering, outdoor plants, with the result that we had, in conjunction with the autumn foliage of trees and shrubs, a good display of blossom. One of the most satisfactory plants in this respect is Nerine Bowdenii, of which several forms or hybrids have been planted in the borders adjoining the plant houses. The first plant put out has increased enormously, and this year had thirty-four umbels; others, such as pallida and Exonia planted later, promise to do equally well. No special protection is given to these Nerines; they are planted under the same conditions as the hardy Crinums, which gave a good display in September. The Kaffir Lily, Schizostylis coccinea, and the beautiful pink variety called Mrs. Hegarty, are both flowering freely now in the first week of November. Primula capitata has flowered abundantly all through the autumn, especially the robust form known as P. Mooreana. Crocuses worthy of mention are C. speciosus, C. zonatus, C. pulchellus, C. hadriaticus chrysobelonicus, C. graecus and C. medius. Colchicums flowered profusely, especially noteworthy being C. speciosum, C. speciosum album, C. giganteum, C. Bornmuelleri, C. autumnale plenum, and C. autumnale album plenum, the last-named only fading now.

Indoor Plants.

The Camellia House, so-called because of a number of Camellias grown in the centre bed, together with Rhododendrons and Azaleas, is chiefly given up to batches of popular flowering plants in season. At present Nerines are the outstanding feature. These have long been favourites at Glasnevin, many good hybrids having been raised by Sir Frederick Moore; the collection has also been much improved by the addition of some of the best forms from the collections of the late Mr. W. E. Gumbleton and Mr. H. J. Elwes. A group of Impatiens Oliveri finds many admirers and Plectranthus Mahoni, if not brilliant, is not without interest and provides variety. Cylamens, Primula obconica, Salvia splendens, Salvia farinacea, Balsams and Cinerarias give the bright colour so attractive to the average visitor at this season.

Orchids in bloom are again becoming more plentiful after a more or less quiet time during the late summer and autumn. Among the more showy kinds now in flower may be mentioned Miltonia Leopoldii, Maxillaria grandiflora, Dendrobium Phalaenopsis, Coelogyne Mooreana, and a fine form of Cattleya labiata acquired through Messrs. Protheroe and Morris some years ago, and which is carrying two spikes each of four large, finely coloured flowers; Cattleya×Browniae, C. Iris, C. Bowringiana splendens Cyphers' var., C. Ariel coerulea, L.-C. Canhamiae × Hardyana a very beautifully coloured hybrid presented to the collection by Baron Schröder; Odontoglossum Uro-Skinneri, Vanda coerulea, the latter a plant sent home from Burma by Lady Wheeler-Cuffe; Odontoglossum grande and Epidendrum vitellinum. Among others less brilliant in colour but equally interesting, the following are in flower:—Oncidium incurvum album, Dendrobium Coelogyne, Tainia sessiliflora, Cirrhopetalum gamosepalum, C. ornatissimum, C. Micholitzii, Bulbophyllum occultum, B. Mannii, B. Lobbii, Cochlioda vulcanica, Masdevallia muscosa, and many others of the Chimaera section. *J. W. Besant.*

FIG. 107.—SPECIMEN OF ASIMINA TRILOBA IN THE CAMBRIDGE BOTANIC GARDENS.

PLANTS NEW OR NOTEWORTHY.

ASIMINA TRILOBA.

One of the trees of special interest growing in this garden is Asimina triloba, the American Papaw. The specimen in question is probably the finest in the country, being over 16 feet high and 21 feet through.

The chief interest of this plant lies in the fact that it is the only hardy species of Anonaceae—usually a tropical family; it is the Custard Apple, or Papaw of the Southern, Middle and Western United States of America, and is allied to the Custard Apple and Soursop of the West Indies, although widely different from the true Papaw (Carica Papaya). The usually solitary, shortly-peduncled, drooping flowers with thick, recurved, densely downy flower stalk, are borne during May and June on the previous year's growth, and are about two inches in diameter, yellowish green on first opening, turning to a lurid purple later; they are deeply reticulate and rugose, the six petals being broadly ovate and increasing in length after opening, the three outer ones being the larger, spreading and recurved, while the deciduous sepals are ovate, obtuse and concave (see Fig. 105).

Apart from its interesting flowers, it is quite handsome as a foliage plant; the leaves (which give off rather an unpleasant odour when crushed) are obovate or acuminate, slightly pubescent beneath; the young shoots and leaves are covered with rusty down at first, but soon become glabrous.

The fruits are somewhat bottle-shaped, from three to five inches long, and contain, when ripe, a sweet, yellow, edible pulp.

So far as I am aware no fruit has ever developed on the tree at Cambridge, although it flowers freely in most years. The generic name seems to have been derived from Assiminier, the name applied to it by the early French Colonists of America, and although the plant was introduced from the south-eastern United States so long ago as 1736, it has never become common in gardens; nevertheless, it is well worth growing for its interest, as well as its early flowers and handsome foliage.

Asimina triloba is slow growing when young, but develops into a shapely shrub, or small tree (see Fig. 107). It apparently abounds along the banks of streams in rich soil in its native habitat, and that is the position that suits it in this country, the tree at the Cambridge Botanic Gardens growing beside the pond, and this accounts for the tree doing so well.

Propagation is effected by seeds, when obtainable, or by layers, and as suckers are produced whenever the roots are damaged it would appear that root cuttings offer a ready means of increase. *F. G. Preston, Botanic Gardens, Cambridge.*

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SOIL ACIDITY.

THE following observations on the subject of soil acidity may be of value to gardeners interested in soil problems, and, incidentally, may serve to make clear the mode of use and significance of expressions such as "hydrogen-ion concentration," used when soil problems in relation to the growth of plants (see *Gard. Chron.*, Oct. 31) are under discussion.

In accordance with what is known as the "ionization" theory, the view is generally accepted that many chemical compounds, when dissolved in water, break up or "dissociate" into electrically charged particles called *ions*. These may consist of single atoms or of groups of atoms.

Of inorganic compounds—acids, bases and salts—many are almost completely, and others only partially, ionized when dissolved in water; of organic compounds a few, especially acids, are markedly, others slightly, and a few not appreciably, ionized. Water (H_2O) itself dissociates into two kinds of ions—hydrogen-ions (H^+) that carry a positive charge of electricity, and hydroxyl ions (OH^-)—each of which carries a negative charge. Acids, when ionized, yield hydrogen-ions and another kind of ion representing the balance of their constituents; alkalies yield hydroxyl-ions and another ion, consisting in each case of the remainder of the compound.

Observation has shown that the properties of substances commonly classified as acids and alkalies are directly connected with the presence of hydrogen-ions and hydroxyl-ions in their respective solutions. Reddening of blue litmus, the most widely known test for acidity, is produced by hydrogen-ion, and hydrogen ions play an important part in most of the chemical changes in which acids take part. The amount of hydrogen-ion present in a solution is often referred to as the *hydrogen-ion concentration*, and it is evident that this must be a highly important feature of the solution of any acid substance.

Now, the water existing in soil, which, in an ordinary well-drained soil, is present as a continuous film around the soil particles, does not differ in any essential respect from ordinary water. Moreover, all soils contain substances, both organic and inorganic, that are soluble in the soil water, and when dissolved they become ionized to a greater or lesser degree. Some of these substances yield hydrogen-ions in solution, and so give rise to a definite hydrogen-ion concentration in the soil water.

In studying the effect of soil reaction upon the growth of plants, there is good reason to believe that it is of much greater importance to learn the hydrogen-ion concentration of the soil solution than to know the actual quantity of acid which is present at any given moment.

An example may serve to make this statement clearer:—

The usual method of estimating "total acidity" is by "titration," *i.e.*, by the addition of an alkaline solution of known concentration in sufficient quantity to neutralise exactly the acid originally present. Measured in this way, two acids, *e.g.*, citric acid and nitric acid, of the same strength require the same amounts of alkali to produce neutrality in the solutions, *i.e.*, they contain the same total amounts of acid.

The properties of the two solutions are, however, very different; citric acid being what is known as a "weak" acid, and nitric acid a "strong" acid. As already pointed out, the characteristic "acid" properties depend upon the degree of ionization, *i.e.*, upon the proportion of hydrogen ions present. Citric acid, therefore, is a "weak" acid because it ionizes only slightly; nitric acid a "strong" acid because it is almost completely ionized in solution.

Thus, although the total amounts of acid may be the same, hydrogen-ion concentration at any given moment is very much less in the case of citric acid because the greater part is present in the un-ionized condition.

It is known that the effects of acid on the growth of the lower organisms—bacteria, moulds, etc.—is due to the hydrogen-ions present, and there is every reason to believe that the effect of acids on the higher plants is likewise due to hydrogen-ion concentration.

The estimation of hydrogen-ion concentration can be carried out with great precision by means of delicate and elaborate electrical methods. A simpler method, giving results of sufficient accuracy for comparative purposes, is provided by the use of very sensitive colour indicators whose relation to hydrogen-ion concentration has been previously determined.

By the use of this simple colorimetric method, as it is called, a large number of field observations on soil reaction have been made and recorded. A small quantity of soil is either detached from the roots of a pulled-up plant or taken from a known depth, shaken up with a little of the purest water available in a bottle or in a tube and allowed to settle. After decanting the clear liquid into another tube, a few drops of the appropriate indicator are added, and the hydrogen-ion concentration estimated by comparison of the colour with that of the same indicator in a series of "standard" tubes containing solutions of known hydrogen-ion concentration.

Used carefully, the colorimetric method is capable of giving, even under field conditions, definite information as to soil reaction, and thus of providing data as to possible correlation between the distribution of species in different soils in Nature and the hydrogen-ion concentration of the soils in which they are growing.

It must be emphasised, however, that the problems connected with the origin of soil acidity and its effects on plant growth, involve the study of a number of extremely complex phenomena.

The present position has been summarised by Sir John Russell* as follows:—

"The existence of a hydrogen-ion concentration greater than that of water is satisfactory evidence of the presence of true acids in soils. The measurements at present throw no light on the nature or quantity of the acids. . . . They may adversely affect plants or micro-organisms by reason of their strength or their quantity. On the other hand, the acids themselves may be without serious action. The special properties of an 'acid soil' may result from a lack of basicity, whereby:

"1. Special absorption relationships appear;

"2. Lack of calcium may affect plants or micro-organisms;

"3. Certain toxic substances, *e.g.*, metallic salts may remain effective, which in the presence of lime would be thrown out of action.

"4. Clay may become deflocculated, and therefore assume a sticky condition unfavourable to plant growth." *M. C. R.*

* Russell, E. J. *Soil Conditions and Plant Growth*, 1921, p. 113.

MARKET FRUIT GARDEN.

DURING the thirteen years in which records of the rainfall have been kept at my place there has never been such a wet October. There were only eight days without rain, the total for the month amounting to 7.22 inches. The ground, of course, was saturated, and it was difficult to find useful work for the men. Even ploughing was often impossible, so that preparations for planting are delayed. Fortunately, all the Apples were picked before the month was far advanced, and so escaped the gales. As there are indications that the fruit will not keep well, most of it has already been sent to market. Thus a bad season is practically done with, and one's thoughts turn hopefully to preparations for the next.

WHERE TO ECONOMISE.

After such a poor fruit harvest it is necessary to economise, and the question is: In what direction can it be done with least prejudice to next year's prospects? Personally, I have no hesitation in cutting out all winter spraying. There is no certainty that this does anything beyond cleansing the trees of mossy growth, and most of my orchards are clean enough from the work of recent years. Then a good deal of economy in manuring is possible, though one cannot feel quite so happy about this. Manures have been used freely in recent years, and all the trees of bearing age received a dressing of "bud-feeding" fertilisers in August, so they ought to manage without organic manure this winter, particularly as they have not carried a heavy crop during the past season, and in most cases have made plenty of growth. Land that is to be planted with trees and bushes ought to have been dressed with farmyard manure before ploughing; but I shall have to be content with the cheaper method of putting a mulch round each tree after planting.

REPLACING BLACK CURRANTS.

To replace the Black Currants grubbed on account of reversion, I am getting a fresh stock of bushes from Norfolk, where the crop is grown with such success. Most of them are of the old French variety, which is popular in that district; but I am going to plant a small field with Boskoop Giant. This variety had been given up on account of its susceptibility to bud mite, but nothing tried since has equalled it for size of bush and crop on land which is not really well suited for Black Currants. Growers tell me that it now reverts badly, but I fancy all varieties do that.

OFFSET IMPLEMENTS.

The need for economy in labour since the war has stimulated the invention of implements for use in fruit plantations. The plantation plough, with head and handles that can be set off at an angle, so that the horses and man can walk clear of the trees, is now quite an old friend. A cultivator working on the same principle is new, however. I have one, and find it quite easy to manage once the horseman's prejudice against anything new has been overcome. This cultivator has a disc at the rear of the tines, which helps to keep it straight; and there is no difficulty in running it close up to the stems of low half-standards, or even bushes with a short leg.

Another useful implement used by many growers is a spring-tined cultivator with a disc rudder attachment. I have seen this used with great success under quite low bushes, and no implement could be closer to the ground. The object of such implements, of course, is to reduce the work of digging and hoeing to a minimum, and so save expense. Personally, I do not care for ploughing amongst fruit trees more than is absolutely necessary, for fear of injury to the roots. If there is a dry spell in the autumn, in which the ground can be got clean by surface cultivation, there is no need to plough; but when the autumn is wet, like the present one, there is no chance of cleaning operations, and the land is soon green with weeds. There is then nothing for it but to dig or plough. I think it is best to leave the weeds alone for the winter, as they act as a cover crop and prevent the washing away of soluble plant foods, which are returned to the soil, with a good deal of added organic material, if the weeds are turned under the ground in early spring.

SILVER-LEAF DISEASE.

I have always imagined that I was bound, under the Silver-Leaf Order, to cut out all Plum wood carrying silvered foliage, and this has been done every year before the specified date. It appears, however, that growers are not obliged to do this. They are only ordered to cut out and destroy dead wood. This is, of course, sound common sense, because it is only on dead wood that the fungus can fructify and become a danger. In the characteristic silver stage it does no harm, and growers can please themselves as to whether they allow living silvered branches to remain or not. They must decide for themselves which is the wiser policy. Messrs. F. T. Brooks and H. H. Storey, whose research work on this disease is well known, state that it is difficult to give explicit advice on this point. With Apples, in which the rate of

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natural recovery is high, it is, they consider, generally inadvisable to remove silvered branches unless they are actually beginning to die back. With Plums, the advisability of cutting silvered branches away depends entirely upon circumstances. If certain branches have just begun to be affected, these can often be removed with advantage to the rest of the tree, provided that the wood actually infected is cut away. If, however, the tree is generally silvered, the fungus probably exists in the trunk, where it cannot be excised, and the only sound policy is to wait until the tree begins to die back, or alternatively to recover.

Silvered branches often bear much fruit, and there is no danger of infection from them until they die back. Anything which promotes the growth and general well-being of the tree is considered to encourage natural recovery from silver-leaf, which means that drainage, soil cultivation, and manuring must all receive attention This, with the removal and destruction of dead wood and the prompt dressing of all wounds to prevent infection, is the most we can do at present against this disease. As a dressing, ordinary coal tar is probably best. If applied carefully, it does little or no harm to the surrounding bark. Stockholm tar has been found to be of little use against silver-leaf.

Red Apples.

If there are any pomologists at work in this country with the aim of giving us new Apples expressly for market culture, they ought to make colour the first consideration. It is all very well to talk about educating the public to appreciate flavour disguised under an unattractive skin. The discriminating people who can be appealed to in that way are too few to be worth catering for. In order to compete with the highly coloured imported fruit, we must have red Apples. The only Apple which people buy freely for its flavour is Cox's Orange Pippin. The public do seem to have learned that this cannot be beaten for quality. Apart from this variety, it is colour that scores. There is never the least trouble in selling red dessert Apples at a good price. I have a few trees of Fearn's Pippin which were loaded with fruit this year. This has no flavour except acidity, but it has a brilliant colour. The salesman returned me 10s. per half-bushel for these Apples, one of the best returns I have had this year. Most of the new Apples that are introduced have Cox's Orange Pippin as one parent. The object of most raisers is evidently flavour and quality. Let them aim at colour instead, and I think they might give us some new Apples worth growing for market to compete with imported fruit. Worcester Pearmain naturally suggests itself as one parent, and there are several other red Apples which might be crossed with it. Gascoyne's Scarlet, Ben's Red, Devonshire Quarrenden, Baumann's Reinette, Paroquet, Reinette Rouge Etoilée, and possibly Newton Wonder are some that occur readily to the mind.

Stakes for Fruit Trees.

The wet season (in my district) and high winds have proved very trying to the stakes supporting young trees. Many have had to be substituted by fresh ones. There is a great difference in the lasting qualities of stakes. By far the most satisfactory that I have tried are made from Spanish Chestnut poles, which abound in local woods. But even amongst these there are differences which can hardly be accounted for. In one plantation the stakes lasted until the trees had long outgrown the need for them, and even then could hardly be broken off. In other cases they have needed replacing after a few years. I am told that it depends on the rate of growth of the poles. The best are those that grow slowly on somewhat poor land, and are consequently hard and composed largely of "heart wood." One thing I do know, and that is that creosote is a far better dressing than tar for the points of stakes, giving considerably longer life. The dressed portion should extend above the ground level, for it is just at the surface where the stake is most likely to rot.

A Look Round.

A walk round the farm, now that the trees have been cleared of fruit, makes one hopeful for next season. The trees have made good recovery from the severe attacks of pests and diseases experienced in the spring. Most of them have made plenty of growth, and the leaves are hanging on late. There may, of course, be some doubt as to whether the wood has ripened well, for with me it has been a wet season throughout; there has been none of the drought experienced in many districts. There is a lot of dead wood, due to brown rot, to be cut out of Plums of some varieties, but they have made no lack of new shoots to replace it.

Fruit buds on Apple, Plum, and Pear trees show up conspicuously. Young trees have made plenty of good growth, and are a pleasure to prune. Bush fruits also are full of strong growth, notably Black Currants. *Market Grower.*

FRUIT REGISTER.

APPLE LODDINGTON PEARMAIN.

At the meeting of the Royal Horticultural Society on the 30th ult. Mr. J. George Woodward brought before the notice of the Fruit and Vegetable Committee a little-known Apple named Loddington Pearmain, which is illustrated in Fig. 108. Mr. Woodward stated that he received grafts from which his trees were raised from Mr. Fred Smith, of Loddington, Linton, nr. Maidstone, and he named the variety Loddington from the place of its origin. Mr. Smith was not able to give the parentage, or, indeed, state from whence he had derived this Apple, but it had, in Mr. Woodward's opinion, sufficient merit to warrant its perpetuation, and he raised some trees which are still in existence at Barham Court. Beyond these trees there are, we believe, but few others in cultivation. That so high an authority on fruit as Mr. Woodward should consider the variety worthy of more extended cultivation is high testimony of the merits of this Apple, which might be considered a late Worcester Pearmain, for it resembles that variety in shape and has high colour, but the base of the fruit is marked with a considerable amount of russet. The tree is of erect habit and produces very large leaves. Mr. Woodward informs us that the branches form plenty of spurs and that the cropping is most regular. The size—typical specimens are illustrated—is suitable for dessert purposes, being neither too large nor too small.

FIG. 108.—APPLE LODDINGTON PEARMAIN.

This Apple keeps in good condition until the end of January, but it is best eaten as soon as it is gathered from the tree. Those who enjoy a soft-fleshed Apple will find this variety very palatable just now, but from specimens before us we are inclined to think that kept much longer the flesh would be mealy. The core is of rather small size.

Although Loddington Pearmain will not rank amongst the finest of late dessert Apples, it will appeal to those who desire an Apple of similar size, shape and colour to follow Worcester Pearmain, a variety which is a great favourite with the general public; its fine red colour should satisfy *Market Grower* in his appeal for new market varieties with rich colouring.

APPLE BUSHY GROVE.

ALTHOUGH it was stated in our report of the Royal Horticultural Society's meeting on the 31st ult. that this Apple was included in the trial of commercial varieties at Wisley, we understand that this is not correct.

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HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Floral Decorations.—I was pleased to read the note by your correspondent, H. W. Henning (p. 236), on the subject of floral decorations as it applies to gardeners in private service. Mr. Henning is quite right when he states that apparently the only way for young gardeners of the present day to become efficient in this very necessary art, is to take service for a time with some good firm of florists. There is, however, one other source from which a keen and observant young man should be able to gain an insight into at least one branch of this art, namely, table decoration, and that source is horticultural exhibitions. And yet, who would contend that the style of table decorations seen at exhibitions is of any real practical value for the decorator in private service? Excluding the big National Societies, such as the National Rose and Chrysanthemum Societies, I have seen first prize exhibits in these decorative classes which, could they have been removed and placed in some well-appointed dining-room, would look perfectly incongruous, both as regards the quality and diversity of material used, and also the receptacles in which they were arranged. Who, for example, would tolerate the now very antiquated epergne in which a mixture of three or four varieties of flowers are often arranged at shows, and draped with various trailing subjects, as a centre-piece to their dinner table? Such schemes may appear very pleasing to the uninitiated, but surely they would not appeal to those of artistic tastes. Such, at least, is my opinion, and I speak from a fairly wide experience, gained ofttimes through the sacrifice of many hours of leisure. My object in writing is because I feel that horticultural societies might well endeavour to encourage something more practical and of more educational value in their decorative classes; a point, by the way, that I have often insisted on in committee. It would be interesting and instructive to know the views of other practical men on this subject. *Practical.*

Aconitum Fischeri.—In my note on autumnal flowers (page 248) I write in error of Aconitum Wilsonii, whereas the species I meant to indicate was A. Fischeri, Reichb. The two species flower simultaneously, but the latter is more profuse in bloom. *Herbert Maxwell, Monreith.*

Holland Park Hall Show.—I have not been surprised to read the correspondence from exhibitors and intending exhibitors at the autumn fruit and vegetable exhibition of the R.H.S. on October 2, 3 and 4. I agree with Mr. Carpenter (p. 266) when he states that he is voicing the opinions of many, in thanking you for your article in *Gard. Chron.*, October 13, which has resulted in letters from several well-known exhibitors. I had intended exhibiting in at least five Grape classes had it not been for the earlier closing of the date for entries. I wrote to the Secretary of the R.H.S. on September 15 for a schedule; instead of a schedule I received a postcard, stating that entries for the autumn fruit show closed on August 30. Many will, I am sure, agree with me that to close the entries five weeks before the date of exhibition is ridiculous. Had I entered the collection of nine dishes of fruit on August 30 I should have been obliged to have cancelled my entry, owing to the unfavourable weather we experienced during September for the keeping and finishing of my fruit. I have heard from several exhibitors of former years who expressed disgust and surprise at the early closing of the entries. The disadvantages and inconveniences of the Holland Park Hall are not a few, and unless a more suitable hall can be found for the holding of the R.H.S. general autumn exhibition, I am certain exhibitors and visitors would prefer an exhibition of autumn fruits, such as we have had in former years, at the R.H.S. Hall, Vincent Square. *J. Lock, Oatlands Gardens, Weybridge.*

SOCIETIES.

SOCIETE NATIONALE D'HORTICULTURE DE FRANCE.

The autumn exhibition of the above Society was held from October 25 to November 4, in the usual place, namely at Cour la Reine, which, by the way, is now scarcely large enough to accommodate the numerous visitors. The exhibition was favoured by fine weather, and was a great success.

The Grand Prix d'Honneur, given by the President of the Republic, was awarded to MM. Salomon, of Thomery, for their exhibit of Grapes; it would be difficult to imagine anything finer than the fruits shown by this firm.

Novelties.

Numerous Certificates of Merit were awarded for new Chrysanthemums—no fewer than forty-five, of which nineteen were won by MM. Vilmorin, and ten by Mme. Martin, of Champigny. Some varieties which should prove of value are Le Gévaudan, pink; La Limagne, white; Le Sénonais, gold and brown (all these from MM. Vilmorin, Andrieux et Cie.); Chrysanthémiste Sadarnac, pink; Gaston Clément, brown with gold reverse; Ministre Chéron, reddish brown (these from Mme. Martin); Tapis Violet and Phare, pink with large petals, known as "market varieties," raised by M. Morin, of La Rochelle; Mme. Jeanne Serre, white shaded with pink (M. Féron); Petit Paul, a pale pink sport from Undaunted (M Laveau); and Yvette Lochot, pure white (M. Lochot).

Three Certificates of Merit were awarded for Carnations, all to MM. Idot et Durieux, of Croissy sur Seine, for the varieties Mme. Albert Henriot (bright pink), Mme. Paul Lécolier (bright salmon), and Sénégalais (garnet red). A Certificate of Merit was also awarded to MM. Vacherot and Lecoufle for Nephrolepis Maurice Vacherot, a graceful Fern with fronds delicately curled.

MM. Lize, of Nantes, showed a new Aralia, A. Lizei, with handsome foliage, recalling that of a large-leaved Ivy.

Chrysanthemums.

MM. Vilmorin, Andrieux et Cie., of Paris, had the largest non-competitive exhibit of Chrysanthemums (see Fig. 109), occupying all the central portion of the large tent, and brightened by flower-covered arches. On each side were groups of pot-plants in a number of varieties, some in ordinary form, some trained as pyramids, and some (single-flowering kinds) cones. In the centre were grouped the unnamed novelties presented for award Among the varieties best represented in the exhibit were Petite Elise, white; La Beauce, yellow, Le Médoc, pink; G. Laplace, salmon pink; Admiral Beatty, pinkish white, and Louisa Pockett.

The firm of M. Truffaut, of Versailles, arranged half a dozen immense conical erections, over 12 feet high, each composed of a considerable number of plants of the same variety, for example, Ami Paul Labbé, russet; R. C. Pulling, yellow; Captain Fox, red with russet centre; Mrs. Gilbert Drabble, white; and Undaunted, pink with paler reverse; the whole was composed of flowers of excellent cultivation, and very neatly set up.

The Horticultural College of the City of Paris (Professor M. Pinelle) showed a very fine set, some cultivated in the ordinary way, and some disbudded, including La Beauce; Sharpe's Beauty, russet; Pluie d'Argent, a fine white border variety; and Colonel Linel, reddish brown with a yellow centre. From the firm of Ferard, of Paris, came a large and very fine group of single varieties, grouped by colour in well-arranged masses, and including Caennais, pink; Orléanais, yellow; Poitevin, pale pink; and Robert Laumonnier, garnet red.

M. Labbe, of Thiberville (Eure), sent cut flowers of very large size, among which were James Stredwick, yellowish pink; Baby Guy, pure white; and General Castelnau, pink M. Lochot, of Pierrefitte, had Mrs. G. Monro, deep red, and Majestic and Rayon d'Or, both yellow. M. Feron, of Garches, exhibited some enormous blooms of R. C. Pulling, Ami Paul Labbé, Mrs. Drabble, Edith Cavell, and others; while MM. Leveque sent from their nurseries at Ivry a fine lot of plants in pots, comprising René Piot, white; Emile Rodrique, white with greenish centre; and Président Poincaré, pinkish white. MM. Nonin, Châtillon sous Bagneux, showed Président Millerand, brown, with paler reverse; Daily Mail, yellow; and W. Turner, white.

Sundry Plants and Flowers.

As there had been no frost to spoil them, MM. Cayeux et Le Clerc were able to show a very fine group of cut Dahlias, comprising the best up-to-date varieties; the new decorative kinds, with rigid stems showing well above the foliage, included Mme. Victor Cayeux, bronzed yellow; Mme. Sans-Gêne, pink; Augustinus, pink; Florise, yellow; Cav Clerc, bronzed yellow; Marc Aureau, a fine pink; and the Cactus varieties Ibis, orange, and Colibri, pink tipped with white.

MM. Nonin, of Châtillon sous Bagneux, also showed a fine collection of Dahlias, including Mme. Diesny, lilac-pink; Porthos, mauve-violet; Orange Bowen, brownish yellow; and Gaston Clément, bright red (a Cactus variety).

There were several interesting groups of Carnations, notably those of MM. Idot et Durieux, of Croissy sur Seine, who showed Souvenir du Capitaine Thuilleaux, red carmine; Verdun, garnet; Mme. Alexis Idot, salmon pink; of M. Lochot, Pierrefitte, who had Alsace and Président Viger, both pink; and of MM. Vacherot et Lecoufle, of Boissy St. Léger, who showed Marie Lecoufle, mauve-pink; Marie-Louise, pure white, and M. Jeannet, deep garnet red.

M. Aubert-Maille, of Tours, had a fine exhibit of Cyclamens; and the usual specialists in tuberous Begonias, namely, MM. Billard, du Vésinet, and Vallerand, of Taverny, exhibited excellent Begonias in brilliant colours.

There were a number of first-class exhibits of Roses, notably by MM. Leveque et Fils, of Ivry; M. Honore Defresne, of Vitry; and MM. Nonin, of Châtillon sous Bagneux, the last showing the beautiful new **Rose America.**

Greenhouse foliage plants were excellently shown by M. Cuny, head gardener at the Luxembourg Gardens, in Paris; his group comprised beautifully cultivated specimens of Cyclanthera bipartita, Philodendron Soumi, Sphoerogyne, Cinnamonum, Anthurium cristallinum, Dracaena Rotheana, Heliconia illustris, Codiaeum B. Comte, and C. aurea Regeli.

M. Weiss, of St. Cloud, arranged a pretty "Japanese" scene, in which Thuya obtusa, fruiting Skimmia, Picea excelsa pendula, and other suitable plants were used effectively; and M. E. Thiebaut, of Paris, had made a pleasing little rock garden.

As in former years, the Orchid Committee of the Society had combined, and showed a collective exhibit, in which were particularly noticeable Brasso-Cattleya l'Yser, with pink labellum finely fimbriate (Maron); B.-C. Souvenir de Maneyrol, deep pink labellum (Maron); B.-C. Mirabeau, deep pink, with paler divisions (Maron); Cattleya Nankin, yellow, with pink-bordered labellum (Maron); C. Fabia × aurea, a beautiful deep red (Dr. Gratiot); and Brasso-Cattleya Marguerite Fournier × Austerlitz, with deep red labellum.

The Julien Potin Cup for the finest Orchid shown was awarded to Laelio-Cattleya Carmencita var. Saint James (garnet-red labellum, chamois-yellow segments) shown by M. Perrin, of Clamart. M. Bert, of Bois-colombes, exhibited the fine Cattleya Marie Bert, with pink labellum edged with white and white petals. There was an excellent display of Cypripediums from the houses of the Luxembourg gardens, including C. Abel Chatenay, C. G. Buttel, and C. Mme. Albert Février.

Fruits and Vegetables.

The exhibits of fruits were numerous and very good As already mentioned, the Grand Prix d'Honneur was won by the firm of Salomon for Grapes, exhibit including such

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varieties as Alphonse Lavallée, Alicante, Muscat of Alexandria, Angelino, and Cornichon Blanc.

Other important exhibits were those of MM. CROUX ET FILS, of Châtenay; MM. NOMBLOT, of Bourg-la-Reine; MM. MOSER, of Versailles; and MM. CHAUFFOUR, also of Versailles. Among the trade exhibits of commercial varieties, perhaps the most important was that of the MONTREUIL HORTICULTURAL SOCIETY, including enormous fruits of Pears Doyenné du Comice, Beurré Clairgeau, Beurré Diel, Passe-Crassane, Olivier de Serres, and Doyenné d'Hiver; Apples Calville Blanc; and Apples Api, Belle de Pontoise and Grand Alexandre decorated with various inscriptions.

The students of the Arboricultural Course at the Luxembourg Gardens sent an interesting exhibit, and so did the growers' association at Thomery, who showed a fine lot of Grapes Chasselas de Fontainebleau. M. DURAND, of Bagnolet, showed dessert fruits, including Apple Api d'été, Pear Doyenné du Comice, and Peach Salway; and M. GERMAIN, formerly an actor at the Palais Royal Theatre, had some enormous fruits, notably two Pears of the variety Belle Angevine, from the same cluster, which weighed together over eight pounds.

Vegetables were chiefly represented by an important group from the firm of VILMORIN, which was very ornamental in the diversity and beauty of the products composing it. There were baskets of Cauliflowers, diamond-shaped displays of Chicory, and Savoy Cabbages bordered with Chili, Pimento, etc., in addition to several Cucurbits—Gourds of Touraine, Mammoth Pumpkins, and Vegetable Marrows, one of the last measuring more than a yard and a half in length.

MM. TRUFFAUT, of Versailles, also showed a fine collection of vegetables, decorated with Chili Beets and fruits of Physalis Franchetii, and including some giant Potatos. The HORTICULTURAL COLLEGE at Igny showed a varied collection of very fine vegetables, notably the pink Malaga Batata; and M. PICARD, of Courville (Eure et Loire), had an interesting display of Colocynths of highly ornamental (spotted, warted, and striped) varieties.

Trained fruit trees, a Parisian speciality, were well to the fore. MM. NOMBLOT, of Bourg la Reine; MM. CROUX, of Châtenay; MM. MOSER, of Versailles; and MM. CHAUFFOUR, also of Versailles; all showed excellently trained trees in every variety of shape and form. Among the exhibits of ornamental trees and shrubs, the most notable were those of M. LECOLIER, of La Celle Saint-Cloud; M. THUILLEAUX, also of La Celle Saint-Cloud; and M. MARTIN-LECOINTE, of Louveciennes; some fine specimens of Cupressus Lawsoniana Gloire de Boskoop, Picea Kosteri, Cotoneaster Franchetii, Abies Pinsapo pendula, Euonymus radicans Silver Gem, Ilex Aquifolium marginata alba, and Taxus baccata elegantissima were noted. *A. M.*

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE monthly meeting of this society was held in the R.H.S. Hall on Monday, November 12, Mr. T. R. Butler presiding. Six new members were elected.

Sir Wm. Lawrence, Bt., notified his intention of becoming an honorary life member, while also Messrs. John Russell, Ltd., and Mr. H. G. Dick have become honorary members. Two members withdrew interest from their deposit accounts amounting to £4 13s. 7d., and four members over the age of 70 years withdrew £140, which still leaves one member with over £100 to his credit. The sum of £27 12s. 11d. was passed for payment to the nominee of one deceased member.

Dental and surgical grants were made to four members, amounting to £10 3s. 3d., and the applications of eight other members were discussed. The sick pay for the month on the ordinary side amounted to £57 18s. 11d., on the State section to £51 9s. 6d., and maternity claims to £12. The Treasurer stated he had a balance in hand of £1,072 15s. 2d.

ROYAL HORTICULTURAL.

NOVEMBER 13.—On the occasion of the meeting held at Vincent Square, Westminster, on the above date, there was a bright exhibition, but the hall was not so well filled with exhibits as on recent occasions. Chrysanthemums, Carnations, Orchids, dwarf Conifers, Violets, Grapes and Apples were the principal features. Novelties were few in number and the awards by the Floral Committee were made exclusively to florists' varieties of the Chrysanthemum.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Sir F. W. Moore, Messrs. Jas. O'Brien (Hon. Secretary), Gurney Wilson (Assistant Secretary), R. Brooman White, C. J. Lucas, Arthur Dye, F. K. Sander, H. H. Smith, H. G. Alexander, C. H. Curtis, H. T. Pitt, W. J. Kaye, Richard G. Thwaites, J. Wilson Potter, and Stuart H. Low.

A Silver-Gilt Lindley Medal was awarded to Odontoglossum Purple Emperor (The Czar × Dusky Monarch), from H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood). The plant shown was the original specimen which had previously secured a First-Class Certificate, but which a large majority of the Committee considered such a superb hybrid as to be worthy of an exceptional award. The flowers are of perfect shape and of the largest type of Odontoglossum. They are coloured dark velvety purple with a narrow but distinct fimbriated white margin, the front of the labellum being white.

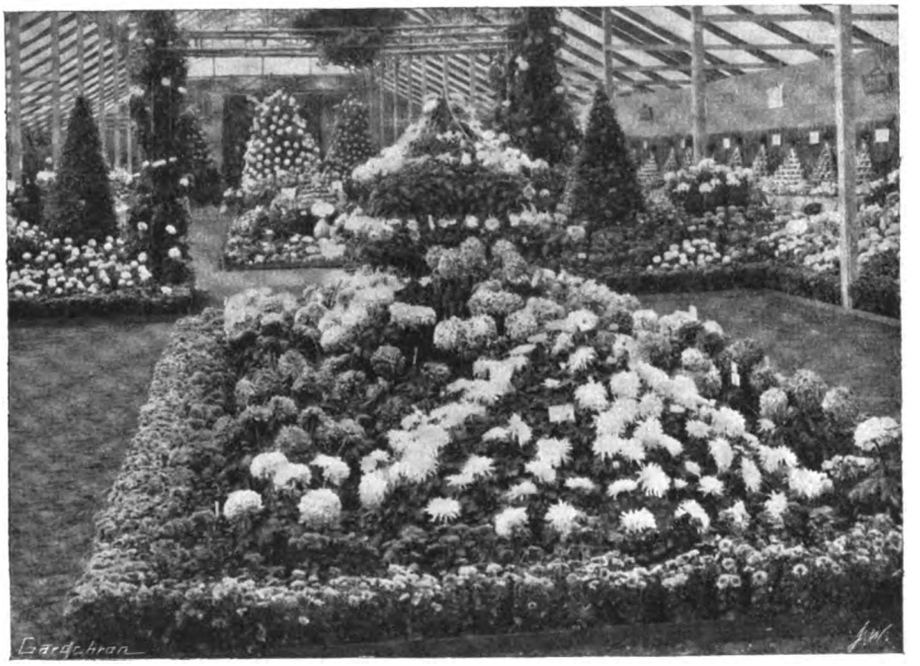

FIG. 109.—VIEW IN THE PARIS CHRYSANTHEMUM EXHIBITION.

FIRST-CLASS CERTIFICATE.

Odontoglossum Ithone (*Aglaon* × *Dusky Monarch*), from Messrs. CHARLESWORTH AND CO., LTD., Haywards Heath. A fine cross beyond compare in its section. The plant bore a grand spike of eleven flowers of perfect shape, the greater part of the surface being dark claret-red with white margins, and two oblong, window-like silver blotches in each segment; an unusual arrangement of colour.

GROUPS.

Messrs. STUART LOW AND CO., Bush Hill Park, and Jarvisbrook, Sussex, were awarded a Silver Banksian Medal for a very interesting group containing a good proportion of novelties, one of the best of which was Brasso-Cattleya Rosy Glow (C. Leda × B.-C. Mrs. J. Leemann), a grand, rosy-mauve flower with glowing yellow disc to the broad-fringed lip. Cattleya Annette (chocoensis alba × Warscewiczii var. F. M. Beyrodt) was shown in several fine white forms with Tyrian purple lip, and other white forms were included. Sophro-Cattleya Sir Mervyn Buller (C. Empress Frederick × S.-C. Wellesleyae) has charming salmon-rose flowers with ruby-red lip; and among the Brasso-Cattleyas were several distinct forms, whilst in the yellow Laelio-Cattleya section, which was well represented, L.-C. Golden Oriole Low's variety was prominent. A specimen of Dendrobium Phalaenopsis Schröderianum had many graceful sprays of flowers.

Messrs. COWAN AND CO., Southgate, received a Silver Banksian Medal for a very compact group in which Cypripediums were the main feature. The novelties were Cypripedium Charlestonii (Charlesworthii × Lord Ossulston), a very distinct and pretty flower, and C. Clytemnestra (Aeson giganteum × Gaston Bultel), a hybrid well worthy of its good parents. Oncidium flexuosum with its pretty yellow sprays was at the back of the group with a selection of Brasso-Cattleyas, for which the firm is noted, good Laelio-Cattleyas, the new L.-C. Nanon, the favourite L.-C. Dodona in two very dissimilar forms; and yellow Cattleyas, among which was one of the best C. Venus. The white and purple C. Hassallii alba was also well shown.

OTHER EXHIBITS.

Messrs. J. AND A. MCBEAN, Cooksbridge, staged a collection in which their best plant was L.-C. Profusion var. Majestic, a fine form of that which secured an Award of Merit at the last meeting. There were also the new white Cattleya Warscewiczii Fairy Queen, which has a very pretty rose-tinted lip; the white Cattleya Brenda, Miltonioda Hilda and other good hybrids.

Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tunbridge Wells, sent their new Laelio-Cattleya Ensign (L.-C. Orion × C. Fabia), a well-formed rosy-mauve flower with a purple band on the petals, and a ruby-red lip.

Messrs. SANDERS, St. Albans, showed a magnificent form of Brasso-Cattleya Boadicea var. Verulam (B.-C. Digbyano-Schröderae × C. Warscewiczii Sanderiana), with two fine rose-pink flowers with soft yellow disc to the lip.

Messrs. CHARLESWORTH AND CO. showed a fine form of their Vuylstekeara Edna (Miltonioda Harwoodii × Odontioda Charlesworthii) with a heavy spray of red flowers.

Floral Committee.

Present: Mr. H. B. May (in the chair), Sir W. Lawrence, and Messrs. W. J. Bean, Arthur Turner, H. J. Jones, J. Jennings, C. R. Fielder, D. B. Crane, W. B. Gingell, Chas. E. Pearson, E. A. Bowles, G. Reuthe, John Heal, George Harrow, Jas. Hudson, W. B. Cranfield, H. V. Warrender, Clarence Elliott, Reginald Cory, C.

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Williams, W. Howe, J. F. McLeod, Montague C. Allwood, J. B. Riding, and W. Baker.

AWARDS OF MERIT.

Chrysanthemum Mrs. J. Palmer.—This is a very large pure white single variety with slightly drooping tips to the pointed florets.

Chrysanthemum Norman.—A handsome rich golden yellow single variety of good size and fine form. The florets are broad, but the "eye" is rather prominent.

Chrysanthemum Miss Joyce Moore.—A bright crimson-scarlet single variety belonging to the large-flowered section. The colour is particularly rich and bright.

Chrysanthemum Pink Beauty.—Yet another large-flowered single variety, in which the colour is deep pink, with a white zone round the eye. These four varieties were shown by Mr. G. CARPENTER, West Hall Gardens, Byfleet.

Chrysanthemum Radiant. — A reflexing Japanese variety, with broad florets that make up a compact head. The colour is golden bronze. Shown by Mr. H. J. JONES.

GROUPS.

Chrysanthemums were distinctly the most important floral feature in the hall. Messrs. W. WELLS AND CO. set up a very handsome and imposing collection. Their tall stands contained a large number of exhibition Japanese varieties of great size and very high quality. The principal varieties were Mrs. Gilbert Drabble, white; Mrs. F. J. Fleming, Mrs. R. C. Pulling and Wm. Rigby, yellow; Mrs. Harold Wells, crimson amaranth; Majestic, golden amber; and Louisa Pockett, white, tinted with mauve. Amongst the smaller Japanese varieties were White Cheer, Golden Butterfly and Primrose. Besides these Messrs. Wells and Co. displayed a goodly selection of the best singles, and several very decorative Anemone-flowered varieties (Silver-Gilt Flora Medal).

In another part of the hall Messrs. KEITH LUXFORD AND CO. arranged a very attractive collection of Chrysanthemums. Their exhibition Japanese varieties included Sulphur Queen, Majestic, Dr. J. M. Inglis, purple amaranth with golden reverse; and Roma Baylis, blush pink. Single-flowered varieties were also freely shown and in equally good quality. These included Florizel, dull cardinal; Caledonia, mauve; Nona, white; and Sussex, yellow. A couple of vases of mixed Pompons contained flowers of the tiniest size, yet perfect of form, and charming colouring (Silver Flora Medal).

Mr. F. G. WOOD included some decorative vases of such Chrysanthemums as Golden Marvel and Emperor, with his miniature rock gardens (Bronze Banksian Medal), and Messrs. BAKERS, LTD., had vases of similar types in association with shrubby Veronicas, Erigerons and Helenium cupreum Crimson Beauty.

A very beautiful collection of Nerines was staged by Messrs. BARR AND SONS. They showed several distinct types of this valuable cool greenhouse bulb, and of them all, N. Aurora, which may be described as a rich pink N. Bowdenii, was decidedly the most prominent. This was the largest spike of all, yet very graceful and delicately beautiful. N. Albatross, N. Ariel and N. Ariadne of N. undulata type embraced some lovely shades of colour. Of these the larger-flowered type N. Lady Acland, rose; N. Nancy, deep pink; N. Mrs. Thursby, deep salmon; N. Red Hussar; and N. Mrs. Molesworth, rose cerise, were of great value (Silver-Gilt Banksian Medal). Many plants of Nerine were also staged by Mr. G. REUTHE, and although they were not of such merit as the foregoing, there were many desirable varieties amongst them. N. Prince of Orange, N. flexuosa alba, N. flexuosa major, N. Plantii laxifolia and several N. undulata varieties were very graceful. Mr. REUTHE also set up a small collection of alpines in pots (Silver Banksian Medal).

Carnations of considerable merit were shown, and these were chiefly of the perpetual-flowering type, though Messrs. ALLWOOD BROS. included some very decorative vases of their Dianthus Allwoodii. Amongst their larger varieties were Laddie, George Allwood and Mrs. Walter Hemus, pink shades; Maine and Sunshine, yellow; and the fancy, Chintz (Silver Flora Medal).

In the centre of a group of Carnations set up by Messrs. STUART LOW AND CO. were several vases of the beautiful pink variety, Hon. Nita Weir, Eileen Low, of similar colouring; Brilliant, Red Ensign and Sir Mackay Edgar, crimson shades, were also especially good (Silver Banksian Medal). Mr. C. ENGELMANN included such valuable sorts as Donald, Tarzan and Topsy, crimson shades; White Enchantress and White Wonder in his display of Carnations (Bronze Flora Medal). Some very good plants of Primula obconica in three or four varieties of distinct colours were shown by Mr. E. H. CAUSER, who also staged a decorative batch of greenhouse Cyclamen with Ferns in variety (Silver Flora Medal).

Violets of especial merit were contributed by Miss E. HEATHCOTE. These were named "The Eastfield Princess of Wales," and were characterised by exceptional length of stalk, large size of flower, deep colour and delightful fragrance (Bronze Flora Medal). Mr. J. J. KETTLE had a good variety of Violets, both singles and doubles, and also showed vases of both types in pale blue colour (Silver Banksian Medal). Mrs. LUCAS also contributed Violets.

For the most part the hardy plant exhibitors staged excellent little Conifers suitable for planting in the rock garden. Mr. G. G. WHITELEGG had a good variety of Junipers, Cupressus, Pines and Firs, with a pretty group of Primula capitata (Silver Banksian Medal).

The ORPINGTON NURSERIES CO. staged similar Conifers (Silver Banksian Medal), Mr. J. KLINKERT had well-trained topiary specimens (Bronze Flora Medal), and the Misses HOPKINS had an interesting little collection of hardy border plants.

Just inside the entrance Messrs. L. R. RUSSELL, LTD., had an attractive collection of hardy shrubs. Besides several well-coloured "Silver" Ivies there were Cotoneaster pannosa and Skimmia japonica bearing brightly coloured berries, standards of Euonymus latafolius alba, Ilex Pernevi and Corokea virgata (Silver Banksian Medal).

Mr. ELISHA J. HICKS again showed vases of the splendid pink H.T. Rose America.

Fruit and Vegetable Committee.

Present: Messrs. Jos. Cheal (in the chair), W. G. Lobjoit, H. S. Rivers, Geo. F. Tinley, P. D. Tuckett, W. F. Giles, T. Pateman, A. Bullock, E. Neal, F. Jordan, N. F. Barnes, Ed. Beckett, G. Reynolds, H. Markham, W. H. Divers, E. A. Bunyard, H. N. Rawes and J. Wilson.

Three or four seedling Apples were sent for award, but none was considered of sufficient merit. The most promising was a seedling named C. B. Stiby sent by Mr. T. MACPHAIL, County Education Office, High West Street, Dorchester. The samples shown were of uneven size, some small, others large; the largest fruit was very handsome, with pale yellow skin prettily flushed with red on the sunny side. The variety is said to keep until June, and the Committee recommended that it should be seen again in that month. The variety Lord Lambourne, which Messrs. LAXTON BROS. has shown on one or two occasions in the competition for the Bunyard Cup offered for the best flavoured Apple, was recommended for inclusion in the trial of commercial varieties at Wisley.

Messrs. J. CHEAL AND SONS showed two old Sussex Apples named Nannie and Forge, both of attractive appearance and of a size suitable for dessert purposes. It was stated that a tree of Nannie variety in Messrs. Cheal's nursery produced a crop of thirteen bushels this season. Hogg describes it as a dessert Apple of excellent quality, and when in perfection a first-rate fruit. Forge is stated to be a cottager's Apple *par excellence* in that part of Sussex which is conterminous to Surrey and Kent. It originated at Forge Farm, near one of the old forges in the iron districts of Sussex, near Crawley.

A Seedling Potato with red skin, of the Mr. Bresse type, with somewhat deep eyes, was shown by Mr. J. BUCHANAN, The Gardens, Gargunnock, Stirlingshire. Mr. Buchanan stated that the variety was earlier than Puritan and immune to wart disease. The Committee recommended the variety to be tried at Ormskirk.

GROUPS.

Some excellent bunches of Muscat of Alexandria Grapes and of Cooper's Black variety, were shown by the Hon. VICARY GIBBS (gr. Mr. E. Beckett). There were eighteen bunches of Muscat of Alexandria, and the largest weighed close on four pounds. All the bunches were shapely and the berries large and well finished. They were, in the opinion of many, some of the best Grapes exhibited this season. There were six bunches of Cooper's Black, and these were arranged, three at either end, for the Grapes were displayed on attractive stands, like miniature easels, in a single row (Gold Hogg Medal).

Messrs. J. CHEAL AND SONS showed a very excellent exhibit of Apples, comprising in all sixty-six distinct varieties. The exhibit was tastefully decorated with sprays of berried shrubs, and autumn-tinted foliage. Conspicuous place was given to the variety Crawley Beauty, fruits of which were exceptionally good this year. One of the showiest varieties was Paroquet, a magnificently coloured Apple and of pleasing appearance generally. Other sorts worthy of mention are Cox's Orange Pippin, Herring's Pippin, Gascoyne's Seedling, Fearn's Pippin, Lord Derby, American Mother, Duke of Devonshire, London Pippin, Sandringham and King of Tompkin's County (Silver Hogg Medal).

Trial of Dwarf Tropaeolums.

The following awards have been made by the Royal Horticultural Society to Dwarf Tropaeolums after trial at Wisley.

AWARD OF MERIT.

Fireball sent by Messrs. NUTTING AND SONS, LTD., London.

HIGHLY COMMENDED.

Empress of India, sent by Messrs. J. CARTER AND CO., Raynes Park.

NATIONAL CHRYSANTHEMUM.

AT the meeting of the above Society's Floral Committee, held at the Royal Horticultural Hall, during the afternoon of November 12, fifty new Chrysanthemums were submitted for consideration, and so high was the general quality of the varieties shown that no fewer than sixteen First-Class Certificates and four Commendations were awarded, the successful varieties being as follow:—

FIRST-CLASS CERTIFICATES.

Pink Beauty (V.1.A.).—A large, single variety of graceful form; the colour is pink, with a white zone around the eye.

Mrs. J. Palmer (V.1.A.).—A pure white, large-flowered single variety with numerous and substantial florets.

Miss Joyce Moore (V.1.A.).—A large-flowered single variety, but not of such large size as some others exhibited. It is of good form and brilliant crimson-scarlet colouring, being one of the most vividly coloured single varieties we have yet seen.

Norman (V.1.A.).—In this variety the florets are broad, well arranged, and form a very attractive flower, which is of deep gold colour.

Miss Golby (V. 1.A.).—A large-flowered bright chestnut-red, single variety.

Mr. P. Matcham (II. 1.B.).—An attractive medium-sized Japanese variety of graceful form and with chestnut-bronze colouring.

Miss A. Wisbey (V.1.A.).—In this large-flowered single variety the florets are broad and regularly disposed. The colour is deep gold lightly tinted with bronze. The foregoing seven varieties were exhibited by Mr. G. CARPENTER, West Hall Gardens, Byfleet.

Isolde (II. 1.B.).—A pleasing Japanese variety of useful decorative size and light buff colouring.

Heloise (V. 3).—A dainty and altogether charming Anemone-single variety of medium size and exquisite salmon-rose colouring. It appears to be very free-flowering, and should provide a colour which is often required by florists. These two varieties were exhibited by Messrs. CRAGG, HARRISON AND CRAGG, Heston.

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Amber Queen (II. 1.B.).—A medium-sized Japanese variety of the decorative type, with slightly drooping and moderately broad florets. The colour is golden fawn or apricot. Shown by Mr. H. POULTON, Pippbrook, Dorking.

Mrs. Harold Wells (II. 1.A.).—A very large, incurved Japanese variety of full exhibition size. The broad and pointed florets are ivory-white, but the whole flower has a tint of very pale green.

Duchess of York (II. 1.A.).—A large Japanese variety with reflexing and drooping florets. The colour is a rich purplish-crimson, and the flowers have a velvety appearance. These two varieties were shown by Mr. H. SHOESMITH, Woking.

Bernard Hicks (V.1.A.).—A fine, large-flowered single variety of deep rich crimson colouring. The flowers are of good form and carried on excellent stems. Shown by Mr. T. STEVENSON, Cowley.

Nona (V.1.A.).—A particularly fine, large-flowered, single variety with very broad, pure white florets which make up an attractive flower of excellent form.

Mr. A. Robertson (V. 1.A.).—A very large single variety, a trifle loose in form, but of fine deep pink colour.

Sulphur Queen (II. 1.A.).—An immense incurved Japanese variety of largest exhibition size and light sulphur yellow colour. These three varieties were shown by Messrs. KEITH, LUXFORD AND CO., Harlow.

COMMENDATIONS.

Flavia (V.2.A.).—A very pleasing free-flowering single variety, with slightly cupped flowers with broad florets and of a pleasing bronzy-orange shade of colour. Shown by Messrs. CRAGG, HARRISON AND CRAGG.

Sunburst (II. 1.B.).—A bright and attractive, medium-sized Japanese variety, of considerable decorative value, and the colour, as officially given, is salmon terra-cotta. This variety was placed before the Committee under the name of Crusader, but as that name is already in use, Sunburst was substituted. Shown by Mr. H. SHOESMITH.

Red Rover (II. 1.B.).—Another attractive Japanese variety belonging to what is popularly known as the decorative section. It has firm florets, good form, and is of bright chestnut-red colour. Shown by Mr. H. J. JONES, Lewisham.

Mrs. F. J. Yarrow (V. 1.A.).—An effective, large-flowered single variety of brilliant chestnut-crimson colouring, but its stems are rather too thick, and its foliage over large to satisfy the modern requirements for a decorative single Chrysanthemum. Shown by Mr. A. ROBERTSON, St. John's Wood.

SHEFFIELD CHRYSANTHEMUM.

NOVEMBER 9, 10.—The Drill Hall, Edmund Road, Sheffield, is a spacious, unheated building, and at ordinary times uninviting. But on the above dates, when Chrysanthemums were to be seen at their best, it presented a feast of glorious colour, for nowhere is interest greater in these autumn flowers than in and around the city of steel

Unfortunately the open classes attracted few entries, which in view of their numbers at previous shows may perhaps be accounted for by the unfavourable season, for the prize money in some cases has been increased, and in no single instance has it been reduced. Disappointment was freely expressed at the absence of any entry in the decorated fruit-table class for which £5 is the first prize, and vegetable growers especially missed the entries from the south, for these have always been a great attraction.

Fortunately, trade displays were more in evidence than we have seen them since the war, and very fine were the gold medal exhibits of all types of Chrysanthemums set up by Mr. H. Woolman, Shirley, Birmingham; Messrs. W. Artindale and Sons, Sheffield; Messrs. Brock Bray, Ltd., Sheffield; and Messrs. Seagrave and Sons, Sheffield; and the Carnations from Mr. C. Engelmann, Saffron Walden; Cyclamen from Messrs. W. Artindale and Sons, and the monster Onions shown by Messrs. Dickson and Robinson, Manchester, which were also awarded gold medals. Occupying one side of the hall, the Sheffield Wholesale Traders combined to set up an interesting display of all kinds of English and foreign fruit, while the English Apples from Messrs. Lowe and Shawyer were perhaps the finest ever seen in bulk in Sheffield and commanded a ready sale.

The principal open class was for 8 vases of Japanese Chrysanthemums, in 8 varieties, 3 blooms in a vase, for which £9 was the first prize; this brought only two entries, and Mr. H. WOOLMAN, Shirley, was awarded first prize, his blooms being amongst the best ever seen in Sheffield. Some of his best varieties were Ryecroft Triumph, a fine rich crimson showing no reverse; Queen Mary, Victory, Mrs. E. Tickle, Majestic, Mrs. A. Davis, and Mrs. B. Carpenter. G. CHAMBERS, Esq., Manor House, Pilsley (gr., Mr. C. Bowyers), was a creditable second prize-winner with Queen Mary, Mrs. A. Davis, and Mrs. G. Monro amongst his best blooms. No entries were forthcoming in the classes for 3 red or pink Japanese blooms, and none for 3 white flowers. Mr. W. E. HYDE, however, was awarded a second prize in the class for a single vase of yellow Japanese blooms. Incurved flowers were well shown by local amateurs, and as there was no competition from a distance, Mr. C. FLETCHER, Mr. A. FLETCHER, and G. CHAMBERS, Esq., easily led in the order given. Substantial prizes were offered in the class for 6 vases of decorative varieties; 1st, Mr. WM. FLETCHER; 2nd, Mr. W. E. HYDE.

The class for a basket of Chrysanthemums arranged for effect provided keen competition amongst three exhibitors; 1st, Mr. W. SMITH; 2nd, Mr. E. P. AITKEN; 3rd, R. DYSON, Esq., Fairfield, Rotherham. A class that always attracts attention is the one for a display of single Chrysanthemums to occupy a table space of 20 ft. by 4 ft. Following up a long series of successes, Mr. H. WOOLMAN again secured first prize. His was a wonderful effort, embracing all the leading varieties in the best possible condition, noteworthy amongst them being Coronet, Bronze Molly, Mensa, Catriona, Mrs. W. Smith, a fine white Bertha Fairs, Sweet Auburn, Phyllis Cooper, and Absolute, probably the most fascinating single introduced. Mr. W. E. HYDE won second place, and for a local effort his was a really good one. A new class was this year provided by the Bridgewater Nurseries, Ltd., for 9 vases of large-flowered singles, 6 blooms in a vase, open to all except trade growers. Two competitors, both local, contested for a good prize, and the winner, R. DYSON, Esq. (gr., Mr. H. J. Nicholson), put up an even set of well developed blooms. The best varieties were R. Godfrey, Esme Waters, Bronze Molly, Susan, and Sweet Auburn; 2nd, Mr. W. E. HYDE.

Interest in the district classes was centred round the one for 12 Japanese blooms, in not fewer than 6 varieties, to be staged on boards. Out of six entries Mr. C. FLETCHER was placed first with blooms which would not have been out of place in the open classes; 2nd, Mr. G. HOPKINSON; 3rd, Mr. A. FLETCHER. The class for 6 vases of singles also resulted in a good competition; 1st, Mr. G. HOPKINSON; 2nd, Mr. H. W. WALLERS; 3rd, Mr. E. HYDE.

The fruit classes were confined to local growers. R. DYSON, Esq. (gr., Mr. H. J. Nicholson), scored for white Grapes, and C. DIXON, Esq., Sandygate, Sheffield, won in the black Grape class. Apples and Pears were only of medium quality, and the entries poor. Local growers also had matters all to themselves in the vegetable classes. For a collection arranged for effect on a table space of 7 ft. by 4 ft., Mr. C. HYDE took first prize with a moderate collection. Competition was keener in the class provided by Messrs. Sutton and Sons, Reading, where Mr. E. HYDE again proved successful; 2nd, Mr. C. MAXFIELD; 3rd, Mr. C. H. WILFRED. Second and third prizes only were awarded in Messrs. Webb's class.

Altogether there were over 700 entries, and the amateurs' and cottagers' classes were well represented, the quality of both flowers and vegetables being distinctly good.

BRIGHTON AND SUSSEX HORTICULTURAL.

NOVEMBER 6 AND 7.—The enterprising and highly successful Brighton, Hove and Sussex Horticultural Society held its annual Chrysanthemum Show in the Dome and Corn Exchange on the above dates. The exhibition was one of the finest we have ever seen at Brighton, and it was so extensive that the Committee will have to seriously consider the advisability of securing a larger hall for the show and also a better-lighted one. The great platform under the Dome was splendidly decorated with Chrysanthemums, Palms and other flowering and foliage plants grown and arranged by Capt. B. H. Maclaren, the Superintendent of the Brighton Parks, who is also Vice-Chairman of the Society's Committee.

It was with regret we learned that Alderman J. Colman is retiring from the position of President, an office he has held with great distinction for a period of twenty-one years; we understand that A. Cooper Rawson, Esq., the local Member of Parliament, is to be his successor

FLOWERS AND PLANTS.

The Silver Bowl presented by the President, Alderman Jeremiah Colman, for the best two dozen Japanese blooms in not fewer than eighteen varieties, staged on boards, was won by F. E. RICHARDS, Esq. (gr. Mr. G. Tyler), Coombe Hall, East Grinstead, whose effective stand of fine flowers included capital specimens of A. F. Tofield, General Petain, Majestic, W. Turner, Princess Mary, Louisa Pockett, Lady Talbot, Mrs. A. Davis, and Helen Margerison; 2nd, C. CHANDLESS, Esq.; 3rd, Mr. W. H. APTED; five entries.

The best set of twelve Japanese blooms, distinct, on boards, came from F. E. RICHARDS, Esq., who had an even set in which the leading varieties were Majestic, F. S. Vallis, A. F. Tofield, Mrs. H. Tysoe, and Mrs. J. Gibson; 2nd, F. W. CHILVERS, Esq.; 3rd, Mr. W. H. APTED.

The best six Japanese blooms in one vase were shown by F. E. RICHARDS, Esq., who had big flowers of Thorpe Beauty, Mrs. G. A. Tickle, F. S. Vallis, Mrs. J. Balmer, Lady Talbot and Louisa Pockett; 2nd, Mrs. W. H. APTED, Broadwater, Worthing; 3rd, C. CHANDLESS, Esq. (gr. Mr. F. W. Chilvers), Sherrington Manor, Berwick Station.

There was a very keen competition in the class for three vases of Japanese blooms, five flowers of one variety in each vase. F. E. RICHARDS, Esq., won the premier award with huge examples of General Petain, Mrs. R. Luxford, and R. C. Pulling; 2nd, Mrs. J. T. KENWARD, Lewes; 3rd, Mr. W. H. APTED; there were six entries, and if the back row of vases had been raised a foot or so, the effect of the class would have been greatly improved. Mr. APTED led in the class for three vases of single varieties, and Mr. RICHARDS continued his successful career by winning first prize for six Japanese blooms in one large vase, with Mr. APTED second. There were three tables of single varieties, and these made an effective display the best flowers were shown by Mr. APTED, and his general arrangement was good; 2nd, Messrs. EASTWOOD AND SON, Downs Nurseries, Hassocks; 3rd, Mr. E. W. READ, Third Avenue, Brighton. Messrs. EASTWOOD led for a table of Carnation blooms with a capital display of popular sorts. Mr. J. C. REEVES, Puck's Croft, Rusper, was the most successful exhibitor in the class for a dozen single blooms arranged in a vase; 2nd. Mr. E. W. READ.

First prize for a basket of Chrysanthemums was awarded to Mrs. SWANN, Warninglid, Haywards Heath, for a design in yellow blooms; 2nd, Miss EASTWOOD, Hassocks; 3rd, Mrs. HALL, Southover Street, Brighton.

The judges awarded the Wm. Balchin Cup (value fifty guineas) to Mr. W. H. APTED, as first prize in the class for a circular group of Chrysanthemums. Mr. Apted certainly had the best flowers and arrangement, but each of the

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three competing groups left much to be desired in the matter of elegant display; 2nd, W. H. Vokin, Esq. (gr. Mr. W. J. Scott), Beechwood, Withdean; 3rd, Mr. E. W. Read, Hove.

Fruits and Vegetables.

F. W. Chilvers, Esq., led in the class for two bunches of black Grapes with large clusters of Alicante; 2nd, Lt.-Col. P. R. Papillon (gr. Mr. E. Carpenter), Crowhurst Park, Battle, with very heavy bunches of the same variety; 3rd, Mr. W. H. Apted, with Gros Colmar.

Mr. A. H. Parsons, Lewes, showed the best basket of twelve culinary Apples—Lord Derby—and was also first prize winner in the class for four dishes of dessert Apples. The same exhibitor was similiarly successful in the class for four dishes of cooking Apples, distinct, with fine fruits of Lord Derby, Hawthornden, Pleasgood's Nonesuch and Newton Wonder. Mr. Parsons was also first prize winner in the class for two dishes of culinary Apples, winning with Gloria Mundi and Warner's King, but had to take second place to Capt. Almack (gr. Mr. R. W. Wheare), Danny Park, Hurstpierpoint, for two dishes of dessert Apples.

Messrs. Sutton's special prizes for a collection of six kinds of vegetables were won in order as named, by Lt.-Col. P. Papillon and Mr. J. C. Reeves.

Mr. J. Carley, Mallory House Gardens, Lewes, excelled in the class for a dozen Onions with very fine specimens of Ailsa Craig; 2nd, Capt. Almack; 3rd, Mr. A. H. Parsons. Magnificent Leeks were shown by Mr. G. Grove, Grantham Road, Brighton; Mr. M. Goocher and Mr. P. Prudden, who won prizes in order as named. Beets, Parsnips, Cauliflowers, Celery and Potatos were all extensively and well shown, but there were few Carrots.

In other classes for vegetables the principal prize winners were Mr. F. J. Bunney, Princess Crescent, Brighton; Sergeant Wheeler, Princes Road; and Lady Brand (gr. Mr. Down), Littledene, Lewes.

Non-Competitive Exhibits.

These were numerous and beautiful, the most notable displays being those of Chrysanthemums from Messrs. Keith Luxford and Co.; Mr. Jas. Box, who had Chrysanthemums, hardy flowers and fruits; Messrs. Balchin and Sons, a group of flowering and foliage plants and floral designs, including a lighthouse composed of white Chrysanthemums; the Barham Nurseries, fruit; Messrs. J. Cheal and Sons, flowers and fruits; Messrs. Sutton and Sons, a fine display of Potatos; Mr. H. C. Crule, Chrysanthemums; Mr. B. Pinney, Violets; Miss W. Walker, floral paintings; Messrs. G. Miles and Son, Chrysanthemums; Messrs. Tilley, vegetables; the Premier Seed Co., vegetables; and Mr. P. Warner Abbott, Chrysanthemums.

ROYAL OXFORDSHIRE CHRYSANTHEMUM.

This Society's show, held in the Town Hall, Oxford, on November 7 and 8, was, both in quality of exhibits and attendance, the best ever held. The exhibition was greatly enhanced by the exhibits of two fresh competitors, viz., Capt. R. B. Brassey, Collesbrooke Hall, Northampton, and Sir Mortimer Singer, Milton Hill, Steventon, Berkshire, whose gardeners, Mr. Quinn and Mr. Johnson, staged magnificent flowers and fruit. In the large hall were three groups of Chrysanthemums. The one shown by Mrs. G. H. Morrell, Headington Hill Hall, was the outstanding feature of the show. The blending of colours and the arrangement as a whole were perfect, and reflected great credit on her gardener, Mr. A. Gibson. His best blooms were: Louisa Pockett, R. C. Pulling, Queen Mary, Mrs. J. Gibson, General Petain, Majestic and Lloyd George. In addition, Mr. Gibson also staged an excellent group of Cattleya Bowringeana, Gesneras and Gloire de Lorraine Begonias, for which a Large Gold Medal was awarded. The group displayed by John Massey, Esq., contained a choice collection of blooms tastefully arranged by his gardener, Mr. A. Dawes (Gold Medal). Another fine group was by Messrs. Gee, Banbury Road, who made free use with good effect of some rich Singles intermixed with large blooms of Chrysanthemums (Gold Medal).

For nine varieties of Japanese Chrysanthemums in vases, in addition to a money prize, a Silver Challenge Cup was offered. This was the most keenly contested class in the show, and some handsome blooms were forthcoming. The First Prize was awarded to Capt. R. Brassey (gr. Mr. Quinn). His best blooms were Majestic, Rose Day, Princess Mary and W. Rigby. Sir Mortimer Singer (gr. Mr. Johnson) was a very close second. The best blooms in his exhibit were Majestic, W. Turner, Mrs. G. Monro, and Edith Cavell. Henry Balfour, Esq. (gr. Mr. Hewlett) was third. For twenty Japanese blooms, distinct, the first prize was awarded to Sir Mortimer Singer, with a grand vase of blooms, including Majestic, Lord Stewart of Wortley, F. Spring Watts and Louisa Pockett. Capt. R. B. Brassey was second, and H. Balfour, Esq., third. For twelve Japanese blooms, distinct, Mrs. Lessing won the first prize, and Mrs. Eccles the second (gr. Mr. Lawrence). Mrs. Lessing (gr. Mr. Down) excelled in the class for six blooms of a white variety—very fine specimens of Louisa Pockett. Sir Mortimer Singer gained first prize for six yellow blooms with splendid specimens of Mrs. R. C. Pulling. Second Mrs. Eccles, and third H. Balfour, Esq. For six blooms of any other colours, the first prize was won by Mr. Balfour; second Mrs. Lessing. The best six vases of single Chrysanthemums were shown by Sir Mortimer Singer. His specimens of Mrs. W. Buckingham, Roupell Beauty and Ida Scott were very good; second, Mrs. Lessing. Mr. Gee had the best six bunches of decorative Chrysanthemums, followed closely by Mr W. T. Mattock, Hoadington. The best decorative basket of Chrysanthemums was shown by Mr. W. T. Mattock. In the Amateurs' class for eighteen blooms of Chrysanthemums in six vases, Mr. F. Belcher, Wantage, was awarded the Silver Challenge Cup presented by the late Mr. W. T. Cross. This exhibitor has won the cup for three years in succession. For a group of miscellaneous foliage and flowering plants, Mr. T. H. Rose gained the first prize with an effective arrangement; second, Mrs. Lessing. The six table plants which gained for Mrs. Lessing the first prize were very fine specimens. Table decorations, which are always a popular class at this show, were well represented, and some delicate and dainty arrangements were on view. Mr. W. T. Mattock was placed first with Rose Irish Elegance.

In the Grape classes some excellent bunches were shown. Those of Muscat of Alexandria, shown by Sir Mortimer Singer, were good in bunch, berry and finish, and were awarded the first prize. Alicante variety, shown by Capt. R. B. Brassey, were perfect bunches, and gained for him the first prize in the class for black Grapes. Dr. A. W. Neill had the best nine dishes of Apples; second, Mrs. Lessing. For six dishes of Apples Mr. T. Mattock excelled. The best three dishes of Apples were shown by Mr. W. Jacobs, Highfield.

Mrs. Wadham was a prominent exhibitor in the class for six dishes of vegetables, with some capital produce; second, Mr. R. T. Alden.

TRADE NOTE.

Mr. H. N. Ellison, of West Bromwich, whose exhibits of Ferns and Cacti are a feature at many provincial shows, has added a fertiliser to the range of subjects he offers for sale. Judging from the produce staged in his Gold Medal exhibit at Birmingham on the 6th inst., his "G. and A." fertiliser is well worthy of trial.

Obituary.

Herbert Jones.—A man with plentiful ideas in regard to his gardening work (garden architecture) and an immense driving force in his personality, was Herbert Jones, of The King's Manor, East Hendred, Berks, better known to his friends as "Jones of Bath," who went to his "greater garden" on Saturday, November 3, at the age of 49. He was one of those artists in our beautiful craft in whom the Creator has reposed a little of that divine faculty which creates. Herbert Jones's was the restless, fighting spirit that does things and brooks no opposition, though at the same time it was his geniality and spontaneous gaiety that smoothed away so many of the obstacles put in his path. He had been successively market gardener, flower-grower, actor, quarry owner and architect. His enemies were the common enemies of such personalities—philistines of narrow understanding; the harassing drags on true progress who, unfortunately, are so numerous. He leaves a widow who proposes to complete some of his unfinished gardens, which she is very well qualified to do, having been his confidante and partner in so many schemes—especially those of recent date. *John Wood.*

ANSWERS TO CORRESPONDENTS.

Celery Diseased: *A. D.* Your Celery plants are affected with the disease caused by the fungus Septoria petroselina Apii. See reply to *R. F.* in *Gard. Chron.*, November 3, p. 270.

Cymbidium Lowianum: *E. H. B.* This Orchid is a native of the Himalayas up to 5,000 to 7,000 feet altitude, and is therefore a cool-house plant, but a minimum temperature of 45° should be provided. The plants may be repotted any time after the main display of flowers is over, but it is not necessary to repot them every year. Turfy yellow loam broken by hand, and peat in about equal proportions, or a larger proportion of loam, will provide a suitable compost. Very large pots should not be used. During the plant's season of active growth, occasional watering with weak liquid manure prepared from cow dung will be beneficial to them. Cymbidiums are most useful plants, as they grow and bloom well under varied treatment, and are excellent for conservatory decoration, for their foliage is ornamental even after their long period of flowering has passed. The Cymbidiums do not require to be rested dry, but less water should be given them when growth is not active.

Names of Fruit: *A. C. H.* 1, Franklin's Golden Pippin; 2, Fearn's Pippin; 3, Holland Pippin.—*T. D. A.* Pears: 1, Knight's Monarch; 2, Easter Beurré; Apples: 3, Hambling's Seedling; 4, Castle Major.—*Horti.* 1 and 8, Cox's Orange Pippin; 3, decayed; 4, Yorkshire Beauty; 5, Bramley's Seedling; 6, St. Sauveur; 7, Bedfordshire Foundling; 9, King of the Pippins; 11, Stone's; 12, Ashmead's Kernel; 14, Reinette de Canada; 16, White Westling; 17, Scarlet Golden Pippin; 18, Byford Wonder; 19, Egremont Russet; 20, Hambledon Deux Ans; 21, Golden Harvey (Brandy Apple); 22, not recognised; 25, Warner's King; 27, Royal Russet.

Names of Plants: *F. S.* and *Reader, Highgate.* We cannot undertake to name Chrysanthemums; send specimens to a Chrysanthemum specialist. *E. H. B.* Cymbidium Lowianum; herbaceous plant, Monarda didyma.

Peach Leaves Unhealthy: *F. H.* The unhealthy condition of your Peach leaves is due to an attack of red spider. The foliage was very badly affected, pointing to your having grown the trees in an atmosphere that has been too dry. Early next spring, just as the buds are showing green, spray the trees with a weak solution of lime sulphur, not more than one in about twelve or sixteen parts of water. Keep the atmosphere of the house moist, and use the syringe freely in summer to keep the foliage damp.

Communications Received.—Constant Reader—G H—H. W. S.—M. P.—D. J.— M. N.

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THE
Gardeners' Chronicle
No. 1926.—*SATURDAY, NOV.* 24, 1923.

CONTENTS.

Alpine garden, the—		Orchid notes and gleanings—	307
Bellis rotundifolia coerulescens ...	305	Potato crop, the Scottish	304
Fuchsia procumbens	305	Pruhonice Park, Czechoslovakia	310
Linaria origanifolia	305	Russell, Sir John ...	303
Synthyris reniformis	305	Scottish plant names, old	312
Apple Sops-in-Wine ...	312	Societies—	
Auricula, the woolly aphis of the... ...	312	Birmingham Chrysanthemum ...	313
British Empire exhibition, horticulture at the	312	Hitchin Chrysanthemum	315
Bulb garden, the—		Marlow Chrysanthemum	314
The King's Spear ...	307	National Potato ...	314
Fruit garden, the hardy—		Royal Caledonian ...	315
Notable varieties in 1923	312	Soil acidity or sourness	312
Fruit pests, importation of	312	Trees and shrubs—	
Fruit trees, the pruning of	312	Castanea sativa ...	309
"Gardeners' Chronicle" seventy-five years ago	304	Veronica salicifolia	309
Gardiner, Mr. F. A. ...	304	Vegetable garden—	
Indoor plants—		Brussels Sprouts ...	311
Carnations	305	Chicory	312
Humea elegans ...	305	Edible Lagenarias ...	311
Pentas	305	Hot-beds	312
Lilies, sterility in ...	308	Week's work, the ...	306
		Wisley, notes from ...	310
		Wood, the preservation of	304

ILLUSTRATIONS.

Capsules and seeds of Lilium auratum and L. speciosum 308
Castanea sativa heterophylla 309
Chrysanthemums Norman, 307; Radiant 305
Gardiner, Mr. F. A., portrait of 304
Webb and Son's Gold medal exhibit of Potatos at the National Potato Show 311

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich 41.2°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, November 21, 10 a.m.: Bar. 29.75; temp., 45°. Weather—Bright.

The Ecology of Plants.

The study of the "household affairs" of plants by investigating living plants in their natural homes has developed greatly of recent years. This branch of botany, which is known as ecology, has for its object the elucidation of the laws which govern the localisation of the plants of a given country in communities. Some plants, as is well known, have a wide range over a countryside and seem to flourish in the most varied soil conditions; others have a narrow range and exist only in certain kinds of soil. The more these peculiarities of distribution and of association are studied the more there is found to learn about them. Already, although the systematic study of ecology has been pursued for little more than a couple of decades, large numbers of previously unsuspected facts have been brought to light and have contributed to form an imposing body of knowledge. As in other branches of natural history the first step toward the building up of exact knowledge is accurate observation; so it is with ecology. But unlike other departments of botany, such as anatomy and physiology, which require special training and apparatus, the science of ecology may be studied by anyone who knows his plants or is willing to learn how to identify them and who is prepared to prosecute careful and sustained observations into the changes which occur in any given community of plants which happens to be accessible to him. By such studies it will be discovered that the apparently stable community consisting of one or of a few kinds of predominant plants is liable to change. Even a slight change in environmental conditions, as for example a narrow clearing in a wood, provides opportunities for a renewal again of the competition between plants, and once again the struggle is fought out to a finish. Into the clearing come plants from afar, the result of seeds brought by birds and animals or blown by winds, and for a time at least some of the newcomers, previously non-existent, find an asylum in the clearing. Of these some may endure for a long time, others may maintain themselves for but a brief period in their new home. For subtle and often unsuspected changes of environmental conditions follow inevitably from the mere clearing of the part of a woodland. To trace changes such as these and to ascribe them to their causes is an exercise which demands keen powers of observation, much patience and ingenuity. It is to help those who are attracted to such studies that Mr. Tansley, who is prominent among the pioneers of ecology in this country, has written his *Practical Plant Ecology*—a guide for beginners in the field study of plant communities*. From it the attentive reader, after he has become used to the terminology which is inevitable in any science, will gain a clear appreciation of the methods by which ecology is to be studied. He will learn that of plant communities some are large units and constitute plant-associations. Thus over large areas of this country are Beech and Oak woodlands. These woodlands form part of the great deciduous forest association of Europe, and those trees which constitute the chief constituents of the association are known as the dominants. Similarly the common Ling (Calluna vulgaris) is the main dominant of the Heath associations of Western Europe. Other inmates of this or that association, which though habitual to it are less prominent, are known as subordinates. Having determined the approximate constitution of an association the problem of its existence as an entity remains to be attacked. Climate, soil-conditions, the presence of animals and also of other members of the association all have effect in determining the composition and extent of the association. The rough outlines of the association are sketched as it were by climate, but the details of its distribution within those outlines are determined largely by soil conditions. Where, for instance, the soil becomes sandy the Beech and Oak association gives place to another; it may be of Pine forest; and where, as in lower lying ground, the soil is full of stagnant water, yet another plant community, forming an association, arises, one it may be in which Butterwort and Sundew and Bog Moss flourish. In a broad and casual way all of us who are concerned with plants are ecologists, but a perusal of Mr. Tansley's lucid pages will convince us that our knowledge is but fragmentary and may be supplemented with much profit to ourselves by a more thorough study of the known facts of ecology. Among the most interesting chapters in this book is that which gives in outline a survey of British vegetation, and no one with a knowledge of British trees and herbs who reads it can fail to feel that his knowledge has been consolidated and extended. Anyone who has mastered the contents of Mr. Tansley's book and who knows British plants, would be able to tell in the course of a walk the general qualities and potentialities of the soils across which he passed—for by their fruits shall ye know them, and whereas on heavier and good pasture land Poa pratensis, P. trivialis, Lolium perenne and Dactylis glomerata make up the community, on soil of progressive poorness these grasses give place to Bent (Agrostis vulgaris) and the Sheep's Fescue (Festuca ovina) and it may be the Sweet Vernal Grass (Anthoxanthum odoratum). On such land, if grazing ceased, Heath and ultimately woodland would appear, and indeed in such places Calluna and Erica may be found in patches when grazing is intermitted for a time. Down on the more acid, peaty soil the dominant plants are the Silver Hair Grass (Deschampsia flexuosa) or the Mat Grass (Nardus striata) or in yet damper places the Purple Moor Grass (Molinia caerulea). In soils rich in lime the grasses are again different — Avena pratensis, A. pubescens and Triestum flavescens; and if the soil be dry and chalky there will be a closely grazed turf of Festuca ovina or F rubra var. fallax, with many herbaceous weeds characteristic of chalky soil.

* *Practical Plant Ecology.* By A. G. Tansley, F.R.S. London: George Allen & Unwin, 1923. 7s. 6d. net.

War Buildings in Regent's Park.—The First Commissioner of Works, in reply to a question by Major Barnett in the House of Commons, stated that the buildings occupied by the Imperial and Foreign Corporation, Ltd., in Regent's Park are being evacuated and will be demolished as soon as practicable and the site restored to public use. Owing to the large amount of work to be done on the site it is not anticipated that this portion of the Park can be resown with grass before the autumn of next year.

A Memento of Two Distinguished Biologists.—Dr. Michael Foster, of Trinity College, has presented for use in the Balfour Library, Cambridge University, the desk habitually used by Francis Maitland Balfour. After its death it was presented to Sir Michael Foster, who habitually used it until his death. It thus recalls two of the chief founders of the biological schools of the University.

Thornless Stock for Roses.—An American firm, the S. R. McKee Nurseries and Rose Gardens, Jacksonville, Texas, has, according to the *National Nurseryman*, U.S.A., a thornless form of Rosa canina, which they are offering as the McKee Thornless Rose stock. Three spineless plants were discovered some years ago growing amongst a large batch of Rosa canina, and they were set aside and propagated. The thornless character proved to be constant, and Messrs. McKee, who are large Rose growers, consider their new stock to be superior to all others.

National Chrysanthemum Society.—The next annual exhibition of the National Chrysanthemum Society will be held at the Royal Horticultural Hall, Westminster, on November 6 and 7, 1924.

The Cold Weather.—The frost experienced on the morning of November 8 was the sharpest recorded for many years in the early part of November. In some districts the thermometer fell to 11° F. At Kew the shade temperature fell to 22° F., which is said to be a record for the first ten days of November, being 2° lower than the previous record on November 10, 1921.

Sir John Russell.—Sir John Russell, Director of the Rothamsted Experimental Station, has proceeded on a special mission to the Sudan, where, in association with Dr. H. Martin Leake, Director of Agriculture for the United Provinces of India, he will advise the Sudan Government on its agricultural policy. In approaching these two experts the Sudan Government has been actuated by the desire to get the best possible advice as to the organisation and direction of the agricultural research work which will be undertaken in connection with the Cotton growing industry in the Sudan. When the first instalment of the irrigation scheme in the Gezira plain, south of Khartoum, is finished, 300,000 acres will be put under irrigation, of which 100,000 acres will be under Cotton cultivation. The total scheme is said to be capable of development over an area of three million acres.

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Garden Pictures at the Englishwoman Exhibition.—There was much to interest the lover of gardens in the exhibits of Miss Minnie Aumonier, at the Englishwoman Exhibition of women's handicrafts at the Central Hall, Westminster, last week. It was a pleasure to step in from the cold, frosty air, and find on a stall a wealth of drawings recalling all the warmth and beauty of the summer garden. Besides a number of fine original paintings, there were colour prints and cards, nicely executed, from garden sketches; among other things were some pretty invitation cards, with a floral design, to be sent from one garden-owner to another. *Gardens in Sun and Shade*, the book of garden verse compiled by Miss Aumonier, was on sale in its third edition. Another exhibit which was of great interest to horticulturists was Messrs. Winder and Thomson's scale model of a small house and a three-quarter acre garden, planned to make the very most of the space, and to provide for every kind of pleasure ground, though naturally on a small scale. Rose garden, lawn, shrubbery, formal garden, all were represented, real dwarf trees being used where possible, and very small artificial flowers, with little pieces of statuary and tiny stone seats.

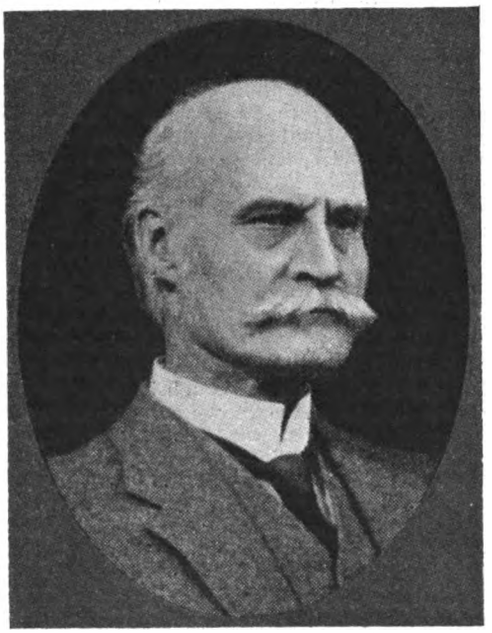
National Dahlia Society's Annual Meeting.—The annual general meeting of the National Dahlia Society will be held in the Royal Horticultural Hall, Westminster, on Tuesday, November 27, at 3 p.m.

The Preservation of Wood.—According to the *Chemical Trade Journal*, methods for the preservation of wood date back from very early times. The ancient Egyptians used antiseptic oils for the purpose. Amongst the earliest attempts at wood preservation in this country were those by Burnett in 1838, who introduced the use of zinc chloride; Wolman in 1906 patented the use of certain fluorides in conjunction with other salts; and since then hundreds of patents on the subject have been taken out. The most popular method at the present time is that of creosoting timber, but it has objections in that it makes the timber odorous and inflammable. The article deals with various methods of impregnation, and the results obtained from the use of various salts.

Iris unguicularis.—Mr. David Chaplin, Frognal Gardens, Sunninghill, Ascot, writes to inform us that Iris unguicularis opened its first flower there on the 14th inst., whereas in 1922 the first flower of this Iris appeared on October 16.

The Scottish Potato Crop.—Returns collected by the Ministry of Agriculture for Scotland, representing about seven-eighths of the total area of Potatos on agricultural holdings in that country, show that 119,100 acres were planted with Potatos this year, representing 17,300 acres of first earlies, 19,100 acres of second earlies, and 82,700 acres of main crop varieties. The total area is 20,400 acres less than last year. The acreage of first earlies shows an increase of 800 acres, but there was a reduction of 5,900 acres in the case of second earlies; the proportion of second earlies in the total has declined in two years from 23 to 16 per cent. Epicure is still the most popular early variety, although there was a slight reduction in the acreage of that sort cultivated this year, but the acreage of Sharpe's Express was practically double, while Duke of York showed an increase of about one-third. Great Scot is the most favoured second-early variety. Of the main crop sorts Golden Wonder showed an exceptional increase of 58 per cent.; Arran Chief, although still the most largely grown of all the varieties, declined by 29 per cent., and King Edward VII. showed a reduction of 17 per cent. The greatest reduction was in the case of Tinwald Perfection—about 54 per cent. Considerable increases are recorded in the cases of Roderick Dhu and Field Marshal, but there were no very great additions amongst other newer varieties. The chief main crop varieties cultivated were Arran Chief, 21 021 acres: King Edward VII., 16,899; Golden Wonder, 12,403; Kerr's Pink, 10,988; Up-to-Date, 3,594; Majestic, 2,713; Sutton's Abundance, 2,437; Tinwald Perfection, 2,372; Champion, 2,126; Langworthy, 1,916; Field Marshal, 1,143; Crusader, 1,084; other varieties, 4,029 acres.

Mr. Frederick A. Gardiner.—After occupying an important position with Messrs. J. Carter and Co. for fifty years, Mr. F. A. Gardiner has recently retired, and we take advantage of the occasion to publish his portrait and a few particulars of his career. Mr. Gardiner was born at St. Osyth, a very old Essex village, at one time of considerable importance, but now mainly agricultural. Messrs. Carter and Co.'s seed farm was formerly situated in the district, Mr. Gardiner's father being manager, hence it may be said that Mr. F. A. Gardiner was born in the business. He commenced his business career with his father—who devoted many years of his life to introducing novelties—and he has served the firm of Messrs. J. Carter and Co. ever since. He spent three years on the farm at St. Osyth, and came to London in 1873, when the firm had its headquarters in High Holborn. During the ensuing fifty years Mr. Gardiner has become well known to all classes of horticulturists, not only in Great Britain but on the Continent, as for over forty



Mr. F. A. GARDINER.

years he has made annual visits to all the expert European seed growers who work on progressive lines and produce novelties worthy of attention. Mr. Gardiner is a well-known personality at all the important exhibitions, and a most frequent visitor to those of the Royal Horticultural Society. Before Mr. F. A. Gardiner came to London he had taught himself shorthand, an accomplishment which few had acquired in those days, and acted as secretary to the head of the firm, Mr. E. J. Beale, who prided himself in being one of the first business men to employ a shorthand writer. In addition to shorthand, Mr. Gardiner acquired a good knowledge of French and German, which has stood him in good stead, and these attainments, coupled with fine business acumen and an agreeable personality, soon advanced him to the front rank in the seed world. Mr. Gardiner has, moreover, a fine commanding presence, and represents a very fine type of Englishman. He is always ready to offer his ripe experience for the benefit of others, and is a member of the Council of the Agricultural Seed Trades' Association (occupying the position of President several years ago) and of the Horticultural Trades' Association. He rendered much valuable service to the country during the war as a member of the Agricultural Relief of Allies Committee, whilst he also served in an advisory capacity in connection with the Seeds Committee of the Ministry of Agriculture. For some time Mr. Gardiner was a member of the Committee of the Royal Gardeners' Orphan Fund. He is a fellow of the Linnean Society and also of the Royal Agricultural Society. Mr. Gardiner retires from the position of manager of Messrs. Carter's wholesale department to enjoy a well-earned rest, and his many friends will be glad to know that although not so robust as when younger, he still enjoys fairly good health, and hopes to keep in touch with them at flower shows and other horticultural functions. At a luncheon given in his honour a few days ago, Mr. Gardiner was presented with a complete set of the *Encyclopaedia Britannica* and a timepiece, suitably inscribed, from the staff of Messrs. J. Carter and Co., together with a gold watch and chain from the principals of the firm.

Importation of Potatos into Uruguay.—The Ministry of Agriculture is informed that owing to the low production of Potatos in Uruguay this year there may be a market for British Potatos in that country. In 1922, the importation of Potatos into Uruguay amounted to nearly 36 million kilos (35,500 tons), of which about 32 million came from the Argentine. France contributed nearly 1 million kilos and the United Kingdom 2¼ million. The trade is a new one for this country, but if a high standard of produce is maintained and care is taken in transportation it offers possibilities. British exporters are advised to be liberal in their trading terms and to ship on consignment, under agreement that in the case of the consignment turning out badly, resort should be had to arbitration by the British Chamber of Commerce in Uruguay. The Argentine imports do not materially interfere with the British imports, as the former usually arrive between January and August, ending in the middle of September at the latest.

Appointments for the Ensuing Week.—Monday, November 26.—National Chrysanthemum Society's Floral and Executive Committees meet. Tuesday, November 27.—Royal Horticultural Society's Committees meet. Wednesday, November 28.—Mitcham, Tooting and District Horticultural Society's meeting. Saturday, December 1.—Blackburn and District Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-Five Years Ago.—*Fallen Leaves.*—What shall I do with my leaves? Are they good for anything? asks a correspondent. Do with them! good for anything! Why treasure them to be sure, as if they were coin of the realm; they are good for everything which a gardener has to do. They are the best of all shelter, the best of all materials for bottom-heat, the best of all soil, the best of all drainage, the best of all manure. It is true they contain little or no nitrogen, but they rot quickly, are full of saline matters, on which everything that bears the name of plant will feed gluttonously, and from their peculiar structure allow air to pass in and water to pass out with perfect freedom. If we wish to know what leaves are good for, we have only to burn them and see what a quantity of ash they leave behind. All that ash is as much food for other plants as beef and mutton are for us. It is the material which Nature is perpetually restoring to the soil in order to compensate for the waste which is produced by the formation of timber. In wild land, trees are annually thus manured; were it otherwise a wood would be a roof of life overshadowing a floor of death. If we can remove the leaves from our plantations, it is only because of the artificial richness of the soil in which they grow. This sufficiently indicates the value of leaves, which are in truth hardly less important in their death than they were in their life, though in a different way. *Gard. Chron., November* 18, 1848.

Publications Received.—*A Devonshire Garden.* By R. H. Forster. The Life and Colour Series, No. 18. Jonathan Cape, 11, Gower Street, W.C.1. Price 2s. 6d. net.—*The Principles of Insect Control.* By R. A. Wardle and P. Buckle. Longmans, Green and Co., 39, Paternoster Row, E.C.4. Price 20s. net.

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THE ALPINE GARDEN.

LINARIA ORIGANIFOLIA.

THIS is a valuable rock garden plant, as it blooms in the late summer, when most plants have faded, and its flowers will often be among the last to linger when autumn passes towards winter.

Linaria (syn. Chaenarrhinum) origanifolia is a Spanish high-alpine, a semi-prostrate plant, some 5 inches in height, with dark-green foliage, and rosy-violet blossoms of the characteristic Snapdragon type, produced in profusion throughout the above period. The plant appears to be quite hardy, and will prove permanent in almost any free soil, in a situation exposed either to full sun or in half-shade.

BELLIS ROTUNDIFOLIA COERULESCENS.

THIS pretty little Daisy was among the first of the spring flowers in the rock garden, and it has never been out of bloom since that time. Even at the end of October, it had a few flower buds ready to greet the first sunny day. B. r. coerulescens is not, perhaps, perfectly hardy, the type species being a native of the Atlas; but it is quite robust enough to stand an average winter in most places, provided it is planted in a sheltered corner and well-drained soil.

In its flat rosettes of foliage, B. r. coerulescens is much like our common Daisy of the fields, but the rounded leaves are slightly scalloped and grey with silky hairs. The flowers, which are borne in great profusion throughout the season, are about 1 inch in diameter and of a most delightful shade of pale lavender blue. In some gardens B. rotundifolia and its variety are said to spread rather too freely, especially when grown in the moraine, but I have never been troubled in this way. *A. T. J.*

FUCHSIA PROCUMBENS.

THIS is an attractive little creeping species which has proved quite hardy enough for our winters, on one or two occasions withstanding nearly 20° of frost without much injury. F. procumbens makes a close mat of pale-green, delicate-looking foliage about 4 inches in height, from which slender runners radiate in all directions, rooting to the extent of 15 inches or more from the parent.

About midsummer the plant produces numbers of flowers—cylindrical, honey-coloured tubes, the reflexed segments being chocolate-coloured, with a bright daub of arsenical green at their bases.

When these curious and interesting flowers are over, they are succeeded by round fruits, which, green at first, change to crimson and finally ripen in a deep plum-red. By this time they are as large as small Gooseberries, and look very striking amid the golden-yellow which the foliage assumes before it falls. In this garden F. procumbens enjoys a cool, moist, but well-drained, sloping ledge, a dressing of old manure, grit, and loam being given in the spring. It is probable that this delightful plant would winter out-of-doors in most places, but, being dwarf and deciduous, protection may easily be afforded it in very cold weather.

This Fuchsia makes an admirable subject for growing in baskets in the greenhouse or alpine house. *N. Wales.*

SYNTHYRIS RENIFORMIS.

SYNTHYRIS reniformis is a charming little alpine with somewhat kidney-shaped, notched leaves and racemes of pretty blue flowers, a good plant presenting a pleasing sight when in full bloom. It blooms frequently in February and March, especially when in a sunny, sheltered position. It is not difficult to grow in the soil generally accorded to other alpines, but likes a fair amount of moisture during the spring and summer. It grows only some four or six inches high. A native of north-west America, it has proved hardy in our climate for a number of years. *S. Arnott.*

INDOOR PLANTS.

HUMEA ELEGANS.

PLANTS of Humea elegans that were raised from seed sown during August should now be ready for shifting into 48-sized pots, in which they should remain until early in the New Year. Watering the roots should be done carefully at all times. The plants should be grown in a position near to the roof-glass, and they should at all times be kept perfectly cool, as close, stuffy atmospheric conditions soon ruin them, and render them subject to attacks of aphis. If attacked by aphis the plants should be dusted with tobacco powder, as this plant is very impatient of fumigation.

Where smaller quantities of plants are required, it will be sufficient to insert the cuttings in pots of sandy soil, standing them in a propagating case. If slight bottom-heat is available the cuttings will root quickly, but heat should be used very carefully, as too much warmth results in weak, spindly growth. When well rooted, the plants should be placed singly in small receptacles, using a light compost for the first potting. When lifted from a sand bed to be potted they require very careful handling. After potting they should be kept close for a week or so until they become established. *C.*

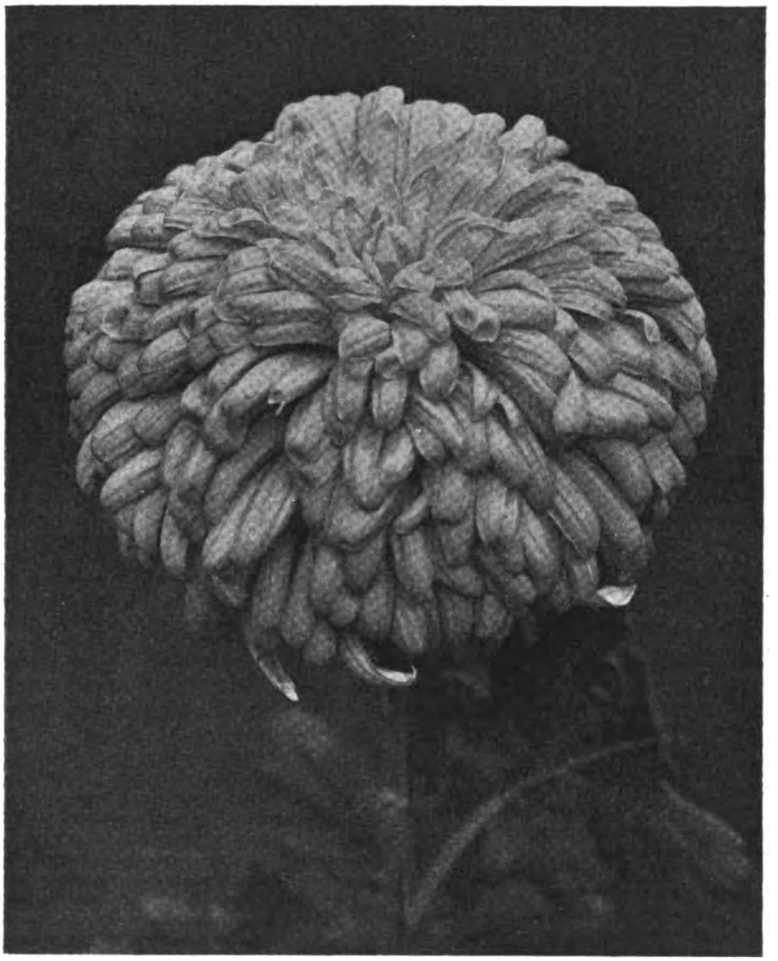

FIG. 110.—CHRYSANTHEMUM RADIANT. R.H.S. AWARD OF MERIT, NOV. 13 (SEE PAGE 300).

CARNATIONS.

CARNATIONS that are about to flower should be watered with diluted liquid manure or soot water on frequent occasions, and fed occasionally with a suitable fertiliser. Concentrated fertilisers of all kinds should be applied with judgment, for if manuring is overdone it may result in the flowers damping. The house should be kept at a temperature of 45° to 50°, and, during dull weather it is essential to maintain a buoyant atmosphere. To attain this condition gentle warmth should be maintained in the hot-water pipes, with a little ventilation on all possible occasions when the weather is favourable.

Continue to insert cuttings until the required stock is obtained; care should be exercised in selecting the cuttings, the best shoots for the purpose being those growing about half-way up the plant, cuttings from the base or near the top of the main shoot generally being unsuitable.

Where a large stock of Carnation plants is required it is best to prepare a bed for the cuttings, formed of several inches of clean sand and covered with a frame to support loose panes of glass, which should be turned every morning.

PENTAS.

CUTTINGS of Pentas carnea (syn. Quartiniana) root readily in sandy soil in gentle heat in early spring, and will develop into bushy plants by the end of summer, set with flower buds for a winter display. It is of a somewhat straggling habit, and when established in small pots should be stopped at the first pair of leaves, and kept pinched as growth proceeds. The pink flowers are borne in terminal cymes, in size and appearance similar to those of the Bouvardia. If desired, the plants may be grown for a second season, in which case, after flowering, they should be cut back, placed in heat, and when breaking freely, shaken out and repotted in a compost consisting of loam and leaf-mould with a little sand added.

During the summer months they may be grown in a cold pit or frame, removing them to the greenhouse in early autumn. The root system is not extensive, and six-inch pots are large enough for yearling plants. When established in their flowering pots the roots may be fed at intervals with liquid manure or a quick-acting fertiliser. *Fred W. Jeffery.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, late Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Pleione.—The Indian Crocuses, as these Orchids are often termed, are of easy culture, and few, if any, of our smaller Orchids are more beautiful when well grown. Considering the quantity of flowers they produce in the dull season, and the beautiful effect afforded when they are used for decorative purposes, space should be found for them in every collection. The flowers of these Orchids keep long in good condition, when used for room decoration, which they adapt themselves to much better than many other plants, whilst their flowers are most useful for buttonholes. P. maculata, P. lagenaria, P. concolor, P. praecox, and P. Wallichiana are now passing out of bloom, and the cultivator will observe that those green shoots from the centre of which the blooms have sprung will, under proper treatment, develop into strong-flowering pseudo-bulbs. As soon as the flowers have faded, the new shoots will already have produced from their bases a number of small white roots, and, as these roots lengthen rapidly, no time should be lost before doing the necessary repotting, for, if the operation is delayed until the roots are long, many are certain to be injured, as they are easily broken. Shallow pans are the best receptacles, as they are easily suspended from the roof, and the plants need plenty of light, especially during the short days of winter. The pans should be well drained to permit the free passage of the large quantities of water these plants require when in full growth. Pans of 8 to 10 inches in diameter, holding about 18 to 20 pseudo-bulbs, will be found useful sizes. In repotting, instead of dividing the growths, it is advisable to place them in clumps, arranging the pseudo-bulbs almost touching each other. The potting material should consist of equal parts of fibrous loam, peat, and Sphagnum-moss, well mixed together, with the addition of a fair quantity of coarse silver sand. Over the crocks place a layer of Moss to prevent the finer parts of the compost getting down into the drainage; then fill the pan to within an inch of the rim with compost, on which the plants should be placed, the space between the bulbs and the sides of the pan being filled with compost; also, where possible, some of the roughest of the material should be placed between the pseudo-bulbs. In filling in around the bulbs it is desirable to work some of the heads of Moss in with the compost to grow, as Moss provides a wholesome moisture around the plants, in which they luxuriate.

HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Cordon Trees on Walls.—The roots of Cordon fruit trees should be under control or the fruits will be badly coloured. Should they exhibit this defect the trees should be lifted and replanted nearer the surface, reducing any strong roots. The soil, especially under and around the roots, should be rammed thoroughly. The bole of the tree should be set about nine inches from the wall. The main roots will not then be so liable to suffer from extreme dryness, which a wall often causes. It further offers greater resistance to attacks of woolly aphis. In planting it is very important to see that all the roots are set out regularly, taking care that they do not incline in a downward direction. In the case of large trees it may not be possible or desirable to lift or even root prune the whole of the roots in the one operation; half the roots may be pruned on the one occasion, deferring the remainder of the work for the next season.

Figs.—Fig trees often grow too rampantly, pointing to the need of severe root-pruning. If the root medium is mixed with stones and broken bricks placed on either side, this will result in better ripening of the wood. Grid-iron trained trees are useful for growing on pergolas. The shoots of such trees are often too close to permit of air and light entering freely after the spurs have extended a few seasons. A suitable distance from shoot to shoot is 16 inches. The foliage of certain varieties is much larger than that of other sorts, but the distance or width suggested is one which can be taken as an average.

Staking.—After planting, it is very important that trees should have proper support. Large trees should be secured to three stout pegs driven in triangle shape, 4 feet upwards away from the tree, according to its height, and string or wire attached to the pegs and the tree. A band of hay or a piece of sacking should be placed around the stem of the tree to prevent chafing the bark. This precaution is essential if long stakes are used and similarly placed; for smaller trees one stout stake may be sufficient to hold the tree in position.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Dracaena Goldieana.—This beautiful and distinct species does not seem to be common in gardens at the present day. Well grown specimens are very decorative. When the plants lose their lower leaves and become leggy, the stem should be cut half-way through just under the leaves, and a handful of Moss tied around the cut portion. If this is kept moist, and the plant kept somewhat dry at the roots, fresh roots will develop above the cut on the stem. The top may then be cut off and placed in a suitable-sized receptacle, standing it in a close case until the roots have grown freely in the compost. If the old stem is cut into portions, and the latter laid in fibre in a warm case, a number of them will form roots and make young plants, although this species is by no means so easily propagated as most Dracaenas and Cordylines. D. Godseffiana is a very different looking plant. It throws up a number of slender shoots, forming a bushy, well-furnished head, and is very useful for decorative work. This species is easily propagated by means of cuttings, which root readily in a warm propagating case.

Watering.—During short, dull days watering requires to be done with care. Choose the early part of the day for watering, so that the plants are not too wet over night. At this time it is safer to keep plants on the dry side, taking care, of course, that they do not suffer from want of water. Plants may also be grown successfully in a lower temperature if they are kept on the dry side. Every favourable opportunity should be taken to afford ventilation, even if it is only for a very short period during the day. All plant houses should have bottom ventilators, which should never be closed entirely except during very severe weather.

THE FLOWER GARDEN.

By C. TURNER, Gardener to Emily, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Herbaceous Plants.—The planting of hardy herbaceous plants may be done more or less successfully throughout the greater part of the year—certainly during over eight months if circumstances demand it. But it is best to get the work done as soon as possible before Christmas, or early in the spring. Where existing borders have to be rearranged and replanted, it is sometimes necessary to sacrifice what may be called secondary flowers on some plants, and even the chief bloom of the late-flowering subjects, to enable the work to be proceeded with. This applies particularly where alterations are being done on an extensive scale and have to be completed by a given time One sound reason in favour of early planting is that it allows the plants time to become established in the soil during the cool and more or less moist season of the year, and, being thus early established, these plants are better able to withstand drought caused by drying winds and the hot days of spring. It is, perhaps, as much a matter of convenience as of opinion as to how long a permanent flower border should be allowed to remain undisturbed. Three to four years is often cited as being a sufficient time, but such borders may be left undisturbed longer, and with no serious ill-effects on the most vigorous plant types. However, an occasional overhauling is advisable, if only to curtail the strong-growing plants, nurture the choicer, and introduce fresh variety. Borders for the growing of perennial plants should be thoroughly well made, and enriched proportionately to the kind of soil dealt with Entirely new borders should be prepared beforehand, and the arrangement for planting drawn up, so that the plants may be put in their positions directly they are received from the nursery. Mulching the surface is best done when hot weather is about to set in, but a light covering of strawy material may be placed around the roots of delicate subjects at planting time.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Turnips.—The plants growing in the open should have any dead or decaying foliage picked off, and a little soil drawn up to the roots to prevent them from getting frozen. A few of the largest roots may be lifted, and placed in a shed with sufficient sand or fine soil over them to keep them plump and fit for use. Veitch's Red Globe is an excellent late Turnip; it is hardier than the white type, and keeps in good condition if treated as advised.

Tomatos.—Young Tomato plants intended for early fruiting should be grown on a shelf near the roof-glass in a fairly warm house, where they may be given a little fresh air on suitable days. Give the roots only sufficient water to keep the plants growing, and support each plant with a neat stake. Fumigate the house occasionally to keep down insect pests.

Parsnips.—A few Parsnips may be lifted and stored in sand in case of bad weather, but they are better when dug from the open ground as required. It is a good plan to place litter or rough leaves over a part of the bed to permit of digging the roots in frosty weather.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

The Orchard House.—The value of an orchard house is fully realised after the vagaries of the present season, the protection afforded against inclement weather, even if the house is unheated, being sufficient to ensure a crop of fruit. If the house is heated, the prospects are materially enhanced, as the atmospheric conditions can be regulated to suit the requirements of the trees. Heated orchard houses are chiefly devoted to trees grown in pots, and after these are turned out-of-doors, other use may be made of the house until the time arrives for starting the trees again. Assuming this to be the case, the first opportunity should be taken to thoroughly cleanse the interior of the house. If fruit trees are planted in the house, any necessary work in respect to planting, pruning, spraying, etc., which has not yet been done, should receive early attention, and this work should also be done in houses that are unheated. Trees in an unsatisfactory state of health should be removed and substituted by others from the reserve stock. The soil should be kept moist, as the roots are more or less active throughout the year. When forming new borders, the requirements of the various trees should receive consideration. For stone fruits, old mortar rubble or broken plaster should be incorporated with the soil, and this should be, for preference, rather heavy, but good results are obtained by using soil of a lighter character, provided the roots receive a good mulch and plenty of water during the season of active growth. Apples prefer a moderately heavy loam, and Pears loam of a lighter nature.

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ORCHID NOTES AND GLEANINGS.

ONCIDIUM VARICOSUM.

IN the groups at the Orchid show at the Royal Horticultural Society's meeting on October 30 the beauty of this fine old species was well in evidence, the numerous branched spikes giving a marked effect. The species is a native of that most prolific home of Oncidiums, the highlands beyond Rio de Janeiro, from whence come some of our best cool house Oncidiums, including O. Marshallianum, O. concolor, O. crispum, O. sarcodes and their allies. It first made its appearance in England when a plant of it flowered in the Chiswick Gardens of the Horticultural Society in 1849. The variety Rogersii flowered in the collection of Dr. Rogers at East Grinstead, who obtained a First-Class Certificate for it at the Royal Horticultural Society's meeting on December 15, 1868.

As in many of the Oncidiums the labellum is the most conspicuous part of the flower, and in O. varicosum it varies much in size and form, the variety Rogersii, which is about two inches across, having the labellum divided into four lobes by three clefts, while the original has but one cleft in front.

All the flowers are of bright yellow colour, and two of the finest forms, Charlesworthii and Westonbirt variety, have red blotches at the base of the lip. The varietal name Rogersii is commonly used for the best type, although few appear with its distinctive features. The species and its allies are among our best cool house Oncidiums and last a considerable time in bloom, whilst their value for exhibition in a mixed group at this season was clearly demonstrated on the occasion referred to.

EPIDENDRUM ENDRESIO-XANTHINUM.

THE first inflorescence of a new cross between the dwarf white Epidendrum Endresii of Costa Rica, and the yellow Brazilian E. xanthinum, is sent by H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), who has been one of the few to grow the slender white E. Endresii successfully, and now produces its second hybrid, the first being the E. Endresio-Wallisii, of Messrs. Veitch. The flowers, which are about one inch across, are larger than those of E. xanthinum, which, however, appears in the taller growth and the colour of the light chrome-yellow flowers. The lip is intermediate in form, the parts less fringed than in E. xanthinum, and with a slight trace of the few mauve spots of E. Endresii. *J. O'B.*

THE BULB GARDEN.

THE KING'S SPEAR.

THE Asphodel, like the Amaranth, is frequently alluded to in works of poetry and imagination and has a great claim to antiquity and sentiment, yet the family is but seldom found in our gardens to-day. There is a beautiful variety in the Bog Asphodel (Narthecium ossifragum), which flourishes freely in damp and marshy soil in a certain locality in Keston, where, hard by, the little Sundew thrives. It is not known now how the title ossifragrum (bone-breaking) came to be applied—probably some fancy which arose in the distant past. I have many times admired the Narthecium, both for its graceful bearing and star-shaped yellow flowers, and have been tempted to bring home roots, but with every care expended upon it, it has never done well, and I am quite unable to cultivate it with any success. I have come to the conclusion that it pines for its native, pure air, and will not otherwise be satisfied.

The Asphodel is a native of Europe and hardy in our country. Two varieties are perhaps better known than the others, viz., luteus and ramosus. The former bears a yellow inflorescence, as its name implies, and flowers in the summer, attaining a height of about 3 feet. It is a stately plant, but generally regarded as somewhat inferior to ramosus, the King's Spear. This will reach a similar height or more, and throw out in June numerous branches from the flowering stem bearing spikes of white bloom, which are beautiful and attractive. The foliage is stiff, like that of the Tritoma. It gives no trouble in cultivation and does well in a stiff soil, but I think would be happier if given a lighter medium. It should be planted in autumn and lightly covered with a little old manure and not disturbed until overcrowded. I call to mind a large patch of A. ramosus growing in a cottage garden in Essex years ago. It formed such a pleasing and satisfactory picture that I remember it to this day, and have every confidence in recommending it as a welcome and ornamental contribution to the garden. *T. D. T.*

FIG. 111.—CHRYSANTHEMUM NORMAN. N.C.S. FIRST CLASS CERTIFICATE, NOV. 12; R.H.S. AWARD OF MERIT, NOV. 13 (SEE PAGE 300).

NEW HYBRID ORCHIDS.

(Continued from November 3, 1923, page 260.)

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Count Hayashi ...	C. Dietrichiana × B.-C. Mme. Ch. Maron ...	Flory & Black.
Brasso-Cattleya Lady Vezey Strong ...	B.-C. Digbyano-Mendelii × C. Mrs. Percy Bigland	F. J. Hanbury, Esq.
Brasso-Cattleya La Ruhr	B.-C. Thorntonii × C. Comet var. Maroc ...	Mons. Chassaing, Ferrieres,
Brasso-Cattleya Rosy Glow	C. Leda × B.-C. Mrs. J. Leemann	Stuart Low.
Brasso-Laelio-Cattleya Floss Flora ...	L.-C. Soulange × B.-C. Ilene	H. T. Pitt, Esq.
Brasso-Laelio-Cattleya Metacomet ...	B.-L. Helen × L.-C. Berthe Fournier	Clement Moore, Esq., U.S.A.
Brasso-Laelio-Cattleya Thirza... ...	B.-C. Mrs. J. Leemann × L.-C. Ixion	Charlesworth.
Cattleya Ardens	Dupreana × Hardyana...	Sanders.
Cattleya Falcon	Fabia × Luegeae	Sanders.
Cattleya Hardyata	Hardyana × Fabiata	McBean.
Cattleya Katadin	Empress Frederick × Luddemanniana	Clement Moore, Esq.
Cattleya Sagamore	Empress Frederick × Lawrenceana	Clement Moore, Esq.
Cattleya Selma	Mrs. F. Hurndell (Hybla) × Dowiana aurea ...	Charlesworth.
Cattleya Windsor	Dietrichiana × Venus	Sanders.
Cattleya Zeta	Cowaniae alba × Dowiana aurea	McBean.
Cymbidium Proserpine	erythrostylum × Schlegelii	Sanders.
Cypripedium Charlestonii	Charlesworthii × Lord Ossulston	Cowan.
Cypripedium Clytemnestra	Aeson giganteum × Gaston Bultel	Cowan.
Cypripedium Ijuin	Tracyanum × Actaeus Bianca	Stuart Low.
Cypripedium Phantasy var. Sobriety ...	Glorita × Actaeus Bianca	H. T. Pitt, Esq.
Epidendrum Endresio-xanthinum ...	Endresii × xanthinum	H. T. Pitt, Esq.
Laelio-Cattleya Alberta	C. Tityus × L.-C. Beatrice	McBean.
Laelio-Cattleya Ensign	L.-C. Orion × C. Fabia	Armstrong & Brown.
Laelio-Cattleya Eton	L.-C. Veitchiana × C. Warscewiczii	Sanders.
Laelio-Cattleya Illuminata	C. Fabia × L.-C. Hyeana...	Flory & Black.
Laelio-Cattleya Isolene	L.-C. St. Gothard × C. Rhoda	Charlesworth.
Laelio-Cattleya Marie Theresa	C. Fabia × L.-C. Wellesleyi	Mon. Blévenic, Seine, France.
Laelio-Cattleya Naragansett	L. nigrescens × C. Hardyana	C. Moore, Esq.
Laelio-Cattleya Quita	St. Gothard × Feronia...	McBean.
Laelio-Cattleya Sachem	Charlesworthii × luminosa	C. Moore, Esq.
Laelio-Cattleya Sirona	L.-C. Yellow Prince × C. Antiope	Charlesworth.
Odontioda Aurora Borealis	unrecorded	Sanders.
Odontonia Philosopher	M. St. Andre × Odm. Harwoodii	H. T. Pitt, Esq.
Odontoglossum Desdemona II. var. Rubens	Rossii × illustrissimum	McBean.
Odontoglossum Excelsior	excellens × Mirum	Sanders.
Odontoglossum Plinius	eximillus × Georgius Rex	Charlesworth.
Sophro-Laelio-Cattleya Pervanch ...	C. Syros × S.-L.-C. Marathon	H. T. Pitt, Esq.

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STERILITY IN LILIES.*

THE tendency of many species of Lilies to produce seed irregularly, sparingly, or even not at all, is well exemplified in the old familiar Tiger Lily of our flower gardens. This species has been in cultivation in Europe since 1804; it thrives and blooms abundantly over a wide area; it has been observed in cultivation and also apparently wild in its native home (China and Japan) by persons interested in discovering whether fruits were formed. Yet the author is aware of only two references to the pods and seeds of this species, and the accuracy of these is somewhat doubtful. On the other hand, its fruitlessness has repeatedly been observed wherever it has been grown. The Tiger Lily is one of the most striking examples that can be cited of a plant which blooms in abundance, but is propagated only by vegetative means.

THE LAW OF COMPENSATION.

A ready explanation has long been offered by gardeners and botanists for the condition of sterility found in such plants as the Lilies. It has been generally believed that they are physically unable to develop seeds because the bulbs and bulblets use the available food. The tiny embryos were assumed to be virtually starved to death. This explanation of the condition has seemed so obvious and so correct that it has received the sanction of the most critical authorities, and is stated in Darwin's law of compensation and in Goebel's law of correlation. But this simple and apparently very satisfactory explanation we now know to be entirely wrong, at least in its application to the condition of sterility in the Lilies. Obviously the best evidence of the truth of this statement is the fact that these usually fruitless plants have been shown to be fully able to produce capsules and seeds. Such evidence is in most cases readily obtained.

STERILITY DUE TO INCOMPATIBILITY OF POLLEN.

For a period of about fifteen years Focke persisted in attempts to obtain seed of L. bulbiferum. He secured bulbs from various parts of northern and western Germany, and made many cross-pollinations of their flowers, but obtained at best only a few poor capsules. Finally, bulbs were secured from Switzerland, and with the use of pollen of plants grown from them pods and seeds in abundance were matured on the hitherto fruitless plants.†

The writer has had much the same experience with other species of Lilies. A fine large cluster of L. croceum, all descended from a single bulb, growing in the New York Botanical Garden, completely failed to set seed for eight consecutive years. The numerous flowers that appeared each year were self- and cross-pollinated, but there was never even a slight enlargement of any of the ovaries. In 1921, plants of L. elegans bloomed at the same time as the cluster of L. croceum, and their pollen was used in pollinations. Fine large pods then developed, and these contained many viable seeds. In 1922 these plants of L. croceum also yielded pods and seed by cross-pollination with another strain of the same species. Hence these plants were fully able to mature fruit, and their pollen was likewise able to function in certain reciprocal crosses.

In an effort to discover compatible fertilisations that would produce seed on the Tiger Lily, bulbs of this species have been secured from widely separated localities, some even coming directly from apparently wild plants in China. All plants grown from these have, so far as tested, failed to yield fruits either by self-pollination or by cross-pollination between the different strains. Capsules also failed to form

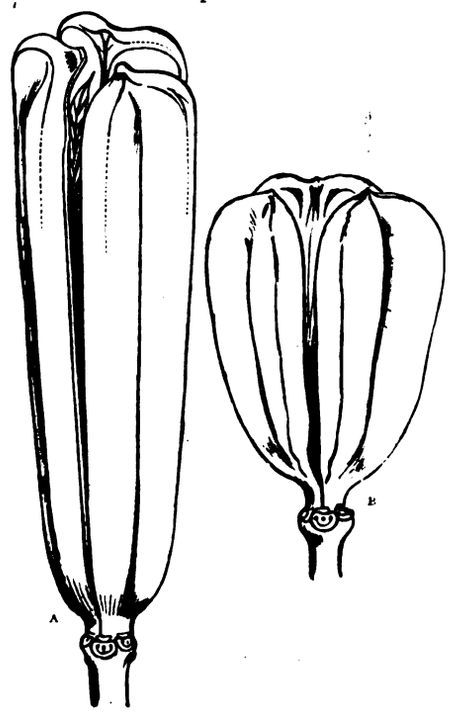

FIG. 112.—CAPSULES AND SEEDS OF (*a*) LILIUM AURATUM AND (*b*) L. SPECIOSUM.

when pollen of such species as L. canadense, L. superbum, L. Henryi, L. speciosum, L. auratum, and L. Humboldtii was used. To pollen of L. warleyense, the ovaries of the Tiger Lily began to enlarge and become upturned, but the capsules did not develop fully, and yielded no seeds. But when pollen of L. Maximowiczii was used fine pods were readily obtained. Potted plants, plants grown in the open, old plants of vigorous vegetative growth, and plants from bulblets blooming for the first time have all produced fine pods from the flowers thus pollinated. Yet on these same plants complete failure resulted from all attempts to produce seed by self-pollination.

It is clear that these usually sterile plants are able to form fruit and seeds, and that their pollen is potent, provided there are compatible relations in fertilisation. The bulb and the bulblet-forming habits of growth, and of vegetative propagation do not render seed production impossible. The sterility is that of physiological incompatibility in fertilisation, a well-marked type which is also seen in numerous species that naturally reproduce exclusively by seeds, and is by no means peculiar to plants that reproduce vegetatively.

In the course of experimental studies with species of Lilium now in progress at the New York Botanical Garden, controlled pollinations have been made for plants of twenty-eight species. In every species thus far studied seed production is decidedly limited by incompatibility in fertilisation.

The phenomena of incompatibility are well illustrated by the results obtained with L. regale, a splendid and beautiful Lily recently introduced from China. Of the ten plants tested, nine were self-incompatible and one was self-compatible. Cross pollination between plants sometimes succeeded and sometimes failed. The same sort of results were also obtained with plants of L. speciosum, L. candidum, L. Henryi, L. parvum, L. tenuifolium, L. Humboldtii, L. Kellogii, L. warleyense, L. longiflorum, and L. auratum.

No capsules have yet been obtained on plants of L. Hansonii, L. Parryi, L. Maximowiczii, and L. chalcedonicum, but in all cases except that of L. Hansonii only a few plants have been tested, and these were all obtained from a single source.

CROSS-INCOMPATIBILITY.

It is to be noted that crosses between different plants of a species in which there is self-compatibility are also frequently incompatible. One is, however, not at all certain that any two plants of a variety of Lily are really of different seed origin, for they both may be the daughter bulbs of a single parent plant, and thus belong to a single clone. If the original plant grown from seed was entirely self-compatible, then one may expect the members of the clone to fail to set seed in crosses. The condition is similar to that encountered in fruit-growing, when an entire orchard of a self-incompatible variety of Apple or Cherry fails to set fruit unless proper cross-pollination with another variety is provided for. Without doubt it is often the extensive vegetative propagation of a single self-incompatible plant that makes it difficult to secure compatible crosses from apparently different plants of certain varieties of the Day Lilies and the true Lilies.

Seedlings of L. longiflorum have been grown to the flowering age in the course of the studies here reported. Many of these were self-incompatible, a few set seed with their own pollen, and many crosses with other plants failed. Such ranges of variation in regard to the compatibilities of sister plants of seed origin are very common in many species.

OTHER TYPES OF STERILITY.

There are other types of sterility in the Lilies besides that of incompatibility. In certain hybrid varieties, L. Batemanniae for example, there appears to be complete impotence, a type of sterility that is very characteristic of hybrids; the spores, both in pistils and stamens, are aborted and functionless in any relation. A one-sided abortion characteristic of intersexes has also been noted in at least one species.

HOW TO OBTAIN SEED.

The principal condition limiting seed production in the Lilies is that of incompatibility. When seed is desired from plants that are yielding no seeds because of this condition, it is simply necessary to obtain other stocks of the same species and interplant so that cross-pollination may be effected by insects, or by hand. If the new stock is cross-compatible, seed will readily be produced, but if it is not, seed will not be formed until stock which is compatible is secured. Usually compatible clones may readily be obtained, and often a single planting of commercial bulbs contains such a mixture of stocks, but for certain species and especially for L. tigrinum, L. Hansonii, and L. candidum, it seems somewhat difficult to secure compatible fertilisation.

One of the principal sources of failure in establishing a planting of Lilies in one's garden is the poor physical condition of bulbs when received. Especially is this true when bulbs are imported. In many species the dormant period is very short or is entirely absent. With the death of the top there is usually continued development of the daughter bulbs, and growth of feeding roots. Without doubt the best means of securing healthy and vigorous bulbs of many species at least, is to grow them locally either from seed or by vegetative propagation, and to transplant so that the bulbs are only out of the ground for a short time when they are most nearly dormant.

* "Sterility in Lilies," by A. B. Stout, of the New York Botanical Garden, New York City, and published in the *Journal of Heredity* (Organ of the American Genetic Association), No. 8, Washington, D.C., August-December, 1922.

† Several papers by W. O. Focke bearing on phenomena of self-incompatibility were published between the years 1887 and 1893.

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Such excellent varieties as the Easter Lily, the Madonna Lily, Henry's Lily, the Lance-leaved Lily (L. speciosum), and the Regal Lily are readily grown from seed. Frequently blooms may be had on seedlings in two years—certainly they may be had in three years. The growing and breeding of Lilies from seed presents many interesting possibilities, not only to the commercial growers of bulbs, but to the amateur gardener as well.

In Lilies the bulb habit of growth does not in the least affect seed production. To obtain seed one must either grow self-compatible plants or grow strains that are cross-compatible. When this is done, seed in abundance may readily be obtained except in the relatively few cases of impotence from intersexes or hyoridity.

In the above summary of results noted over a term of years with twenty-eight species of Lilium in the New York Botanic Garden, Mr. A. B. Stout has observed that many species seem to be self-sterile, and as in the main the observations recorded differ markedly from those made on the same species in Britain, it may be well to enquire if climatic and cultural conditions have any bearing on the compatibility of Lilies, and, if so, to what extent.

In the New York Garden the Tiger Lily has been observed to be self-incompatible, as well as L. croceum and L. speciosum, and none of the following species has been found to be more than occasionally self-fertilising:—L. regale, L. candidum, L. Henryi, L. parvum, L. tenuifolium, L. Humboldtii, L. Kellogii, L. Willmottiae, L. longiflorum, L. auratum, L. Hansonii, L. Parryi, L. Maximowiczii and L. chalcedonicum.

Broadly, it may be said that in this country most of the Lilies of temperate regions are self-fertile to the extent of producing fruit in a reasonably sunny summer. The so-called sterility of the cultivated forms of L. candidum has long been remarked, but this form bears fruit freely in hot summers such as those of 1911 and 1921. The same thing has been noticed with L. speciosum and L. auratum (Fig. 112), which the able investigators of the New York Garden find to be self-sterile, but, curiously enough, instances of fruiting in L. auratum are far more numerous in the comparatively humid climate of Scotland than in the south. In Great Britain it is difficult to believe that L. regale is even moderately self-incompatible, still less markedly so as Mr. Stout finds it in the New York Garden; when this species was first introduced (as L. myriophyllum) solitary, uni-flowered plants found their way to isolated places, and the free production of fruit on them was remarked. In a bed of 100 adult specimens of this Lily it would be difficult in September of any but a most unfavourable year to find a single example without fully developed capsules on plants the stigmata of which had been protected from outside interference.

L. Hansonii does not normally fruit in this country, but in the two exceptionally hot summers already referred to it bore a noticeable proportion of capsules, the contents of which germinated in due course, and came true to type. L. Henryi and L. Willmottiae are prolific seed-bearers, even in unfavourable seasons, and the writer has failed to observe any difference in fecundity between caged plants and those open to fertilising insects of the day or night.

In Britain, in the ordinary course, L. parvum, L. Kellogii, L. Humboldtii, L. Parryi and L. tenuifolium show no trace of incompatibility, nor does L. chalcedonicum. Mr. Stout's observations as to the sterility of L. Batemanniae coincide with those of other observers; it seems to be a mule, but that can hardly be said of L. tigrinum, a very shy seed-bearer even in the hottest of summers.

The average New York summer is far hotter than our own, and the, to us, unusual behaviour of the Lilies in the Botanic Garden there, as recorded above by Mr. Stout, cannot be ascribed to a deficiency of sun-heat. Unless we know the conditions under which the various species are grown, it would be improper to suggest that cultivation, and possibly lack of moisture at the root in hot summers, may have some bearing on the peculiarities noticed by Mr. Stout. *A. Grove*

TREES AND SHRUBS.

CASTANEA SATIVA (VESCA) HETEROPHYLLA.

SPECIMENS, comprising foliage and fruits, of Castanea sativa heterophylla, from the Arboretum at Verrières, were exhibited at a recent meeting of the French Botanical Society. The tree in question is interesting in that it bears at the same time, on certain branches, leaves of the normal, entire, character, and on others, laciniate foliage (Fig. 113).

The tree in question is already of a fair age, and no particular attention has hitherto been paid to it, at any rate in latter years. It would appear to be a case of "chimera" comparable to a certain extent to the case of Amygdalopersica Formonti, at Montreuil, near Paris, a Peach tree bearing branches of Almond, which was described by M. Rivière (*C. R. Académie des Sciences*, 1915, page 497).

In the case of the Chestnut, a variety with laciniate leaves must have been grafted on to the type with entire foliage. All the Castaneas called heterophylla to be found in parks or nurseries, or which have been described, appear to bear foliage more or less laciniate without displaying any tendency to foliar dimorphism.

There is a variety called heterophylla dissecta, described in the *Gardeners' Chronicle* of 1872 (page 1289), which was said to have borne, at the base of the branches, laciniate, almost linear leaves, elongated, and with pendant extremities. This description agrees fairly well with the appearance of the Verrières tree and of the seedlings arising from it, if the branches of the original which bear entire leaves are ignored.

At various times, seeds of the two forms have been sown. The fruits are, moreover, distinct; on the branches with entire leaves, the spines of the fruits are a little longer, and very much thicker than on the fruits borne by the branches with laciniate foliage. All the seeds of the normal-leaved form have reproduced that form, while those of the laciniate-leaved form have yielded, in the aggregate, a little more than half the number of plants with normal leaves, and the remainder laciniate. *A. M.*

FIG. 113.—CASTANEA SATIVA (VESCA) HETEROPHYLLA.

VERONICA SALICIFOLIA.

JUDGING from the relatively small number of specimens one meets with in this part of the country Veronica salicifolia does not seem to be so much grown as it deserves to be. It is a fine, evergreen, flowering shrub which, like most of the other shrubby Veronicas, adapts itself readily to almost any kind of soil and situation in which ordinary flowering shrubs will succeed, and when it is in full bloom it is a strikingly beautiful plant. Possibly its rather unusual occurrence in this district may be due to an impression that it is not quite hardy, but this is not the case.

Both in Nicholson's *Dictionary of Gardening* (vol. iv., p. 150) and Webster's *Hardy Ornamental Flowering Trees and Shrubs* (p. 197) it is described as "half-hardy," and in his *Trees and Shrubs Hardy in the British Isles*, Mr. W. J. Bean states that "it is one of the tender sorts, only adapted for the mildest parts of Britain" (vol. ii., p. 639). Such statements are, however, wide of the mark. In a paper on "Shrubs and Climbers," read at one of the meetings of the Royal Caledonian Horticultural Society in 1922, Mr. J. M'Gran, of Coodham Gardens, near Kilmarnock, where a large collection of flowering shrubs is grown, referred to it as being "exceedingly hardy." I have grown it here for well over a dozen years, and it has not suffered any damage from frost. It came through the severe frost of November, 1919, when in some parts of southern Scotland the thermometer fell almost to zero, one of the severest snaps we have had for many years, unscathed, while old plants of some other Veronicas I possessed were completely destroyed. In fact, I have never yet seen Veronica salicifolia injured by frost, and when statements to the contrary are made, the possibility of mistakes in its identification should be kept in view.

As may be seen from its seedlings, which it produces naturally in great abundance, Veronica salicifolia is a somewhat variable plant. The variations, however, so far as my experience of it goes, are mostly in the habit of the plant and form of the foliage, some plants being more robust than others, while in some the leaves are larger and of a deeper green colour than in others. But the most striking thing is that among the seedlings two

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types which are quite distinct in their habit of flowering may appear. In one of these the flowering period is, as in V. Traversii and most of the other shrubby species, confined to two or three weeks in June. In the other the flowering period extends over the rest of the season, that is, from June till late autumn, or even until the frosts appear (at this date—November 13—I have two plants which still show a few racemes of unopened flowers), which, of course, greatly adds to its value as a decorative subject. So far, I have found no variation in the colour of the flowers, which are white suffused with delicate lilac. The racemes are from five to six inches in length, and the flowers, which emit a rather powerful, honey-like fragrance, seem to be very attractive to bees of all kinds, which visit them in large numbers. *A. D. Richardson, Edinburgh.*

ARBUTUS UNEDO.

MANY complaints have been made recently concerning the failure of this beautiful shrub when planted as a bush. Its hardiness is questioned, but recent winters have not been severe. We have in these grounds a fine clump planted some twenty years ago, and now about 16 feet high, covered with berries and bloom also. The position is a very cold one, on the north-east side of a high wood and rather in the shade. There appear to be several hybrids, as variations in size of the berry, colour and setting qualities are most noticeable. Recent plantings of Arbutus have been very successful. Plenty of old mortar rubble should be worked into the soil at planting time to provide lime and ensure drainage, as the Arbutus dislikes stagnation. The roots should be kept as near the surface of the soil as possible and given a good mulch. *G. W. Stacey, Chorley Wood, Cedars.*

NOTES FROM WISLEY.

THE majority of people who visit Wisley go for the purpose of seeing and acquiring information about plants devoted to the decoration of gardens. There are, however, other activities of the Royal Horticultural Society which are developing into first-class national importance. For instance, additional land lately acquired at Wisley is to be employed by the Society in conjunction with the Ministry of Agriculture for testing varieties of hardy fruit for commercial purposes, and large numbers of fruit trees are about to be planted. These are chiefly standard varieties which will serve for comparison with new or comparatively unknown varieties.

In the case of Apples, three distinct stocks are being used, and are being propagated at Wisley. These have rooted well this year and it is probable that over 200 will be obtainable from the stool-beds.

Any new varieties selected for trial which show promise of commercial utility will be sent to certain research stations distributed over Great Britain, which are giving a part of their land to assist in these trials, and in due course reports will be made on the crops obtained and on their commercial value in particular districts.

Running through these new fruit plantations at Wisley are some wide Rose borders which were planted last winter. Taking into account the very sandy nature of the soil, the display made by these plants this year has been most satisfactory.

In the entomological department investigations are being made with regard to eelworm attacks on herbaceous Phloxes, the effect of which is to cause spindly growth accompanied by fasciation of the leaves and cracking of the stems. It has been observed that every variety which has been artificially infected with eelworm has been susceptible to attack, but that under natural conditions there is one variety which is apparently resistant, namely Phlox Antonin Mercie, with bluish-lilac flowers and a large white eye.

A new species of green fly of a bluish-green colour has been discovered at Wisley. It was found on the taproot of a plant of Dianthus plumarius, which was sent in to the gardens. This species has appeared also on one of the mossy Saxifrages.

In the Department of Mycology experiments are being carried out in connection with a new ailment affecting Sweet Peas under glass. Some diseased leaves of Sweet Peas were sent in for diagnosis and appeared to be suffering from mildew, but on closer examination it was found that the plants had been attacked by the white form of a brown mould. This disease has been transmitted to healthy plants by dusting on them the spores from infested leaves, and it is evident that it may become a quite serious pest under close conditions. This fungus has also been found on plants in the open, towards the end of the flowering period.

On the rock garden are still to be seen a few belated blooms such as those of Veronica catarractae, which are white with a purple eye, and of Veronica Lyallii with lilac petals and a crimson eye. These plants are members of a little plantation composed wholly of species of Veronica. The bright red flowers of Schizostylis coccinea, which has done very well this year, are bowed to the ground, but Ceratostigma plumbaginioides still provides a patch of blue amid its reddening foliage. Prunus Pissardii, although purple-leaved througout the year, betrays a much redder tinge towards leaf fall, and contrasts well with the yellow leaves of Clethra alnifolia.

The heavy storms have completely bared a number of trees of their leaves, but the tawny foliage of Eucryphia pinnatifolia seems remarkably persistent. The little fruits of this tree are now swelling, but will not be fully ripe until October or November of next year, when they will have attained the size and consistency of Nutmegs, and will effect the dispersal of their seeds by splitting into twelve or more pieces.

Near the foot of the rock garden is a large specimen of Abelia triflora, which has reached the height of about ten feet; after fertilisation of the flowers the ciliated sepals on top of the fruit grow larger, giving the plant a feathery look, which is reminiscent of Clematis vitalba, with its plumed carpels. *J. W. G. White.*

PRUHONICE PARK, CZECHOSLOVAKIA.

IN my note on Count Ambrôzy's evergreen garden at Malonya in *Gard. Chron.*, p. 172, I referred to another famous park of the new Czechoslovak Republic—the park of Count Ernst Silva Tarouca at Pruhonice, near Prague. This important example of landscape design is very different in style from that of the garden at Malonya.

Pruhonice is a large estate a few miles south of the Bohemian capital, and the whole park comprises not fewer than 740 acres. The ground is naturally well adapted to the development of broad landscapes, as it forms a series of continuous valleys with narrow streamlets, and ineludes two large ponds and a small lake. The soil is, for the most part, a rather fertile sandy loam. The natural forest consists of Oak (Quercus pedunculata), Linden (Tilia platyphylloe and T. parvifolia), Elms (Ulmus foliacea, hitherto known as U. campestris, and U. glabra (or montana)), Carpinus Betulus, Acer Pseudoplatanus, Betula verrucosa, as well as large areas covered with Pinus sylvestris. The wooded slopes, the wide meadows and the lakes form pretty natural scenes, and Count Silva Tarouca, who came to Pruhonice in the fall of 1886, set himself the task to develop the natural beauty of the country and to create quite a new type of landscape by planting, at least at some points, large masses of foreign Conifers and deciduous trees and shrubs, as well as different kinds of herbaceous perennials.

In some respects his work at Pruhonice may be compared with that of Prince Pückler at Muskau, Germany, who has been most successful in demonstrating the German art of landscape design. On the other hand, Pückler's well-known park that was laid out between 1815 and 1840 looks quite different, and is of a much simpler composition. Pückler contented himself with the use of the endemic trees and shrubs, while the master of Pruhonice is well acquainted with the foreign woody plants hardy in Central Europe, and tries to employ the rich dendrological material introduced from Eastern Asia and North America since the days of Thunberg and Michaux. Even the latest introductions by Wilson, Forrest and Farrer may be found in his plantations.

The first description of the park at Pruhonice, by Count Silva himself, appeared in 1909 in Part I. of the publication *Die Gartenanlagen Oesterreich-Ungarns in Wort und Bild*, edited by the then Dendrological Society of Austria-Hungary, of which he was the president. Unfortunately, the war put an end to the activities of this young society, but in 1921 a new and similar society was founded at Prague under the leadership of Count Silva and Professor Domin.

I am by no means able to give a full account of Count Silva's fine work in landscape creation. I only wish to draw the attention of readers of the *Gard. Chron.* to it. Everyone interested in landscape design who visits the older and better known parks of Bohemia, viz., Worlik or Schönhof, should not fail to pay a visit to Pruhonice. It may be reached by motor-car in about half an hour from Prague.

Count Ernst Silva Tarouca is a born landscape designer. He never had a professional adviser, and never made a plan of his park. He is his own gardener. He gained his knowledge by experience, and looks at everything with his own eyes. Being a great sportsman, too, he has that deep understanding and feeling for nature's own features which is so indispensable to anyone who tries to develop and to refine broad landscape beauty. He takes the hints given by nature itself. In choosing and arranging his plant materials he considers first the adaptability of plants for the local conditions of soil and climate. His long experiences have taught him that there are, besides our endemic plants, a good many foreign ones which he can use even with better success. Instead of the Norway Spruce, for instance, he plants the Douglas Fir, and many American Conifers show a much healthier and more rapid growth than our common European species. Abies concolor, Picea pungens, Abies arizonica, A. subalpina, Picea sitchensis and P. Engelmannii, to mention only a few examples, are thoroughly naturalised, and foreign deciduous trees, like the different red Oaks, form part of the plantations.

Naturally, the wide grounds are divided in about eight different parts, each representing a small park by itself. The new castle stands on a level with the neighbouring fields, and looks down upon a pond surrounded by large Alders, Elms and other native trees. To the east of the pond a rather steep natural rock garden rises to about fifty metres above the water. It is one of the most peculiar features of the park, formed of schistose rocks well suited to the cultivation of Alpine plants. In the course of twenty years, Count Silva has brought together quite an unique collection of almost all the Alpine plants from the northern temperate zone that are adaptable to the climatic conditions of this part of central Europe. He even partly succeeded in cultivating some rare plants of the Mediterranean mountains and the highlands of New Zealand and South America.

Owing to his long absence from his park during the war, and to the difficult situation created by it, this immense rock garden suffered much damage. Nevertheless, it still contains a great many very interesting herbaceous perennials and small shrubs growing well, in spite of the want of sufficient care. For instance, he has plants of Acaena argentea, A. Buchananii, diverse Acantholimon, many Alsine, Androsace Chamaejasme, A. foliolosa and others, Andryala Agardhii, Antennaria plantaginifolia, several Anthemis.

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Artemisia Baumgartenii, A. nitida, Asperula Athoa, Aubrietias, Bergenias, Callianthemum anemonoides, a great number of fine Campanulas, Cherleria sedoides, Dianthus frigidus, D. neglectus, D. nitidus and others, Erodium Manescavii, Geranium lancastriense, various Globularia and Helianthemum, Matthiola pedemontana, Menthella corsica, Phyteumas, Potentilla alchemilloides, Primula Arctotis, P. Balbisii, P. marginata, P. pubescens, Saponaria caespitosa, a host of the rarer Saxifragas, many Sempervivums, Townsendia Wilcoxiana, Veronica aphylla, V. gentianoides and others. Among the shrubs there may be seen species of Abelia, Adenocarpus, Andromeda, Cytisus, Daphne, Escallonia, Fendlera, Hymenanthera, Gaultheria, Gaylussacia, Lithospermum, Pachystima, Phyllodoce, Salix, Santolina, and many others. There is quite a collection of Cotoneasters, representing such species from China as C. Dammeri, C. adpressa, C. Dielsiana, and a number of still unnamed forms raised from seeds I collected in 1914 in Western Yunnan, especially on the Lichiang Range. Of the genus Rhododendron, too, some very good species are growing well, viz., R. racemosum, R. poukhanense, and, of course, the well-known European species. Jasminum Beesianum ramps over the rocks as freely as in its native country. A great surprise for the dendrologist is Caesalpinia Gilliesii, and a group of Umbellularia californica also deserves special notice. Many forms of luxuriant creeping Junipers may be noted. Of the rare jewels, however, the most delicate high Alpine plants, once the most characteristic features of this giant rockery, very few have survived.

Opposite the rock garden, on the slopes west of the pond, a huge planting of hardy evergreen Rhododendrons surrounded partly by Conifers forms a striking part of the landscape. Farther to the north-west some groups of Conifers, such as Abies concolor, A. arizonica, and others are very promising for the future. On the meadow west of the castle groups of Crabapples and other pretty, flowering, small trees or big shrubs are planted. Late in the fall vigorously growing vines, like Vitis amurensis and V. Coignetiae, develop a splendid colour effect.

Further to the south, towards the end of the view from the castle, a very small pond covered with Water Lilies, and a waterfall, are surrounded by beautiful plantations of hardy perennials, early-flowering Azaleas, herbaceous Paeonies, and some rare shrubs, such as Viburnum rhytidophyllum and Hydrangea Sargentiana, as well as Lilacs, Japanese Quinces and other deciduous shrubs. The strange Pyrus Niedzwetzkyana shows its blood-red flowers and young leaves in spring, followed in the autumn by big purple fruits.

This part of the park adjacent to the castle may be regarded as a kind of pleasure ground. Farther to the south and south-west the landscape forming the real park extends for more than two miles. I cannot give a detailed account of even the more prominent parts of it. By turns the way leads over lovely meadows with picturesque groups of high trees, through more thickly wooded slopes, along shining lakes or densely vigorous plantations of Conifers or deciduous trees. One of the loveliest parts is the "deer garden," with its lake-like pond, and its long views over the winter, framed by giant Oaks, to the more distant scene, are skilfully arranged by the Count.

In a very sheltered part of the deer garden, called Hreben, a rich collection of young evergreens has been made. Besides such Conifers as Cedrus Libani (raised from seeds from the Cilician Taurus), Sequioa gigantea, Cryptomeria japonica, Libocedrus, Thujopsis, Cephalotaxus, Abies magnifica, Picea polita, Tsuga Pattoniana, and Torreya nucifera, quite a number of varieties of Ilex Aquifolium, Aucuba japonica, Berberis Julianae, B. Hookeri, Viburnum Davidii, V. rhytidophyllum, V. utile, Cotoneaster salicifolia, Lonicera pileata and L. nitida, Kalmias, Osmanthus, Pernettias, Phillyrea decora, Prunus Laurocerasus, P. lusitanica, Skimmias, Stranvaesia, Umbellularia and others seem to like the position, which is well protected against cold winds. Not far from it on a southerly, sunny slope, a collection of attractive berry-bearing shrubs is to be found. I noted among others Pyracantha coccinea and P. Gibbsii, many Cotoneasters, different Berberis, Callicarpa japonica, Euonymus species, Mahonias, Rosa species, Symphoricarpus, Symplocos and several Viburnums.

In other parts of his large park Count Silva Tarouca has made daring attempts to use masses of Conifers and deciduous trees with diversely coloured foliage, the main plants being such as Fagus sylvatica atropurpurea, Acer Schwedleri, Populus argentea, Berberis atropurpurea, Prunus Pissardii, Abies concolor, and Picea pungens. Most of these plantations are still too young to judge their real effect, but some of them are emphatically good, even in their present state of development. Here or there one might wish the artist had used those red and bluish or silvery colours to even a greater extent. The landscape scenes of this park are so extensive that often hundreds of Fagus sylvatica purpurea or Abies concolor are needed to produce the desired effect.

Every earnest scholar of modern landscape design should be thankful to Count Silva for his attempts to create natural scenes of quite distinct aspect. Nobody knows better than the artist himself how difficult such a task is. All of us who have the good fortune to study these experiments may be dead long before the true beauty of these plantations makes its appearance. It needs at least two or three generations of men to finish a great park. The best the first can do is to lay the right foundations and to prepare the grand scenes in the proper way. It is hoped that Count Silva may live long enough to do this.

I cannot close my notes on Pruhonice without mentioning the trial garden of the Dendrological Society of Prague. This society is to a certain extent the successor of the Dendrological Society of Austria-Hungary, founded in 1908. It has its garden at Pruhonice, founded in 1909, and Mr. F. Zeman, a very skilful gardener, who had been foreman in the famous Veitchian nursery at Coombe Wood, is still superintendent of the society's grounds. The Czechoslovakian Government takes a great interest in the work of the new society, and thousands of valuable trees and shrubs, as well as herbaceous perennials, are now raised in this garden for the benefit of the members of the society, that seems to prosper as well as the present circumstances will permit. The park at Pruhonice and the gardens of the society are well worth a visit by everybody interested in landscape design and dendrology.

Camillo Schneider.

VEGETABLE GARDEN.

EDIBLE LAGENARIAS.

Lagenarias having been somewhat in evidence at recent meetings of the Royal Horticultural Society, a few remarks on the value of this family for table use may be of interest to readers.

Lagenaria vulgaris edulis is a comparatively small variety; the largest and best is L. leucantha longissima, a variety which in Southern Italy produces fruits one and a half yard in length.

FIG. 114.—MESSRS. E. WEBB AND SON'S GOLD MEDAL EXHIBIT OF POTATOS AT THE NATIONAL POTATO SOCIETY'S EXHIBITION, BIRMINGHAM (SEE PAGE 314).

When these are cooked, like Vegetable Marrows, in the Italian style, they make a very acceptable dish. They should, however, be used when they are quite young, otherwise the shell becomes very hard and dry.

If the pulp of such a variety as Hercules' Club (L. clavata), which was shown at the R.H.S. meeting on October 30, is carefully extracted and the shell hung in the sun to dry it becomes very hard and lasting, and, in the hands of a modern Hercules forms a light, handy and effective weapon of offence.

The Italian name of the edible variety is Zucca di Pergola, *i.e.*, the Pergola Gourd. The name suggests the proper method of its cultivation.

In a warm summer it might be cultivated fairly successfully in the open in the South of England. *S. B. Dicks.*

BRUSSELS SPROUTS.

Plants of Brussels Sprouts should now be yielding well. All dead leaves should be kept picked off and cleared away. If the sprouts are not broken off too near the stems, fresh growths will appear in the spring, and provide a useful crop of greens, when, perhaps, other winter greens may be scarce. Do not cut the tops off the stems, as is sometimes done, as these form a protection for the sprouts;

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they should be left on all the winter, and, if green vegetables are short in the early spring, they may be used then.

CHICORY.

THE Chicory is a very useful winter salad plant. The roots may now be dug up, four or five placed in an 8-inch pot filled with old potting soil, and stood in the Mushroom house or any shed from which the light can be excluded. Water the roots, and again afterwards if needed. The best produce is obtained when growth is not unduly hurried, therefore pot a few roots at a time, and allow the shoots to develop steadily.

Another way of forcing Chicory is to take up the roots, trim off the leaves about half an inch above the neck and put the roots in a dark cellar or other place where the temperature is warmer than the outside air. Alternate layers of sand or fine soil and Chicory roots are placed in position, laying the roots horizontally with the necks pointing outwards, clear of the sand or soil, so that the leaves may grow away freely.

HOT-BEDS.

IT will soon be time to prepare hot-beds for early forcing, and advantage should be taken of mild and still weather to gather material for the purpose. As soon as all the leaves of deciduous trees have fallen, they should be raked up and carted to the frame yard, ready for mixing with long stable litter. Leaves and litter combined furnish a more lasting and steadier heat than when leaves are used alone, and both should be turned over on one or two occasions before finally making the bed. When placing the material on the site of the hot-bed allow for a greater space than the frame will actually occupy, to permit of adding fresh fermenting material as a lining should it be necessary to do so to maintain sufficient warmth in the frame. *T.*

POTATO CATRIONA.

EARLY in April of this year I planted 7 lb. of Potato seed of the variety Catriona. The crop when lifted weighed 353½ lb., the nine largest tubers weighing 11 lb. *H. S. Dean, Elton Hall Gardens, near Peterborough.*

HARDY FRUIT GARDEN.

NOTABLE VARIETIES IN 1923.

IN a year when fruits have been scarce, certain sorts have cropped satisfactorily in these gardens. Of several varieties of Peaches grown in the open here, trees of Peregrine on a south-west wall ripened large, highly-coloured fruits, whilst most other varieties failed to bear. This is one of the best Peaches for growing both inside and out-of-doors. The fruits require to be gathered before they are perfectly ripe.

Nectarine Pine Apple on a south wall set an abundance of fruit which had to be severely thinned; probably the flowers of this tree escaped injury by frost, as it blossomed late. This particular Nectarine requires plenty of water at the roots. Our best Cherries were Governor Wood and Black Heart from trees on a south-east wall. Of Pears, cordon trees of Conference, Durondeau, and Beurré d'Jonghe have yielded well, and we had satisfactory crops of Plums Early Rivers, Kirke's and Victoria from trees on a south-east wall.

The best of our culinary Apples were Lane's Prince Albert (which never fails to give a good return), Potts's Seedling (the best early dessert Apple), Newton Wonder, Bismarck, Magnum Bonum, Kentish Fillbasket, and Radnor Beauty. Of dessert Apples the best cropped this year were Allington Pippin, Beauty of Bath, Lady Sudeley, James Grieve, American Mother, Ribston Pippin, Baxter's Pearmain, Sturmer Pippin, and Newtown Pippin. This last variety we have just gathered, and it keeps well until April and May; it has given a good crop from an espalier-trained tree. Utility and The Earl were our best Strawberries. Autumn Raspberries furnished a good crop *A. B. Wadds, Englefield Gardens, Reading.*

THE WOOLLY APHIS OF THE AURICULA.

IN the current number of the *Entomologist's Monthly Magazine*, there is a short description by Mr. F. Laing, M.A. (British Museum), of the species of Aphis responsible for the damage done to the roots of Auriculas. Its correct name is Geoica eragrostidis (Buckton), although for many years it has been known, in the columns of the *Gardeners' Chronicle* and in books relating to Auricula growing, as Trama auriculae, which name was given by Murray when he described this pest (*Gard. Chron.*, May 5, 1887, p. 570). Murray's description and figures clearly show that the species which he describes is not a Trama, but appears to be identical with Buckton's Geoica eragrostidis.

This short note is to point out this long-existing mistake and the importance of correctly determining these root aphides. For many years considerable confusion has existed as to the identification of members of this difficult group, but Mr. Laing has been at work on these aphides and endeavoured to sink the numerous synonyms which exist.

The Auricula root-aphis is common on the roots of grasses, e.g., Poa, and is often unwittingly introduced with soil in which plants are to be grown. A grower of Marguerites for the London markets lost a large number of his plants through the attacks of this particular species of root-aphis. Some plants had been potted in soil which had been stacked for some time in the nursery, and these grew healthily and were quite free from this pest, while other plants, potted in soil obtained directly from a pasture, were severely attacked, with the result that many died.

There appear to be two colour forms of root-aphis on the Auricula—(i) the common subterranean form, which is whitish in colour, and (ii) the form found round the "collar" of the plant, more especially in spring, which is greenish, though morphologically the same. The subterranean form lives surrounded by a woolly secretion, on the roots in little pockets of soil. The female aphis is nearly glabrous, has no cornicles or honey-tubes, and has five-jointed antennae. *G. Fox-Wilson, R.H.S. Laboratory, Wisley.*

HOME CORRESPONDENCE.

Horticulture at the British Empire Exhibition.—Quite recently I was privileged to visit the British Empire Exhibition grounds at Wembley and was surprised and delighted to see how splendidly horticultural skill is being used there. The whole conception of the Exhibition is marvellous, and the Exhibition authorities have particularly favoured horticulture. The sites secured by certain firms are, I imagine, just as good as they can be. Some of these firms are already busily engaged on their exhibits, and I understand that some prominent firms, who lacked the necessary imagination and enterprise, are now offering the more enterprising ones large sums of money to forego their positions. *Arthur McArthur.*

The Pruning of Fruit Trees.—Mr. Brotherston's interesting and instructive article on the pruning of fruit trees, p. 238, reminded me of the fact that the late Mr. J. Turner, who was for many years gardener at a large establishment in Surrey, used to employ the same method, and as a journeyman there at that time I can personally testify to the highly successful results. Whether the system would be successful in the case of trees growing in heavy, clay soil, I have not had the opportunity of testing, but on the sandy soil of that part of Surrey we never failed to obtain a good display of well developed blossoms, and later of first-class fruits. Mr. Turner started this system of pruning in the first place for the same reason as Mr. Brotherston, as the herbaceous borders were largely backed by fruit trees and were dug early to get the work forward. *W. A. Dunn, Brockwood, Alresford.*

——I agree with Mr. Brotherston in pruning fruit trees early. And, in addition, may I advance the following? By pruning early the small amount of sap still rising seals the wound, and thus, to a certain extent, prevents the entry of fungous diseases, or attacks of insects such as American Blight. If American Blight has been prevalent during the summer, some small colonies may still be found, very often on the useless shoots—that are cut away and burned. By this system of pruning the bloom buds become plump and the additional light and air ripens them. Where a garden is kept neat and trim early pruning saves labour, as not nearly the amount of sweeping up of leaves is required, and in addition the work is done more comfortably in the pleasant autumn days than later. *C. E. Bridgett.*

Apple Sops-in-Wine.—I was greatly interested in the notes on the Market Fruit Garden (p. 222), because I am partial to the Apple named Sops-in-Wine. We have a trial tree here, and it has proved a regular bearer. With all due respect to Dr. Hogg, I should not call it a vigorous growing variety, and I should keep it pruned. I had just eaten a fruit prior to reading your article, and much enjoyed the musky flavour, which is really suggestive of wine. If grown well as a dwarf tree the fruits might well be good enough for market, but I fear they would be of small size on standard trees. *Laurence J. Cook, Enfield.*

Old Scottish Plant Names.—The article on this subject by R. P. Brotherston (p. 278) interested me, but few of the names given were in use by the time I began to take notice of them in the sixties and seventies of last century. Fou for the common Houseleek was a familiar name in the north-east of Scotland; so was the Tansie, but this was applied over a wide area to Senecio Jacobaea, which was the first popular or English name that made me distrust their applicability to plants as a means to arrive at the botanical name. When dissected this Ragwort would not agree with Tanacetum at all, and I had not then seen the true Tansy. Bourtrie, for the Elder, was a well-known name, but was spelt in a variety of ways. I can add a few names that were common during the above period. Featherfoulie (fowl's feather) was the Feverfew, and Carvy, the Caraway, was evidently borrowed from the French, Italian or the Spanish *carvi*, which had other spellings in the Arabic. Grozet, Grozel and Grozert were corruptions of the French word for the Gooseberry, the last form of the word being that I have heard spoken. It is difficult to state whether Rizzar or Rizzart came directly from the French *raisin*, or from the Gaelic *raosar*, for both the Gaels and the lowland Scots borrowed names for their vocabulary. No doubt Skellach for the wild or field Mustard was borrowed from the Gaelic *sgealag*. Chucknert for Chickweed evidently was a corruption of the Saxon *cicena-wyrt*. Kale Runt and Kale Castock were both used to indicate the stem of Curled Kale in the north. Burns wrote Stock and Custoc, and his ancestors lie in Kincardineshire, where his dialect is still spoken. He used Sybow-tail for a young Onion. *J. F.*

Soil Acidity or Sourness (p. 263).—I recently saw in a field near Thurtaston Moor, Cheshire, a passable crop of Turnips amongst which Bracken was growing more or less luxuriantly as a "weed." Can *M. C. R.* explain this? Turnips on "sour" soil would be an anomaly. Is this a case of acidity favourable to the growth of Bracken but which is distinct from sourness, and therefore not unfavourable to Cruciferous crops? *E. Horton.*

Importation of Fruit Pests.—Doubtless many gardeners, faced with an abnormal shortage of dessert Pears this season, have had to purchase imported fruits to supply the dining-room. A few days ago I purchased a small quantity of expensive Californian Winter Nelis Pears. They were splendid fruits and well packed, but round the eye of nearly all, there nestled from six to ten fine, healthy specimens of mealy bug—enough to stock a garden. Such pests are easily overlooked, but it would be well if purchasers kept a look out for them. *G. W. S.*

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SOCIETIES.

BIRMINGHAM CHRYSANTHEMUM.

NOVEMBER 6, 7, 8.—The combined efforts of the Birmingham Chrysanthemum and the National Potato Societies filled the whole of the floor area and part of the galleries of the huge Bingley Hall, Birmingham, with excellent displays of Chrysanthemums and other flowers, fruit, and vegetables. Although the season has been a trying one for garden produce, Chrysanthemums particularly, the big Japanese varieties were extensively and well shown, while the decorative and single-flowered sections were strongly represented.

Vegetables were much finer than usual, and the number of entries exceeded those of many previous years, but fruit was not so good or so plentiful as usual. Honorary exhibits were very numerous, as will be seen from the medal awards given below.

GROUPS.

There were three splendid groups of Japanese incurved and decorative Chrysanthemums arranged with Ferns and foliage plants. 1st, Sir GEORGE H. KENRICK, Whetstone, Edgbaston (gr. Mr. J. V. Macdonald), whose plants were artistically arranged and set off to the best advantage with graceful Bamboos and Palms, Dracaenas, Begonias, Ferns, and Nandina domestica; the 2nd award went to Alderman W. A. CADBURY, West Hills, Kings Norton (gr. Mr. H. A. Bick), whose group included some remarkably well grown and finished Japanese and incurved varieties, but the display suffered in consequence of the dearth of effective foliage plants; 3rd, JOHN ARTHUR KENRICK, Esq., Berrow Court, Edgbaston (gr. Mr. A. Cryer).

PLANTS.

For six decorative Chrysanthemums, Alderman W. A. CADBURY led with good examples of H. W. Thorpe, Cranfordia, and Lucy Lupee; 2nd, J. W. MOORE, Esq., Kings Norton (gr. Mr. F. Moorman). For three decorative Chrysanthemums, Col. A. J. PARKES, Edgbaston (gr. Mr. L. C. Hochkins) won first prize with very finely flowered specimens of Market Red, Robert Milner, and Black Hawk; 2nd, Alderman W. A. CADBURY; 3rd, Mr. E. J. KEELING, Small Heath.

Col. A. J. PARKES (gr. Mr. L. C. Hochkins) excelled in the class for six single-flowered varieties with exceptionally large, profusely flowered plants of Florrie King, Sylvia Slade, Countess of Egmont, Mary Richardson, Robert Milner, and one indifferent specimen of W. S. Smith; 2nd, Alderman W. A. CADBURY.

CUT BLOOMS.

The premier class for cut blooms required 36 distinct Japanese varieties, to be arranged in separate vases with cut foliage, for which £15 and a handsome silver challenge shield, the latter to be held for one year, were offered as first prize. The only exhibitor was Mr. H. WOOLMAN, Shirley, Birmingham, and he was awarded the first prize for a good lot of blooms, in which Dorothea Edwards, Majestic, Prince Albert, Queen Mary, Mrs. George Monro, Mrs. B. Carpenter, Golden Champion, Major Wheatley, Mrs. Algernon Davis, and Master James were of outstanding merit.

Two entries were made in the class for single-flowered varieties occupying separate flat tables 8 feet × 5 feet. Cut foliage and foliage plants were permissible, and any kind of vase could be used. Mr. H. WOOLMAN won first prize, and showed extra large and beautifully fresh blooms of Amy Thornton, Catriona, Mensa, Margaret Davis, Pink Queen, Phyllis Cooper, Hilda Shoebridge, and Joyce Strowlger; 2nd, Mr. A. H. HICKMAN, Cookley, Kidderminster.

The class for nine Japanese Chrysanthemums in three varieties, each bloom to be staged in a separate vase, brought four capital entries.—1st, The DOWAGER LADY ANNALY, Holdenby House, Northampton (gr. Mr. D. Cameron), who showed wonderfully good specimens of Shirley Golden, Victory, and Majestic (one of the last-named blooms was adjudged the best amateur's Japanese bloom in the show); 2nd, Mrs. J. B. BROOKS, Finstall Park, Bromsgrove (gr. Mr. E. Avery), with substantial blooms of Louisa Pockett, Mrs. R. C. Pulling, and Sir Edward Letchworth; 3rd, J. H. WHEATLEY, Esq., Berkswell Hall, Coventry (gr. Mr. W. H. Westbury), whose examples of William Turner were very handsome.

Mrs. J. B. BROOKS (gr. Mr. E. Avery) excelled in the class for 12 Japanese Chrysanthemums, in not fewer than 9 varieties, arranged on a table 6 feet × 3 feet. Plants and foliage were admissible. The flowers of Mrs. Algernon Davis, Mrs. R. C. Pulling, Louisa Pockett, Sir Edward Letchworth, Majestic, Helena Margerison, and Lady Talbot were of excellent quality; 2nd, Mr. W. C. ROBINSON, Coventry, whose best flowers were Mrs. W. Rigby, Mrs. J. Gibson, Majestic, and Spencer Chichester; 3rd, F. BAYLISS, Esq., Walsall (gr. Mr. C. J. White); 4th, Mrs. E. V. BUTLER, Tewkesbury (gr. Mr. A. J. Collins).

Mr. H. WOOLMAN beat six contestants in the class for three vases of a pink-coloured Japanese variety, his blooms of Mrs. B. Carpenter being noteworthy for their broad, strap-shaped, deep-pink-coloured florets; 2nd, Mr. W. C. ROBINSON, with Mrs. Algernon Davis; 3rd, Mrs. J. B. BROOKS, also with Mrs. Algernon Davis. The best three vases of a crimson-coloured Japanese variety came from W. J. GRESSON, Esq., Stoke House, Worcester (gr. Mr. T. Parry), who showed exquisitely beautiful flowers of His Majesty. Mr. W. C. ROBINSON and J. H. WHEATLEY, Esq., were placed 2nd and 3rd respectively with the variety Mrs. George Monro. The DOWAGER LADY ANNALY (gr. Mr. D. Cameron) had the winning exhibit of three vases of a white Japanese variety with shapely blooms of Mrs. G. Drabble; 2nd, J. H. WHEATLEY, Esq., with William Turner; 3rd, Mrs. J. B. BROOKS, also with William Turner.

The first prize for three vases of a yellow Japanese variety was won by Mr. E. LOWE, Coventry, who sent huge blooms of Princess Mary; 2nd, Mrs. J. B. BROOKS, with Mrs. R. C. Pulling; 3rd, J. H. WHEATLEY, Esq., also with Mrs. R. C. Pulling. There were nine good entries in the class for one vase of any variety, colour optional, other than the colours in the above classes:—1st, Mr. H. WOOLMAN, with flowers of Majestic 11 inches across; 2nd, H. F. KEEP, Esq., Edgbaston, with well-finished blooms of Fred Green.

The best of four exhibits of six varieties of single-flowered Chrysanthemums also came from Mr. H. WOOLMAN, who showed very stout-petalled blooms of Mrs. Thos. Hancock and Mrs. W. J. Godfrey, each measuring 6½ inches across. Other almost equally good varieties were Mavis (very bright), Mrs. W. Smith, Lizzie Robertson, and Catriona; 2nd, the DOWAGER LADY ANNALY, who had excellent examples of Mrs. W. J. Godfrey and Lizzie Robertson. Mr. A. H. HICKMAN was the only exhibitor in the class for six vases of decorative Chrysanthemums, and he was awarded first prize for a clean, even-sized lot of blooms. The best vase of single-flowered Chrysanthemums, arranged with any kind of foliage, was from the DOWAGER LADY ANNALY, and was much admired; 2nd, W. J. GRESSON, Esq. (gr. Mr. T. Parry); 3rd, Sir GEORGE H. KENRICK.

LOCAL CLASSES (OPEN).

Six classes were reserved for local growers, who staged a number of particularly fine blooms. The most successful exhibitors were:—H. F. KEEP, Esq. (gr. Mr. T. W. Davis), who won four first prizes; Mr. J. S. PEARSON, Erdington; and Mr. E. WINCHESTER, Rubery, who had one first prize each.

DINNER-TABLE DECORATIONS.

The two dinner-table classes decorated with (1) Chrysanthemums and (2) Chrysanthemums and other flowers were quite a feature, there being 13 and 12 entries respectively. In the first class the premier prize was won by Mr. A. W. SHIPTON, Cannon Hill Park, Birmingham, who had a dainty combination of orange and crimson coloured, single-flowered varieties arranged in gold-coloured rustic stands of medium height. Pleasing relief was afforded by the use of orange and bronze tinted Codiaeum and Berberis foliage, together with sprays of Selaginella, and green Asparagus; 2nd, W. J. GRESSON, Esq., whose tall centre-piece and smaller vases were decorated with red and yellow Chrysanthemums, small-leaved sprays of Sedum and Selaginella and Codiaeum leaves; 3rd, Mr. E. WINCHESTER, Rubery, Birmingham.

In the companion class, other flowers in addition to Chrysanthemums were required, but the receptacles were restricted to bowls and vases:—1st, W. J. GRESSON, Esq., who had low bowls decorated with Gloriosa, Francoa, single yellow Chrysanthemums, and small-flowered Orchids; the foliage employed included Codiaeum and Ampelopsis leaves and sprays of Selaginella; 2nd, Mr. A. W. SHIPTON, who relied upon a combination principally of pink Carnations, single white Chrysanthemums, and Cypripediums; 3rd, Mr. E. WINCHESTER, with red carnations and white Chrysanthemums.

SPECIAL PRIZES.

There was spirited competition in Mr. Woolman's classes for (1) nine Japanese Chrysanthemums in not fewer than six varieties:—1st, Mr. E. TOWE, Coventry, who showed meritorious flowers of William Vert, W. Rigby, Edith Cavell, Mrs. R. C. Pulling, William Turner, Princess, and Mrs. George Monro, jun.; 2nd, Mr. W. J. HUDSON, Selly Oak; 3rd, Mr. T. BLOOMER, Perry Barr. (2) Twelve Japanese blooms in four varieties:—1st, Mr. W. C. ROBINSON, Coventry, with a handsome set of flowers of Mrs. George Monro, Mrs. G. Drabble, Lloyd George, and Mrs. Algernon Davis; 2nd, Mrs. J. B. BROOKS, whose best flowers were Mrs. Algernon Davis and Mrs. R. C. Pulling. The best Japanese bloom in the show grown by an amateur was Majestic, exhibited by the DOWAGER LADY ANNALY (gr. Mr. D. Cameron), who gained the special prize of a guinea offered by Messrs. W. Wells and Co.

Mr. H. N. Ellison's prizes were offered for six exotic Ferns; 1st, Mr. E. J. KEELING, Small Heath; 2nd, JOHN ARTHUR KENRICK, Esq.

MISCELLANEOUS PLANTS.

The three entries of twelve pots of Begonia Gloire de Lorraine made a notable show: 1st, THE RT. HON. NEVILLE CHAMBERLAIN, M.P., Edgbaston (gr. Mr. P. Catt), with medium-sized plants heavily laden with flowers; 2nd, LIONEL SPIERS, Esq., Edgbaston (gr. Mr. J. Farmer), with bigger plants but not so well flowered; 3rd, Col. A. J. PARKES, Edgbaston (gr. Mr. L. C. Hochkins). For six Begonia Gloire de Lorraine, the same three exhibitors competed, but the order of merit was as follows: 1st, LIONEL SPIERS, Esq., with short, profusely flowered specimens, two feet six inches across; 2nd, Col. A. J. PARKES; 3rd, THE RT. HON. NEVILLE CHAMBERLAIN.

The best of three exhibits of twelve Cyclamens was from Mrs. O'HEA, Barford (gr. Mr. A. Shambrook), whose large plants were remarkable for their robust health, beautifully marbled foliage and strong-stemmed flowers; 2nd, Sir GEORGE H. KENRICK; 3rd, JOHN ARTHUR KENRICK, Esq. In a similar but smaller class, the same exhibitors were placed in the same order.

J. W. MOORE, Esq., King's Norton (gr. Mr. F. Moorman), excelled in the class for six pots of Salvias, with stocky, well flowered specimens; 2nd, Mrs. J. FEENEY, Berkswell (gr. Mr. W. J. Staward); 3rd, THE RT. HON. NEVILLE CHAMBERLAIN. Competition in the class for six Primula sinensis was satisfactory, but the quality of bloom was inferior to that of some years ago: 1st, J. A. KENRICK, Esq.; 2nd, H. F. KEEP, Esq.; 3rd, THE RT. HON. NEVILLE CHAMBERLAIN.

Sir GEORGE H. KENRICK beat four contestants in the next class for six Primula obconica: 2nd, J. W. MOORE, Esq. (gr. Mr. F. Moorman); 3rd, J. A. KENRICK, Esq. The last-named exhibitor took the lead in classes for (1) six single-

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flowered Zonal Pelargoniums; (2) three specimen Palms; and (3) one Tree Fern, but was placed second to Sir GEORGE H. KENRICK in the class for one specimen Palm.

FRUIT.

Although there were only two entries (against four last year) in the class for a collection of British-grown fruit, staged on a table twelve feet by four feet, both displays were of excellent merit, especially the 52 dishes from Captain M. DRUMMOND, Southampton (gr. Mr. L. Smith), which included Muscat of Alexandria, Alicante and Gros Maroc Grapes, Apples, Pears, Plums and Medlars; 2nd, HUGH ANDREWS, Esq., Toddington Manor, Winchcombe (gr. Mr. J. R. Tooley), who had good Grapes, Apples, Pears, Peaches and Plums.

In the classes for single dishes of Apples, Mr. C. W. POWELL, Wareham, Hereford, was awarded first prizes for Allington Pippin, Annie Elizabeth, Cox's Orange Pippin, Charles Ross, King of the Pippins, Lane's Prince Albert and Newton Wonder. Captain M. DRUMMOND had the best specimens of Bismarck, Blenheim Orange, King of Tomkin's County and Peasgood's Nonesuch. HUGH ANDREWS, Esq., won first prize for Bramley's Seedling, and Captain R. T. HINCKES, Hereford (gr. Mr. R. Currie) showed the winning dish of Cox's Pomona. The MARQUIS OF EXETER, Stamford (gr. Mr. T. Grant), was awarded first prizes for Emperor Alexander, Gascoyne's Scarlet, The Houblon, and Warner's King. Mr. W. P. ORRILL, Hinckley, had the best examples of Lord Derby.

PEARS.

Captain M. DRUMMOND won first prizes for Beurré Diel, Catillac and Marie Louise. The MARQUIS OF EXETER was the only exhibitor of Beurré Clairgeau. F. J. J. GIBBONS, Esq., Wolverhampton (gr. F. T. Parnwell), showed the winning dish of Durondeau, and Captain R. T. HINCKES led with Doyenné du Comice.

GRAPES AND APPLES (AMATEURS).

The best three bunches of black Grapes were from HUGH ANDREWS, Esq.; 2nd, H. R. PADMORE, Esq., Edgbaston (gr. Mr. T. Batchelor); 3rd, Captain R. T. HINCKES. W. J. GRESSON, Esq., was successful in the class for three bunches of white Muscat Grapes; 2nd, Captain R. T. HINCKES; 3rd, HUGH ANDREWS, Esq. H. R. PADMORE, Esq. (gr. Mr. T. Batchelor), was the only exhibitor of two bunches of black Grapes, grown within five miles of Birmingham. For three dishes of cooking Apples the MARQUIS OF EXETER led, followed by Captain R. T. HINCKES. The last-named beat the MARQUIS OF EXETER in the class for three dishes of dessert Apples; 3rd, F. J. J. GIBBONS, Esq. Mr. C. G. COMPTON, Bournville, had the best pair of dishes of locally grown Apples; 2nd, Mr. E. J. KEELING.

VEGETABLES (OPEN).

Of the ten splendid exhibits of six dishes of Potatos, the 1st prize was won by Mr. W. WHELDON, Coventry; 2nd, Major HARCOURT WEBB, Bewdley (gr. Mr. W. Gaiger); 3rd, Mr. T. ARCHER, Harborne. Major HARCOURT WEBB showed the winning dishes of (1) nine Onions, (2) six round Beet, and (3) six Parsnips. Mr. E. WINCHESTER sent the best six long Beet. From W. J. GRESSON, Esq. came the best (1) six Carrots, (2) twenty Brussels Sprouts and (3) six round Potatos. HUGH ANDREWS, Esq. excelled with Leeks, Celery and Kidney Potatos. Mr. HEDLEY MASTERS had the best Cauliflowers, and Mr. W. WHELDON led with Cabbages. Mr. T. BIRD, Sutton Coldfield, showed splendid examples of Red Cabbages and Yellow Shallots. The best of eleven exhibits of Red Shallots came from Mr. J. JONES, Selly Oak, and Mr. A. J. CARTER contributed the finest Savoys.

Messrs. Sutton and Sons offered prizes for nine distinct kinds of vegetables: 1st, HUGH ANDREWS, Esq., who staged wonderful Onions, Leeks, Cauliflowers and Celery; 2nd, Mr. E. WINCHESTER.

Messrs. Webb and Sons' prizes were offered for six distinct kinds: 1st, Mr. E. WINCHESTER, whose Cauliflowers and Celery were particularly good; 2nd, H. W. SMITH, Esq., Stourbridge (gr. Mr. H. Davis). Competition among allotment holders for Messrs. Webb and Sons' prizes for four distinct kinds brought six entries: 1st, Mr. W. PERKS, Lye; 2nd, Mr. A. J. CARTER, Erdington; 3rd, Mr. W. WHELDON, Coventry.

Messrs. Dickson and Robinson's prizes were offered for nine distinct kinds: 1st, Mr. W. WHELDON; 2nd, W. J. GRESSON, Esq.; 3rd, Mr. W. P. ORRILL. The same firm also offered prizes for their Premier Onion: 1st, Colonel HEYWOOD LONSDALE, Market Drayton (gr. Mr. J. Mills); 2nd, Mr. W. WHELDON; 3rd, G. D. SMITH, Esq., Strensham Court (gr. Mr. W. T. Cheeseman).

HONORARY EXHIBITS.

Gold Medals were awarded to Messrs. GUNN AND SONS, Olton, for Roses and fruit; Messrs. HEWITT AND CO., Solihull, for hardy shrubs; Messrs. WATERER, SONS AND CRISP, Bagshot, for hardy shrubs; THE STUDLEY HORTICULTURAL COLLEGE, for fruit; Messrs. BAKERS, Wolverhampton, for hardy shrubs and cut flowers; Messrs. W. J. GODFREY AND SON, Exmouth, for Chrysanthemums; Messrs. HOPWOOD AND SONS, Cheltenham, for fruit; Messrs. ISAAC HOUSE AND SON, Westbury-on-Trym, for Scabious and Violets; Messrs. TOOGOOD AND SONS, Southampton, for vegetables; Miss S. S. THOMPSON, Handsworth, for Cacti; Messrs. DANIELS BROS., Norwich, for Apples; Mr. H. WOOLMAN, Shirley, for Chrysanthemums; Messrs. WEBB AND SONS, Stourbridge, for vegetables; Messrs. W. H. SIMPSON AND SONS, Edgbaston, for Chrysanthemums; Mr. H. N. ELLISON, West Bromwich, for Ferns and Cacti; Messrs. DICKSON AND ROBINSON, Manchester, for vegetables.

Silver Medals were awarded to Mr. F. G. WOOD, Ashtead, Surrey, for alpine plants; Messrs. J. R. HARVEY AND SONS, Evesham, for miscellaneous plants; Messrs. FISHERS, Birmingham, for vegetables; Mr. A. SHAMBROOK, Barford, for Cyclamen.

A Bronze Medal was awarded to Mr. A. SHEPHERD, Hollywood, for Chrysanthemums.

NATIONAL POTATO.

THE National Potato Society's contribution to the successful exhibition at Bingley Hall, Birmingham, on November 6, 7 and 8 was very satisfactory, there being a record number of exhibitors and exhibits. As a result of the very liberal prizes offered exhibitors were attracted from all parts of the British Isles, but the principal awards were taken by English growers, although a number went "over the border," as well as to Ireland and Wales.

OPEN CLASSES.

There were 95 entries in the section reserved for first early varieties, which included many tubers of great excellence. Miss M. E. BURTON, Polton, Midlothian, won first prize for May Queen; Mr. T. BOND, Cadishead, Manchester, for Epicure; Mr. C. HUGHES, Cannock, for Express; Mr. JOHN RIMMER, JUNR., Catishead, Manchester, for Duke of York; Mr. W. COLEMAN, Buckingham, for Dunnottar Castle, and for a white first early variety not provided for in the schedule.

Coimpetition in the section for second early varieties was very keen, no fewer than 230 dishes being submitted for adjudication. The strongest class was the one for Katie Glover (58 dishes) and the weakest King George (nine dishes). The Rev. C. J. KEAN, Woburn Park, Weybridge (gr., Mr. A. Basile), had the winning dishes of Katie Glover, Edinburgh Castle and Early Market. Mr. GEORGE ASHLEY, Irlam, showed the best tubers of Dargill Early, and Mr. JOHN RIMMER, JUNR., led with British Queen and Sir John Llewellyn. Mr. W. COLEMAN led with Great Scot and Arran Comrade. Mr. J. HUDSON, Leicester, was first with Ally and Mr. C. HUGHES with King George.

Among midseason and maincrop varieties W. J. GRESSON, Esq., Stoke House, Worcester (gr., Mr. T. Parry), won first prize for New Renown; Rev C. J. KEAN, with Prosperity; Mr. JOHN RIMMER, JUNR., with Up-to-Date, White City and Crusader; Mr. W. COLEMAN, with Tinwald Perfection and Rhoderic Dhu; Mr. J. HUDSON, with Arran Chief and Irish Chieftain; Mr. H. MORGAN, Nash, Tenbury Wells, with Bishop; Colonel PROBY, Elton Hall, Peterborough (gr., Mr. H. S. Dean) with Catriona; and Mr. WILLIAM MCCAUGHEY, Ballymena, Ireland, with Abundance type. Mr. W. E. JOB, Harvington, Kidderminster, led in the class for Golden Wonder, and Mr. E. WINCHESTER, Rubery, for Goldfinder. Mr. G. H. POWELL, Hewell, Redditch, had the best of 31 entries in the class for Majestic. Mr. GEORGE ASHLEY led in a class for any other maincrop variety not mentioned above with splendid tubers of Laing's Imperial.

Coloured varieties were well represented, there being 130 exhibits in the six classes. Mr. GEORGE ASHLEY took the lead with King Edward and Arran Victory. Mr. W. COLEMAN was first with Lochar and Kerr's Pink. Mr. J. HUDSON showed the best dish of a coloured Kidney not mentioned in the schedule, with Royal Purple.

COLLECTIONS.

The five open classes reserved for collections of Potatos produced 330 dishes, or an average of 66 dishes per class. Mr. J. HUDSON had the best of nine exhibits in a class for 12 dishes, distinct varieties; 2nd, Mr. W. COLEMAN; 3rd, Mr. JOHN RIMMER, JUNR. Mr. HUDSON also led for three dishes of non-immune varieties; 2nd, Mr. W. COLEMAN. W. J. GRESSON, Esq., won first prizes for (1) six dishes of non-immune varieties, (2) six dishes of immune varieties, and (3) three dishes of immune varieties. Mr. J. HUDSON was placed 2nd in the first and third classes, and bracketed equal 2nd with Mr. JOHN RIMMER, JUNR., in the second class.

In the classes reserved for allotment holders and amateur gardeners, Mr. E. WHITEHOUSE, Cannock, won first prize for three non-immune varieties, and Mr. W. EVANS, Barry, Cardiff, beat 27 contestants in the class for three immune varieties.

There was strong competition in the single dish classes, there being an average of 35 entries per class. The most successful exhibitors were Mr. W. COLEMAN, Coventry; Mr. E. ARNOLD, Shrewsbury; Mr. JOHN WATSON, Ashwell, Rutland; Mr. C. HUGHES, Cannock; Mr. W. WATSON, Halbeath, Dunfermline; and Mr. E. WHITEHOUSE, Cannock.

HONORARY EXHIBITS.

Large Gold Medals to Messrs. J. CARTER AND CO., London; Messrs. EDWARD WEBB AND SONS, Stourbridge (see Fig. 114, p. 311); and Messrs. DOBBIE AND CO., Edinburgh, and small Gold Medals to Mr. W. E. JOB, Kidderminster, and Mr. JOHN COCK.

MARLOW CHRYSANTHEMUM.

DURING 1923 Capt. Wright and his friends revived the old Marlow Chrysanthemum show, and their efforts were successful. They were, however, somewhat diffident as to the continuation of that success in 1924, and wondered whether the newly-found enthusiasm would abide. On November 7 they found their fears were groundless, for the Public Hall was far too crowded with exhibits for the comfort of visitors. Marlow is to be congratulated upon its second attempt and the prospect of continued success.

In the open class for eight vases of Japanese blooms, three blooms of one variety in each vase, the premier award was won by Mrs. HORNBY LEWIS (gr., Mr. R. Friend), who led in a strong competition and showed excellent flowers of Mrs. G. Monro, F. Joliffe, General Petain, R. C. Pulling, and Rosamund; 2rd. LADY TERRINGTON (gr., Mr. C. Berry). LADY TERRINGTON won in the open class for three Japanese blooms in one vase, with Lloyd George; 2nd, Mrs. HORNBY LEWIS, with F. Joliffe.

No fewer than six groups were staged in competition for the challenge cup presented by Mr. Cathcart, Three Gables, Marlow. These occupied one side of the hall and were touching

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each other, and consequently lost something in general effect. The best group was the one from A. J. BINDER, Esq., who had excellent flowers, but somewhat formally arrayed; indeed, nearly all the competitors needed more space and a little more originality in design and arrangement; 2nd, A. R. SMITH, Esq., who also won the silver medal for the best bloom in the show with a gigantic example of Louisa Pockett; 3rd, Dr. W. H. LAMB.

LADY TERRINGTON was successful in the class for a display of cut Chrysanthemums arrayed to show the decorative value of the flowers; she had a very light exhibit in which practically all sections of the Chrysanthemum were well represented and pleasingly disposed; 2nd, H. ELKINGTON, Esq.; 3rd, Mrs. HORNBY LEWIS. Mrs. LAMB showed the best hand basket of Chrysanthemums; unfortunately in this class several competitors had baskets so filled that they were far too heavy for "hand" baskets.

The best pair of vases of Japanese blooms were those of Mrs. Drabble from Mr. J. W. JORDAN; 2nd, Mrs. HORNBY LEWIS, with R. C. Pulling and Rosamund. First prize and the challenge cup for the best dozen Japanese blooms, on boards, were won by Dr. LAMB (gr., Mr. R. Evans) with fine flowers of R. C. Pulling, Mrs. T. Lunt, Lloyd George and others; A. J. BINDER, Esq. (gr., Mr. G. Clark), was a very close second prize-winner; 3rd, Mrs. HORNBY LEWIS.

Mr. J. W. JORDAN (gr., Mr. Adams) led for six Japanese blooms, on boards; 2nd, LADY TERRINGTON; 3rd, H. ELKINGTON, Esq. Capt. H. B. WRIGHT won first prize for six vases of single varieties in a capital competition; 2nd, Mrs. HORNBY LEWIS.

The best amateurs' collection of Chrysanthemum blooms arrayed for effect was the one staged by Mr. J. H. TUCK, and it was a very pleasing effort in which single varieties figured largely; 2nd, Mr. E. GREEN.

Mr. ELKINGTON showed a capital lot of Apples and Pears, but had no competitors; his dishes of Beurré Diel and Durondeau Pears were excellent.

Mr. J. BROWN, Maidenhead, and Mr. W. T. HATCH, Cookham, arranged non-competitive exhibits of Chrysanthemums and floral designs.

HITCHIN CHRYSANTHEMUM.

THE annual show of the Hitchin Chrysanthemum Society was held in the local Town Hall on Thursday, the 8th inst. Despite the adverse season for Chrysanthemums, and crops in general, it was the unanimous opinion of those present that the blooms and vegetables were much finer than usual and quite up to pre-war standard. Sixty-nine classes were included in the schedule. The principal open class was for six vases of Japanese blooms, distinct, three blooms of a variety in each case. There were three competitors, and the silver challenge cup was awarded to Sir CHARLES NALL-CAIN, Bt. (gr., T. Pateman), for fine specimens of Wm. Rigby, Mrs. G. Drabble, Golden Champion, Mrs. Algernon Davis, Princess Mary, and Mrs. J. Gibson. E. MARTIN SMITH, Esq., Codicote Lodge, Welwyn (gr., Mr. Miller) was a good second with only three points behind the winning set; his best blooms were Majestic, Louisa Pockett, and finely coloured specimens of Mrs. Algernon Davis.

For four Japanese varieties, distinct, three blooms in each vase, another silver challenge cup was offered, and this was won by B. FRANKLIN, Esq., with splendid vases of Majestic and Mrs. Algernon Davis; 2nd, Capt. J. S. ALTON, Esq., Buntingford; 3rd, J. FLACK, Esq,. Stevenage.

For six Japanese blooms, distinct, E. MARTIN SMITH, Esq., was placed first, and he also excelled in the class for a vase of three coloured Japanese blooms, in which Sir CHARLES NALL-CAIN was second.

In the class for six varieties of singles, five blooms in a vase, E. MARTIN SMITH, Esq., was placed first in a very strong competition, Sir CHARLES NALL-CAIN being second.

In the class for the best arranged vase of singles Sir CHARLES was an easy first prize-winner. There were two classes for winter flowering Begonias, and in the class for three plants of Begonia Gloire de Lorraine Sir CHARLES NALL-CAIN was placed first, and E. MARTIN SMITH, Esq., second. For three winter Begonias other than the Lorraine type Sir CHARLES again led with well grown plants of Optima, Emita and Eclipse; 2nd, Major J. F. HARRISON, Kings Waldenbury (gr., Mr. A. J. Hartless).

Messrs. ABBISS BROS. were placed first in the class for a floral group arranged in a space of 9 ft. by 4 ft. by 6 in., effect to be the leading feature. It was a tastefully arranged group.

The bronze medal offered by *Gardening Illustrated* for the best Chrysanthemum bloom in the show was awarded to Sir CHARLES NALL-CAIN for a very fine bloom of Wm. Rigby.

The competition for a table decorated with Chrysanthemums was much below the standard generally seen at this show. In the amateurs' classes Mr. W. G. P. CLARKE, the hon. secretary, was a very successful competitor.

Fruits and vegetables are generally well shown at Hitchin. The challenge cup for a collection of fruit was won by Mr. GILLINGS, The Hoo Gardens, Kimpton, who had good Grapes and excellently coloured Apples; 2nd, Major J. F. HARRISON. For six dishes of Apples, distinct, Sir CHARLES NALL-CAIN was first and Mr. GILLINGS second. The same competitor was placed first for three dishes of Pears. In the class for Grapes Major J. F. HARRISON excelled, and also for white Grapes, in which Sir CHARLES NALL-CAIN was second. But in the class for black Grapes this order was reversed.

In the special class provided by Messrs. J. Carter and Co. for a collection of vegetables of nine kinds there were four keen competitors. Sir CHARLES NALL-CAIN won the challenge cup for the second time. Major J. F. HARRISON was second, and E. MARTIN SMITH, Esq., third.

Sir CHARLES NALL-CAIN was also placed 1st in Messrs. Sutton and Sons' class for six dishes of vegetables; 2nd, Major HARRISON. In the single dish classes for vegetables Sir CHARLES NALL-CAIN was awarded the first prize for (a) three Cauliflowers, (b) six Parsnips, and (c) six Beets. E. MARTIN-SMITH, Esq., was first for six Turnips and six Carrots, whilst Major HARRISON showed the best Onions and Leeks.

In the amateurs' classes the competition was good, and the produce in some cases nearly equal to the standard of the professional gardener's class. Among the principal exhibitors were Messrs. MUDDLE, A. BARKER, and E. G. THODY.

In the cottagers' classes Mr. S. BLAND was awarded the medal offered for the highest number of successes in this section.

ROYAL CALEDONIAN.

NOVEMBER 6.—The ordinary monthly meeting of this Society was held at 5, St. Andrew Square, Edinburgh, Mr. W. G. Pirie, vice-president, in the chair.

Dr. W. Inglis Clark, F.R.S.E., gave a lecture entitled "Flowers and their Colours," illustrated by a splendid series of lantern slides in natural colours of plants under cultivation and in their natural habitats, and of mountain and other scenery generally.

The exhibits were:—Chrysanthemums, etc., from Messrs. Dobbie and Co., Ltd. (award of merit); Alligator Pear, Mangos and Rallis Berries (Solanum xanthocarpum), from Mr. Thos. Fortune, Edinburgh; Lobelia from Mr. Alex. Innes, Edinburgh, and Veronica salicifolia in flower from Mr. A. D. Richardson, Edinburgh.

TRADE NOTE.

MR. H. N. ELLISON informs us he has purchased the entire collection of Cacti and Succulents belonging to the late Croom Johnson, Esq., of Wrexham. This is probably one of the best amateur collections in the country.

ANSWERS TO CORRESPONDENTS.

ASPARAGUS AS "FERNS": *West Shepton.* Undoubtedly plants of Asparagus plumosus should be disqualified if shown as Ferns, as they have nothing whatever to do with that family of plants.

BUMBLE BEES IN GLASSHOUSES: *R. F., Norwich.* The only effective method of preventing bumble bees from entering a glasshouse is to tack tiffany or similar material over the ventilators in such a way as will not prevent the latter from opening freely.

CATERPILLARS ATTACKING PELARGONIUMS: *V. F. P. D.* Zonal Pelargoniums are frequently attacked by caterpillars during the autumn, and in some seasons they soon ruin the plants unless the latter are examined every day, and the caterpillars picked or shaken off. The varieties King of Denmark and Decorator usually suffer badly from these pests.

CABBAGE BUTTERFLIES: *M. H. F.* When the plants are attacked by the caterpillars of the Cabbage butterfly, it is rather late to resort to remedial measures such as spraying with specifics, but hand picking the caterpillars should be followed up as closely as time will permit. Next season, if your Cabbages promise to be infested with the caterpillars, spray the plants at an early stage to kill the caterpillars as they hatch, and at the same time render the Cabbages distasteful to the butterflies. Quassia extract and paraffin emulsion are two good specifics to use, but you must be careful not to apply these insecticides if the Cabbages are to be consumed shortly afterwards. Paraffin emulsion at the rate of about two or three ounces to a gallon of water would be the best material to use when the crop is nearly ready.

CELERY DISEASED: *A. D.* Your Celery plants are affected with the disease caused by the fungus Septoria petroselina Apii. See reply to *R. F.* in *Gard. Chron.*, Nov. 3, p. 270.

CHECKING WOODY GROWTH IN FRUIT TREES: *R. J. A.* We have not heard of any process of boring the stem and injecting some preparation to check the growth of fruit trees. Possibly you are thinking of ringing the bark, which has sometimes been done to check growth and promote fruitfulness. But any system which involves wounding the stem is undesirable, owing to the risk of introducing disease. The only safe and reliable methods of steadying growth and inducing fruitfulness are (1) root-pruning, and (2) moderating the usual pruning of the head. The former is the standard method adopted in gardens. The latter is more often followed by market-growers, for whom root-pruning on a large scale would be too expensive. If pruning can be restricted to mere thinning out for a year or two, or even if the leaders are allowed to go whilst the laterals are not pruned too closely, the trees will almost invariably come into fruit-bearing, provided that they are not forced with manure.

CORIARIA TERMINALIS: *J. E. A. G.* Judging from your description of the plant, together with the imperfect name on the label, we have no hesitation in stating that your specimen is Coriaria terminalis, a native of Sikkim, and introduced to this country in 1897.

LILIUM LONGIFLORUM VAR. FORMOSUM: *J. P.* When received the bulbs should be placed, three or four together, according to size, in six-inch or seven-inch pots: they should be placed well down in the pots, as this will save adding a top-dressing. If so desired they may be placed directly in a warm house with a temperature of 60° to 65°. But if the best results are expected the plants should be placed in a cold frame or cool greenhouse until they are well rooted. They will then force more readily, and the resulting flowers will be of better quality. If the plants are to be grown for conservatory or greenhouse

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decoration, the latter course is the best one to follow. For this purpose they may also be grown somewhat cooler (55° to 60°).

PROPAGATION OF DAHLIAS: *M. N.* Dahlia roots may be placed in a warm house about the middle of February; a high temperature is not desirable or necessary, 50° to 55° being sufficient. If only a small number of plants is required the roots should be placed in boxes, packed around with soil, but leaving the crowns exposed. The cuttings may either be taken with a heel, or just as ordinary cuttings, trimming them off below a joint; but such cuttings should be sturdy, not weak and drawn up in a too high temperature. The old roots, if they have a few shoots left after sufficient cuttings have been taken, may be used for planting out, after they have been hardened off.

STARWEED ON GOLF COURSES: *J. B. O.* There is some doubt about the name of the weed, because on southern golf courses Starweed is a name given to Plantago coronopus, which resembles a star when its leaves lie close to the soil, which it usually does when the grass is short as on golf greens. The mowing machine cannot cut it on closely mown, firm greens. The most effective method for removing Starweed would be to cut each plant just under the surface with an old knife. The process would be somewhat tedious if the plants are numerous. A more speedy plan would be to get a box of sulphate of ammonia with one-third of common or table salt in mixture and drop a good pinch into the centre of each plant. The sulphate of ammonia should be finely powdered, and both ingredients will be more effective if quite dry at the time of application. A dry time should be selected for doing this, when the weather is likely to remain dry for two or three days at least.

SWEET PEAS FAILING: *J. T. W.* The leaves have been eaten by some biting insect, or possibly by a small slug. The seedling plants appear to have suffered from overwatering, as the collars of the plants are bent over.

TOMATO SEED: *Anxious.* The germination power of Tomato seed would probably be higher in the case of seed ripened in July than it would in the case of seed ripened in October, but there is no good reason why October-saved seed should fail to germinate well provided it was ripened and dried properly.

WEEDS IN A LAKE: *J. Macdonald.* Neither of the two bad weeds in the lake could be destroyed with a weed-killer, because the water would dilute it too much, and some of the weed-killers would be harmful to fish. If the water is shallow it would be possible to cut up Ranunculus aquatilis with the broad end of a mattock, when it could be gathered into a boat or punt with a fork. If the water is deep both of the weeds would have a considerable length, more or less upright, and could be cut from a boat with a long pole scythe, or even the blade of one firmly fixed to a long pole. The weeds would then float and could be gathered off the water. The best time to cut them would be about the end of June or before they come into bloom. This would cripple them considerably just at a time when they have expended their resources in making new growth. Some owners of large lakes run off the water periodically and clean them out. This would be the best way to get rid of Polygonum amphibium, which has long, running, underground stems or rhizomes. This weed generally grows in patches in water, and the number of the stems being relatively few, they could be pulled out from a considerable depth, if grasped by the hand low down in the water, say during June. Seeds of the Ranunculus are liable to give future crops of the weed even when the water is run off and the mud cleared out, so that periodical cleaning is necessary.

Communications Received.—J. J.—J. O. M.—G. R.—Hampshire—A. C. F.—R. G.—F. W. M.—J. T. W.—F. K. W.—A. H.—J. A. H.—E. L.

MARKETS.

COVENT GARDEN, Tuesday, November 20, 1923.

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus, forced—		
—English	10 6	12 6
—Italian	12 0	14 0
—Paris Green	12 6	14 6
Beans		
—Guernsey, lb.	– 10	1 3
Beets, cwt.	8 0	10 0
Cabbage, doz.	1 3	2 6
Carrots, cwt.	9 0	11 0
Cauliflower, doz.	2 0	4 0
Celery, fan	1 6	2 0
Celeriac, doz.	3 0	4 0
Chicory		
—Belgian, lb.	0 6	0 8
Cucumber, doz.	7 0	12 0
Lettuce, French		
—Cos, doz.	6 0	—
—Round	1 0	1 6
—Endive, doz.	2 6	3 0
Mushrooms—		
—Forced, lb.	2 0	3 0
Mint, doz.	6 0	8 0
Onions—		
—Valencian, case	14 0	16 0
—English	10 0	12 0
—Dutch	10 0	11 0
—Italian, pot	12 0	14 0
Parsnips, cwt.	6 0	8 0
Peas,		
—Guernsey, lb.	3 0	3 6
Potatos, cwt.	5 0	7 6
—Guernsey, lb.	0 3	0 6
Savoys, doz.	1 6	2 6
Spinach	2 0	2 6
Sprouts, bus.	3 0	4 0
Tomatos—		
—English Pink New Crop	6 0	8 0
Others	2 0	6 0
—Pink and White New Crop	6 0	8 0
Others	2 0	6 0
—Guernsey	2 0	8 0
—Jersey	1 6	3 6
—Canary Island	15 0	22 6
Turnips, cwt.	4 0	6 0

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples, ½ bus.—		
—Cox's Orange Pippin	12 0	20 0
—Allington Pip.	3 6	4 6
—King of the Pippins	4 0	6 0
—Blenheim	4 0	6 0
—Bramley's Seedling, bus.	7 0	11 0
—Lane's Prince Albert	7 0	10 0
—Newton Wond.	7 0	10 0
—Oregon Newtown	10 6	14 0
—Californian	9 0	10 0
Nova Scotian—		
—Blenheims	20 0	24 0
—Kings	22 0	26 0
—Ribston Pip.	20 0	24 0
—Russet	26 0	30 0
States		
—Baldwin	23 0	24 0
—Ben Davis	23 0	24 0
Bananas, singles	12 0	20 0
—doubles	16 0	20 0
Blackberries	4 0	6 0
Dates, Tunis, doz. cartons	4 6	7 6
Grapes—		
—Alicante	1 6	2 6
—Almeira, barrel	20 0	25 0
—Cannon Hall	3 0	6 0
Grapes—		
—Gros Colmar	1 6	3 6
—Muscat	3 0	6 0
—English Muscat	2 6	6 0
Grape Fruit—		
—Cuban	24 0	26 0
—Jamaica	24 0	25 0
Lemons—		
—Messina	25 0	30 0
—Malaga	15 0	22 6
—Murcia	14 0	16 0
Melons, English and Guernsey, each	1 6	3 6
—Cantaloupe	2 6	5 0
Nuts—		
—Singles	0 6	0 8
Doubles	1 6	2 6
—Brazil, cwt.	60 0	68 0
—Cobs	1 3	1 4
—Italian Walnuts, bags 50 kilos	56 0	—
,, Chestnuts	18 0	24 0
Oranges—		
—Jamaica	18 0	24 0
—South African	30 0	35 0
—Spanish	15 0	25 0
Pears—		
—D'Anjou, cases	18 0	24 0
—Winter Nelis	24 0	28 0
Pines, each	1 6	4 0

REMARKS.—The demand generally has been variable, and although prices are relatively low, supplies have been difficult to clear. Smaller shipments of Apples from North America have resulted in an advance of a point or two in prices. English Apples are selling well; the demand for large cookers continues firm. English Cox's Orange Pippin Apples are rather scarce, and available supplies sell readily. The Grape trade is steady. Guernsey Grapes are finishing, but some good bunches are being sent from Holland and Belgium in competition with home-grown Grapes. English Tomatos are almost unsaleable unless they are of first quality, the trade preferring those from the Canary Islands. A few Cucumbers are arriving and selling readily. Forced Beans are easier in value, large quantities of Beans from Madeira being an adverse factor on prices. Guernsey growers are sending some indifferent new Potatos, which are selling badly. Forced Peas and Asparagus are moving fairly well considering the comparatively high prices ruling. Mushrooms remain steady in price and quantities are small. Green vegetables remain moderately plentiful and are reasonable in price. The conditions of the Potato trade are unchanged.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz.	10 0	18 0
—elegans	10 0	12 0
Aralia Sieboldii	9 0	10 0
Araucarias	30 0	48 0
Asparagus plumosus	12 0	15 0
—Sprengeri	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Cacti, per tray, 12's, 15's	5 0	7 0
Chrysanthemums —white, doz.	12 0	18 0
—pink ,, ,,	12 0	15 0
bronze ,, ,,	12 0	15 0
Crotons, per doz.	30 0	42 0
Cyrtomium	10 0	15 0
Erica gracilis, 48's per doz.	21 0	24 0
—60', per doz.	12 0	15 0
—nivalis, 41's ,,	24 0	30 0
,, 60's ,,	12 0	15 0
Hydrangeas white, doz.	18 0	24 0
Lilium longiflorum, each	–	–
—speciosum album, each	–	–
—speciosum, rubrum, each	3 0	3 6
Nephrolepis, in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	24 0	30 0
—60's	15 0	18 0
—Cocos	24 0	36 0
Pteris, in variety	12 0	21 0
—large 60's	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's	3 6	4 0
Solanums per doz	12 0	15 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum decorum, doz. bun.	9 0	12 0
—cuneatum, per doz. bun.	8 0	10 0
Asparagus plumosus, per bun.		
long trails, 6's	4 0	5 0
med. sprays	2 6	3 6
short ,,	1 0	1 6
—Sprengeri, per bun.		
long sprays	2 6	3 0
med. ,,	1 3	1 6
short ,,	0 9	1 0
Bouvardia, white, per doz. bun.	9 0	12 0
Camellias, 12's, per box	3 0	3 6
Carnations per doz. blooms	2 6	5 0
Chrysanthemum, per doz blooms		
—white, ,,	2 6	6 0
—yellow ,,	2 6	5 0
—bronze ,,	2 6	3 6
—pink ,,	3 0	4 0
spray per doz. bun.	6 0	8 0
—singles, disbudded bloom	3 0	5 0
—singles, sprays, per doz. bun.	10 0	15 0
Croton leaves, var., per bun.	2 0	2 6
Gardenias, per box	9 0	12 0
Fern, French per doz. bun.	1 0	1 3
Forget-me-not per doz. bun.	0 0	12 0
French Flowers—		
—Acacia (Mimosa) per bun.	1 0	1 6
—Marguerite, yellow, per doz. bun.	3 0	3 6
—Narcissus Paper White, per doz. bun	2 6	3 0
—Ranunculus, carmine, per doz. bunc.	5 0	6 0
French Flowers—		
—Ranunculus Romano, large red, per doz. bun.	12 0	15 0
—Violets, single per doz. bun.	2 6	3 0
—Parma, per bun.	5 6	6 0
Heather, white per doz. bun.	9 0	12 0
Lilac, white, per doz. sprays	6 0	8 0
Lilium longiflorum long per doz.	7 0	7 0
short ,, ,,	7 0	8 0
—speciosum album, long, per doz. blooms	4 6	5 6
—short ,, ,,	3 6	4 6
—rubrum long, per doz. blooms	3 0	3 6
—short ,, ,,	2 6	3 0
Lily of the Valley, per doz. bun.	24 0	36 0
Orchids, per doz.		
—Cattleyas	18 0	24 0
—Cypripediums, per doz. blooms	4 0	6 0
Pelargonium, per doz. bunch, double scarlet	12 0	15 0
Poinsettias, per doz. blooms	15 0	18 0
Richardias (Arums) — per doz. blooms	8 0	10 0
Roses, per doz. blooms—		
—Melody	3 0	6 0
—Ophelia	3 0	6 0
—Golden Ophelia	4 0	5 0
—Liberty	4 0	6 0
—Mme. Butterfly	4 0	6 0
—Mme. Abel Chatenay	3 6	6 0
—Niphetos	2 6	3 0
—Richmond	3 6	5 0
Smilax, per doz. trails	3 6	4 6
Violets, per doz bun.	4 0	6 0

REMARKS.—Chrysanthemums still constitute the main supply in this department, although the consignments are gradually lessening. There are still many inferior grades, especially amongst the "bunch" type. Of spray white M. Julian Valet is the most plentiful. Source d'Or (bronze), Lizzie Adcock (yellow) and Baldock's Crimson (red) are the best of the coloured sorts. Pink is not a good "line" at the present time. Carnations have been more plentiful during the past week. Roses are getting dearer, especially such red sorts as Liberty and Richmond. Prices are advancing for all varieties. Lilium longiflorum has not been in such demand as in the previous week, and prices are again on the down grade. The same is true of white and pink L. lancifolium, and also Richardias (Arums). Other subjects show little change from last week. The general trade conditions were very moderate during the past week; there are no new subjects to record. Supplies of French flowers are increasing, and arriving in a more reliable condition. They consist of Acacia (Mimosa), yellow Marguerites, Narcissus Paper White, N. Soleil d'Or, Anemones, Ranunculus, single and Parma Violets, the consignments of the last are irregular and the prices fluctuate. Roses Safrano and Ulrich Brunner are arriving in small quantities, but the majority of the blooms are in an advanced condition, and there is not much demand for them at present. White Lilac is arriving from Holland in a more saleable condition, and should meet with a good demand.

GARDENING APPOINTMENTS.

Mr. W. H. Wood as Gardener to Sir CHARLES OAKLEY, Frittenden House, near Staplehurst.

Mr. J. C. Payne, previously for six years General Foreman at Park Hall Gardens, Mansfield, Nottinghamshire, as Manager at the L. M. & A. Nursery, Moorgreen, near Newthorpe, Nottingham.

Mr. C. Hanson, previously Gardener at Chipstead Place, Sevenoaks, as Gardener to the Hospital Convalescent Home, Parkwood, Swanley, Kent.

Mr. A. W. Mowl, for the last two years Gardener to R. B. BARRETT, Esq., at Skipton Castle, Yorks, as Gardener to JAMES ROLLASON, Esq., Hampton Manor, Hampton-inn-Arden, Warwickshire.

Mr. Robert Middleton, for the past three years Gardener to CLAUDE ALLEN, Esq., Kilmahew, Cardross, N.B., and previously Gardener to the DUKE OF MONTROSE, Buchanan Castle, Drymen, N.B., as Gardener to LORD COWDRAY, Paddockhurst, Crawley, Sussex.

CATALOGUES RECEIVED.

WM. WATSON AND SONS, Killiney Nurseries, Killiney, Co. Dublin.—Fruit trees; Roses.

THYNE AND SON, 8 and 10, Union Street, Dundee.—Nursery stock.

ANTHONY WATERER, Knap Hill Nursery, Woking.—Hardy trees, shrubs, Conifers, etc.

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THE
Gardeners' Chronicle
No. 1927.—SATURDAY, DEC. 1, 1923.

CONTENTS.

Allotments, Ancient ... 318
Alpine Garden.—
The Walney Island Geranium 321
Apple Broad-eye-Pippin 327
Books, notices of—
Gardening in South-west Scotland ... 319
Bulb garden, the—
Crocus longiflorus ... 321
Schizostylis coccinea 321
Chrysanthemum shows,—absence of coloured blooms at 327
Clover, Bokhara ... 326
Colin-Pullinger mouse-trap 327
Florists' flowers.—
Choice exhibition Chrysanthemums ... 324
Fruit register—
Pear Bergamotte Esperin 326
Pear Sanginole ... 326
"Gardeners' Chronicle" seventy-five years ago 318
Garden notes from S.W. Scotland 323
Germination in light and darkness 318
Grapes from Aldenham, R.H.S. award to the 327
Imperial Forestry Conference of 1923. ... 324
Indian garden in autumn, the 322
Obituary—
Roehrs, Julius ... 329
Orchid notes and gleanings—
Brasso-Cattleya Lady Vezey Strong 319
Parks and gardens' public 327
Rose garden, the—
Rose Fanny Oppenheimer 319
Societies.—
Hull and East Riding Chrysanthemum ... 328
Royal Horticultural... 328
Strawberries, red—
plant of 326
Trees and shrubs.—
Euonymus europaeus 325
The Cedar Grove on Mount Lebanon ... 325
Vegetable garden—
Pea Senator 326
Protecting Broccoli ... 326
Watercress in streams 326
Ward's, Mr. Kingdon, seventh expedition in Asia 322
Waterfall at Laeken, the 317
Week's work, the ... 320
Wheat, the improvement of home-grown 317

ILLUSTRATIONS.

Cedars on Mount Lebanon, as sketched by Capt. S. P. Oliver in 1879. 325
Crocus longiflorus 321
Rose Fanny Oppenheimer 319
Upjohn, Mr. W. B., portrait of 318
Waterfall in the King of the Belgians' Garden at Laeken 313

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 41.2°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, November 28, 10 a.m.: Bar, 29.6; temp. 37°. Weather—Dull.

The Improvement of Home-grown Wheat.

In publishing in pamphlet form the reprint of his article on the "Improvement of Home-grown Wheat," which appeared recently in the technical journal, *Milling*, Mr. A. L. Humphries has rendered a great service to the community. Although comprised within a few pages, Mr. Humphries' observations on the subject of Wheat improvement are of great importance. A little over twenty years ago, the Home-grown Wheat Committee of the National Association of British and Irish Millers, took the initiative in a sustained attempt to improve the quality of home-grown Wheat. Happily for the success of this patriotic undertaking, Mr. Humphries devoted himself enthusiastically to its promotion, and from 1901 till the present day has spared neither time nor labour in helping to secure improvement in the Wheat grown in this country. Fortunately for the undertaking, Prof. Biffin's attention had already been directed to the subject, and simultaneously with the action taken by the Wheat Committee he began his well-known and fertile experiments in Wheat breeding. It is no disparagement to Prof. Biffin to state that the successful issue of his experiments is in no small measure due to the interest which the millers on the Committee displayed in them and to their technical knowledge of milling, which they were able to put at Prof. Biffin's disposal. The problem which faced Prof. Biffin at the outset was that of producing varieties of Wheat which should be able to compete with those which for one reason or another commanded the highest price on the British market. Merely to grow the best of foreign varieties had proved that the solution of the problem did not lie in that direction; for the qualities which gave these foreign varieties their prominent position were found to be lost to a greater or less extent when they were grown in this country. Of strong Wheats—those for which the miller is willing to pay high prices—hardly any were found to be "strong" when grown here. Red Fife has proved an exception; but, unfortunately, as Mr. Humphries points out, this variety is not a profitable one either for spring or autumn sowing in this country. The variety which Prof. Biffin sought to produce had to possess strength, like that of Red Fife, high yield, immunity from disease, and freedom from the bad habit of sprouting in the ear—a defect which in a humid climate like that of these Islands must mean serious loss to the farmer or miller. That Prof. Biffin has shown the way to Wheat improvement, and realised it, is evident to all who have grown the variety of his raising known as Yeoman. Where this variety succeeds it succeeds remarkably well, and we ourselves have seen in the present year on land, which normally yields no better than four-quarters, a crop of Yeoman which, when thrashed, gave five quarters. This variety has the milling and baking qualities of Red Fife, one of its parents. As Mr. Humphries states, it yields a lively granular flour which will stand prolonged fermentation so far as "strength" is concerned, that is, the capacity to produce large and shapely loaves. Yeoman stands mid-way between Red Fife and its other parent, Grey Browick, a variety which yields a soft, white flour good for biscuits, but unsatisfactory to the baker, because it will not stand long or severe fermentation, and because the dough has a tendency to stickiness. Thus, in the descendant of these two varieties, the undesirable qualities of each have been eliminated, and the result is a variety that yields a flour which any baker may use. It is this fact on which Mr. Humphries lays such stress, for, as he points out, by the use of flour made from Yeoman, "first-class bread may be produced from Wheat grown in England." The national importance of this fact is clearly shown by Mr. Humphries. When British Wheat is in small supply it can command a good price for use in biscuit making, for puddings, and for poultry food. But when British Wheat supplies are in excess of the requirements for these purposes, the value of home grown Wheat falls; for it is only bought for bread making, for which purpose the commonly grown varieties are not very suitable and, hence, only purchased at a low price. If, on the other hand, there is available Wheat of the Yeoman type—adequate for bread making without admixture with foreign "strong" Wheats—then in those districts of England, *i.e.*, Wiltshire, Hertfordshire and Bedfordshire, where enough Wheat is raised to meet local requirements, the local Wheat can command the price which must be paid for the best foreign Wheats. Until the advent of Yeoman, farmers in these counties were, perforce, obliged to "export" from the county fifty per cent. of their Wheat, for only fifty per cent. was used locally for bread making—the remainder being required to give quality, and for that purpose exported into the area. The fifty per cent. exported Wheat, *i.e.*, Wheat sent out of the self-supplying area, would have to bear the cost of carriage, and would then only be able to compete with the cheapest foreign Wheat. Moreover, the price realised for the fifty per cent. exported Wheat would govern the price for the fifty per cent. of the crop retained in the county for mixing with foreign "strong" Wheat. Thus Mr. Humphries reaches his all important conclusion. If home-grown Wheat can be removed from the category of kinds bought for bread making purposes only if the price be low—equal to or below that of cheap, inferior, foreign, imported varieties, and if it can be bought in the category of kinds desired, or essential for bread making, the prospects of Wheat growing in England as a commercial and economic proposition may be revolutionised. Although Yeoman has pointed the way, there remains much to do before this revolution can be consummated. No one variety of Wheat succeeds in all districts, and the immediate problem is to produce other and equally good varieties which will succeed in localities where Yeoman fails. This, however, should prove no impossible task, for the way to set about doing it has been shown by Prof. Biffin, and there should be plenty of others who can follow it, albeit painfully and slowly, to its successful end. In the meantime, everybody interested in this important subject can help to disseminate knowledge of the ascertained facts, and particularly every one who grows Wheat can give a trial to varieties of the Yeoman type and help to make their virtues known to all engaged in the supply of bread stuffs.

The Waterfall at Laeken.—Many British horticulturists who have had the pleasure of visiting the famous Royal Gardens at Laeken, near Brussels, will remember the waterfall (Fig. 117, p. 323) in the lower part of the extensive pleasure grounds. The late King Leopold took the keenest possible interest in his garden and in horticulture generally, and he fully understood the value of water in garden scenery. The waterfall is a delightful feature, and its surrounding trees, shrubs, Ferns, and other plants have for so long a time occupied this position that the whole scene is a picture of natural beauty, although, of course, the waterfall is artificially produced. The water falls from a considerable height and passes away to join the lake below. A waterfall of such size would be out of place in any but a large domain, but at Laeken it adds a pleasing feature to the charming garden in which King Albert and Queen Elizabeth of Belgium find great pleasure and rest from public duties.

Forthcoming Botanical Lecture.—Sir Jagadis Bose, Director of the Bose Institute, Calcutta, will deliver a lecture before the Royal Society of Medicine on "Assimilation and Circulation in Plants," on Thursday, December 6, at 5.30 p.m., at 1, Wimpole Street, W. The chair will be taken by the President of the Society, Sir William Hale-White.

Agriculture in the Sudan.—The Department of Agriculture of the Sudan Government is requiring a Superintendent of Agriculture. Particulars of the appointment may be obtained from the Inspecting Engineer of the Egyptian and Sudan Governments, Queen Anne's Chambers, Westminster, S.W.1.

Importation of Bulbs, etc., into Holland.—Nurserymen and exporters of bulbs, etc., are reminded that, by the terms of a decree issued by the Netherlands Government, the importation into Holland of dry bulbs, tubers, and roots of flowering plants is prohibited during the period June 1 to October 31 in each year, except under permit from the Netherlands Government and after examination by Dutch officers at the port of arrival. This prohibition does not, however, apply to consignments imported through the parcels post.

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Bequest to a University. — The late Mr. William Prescott has bequeathed £20,000 to the Liverpool University to found a chair of agriculture or a chair for one or more of the following subjects, namely, the chemistry of agriculture, the cultivation of land, the care, breeding, and raising of crops, the diseases of crops, or any other subject connected with agriculture. The University is given twelve months in which to decide whether or not it can accept this gift.

Generous Gift of Plants to Southport.—For several years past M, W. H. Stansfield has taken an interest in the steadily improving parks and open spaces of Southport, and has shown that interest in a practical way by presenting suitable subjects for planting. Quite recently he offered the Southport Parks Committee no fewer than 7,570 plants and, needless to say, this offer was accepted with an expression of gratitude to Mr. Stansfield for the continued interest he takes in the development of the Southport Parks and Gardens. The following is the list of plants presented: Ailanthus glandulosa, 50; Amorpha canescens, 500; Berberis dulcis nana, 100; B. Wilsonae, 100; Caragana arborescens, 100; Cercis Siliquastrum, 50; Cupressus, 100; Colutea aborescens, 100; Kerria japonica flore pleno, 50; Cornus sanguinea, 500; Cotoneaster microphylla, 550; C. Simonsii, 50; Cydonia Maulei, 50; Cytisus alpinus, 250; C. albus, 250; C. scoparius Andreanus, 100; C. nigricans, 500; Deutzia crenata fl. p., 50; D. Lemoinii, 50; D. Bride of Chester, 25; Cassinia fulvida, 50; Exochorda grandiflora, 500; Fagus sylvatica, 500; Gypsophila paniculata, 500; Hydrangea grandiflora, 100; Philadelphus in variety, 200; Pinus Pinaster (maritima), 500; Potentilla fruticosa, 250; P. Friedrichsenii 20; P. Farreri, 100; Querqus pedunculata (Robur), 100; Rosa rubiginosa, 100; Salix babylonica, 50; Spiraea ariaefolia, 50; S. Thunbergii, 50; S. Bumalda, 100; S. japonica (callosa) rubra, 100; Tamarix pentandra (hispida aestivalis), 25; Tritoma Uvaria, 500; and Yucca filamentosa, 200.

Ancient Allotments.—Some interesting particulars are given in the *Derby Daily Express* for November 16 of the allotments instituted by the Rt. Hon. Lord Melbourne eighty years ago. They are known as the Spring Garden allotments, and were formerly called "Lord Melbourne's Potato land." In a memorandum dated March 28, 1844, headed "Conditions understood, but not expressed" in the Potato Allotment Committee's agreement, it is stated, "those of the present occupiers of Lord Melbourne's Potato land who have obtained prizes, to have first choice in new field, those who have no bad mark to have a preference, those whose allotments were in good order at last examination also to have a preference." In a formal agreement, endorsed "Demise from the Right Honourable William Lord Viscount Melbourne to certain persons of land in Melbourne intended as garden ground for the use of the poor," the first clause states that Lord Melbourne agrees to let to John Joseph Deans, Joseph Hasard, William Fox Banton, Samuel Robinson, George Draper, Thomas Haimes, James Joseph Dolman, John Gutteridge, and John Earp, all the close below Calke-road, lately in the possession of Francis Dalman, containing with one half part of the brook adjoining eight acres and 35 perches, and also all that close called Calke-road piece, lately in the possession of William Banton, containing 4 acres, 3 roods, 26 perches. To hold the said land at a yearly rental of £24, in trust and as a Committee for the accommodation and convenience of the poor or labouring inhabitants of Melbourne, and for plots of garden ground for their use subject to the rules and regulations now laid down. The agreement is signed by Frederick Francis Fox, on behalf of William Lord Viscount Melbourne. These allotments have been continuous right to the present time, though held by various successors, the present owner being Lord Walter Kerr; but last year the administration was taken out of the hands of the Committee and managed direct from the Estate Office by Mr. Thomas Pearce, estate agent.

Mr. W. B. Upjohn.—Very few men have such a fine record of continuous service in one establishment as Mr. W. B. Upjohn, who for over fifty years has had charge of the Earl of Ellesmere's gardens at Worsley Hall, Worsley. Mr. Upjohn was born at Cley, Norfolk, in May, 1843, and when fourteen years of age was apprenticed to Mr. John Monro, who was then gardener to Mrs. Oddie, of Colney House, St. Albans. Young Upjohn lived with Mr. Monro, and formed an attachment with his eldest son George (the founder of the great Covent Garden business), which lasted a life time. Eventually Mr. John Monro took over a market garden at Rabley and Mr. Upjohn went with him. Four years later he obtained a situation as journeyman at Dalkeith Gardens, under Mr. William Thomson, who took a very great interest in this keen young man from the south of England. The wages were 10/- per week; the hours from 6 a.m. to 6 p.m., and often longer. A year later he was promoted to full journeyman with a wage of 12/- per week. Mr. Upjohn speaks very highly of Mr. W. Thomson, who endeavoured to inspire all his men with a keen interest in their profession, and frequently invited answers in written papers to a list of questions calculated to develop a knowledge of the theory as well as the practice of horticulture. For

MR. W. B. UPJOHN.

seven years Mr. Upjohn remained at Dalkeith, studying hard and working in each department, eventually becoming foreman in the plant department at a time when specimen Heaths and other large plants were a feature of large gardens and at prominent exhibitions. When the Earl of Ellesmere applied to Mr. Thomson for a head gardener Mr. Upjohn was recommended, and having left Dalkeith, Mr. Thomson gave him a written character "in case it might be useful," worded as follows: "W. B. Upjohn has been with me in these gardens for seven years. I have placed some three hundred men in head situations, but in no instance have I had a man of whose moral character and professional abilities I have formed so high an opinion." When Mr. Upjohn took up his duties at Worsley Hall gardens it was with an earnest desire to live up to the high character Mr. Thomson gave him. With its ten acres of kitchen garden and about sixty acres of pleasure grounds, Mr. Upjohn's duties were not light, especially as the climate was none too kind, and it was necessary to wash the glasshouses frequently during the autumn and winter to admit light to the plants in them. Men pruning shrubs became as black as chimney sweeps. Notwithstanding the difficulties, Mr. Upjohn made Worsley Hall gardens famous, and in all his efforts received the kindest assistance and consideration from his employers, the Earl and Countess of Ellesmere. In those days, more than fifty years ago, the bothy at Worsley shared a space on the north wall, with a potting shed and tool shed. At Mr. Upjohn's suggestion a fine modern building was built, with mess room, separate cubicles for each of the eight men, sitting rooms and bath room. His own house was also made as comfortable as possible, and in it Mr. Upjohn has lived for fifty-two years, and brought up eleven children to manhood and womanhood. He considers that few men have had so much happiness as he in his domestic and business affairs, notwithstanding the great changes that have come to gardening through this long period, and despite the fact that the war and the high taxation following made it impossible to maintain the gardens at Worsley in their old-time splendour. Mr. Upjohn continues to enjoy good health, and is particularly happy when old friends and acquaintances call upon him at Worsley.

Appointments for the Ensuing Week.—Sunday, December 2: Wakefield Tulip Society's meeting. Tuesday, December 4: Sevenoaks Gardeners' Chrysanthemum Society's meeting; Royal Caledonian Horticultural Society's meeting. Wednesday, December 5: Lecture at the Royal Society of Arts, at 8 p.m., on "The Work of the Royal Botanic Gardens, Kew," by Dr. A. W. Hill; Lewes and District Horticultural Society's meeting. Thursday, December 6: Wargrave and District Gardeners' Society's meeting. Friday, December 7: Bath Gardeners' Society's show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Fruit Trees.*—The soil of the most productive part of Kent is locally called Hassock, or stone-shatter; the surface of this is a mixture of sandy loam, largely intermixed with small pieces of light coloured Kentish ragstone; it is from six inches to two feet deep on solid stone rock. This land produces great quantities of Hops, Apples, Cherries, Filberts, and likewise good Turnips, Potatos, seeds, and Corn; also much excellent Hay on old Grass lands. Fruit trees of all sorts flourish and produce abundantly; even Peach and Pear trees of the most delicate kinds grow with the greatest luxuriance, and are free from disease. To what are we to attribute such results? Not to the climate, for localities enjoying a higher degree of temperature than the neighbourhood of Maidstone do not produce such fruit. The answer thus resolves itself into the fact that the quantity and superior quality of the fruits are due to the soil, being naturally in that state best suited for their healthy growth. This fact should induce us to apply the same principles to our practice in each and every other situation. Fruit trees growing in the kind of soil just described produce short-jointed wood; when the roots are stimulated by rich manures, rampant luxuriant branches are produced; when they descend to a distance beyond the genial influences of the atmosphere, they absorb a large quantity of water which the leaves are unable to get rid of by perspiration and the inevitable result is gum, canker, and a whole host of diseases; such trees continue to grow to a late period, when the lowness of temperature and the absence of sunlight render it impossible for them to give off their superabundant water by perspiration, the only means by which all trees and plants are enabled to part with it. Trees in the above-mentioned soil grow slowly; their tissues become perfectly organised as they proceed, and are not liable to be acted upon by accumulated moisture. As the days become short, and the power of the sun declines, the motion of the fluids and the action of the cells gradually cease, when the whole system is in unison with the course of nature; in winter the roots are almost dormant, the branches are short-jointed and well ripened, and all are prepared to withstand the severity of the weather and to awaken in the spring full of life and blossom. *William Keane, Gardener to George Tomline, Esq., Orwell Park, Ipswich, Gard. Chron., November* 25, 1848.

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NOTICES OF BOOKS.

Gardening in South-West Scotland.

IT is often said that the mild climate of the west coast of Scotland is due to the influence of the Gulf Stream, but in his latest book,* Sir Herbert Maxwell ascribes it less to that than to the prevailing movement of the atmosphere from S.S.W. to N.N.E. Whatever the cause, the conclusion is irresistible that there are parts of the west coast where the climatic conditions are possibly even more favourable to vegetation than they are in Cornwall, for there is an absence of the arid conditions so trying to many evergreen shrubs in a hot Cornish autumn. Poolewe and Stonefield, 200 and 80 miles north the Mull of Galloway respectively, show that the extreme south-west coast of Scotland has no monopoly of the benign climate which has enabled enthusiastic gardening owners to work such wonders at Monreith, Loch Inch, Corshwall and Logan among other places in Wigtownshire. The mind boggles at the thought of the gardening paradise the country would present now had the forbears of the present generation realised their opportunities as the author and his gardening neighbours realise them now. As in all maritime districts, raging winds are the gardener's great difficulty, and Monreith is no exception. On the eastern shore of Luce Bay, Monreith has to meet the full force of the gales which sweep up the wide mouth of the bay from the south-west. Those familiar with the country thereabouts know how sharply the exposed woods are shorn up—always in the same direction—by the winds, and how happily the gales are held at bay in Sir Herbert Maxwell's garden.

Sir Herbert's book is an intimate chronicle of his own garden; he warns his readers not to regard it as a treatise on garden craft, but rather as an attempt to indicate "certain points in the arrangement of shrubs and treatment of flower borders which are not commonly kept in view as they might be," and "an endeavour to draw attention to plants out of the ordinary." Those readers who live in less genial latitudes will read with interest not untinged with envy of many plants out of the ordinary that flourish at Monreith, such as the Australasian Eucryphia, E. Billardierii, as well as the Valdivian E. cordifolia, Robinia neomexicana, Callistemon speciosus, Lardizabala, Desfontainea, which seeds about, and Senecio Huntii, among others, and, knowing their own limitations, will not be induced by Sir Herbert's success with such tender things into giving them a trial in places where they are foredoomed to failure. Some of these beautiful shrubs flourish in the home counties, miles from the sea, but the difference between those districts and the Wigtownshire coast is the difference between death and life when there is skating on the Serpentine for a week or two. Our author has many other fine shrubs and plants in his pages to which less fortunate folk may pin their faith.

No cultural secrets are disclosed in the book, doubtless because in the soil and climate of Monreith few are practised; but as befits a true gardener, the author does not hesitate to set forth his failures as well as his successes. He has not been cultivating plants and shrubs for many years with his eyes shut, and to a natural catholicity of taste and appreciation of fine things, particularly species, there is added the record of keen observation on page after page; as, for instance, on the varying effect of frost on the bloom of different Rhododendrons, on the use and misuse of peat, the vitality of seeds, Nature's profoundly ingenious methods of assuring fertilisation in many plants—Roscoea, for example—and the ways of the verminous rabbit.

Few old gardeners will read the final chapter unmoved, for much of the delight of gardening is derived from the association of plants with friends from whose hands they have come, hands in all too many instances no longer able to perform the pleasant operation of digging up and dispatching plants to others. From cover to cover the reader is conscious of the workings of a mind acutely sensible to all that is best of colour and form in the plant world, and steeped in historical knowledge which is placed at the disposal of the reader with a felicity of expression all too rare in gardening literature. The book is generously furnished with illustrations reproduced from the author's drawings. Not all the reproductions do equal justice to Sir Herbert Maxwell's facile brush, but that is doubtless due to the limitations illustration by mechanical processes imposes on those who employ it.

* *Flowers: A Garden Note-Book*, by Rt. Hon. Sir Herbert Maxwell, Bart., F.R.S., Maclehose, Jackson & Co., 25s.

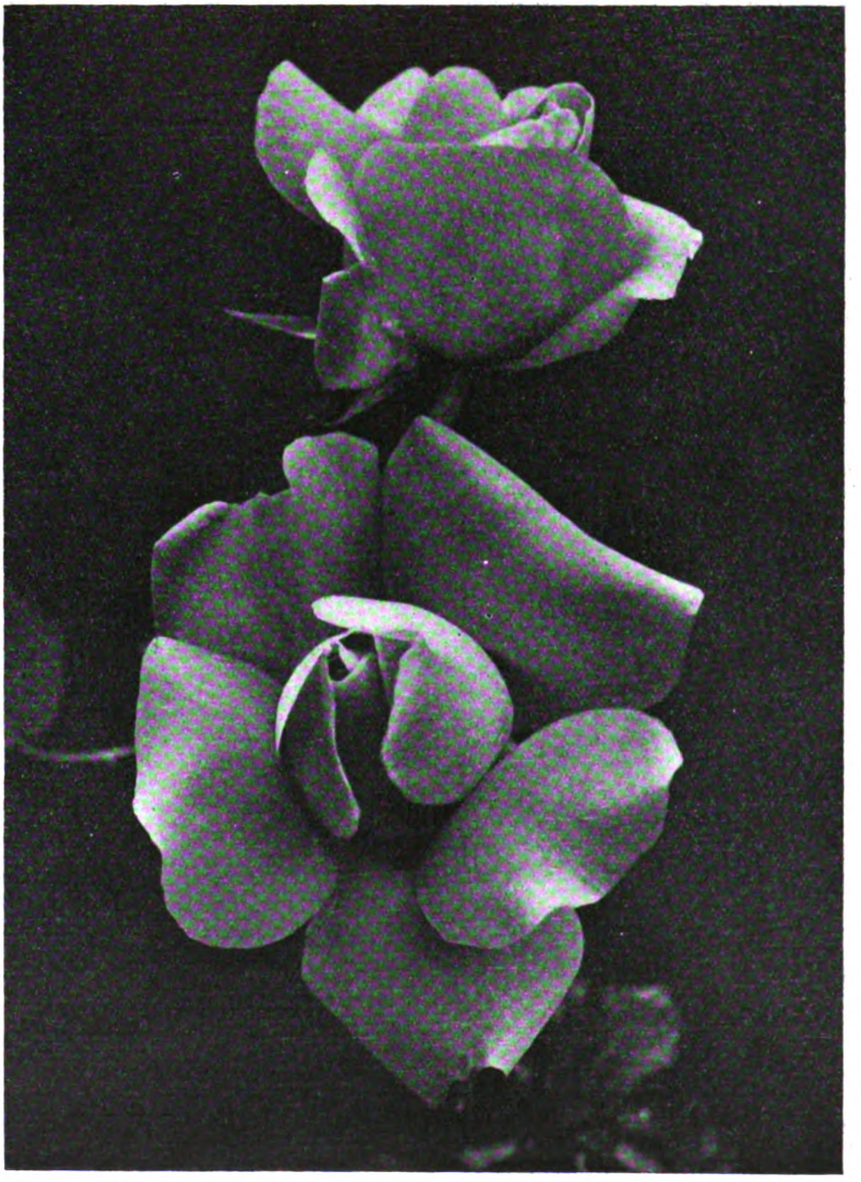

FIG. 115—ROSE FANNY OPPENHEIMER.

THE ROSE GARDEN.

ROSE FANNY OPPENHEIMER.

THIS gloriously coloured Rose (see Fig. 115) was exhibited at the autumn show of the National Rose Society on September 20 last, and surprise was expressed by many that its merits were passed over by the judges, for it was one of the most beautifully coloured Roses in the Show. It is a hybrid Tea variety, and although the buds possess good form the open blooms are rather loose and not up to the best standard so far as shape is concerned, but the variety, besides being of such a striking colour, which is best described as cardinal-red with golden-yellow at the base of the petals, has other qualities, including freedom of flowering and a robust habit. It is, however, for its colour alone that most Rose lovers will desire to possess this novelty, for the tone is nearly scarlet, and Roses of this category show to advantage in a collection.

ORCHID NOTES AND GLEANINGS.

BRASSO-CATTLEYA LADY VEZEY STRONG

A FLOWER of a new and chastely beautiful Brasso-Cattleya derived from B.-C. Digby-ano-Mendelii and C. Mrs. Percy Bigland is sent by the raiser Frederick J. Hanbury, Esq., F.L.S., Brockhurst, East Grinstead. It is large and of excellent shape, the sepals and petals being broad and well displayed, silver-white tinged with pearl pink. The showy labellum, which shows the influence of C. chocoensis in its ancestry and the distinct fringing of Brassavola Digbyana, is coloured like the petals, the disc and side lobes being Primrose yellow; the fleshy column is pure white. The Cattleya parent was a Brockhurst cross between C. chocoensis and C. Harrisoniana, which flowered there in 1913, and in the new cross with Brasso-Cattleya, the firm, wax-like texture of the lip imparted by C. Harrisoniana renders it additionally attractive.

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, late Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Trichopilia.—When well-grown, Trichopilias comprise a most interesting family of very beautiful plants. T. fragrans is, as its name implies, a sweet-scented Orchid, and is now showing its white flowers which will soon be expanded. This Orchid deserves to be grown in every collection, as spikes of deliciously scented white flowers, suitable for any kind of decoration, are not abundant at this season of the year. This plant may be grown at the warmer end of the cool house, or in any house where the winter temperature does not fall below 50°, provided a moist atmosphere is maintained. Other species of these interesting plants such as T. suavis, T. coccinea, T. tortilis, T. crispa, T. marginata, T. Backhouseana, T. laxa, and a few others, require a few degrees more heat, and a slightly drier atmosphere. The majority of these plants will have completed their growth, and should be watered with care, or their pseudo-bulbs and leaves will quickly become spotted and disfigured; over-watering at this season also causes many of the roots to decay. For so long as the pseudo-bulbs remain plump very little or no water is required, but if they show signs of shrivelling, a moderate amount of moisture should be afforded the roots. During their resting period the members of this section of Trichopilia should be placed in a cool dry part of a house, where an intermediate-house temperature is maintained. They require a light position, but not direct sunshine. The different varieties have each an individuality of their own, and the close observer will soon discern their requirements. When showing their flowers remove the plants to a shady position in a house a few degrees warmer than the one they are occupying; with more warmth the flowers will open better, and be less likely to become spotted than if left in a cooler division. There is always a danger of the flowers becoming spotted when the outside atmosphere is cold and heavily charged with moisture, if the plants are left in cool quarters. Trichopilias should be re-potted soon after growth commences, and a clean fibrous mixture similar to that used for other plants is suitable to their requirements. As healthy specimens make a considerable amount of roots, they will require plenty of pot room, whilst some of the smaller-growing species will be best accommodated in shallow pans, and grown suspended from the roof-rafters on the shady side of the house.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Wolverstone Park Gardens, Ipswich.

Successional Vineries.—When the leaves have fallen prune the vines and cleanse the rods and interior of the house. A considerable portion of the work may be done on wet days by the outdoor staff. Cleanliness is essential in the successful culture of grapes or any other kind of fruit. It is therefore advisable to undertake the work of cleansing the vines and vinery when there is the time and opportunity of carrying out the operations thoroughly. The old method of coating the vines with a mixture of clay and other ingredients obnoxious to insect pests is not to be recommended, as such mixtures are not sufficiently thin in texture to enter all the crevices. Having tried many kinds of insecticides for the destruction of scale, red spider and mealy bug on vines, I give the preference to paraffin emulsion as being the most efficacious specific for the eradication of these troublesome pests. When pruning, the wood should cut hard and clean if it is thoroughly ripened; if, on the contrary, it is soft, there is a fault somewhere which requires remedying. Overcrowding of growths or lack of other essential cultural conditions may account for the immature condition of the wood. Defective root-action is often the chief source of the trouble. Too deep a root run has an adverse influence on the quality of the wood, especially in the case of vines growing in an outside border, as the roots remain cold until quite late in the season, and the result is imperfectly ripened growth. The effect is also apparent by the irregular manner in which the vines break. There are other evils traceable to the same source; for instance, in the early stage, growth is strong for a time, but when the vines need the most assistance the root action does not progress at the same rate as top growth, owing to lack of warmth in the soil, and under such conditions the grapes set badly, generally failing to finish in good condition. To obtain Grapes of the highest excellence there should be plenty of fibrous roots near the surface, and where this is not the case the borders should be renovated and the low-lying roots brought nearer the surface. The drainage should be effectual, as anything approaching stagnant moisture in the border will have an evil effect on the roots. Outside borders should be protected from wet and cold by means of spare lights, shutters, etc.; a thick covering of leaves, overlaid with Bracken or strawy litter, forms a splendid protection.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Hippeastrums.—If these plants are required to flower early, a batch should be introduced to a warm house, plunging them, if possible, in a bed over bottom heat. A house with a temperature of 60° to 65° is suitable. The bulbs should be selected from those that were started early last year. If plants can be selected that do not require re-potting they will respond more readily to warmth when they are placed in the house. They should be well watered at the roots, after some of the top soil has been removed and substituted with a good rich compost. At the same time the bulbs should be examined for mealy bug, which often proves troublesome.

Astilbes.—These plants are very useful and popular for conservatory and greenhouse decoration. A. japonica and its varieties have long been used for this purpose; there are now numbers of pink and rose-coloured varieties which are largely grown for this purpose. Although Astilbes for forcing may be grown in gardens in moist, well-manured ground, the usual practice is to rely on purchased plants. As soon as they are received they should be placed in suitable-sized pots; although they may be grown in small receptacles, it pays to give them plenty of root room as they are strong rooting subjects and need a large amount of water when in full growth, in fact, they may at that stage be stood in shallow saucers of water. After potting the plants, they may be stood out-of-doors, plunging the pots to their rims in coal ashes, or they may be stood in cold frames until such time as it is desired to introduce them to the forcing house.

Bertolonias.—These exotic plants are grown for their beautiful marked foliage. They require a high temperature, a close, moist atmosphere, and are best grown in well-drained pans, in a compost consisting of good fibrous peat mixed with a little light loam and sufficient silver sand and charcoal to render the soil porous. Where it is difficult to maintain a close, moist atmosphere, the plants should be grown under large bell glasses. During the dull weather water should be afforded the roots with extreme care. If the shoots have grown long and leggy, the tops should be secured as cuttings, inserting them in a close propagating case, in a mixture of fibre and silver sand, in which they will root readily

Sonerila.—Like the Bertolonias, Sonerilas are usually grown for their beautifully marked foliage. They are not, however, so exacting in their cultural requirements and will grow well in a close, moist, stove temperature. Like Bertolonias they enjoy partial shade and thrive in the same kind of compost. They are best grown in small, well-drained pans. Sonerilas may be raised from seed and are also easily propagated by means of cuttings.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL Ampthill Park, Ampthill, Bedfordshire.

Climbers.—Climbing plants are so numerous and varied that few gardens are without some representatives—the number and type of the plants depending, naturally, on available spaces or positions suitable for climbers. Just now the wild Clematis Vitalba (Traveller's Joy) is very picturesque here with its feathery seeds or fruits, masking a huge more or less dead Acacia or Locust Tree. This is the best way to grow C. Vitalba—allow it to climb up and across other trees—otherwise its truly ornamental character is not seen to the best advantage. Thus grown one need not trouble about pruning the plants, simply pulling away the dead stems as they appear in the course of time being all that is necessary. Clematis of the Jackmanni group may be pruned now in open weather or the pruning may be deferred until February. In either case hard pruning should be resorted to, cutting well back to hard wood if the plants have grown out of bounds. The strongest growing of the Rambler Roses never look better than when trained to cover the trunk of a dead tree. Roses grown in this way require attention and making secure for another season. There is no need to particularise about the pruning of these plants—they look more natural the less they are cut about, provided there is room for the growths. If not yet done Wistarias require all late and secondary growths pruned back to a promising bud and any necessary tying attended to. The Japanese Vine—Vitis Coignetiæ—needs curtailing more or less according to the size of the arbour or pergola it adorns. This plant, like the Wild Clematis, requires plenty of space over which to display its beauty, and wherever possible it should be allowed to ramble among a bush or tree, as it is in such conditions one better sees and appreciates the rich colouring of its foliage in autumn. Another excellent climber for ornamenting trees is Polygonum Baldshuanicum. It is a quick grower, quite hardy, and bears panicles of creamy-white flowers during late summer and autumn. As it is a fast grower, not the least salutary position for it is to let it roam over a large Portugal Laurel or a group of Hollies, the green foliage of the latter showing up the feathery white masses of the climber. Grown as above, pruning is not needed, but some restriction is required when the plant is grown on an ordinary pergola or pillar. Ivy growing on buildings should not be allowed to get under tiles or in guttering; therefore any shoots that have climbed up to these since the last trimming should be cut back. The Hop (Humulus Lupulus) is past its best and the vine may be cut away. All climbers I have dealt with may be now planted in suitable weather.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Rotation of Crops.—During the long winter evenings, a plan of the kitchen garden should be drawn up, and the various sites marked for next season's crops. Sheltered borders facing south will, of course, be utilised for producing the earliest crops of Peas, Potatos, French Beans, Lettuces, etc.; and these crops may be changed every alternate year. If a border is trenched one year for Peas, it will be in excellent condition for Potatos the next season—and so on. Main crop and late Peas should be grown on a fresh site every

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year, allowing at least two years before they are grown on the same site again. This, however, may not always be possible in a small garden. Brassicas also should be given a fresh site every season, and the ground can scarcely be tilled too well for them. On the contrary, Onions may be grown on the same site for years, provided the ground is well prepared each season. Soils vary much, even in the same garden, and the lighter, porous land may be reserved for Carrots, Parsnips, Beets and Potatos, whilst the heavier ground may be utilised for growing Peas, Cauliflowers, Cabbages, etc.

The Use of Manures.—The texture of the soil one has to deal with will largely determine what kind of manures are most suitable. Where it can be obtained, well-rotted farmyard manure is the best to employ for most crops. For light soils cow manure is excellent, as it is more retentive of moisture than horse dung. On heavy soils it is wiser to use plenty of stable litter, rough leaves and garden refuse, as these materials tend to keep such soils open and render them easier to work as time goes on. Whatever kind of manure is used it should be well mixed with the soil, and not just thrown in haphazard. Guard against over manuring; ground which has been heavily manured one season should not be manured the next; rather apply a dressing of soot, wood ashes or lime, if it is heavy. Ground where Celery and Leeks have been grown in trenches is always in splendid condition the following season, as it is usually well manured, and also exposed to the weather. Such land is very suitable for the growing of Peas, Beans, and Potatos

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HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

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Planting.—When fruit trees arrive from the nursery every endeavour should be made to get them planted, as weather and soil conditions permit, first seeing that water-logged soils are drained. If the ground is suitable, the trees should be planted nearly level with the surface and good soil mounded up around the roots. In all cases the soil should be made firm. Trees that do not need lifting may require a dressing of lime in some form. After the prunings are cleared away the lime may be lightly forked into the soil and if the ground has not become very cold, a mulching of manure may be applied to trees which are not over luxuriant in growth. In the case of transplanted trees which are more or less in a state of maturity, such as fully-grown cordons, a coating of manure or of decayed leaves will prevent the drying and detrimental effect of cold easterly winds.

BULB GARDEN.

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THIS plant, which is also called the Kaffir Lily, was introduced from South Africa about 1864. It belongs to the Iris family, and is not so well known as its merits deserve. It flowers freely in the late autumn if the weather is mild, and is then very welcome in the garden, as the flush of flowers is over.

The growth of the plant is somewhat similar to that of the Iris, but the leaves are smaller. The flower stem grows to a height of about eighteen inches, and bears numerous open crimson flowers in the old variety, almost like a Buttercup in shape, but much larger. There is a new kind bearing pinkish blooms, but it has been introduced only lately, and is not yet in general cultivation. A great field is offered here to the plant cultivator, for new colours can doubtless be added to those we have at present. The plant is hardy in a dry and sheltered place, and can scarcely have too much sun; the secret of free flowering is in the full ripening of the growth. The plants may be obtained in the early spring, and planted at once in a light, sandy soil. It is a good plan to top-dress the plants with a little old manure after they have flowered, which will help to ward off frost, besides supplying the roots with nourishment. The plants will grow and flower well for two or three years without the need for dividing them.

Towards the end of September a few roots may be lifted carefully from the bed and potted. They will flower well under glass, but they should not be watered too freely until they are well rooted, or they may suffer. Thus treated they will afford a most acceptable attraction in a cool house and an uncommon one, or they may be placed in any warm window indoors. *T. D. T.*

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THIS Crocus (see Fig. 116) has been described as the best of the autumn-flowering species and worthy of a place in every garden. It gives a display of its beautiful soft rose-coloured flowers in October and November, when most other flowers of the garden are over. The species is a native of Southern Italy, Sicily and Malta. It bears some resemblance to C. sativus, but is distinguished by its glabrous leaves and red seeds. A very fine variety of this Crocus named venustus received an Award of Merit at the meeting of the Royal Horticultural Society on October 4, 1921. The colour of this variety is bright lilac with a feathering of deep blue.

FIG. 116—CROCUS LONGIFLORUS.

ALPINE GARDEN.

THE WALNEY ISLAND GERANIUM.

CLASSED by many as a variety of Geranium sanguineum, the pretty Walney Island Geranium or Cranesbill, G. lancastriense is very distinct It is a low-growing plant not more than six inches high, and frequently less, with neat little leaves and remarkably attractive flowers of a warm rose colour veined with a deeper tone. It is one of the best rock plants in existence, and it must at the very least be reckoned as one of "the hundred best Alpines," and some would include it in a still more limited selection. It has the great merits of dwarfness, neatness and high beauty, combined with general ease of cultivation, although there seems to be some who do not succeed with it. Probably this is due to growing the plant in soil that is excessively rich. A very sandy loam or loam, peat, or leaf-mould with plenty of sand will be found quite congenial to Geranium lancastriense.

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The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, late Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Trichopilia.—When well-grown, Trichopilias comprise a most interesting family of very beautiful plants. T. fragrans is, as its name implies, a sweet-scented Orchid, and is now showing its white flowers which will soon be expanded. This Orchid deserves to be grown in every collection, as spikes of deliciously scented white flowers, suitable for any kind of decoration, are not abundant at this season of the year. This plant may be grown at the warmer end of the cool house, or in any house where the winter temperature does not fall below 50°, provided a moist atmosphere is maintained. Other species of these interesting plants such as T. suavis, T. coccinea, T. tortilis, T. crispa, T. marginata, T. Backhouseana, T. laxa, and a few others, require a few degrees more heat, and a slightly drier atmosphere. The majority of these plants will have completed their growth, and should be watered with care, or their pseudo-bulbs and leaves will quickly become spotted and disfigured; over-watering at this season also causes many of the roots to decay. For so long as the pseudo-bulbs remain plump very little or no water is required, but if they show signs of shrivelling, a moderate amount of moisture should be afforded the roots. During their resting period the members of this section of Trichopilia should be placed in a cool dry part of a house, where an intermediate-house temperature is maintained. They require a light position, but not direct sunshine. The different varieties have each an individuality of their own, and the close observer will soon discern their requirements. When showing their flowers remove the plants to a shady position in a house a few degrees warmer than the one they are occupying; with more warmth the flowers will open better, and be less likely to become spotted than if left in a cooler division. There is always a danger of the flowers becoming spotted when the outside atmosphere is cold and heavily charged with moisture, if the plants are left in cool quarters. Trichopilias should be re-potted soon after growth commences, and a clean fibrous mixture similar to that used for other plants is suitable to their requirements. As healthy specimens make a considerable amount of roots, they will require plenty of pot room, whilst some of the smaller-growing species will be best accommodated in shallow pans, and grown suspended from the roof-rafters on the shady side of the house.

FRUITS UNDER GLASS.

By W. Messenger, Gardener to J. A. Berners, Esq., Wolverstone Park Gardens, Ipswich.

Successional Vineries.—When the leaves have fallen prune the vines and cleanse the rods and interior of the house. A considerable portion of the work may be done on wet days by the outdoor staff. Cleanliness is essential in the successful culture of grapes or any other kind of fruit. It is therefore advisable to undertake the work of cleansing the vines and vinery when there is the time and opportunity of carrying out the operations thoroughly. The old method of coating the vines with a mixture of clay and other ingredients obnoxious to insect pests is not to be recommended, as such mixtures are not sufficiently thin in texture to enter all the crevices. Having tried many kinds of insecticides for the destruction of scale, red spider and mealy bug on vines, I give the preference to paraffin emulsion as being the most efficacious specific for the eradication of these troublesome pests. When pruning, the wood should cut hard and clean if it is thoroughly ripened; if, on the contrary, it is soft, there is a fault somewhere which requires remedying. Overcrowding of growths or lack of other essential cultural conditions may account for the immature condition of the wood. Defective root-action is often the chief source of the trouble. Too deep a root run has an adverse influence on the quality of the wood, especially in the case of vines growing in an outside border, as the roots remain cold until quite late in the season, and the result is imperfectly ripened growth. The effect is also apparent by the irregular manner in which the vines break. There are other evils traceable to the same source: for instance, in the early stage, growth is strong for a time, but when the vines need the most assistance the root action does not progress at the same rate as top growth, owing to lack of warmth in the soil, and under such conditions the grapes set badly, generally failing to finish in good condition. To obtain Grapes of the highest excellence there should be plenty of fibrous roots near the surface, and where this is not the case the borders should be renovated and the low-lying roots brought nearer the surface. The drainage should be effectual, as anything approaching stagnant moisture in the border will have an evil effect on the roots. Outside borders should be protected from wet and cold by means of spare lights, shutters, etc.; a thick covering of leaves, overlaid with Bracken or strawy litter, forms a splendid protection.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Hippeastrums.—If these plants are required to flower early, a batch should be introduced to a warm house, plunging them, if possible, in a bed over bottom heat. A house with a temperature of 60° to 65° is suitable. The bulbs should be selected from those that were started early last year. If plants can be selected that do not require re-potting they will respond more readily to warmth when they are placed in the house. They should be well watered at the roots, after some of the top soil has been removed and substituted with a good rich compost. At the same time the bulbs should be examined for mealy bug, which often proves troublesome.

Astilbes.—These plants are very useful and popular for conservatory and greenhouse decoration. A. japonica and its varieties have long been used for this purpose; there are now numbers of pink and rose-coloured varieties which are largely grown for this purpose. Although Astilbes for forcing may be grown in gardens in moist, well-manured ground, the usual practice is to rely on purchased plants. As soon as they are received they should be placed in suitable-sized pots; although they may be grown in small receptacles, it pays to give them plenty of root room as they are strong rooting subjects and need a large amount of water when in full growth, in fact, they may at that stage be stood in shallow saucers of water. After potting the plants, they may be stood out-of-doors, plunging the pots to their rims in coal ashes, or they may be stood in cold frames until such time as it is desired to introduce them to the forcing house.

Bertolonias.—These exotic plants are grown for their beautiful marked foliage. They require a high temperature, a close, moist atmosphere, and are best grown in well-drained pans, in a compost consisting of good fibrous peat mixed with a little light loam and sufficient silver sand and charcoal to render the soil porous. Where it is difficult to maintain a close, moist atmosphere, the plants should be grown under large bell glasses. During the dull weather water should be afforded the roots with extreme care. If the shoots have grown long and leggy, the tops should be secured as cuttings, inserting them in a close propagating case, in a mixture of fibre and silver sand, in which they will root readily

Sonerila.—Like the Bertolonias, Sonerilas are usually grown for their beautifully marked foliage. They are not, however, so exacting in their cultural requirements and will grow well in a close, moist, stove temperature. Like Bertolonias they enjoy partial shade and thrive in the same kind of compost. They are best grown in small, well-drained pans. Sonerilas may be raised from seed and are also easily propagated by means of cuttings.

THE FLOWER GARDEN.

By C. Turner, Gardener to Emily, Lady Ampthill Ampthill Park, Ampthill, Bedfordshire.

Climbers.—Climbing plants are so numerous and varied that few gardens are without some representatives—the number and type of the plants depending, naturally, on available spaces or positions suitable for climbers. Just now the wild Clematis Vitalba (Traveller's Joy) is very picturesque here with its feathery seeds or fruits, masking a huge more or less dead Acacia or Locust Tree. This is the best way to grow C. Vitalba—allow it to climb up and across other trees—otherwise its truly ornamental character is not seen to the best advantage. Thus grown one need not trouble about pruning the plants, simply pulling away the dead stems as they appear in the course of time being all that is necessary. Clematis of the Jackmanni group may be pruned now in open weather or the pruning may be deferred until February. In either case hard pruning should be resorted to, cutting well back to hard wood if the plants have grown out of bounds. The strongest growing of the Rambler Roses never look better than when trained to cover the trunk of a dead tree. Roses grown in this way require attention and making secure for another season. There is no need to particularise about the pruning of these plants—they look more natural the less they are cut about, provided there is room for the growths. If not yet done Wistarias require all late and secondary growths pruned back to a promising bud and any necessary tying attended to. The Japanese Vine—Vitis Coignetiæ—needs curtailing more or less according to the size of the arbour or pergola it adorns. This plant, like the Wild Clematis, requires plenty of space over which to display its beauty, and wherever possible it should be allowed to ramble among a bush or tree, as it is in such conditions one better sees and appreciates the rich colouring of its foliage in autumn. Another excellent climber for ornamenting trees is Polygonum Baldshuanicum. It is a quick grower, quite hardy, and bears panicles of creamy-white flowers during late summer and autumn. As it is a fast grower, not the least salutary position for it is to let it roam over a large Portugal Laurel or a group of Hollies, the green foliage of the latter showing up the feathery white masses of the climber. Grown as above, pruning is not needed, but some restriction is required when the plant is grown on an ordinary pergola or pillar. Ivy growing on buildings should not be allowed to get under tiles or in guttering; therefore any shoots that have climbed up to these since the last trimming should be cut back. The Hop (Humulus Lupulus) is past its best and the vine may be cut away. All climbers I have dealt with may be now planted in suitable weather.

THE KITCHEN GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire

Rotation of Crops.—During the long winter evenings, a plan of the kitchen garden should be drawn up, and the various sites marked for next season's crops. Sheltered borders facing south will, of course, be utilised for producing the earliest crops of Peas, Potatos, French Beans, Lettuces, etc.; and these crops may be changed every alternate year. If a border is trenched one year for Peas, it will be in excellent condition for Potatos the next season—and so on. Main crop and late Peas should be grown on a fresh site every

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year, allowing at least two years before they are grown on the same site again. This, however, may not always be possible in a small garden. Brassicas also should be given a fresh site every season, and the ground can scarcely be tilled too well for them. On the contrary, Onions may be grown on the same site for years, provided the ground is well prepared each season. Soils vary much, even in the same garden, and the lighter, porous land may be reserved for Carrots, Parsnips, Beets and Potatos, whilst the heavier ground may be utilised for growing Peas, Cauliflowers, Cabbages, etc.

The Use of Manures.—The texture of the soil one has to deal with will largely determine what kind of manures are most suitable. Where it can be obtained, well-rotted farmyard manure is the best to employ for most crops. For light soils cow manure is excellent, as it is more retentive of moisture than horse dung. On heavy soils it is wiser to use plenty of stable litter, rough leaves and garden refuse, as these materials tend to keep such soils open and render them easier to work as time goes on. Whatever kind of manure is used it should be well mixed with the soil, and not just thrown in haphazard. Guard against over manuring; ground which has been heavily manured one season should not be manured the next: rather apply a dressing of soot, wood ashes or lime, if it is heavy. Ground where Celery and Leeks have been grown in trenches is always in splendid condition the following season, as it is usually well manured, and also exposed to the weather. Such land is very suitable for the growing of Peas, Beans, and Potatos

The Herb Border. — All growth on Herbs should be cut down, the space between the plants lightly forked up, and a top-dressing of decayed leaves applied. A few roots of Mint may be taken up, placed in boxes of soil, and transferred to a warm house, where the plants will soon throw up plenty of fresh, green shoots. The bed may also be top dressed liberally with sifted leaf-mould.

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By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

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The growth of the plant is somewhat similar to that of the Iris, but the leaves are smaller. The flower stem grows to a height of about eighteen inches, and bears numerous open crimson flowers in the old variety, almost like a Buttercup in shape, but much larger. There is a new kind bearing pinkish blooms, but it has been introduced only lately, and is not yet in general cultivation. A great field is offered here to the plant cultivator, for new colours can doubtless be added to those we have at present. The plant is hardy in a dry and sheltered place, and can scarcely have too much sun: the secret of free flowering is in the full

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ripening of the growth. The plants may be obtained in the early spring, and planted at once in a light, sandy soil. It is a good plan to top-dress the plants with a little old manure after they have flowered, which will help to ward off frost, besides supplying the roots with nourishment. The plants will grow and flower well for two or three years without the need for dividing them.

Towards the end of September a few roots may be lifted carefully from the bed and potted. They will flower well under glass, but they should not be watered too freely until they are well rooted, or they may suffer. Thus treated they will afford a most acceptable attraction in a cool house and an uncommon one, or they may be placed in any warm window indoors. *T. D. T.*

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It is easily propagated by division in spring or autumn after flowering is over. This Geranium is indigenous to Walney Island, near Barrow, which is, I believe, the only place where it has been found in a wild state. It varies slightly there, I understand, but the few varieties which have been selected there are not, I believe, in cultivation. I am of the opinion that this is either a distinct species or a natural hybrid. I have alluded to difficulty being experienced by some in the cultivation of the Walney Island Cranesbill, and this is borne out by the circumstance that it is higher in price than it used to be, although this may be due to the greater demand for such a good plant. *S. Arnott.*

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. 25.—THE PLAINS AT LAST.

THE Hkamti plain is not the least astonishing feature of this queer country, Whether one approaches from north, south, east or west, to emerge suddenly from darkness on to a wide cultivated plain—it is not even a plateau—is as unexpected as it is comforting. For many days the view had been strictly rationed: or, when a glimpse was obtained over the surrounding country, one saw the same scenery repeated to the horizon in every direction—rounded hills wave beyond wave, thickly forested with the stubborn changeless green of Indo-Malayan jungle. Or, if the atmosphere was clear (a rare event) one might descry the higher ranges beyond, blue in the drenched air, rising above the high tide of forest to the snow-laden clouds. Suddenly one stepped out on to the open run of the plain; the last spurs flare away into the mist, and the whole world, as it seems, is broadcasted at one's feet.

The first-comers to Hkamti, appoaching from the Assam side a century ago, must have seen exactly the same thing. Their emotions, too, as they broke through the last rampart of uninhabited hills, and caught sight of cultivation below, must have been similar to mine. And again, when the first expeditions came up through the southern jungles from Burma, a decade ago, the leaders have told me with what joy and astonishment they burst on to the open plain.

And what is this plain?—how comes it here, itself only 1,200 feet above sea-level, though 1,200 miles from the sea as the river flows? The surrounding mountains, on the other hand, average 5,000-8,000 feet, while at the sources of the western Irrawaddy are peaks 15,000 feet high. Clearly the plain is an old lake bed. Everything points to that conclusion, including tradition. Wherever a stream exposes a section, beds of sand, gravel, and clay are seen. Fresh-water shells are found in the silt which fills the bottom lands, where paddy is grown; towards the northern end of the plain, where the "four rivers" debouch, the soil becomes more sandy. As for tradition—there is a hill on the bank of the Nam Kin, rising about a thousand feet above the level of the plain. It is crowned by a pagoda, and is known to the natives as Noi Chenam—"the hill that was submerged." At the southern end of the plain the Mali Kha, or western Irrawaddy, bursts through a gorge in the mountains; it was doubtless this river, which, cutting its way back through the encircling hills, finally drained the lake. One other point, tongues of laterite, flat-topped and steep-flanked, rising forty or fifty feet above the general level of the plain, project into the bottom land from various directions. Some of them are several miles in length, and of uniform breadth. They are evidently river terraces, left by the streams which have more easily worked their way through the alluvium of the lake bed; they roughly indicate the floor of the laket, the bottom lands having been carved out subsequently.

The plain is about forty-five miles long by ten miles broad, at its maximum, the total area being somewhere between three and four hundred square miles. About one-tenth is under cultivation.

The deglaciation of Yunnan, to which I have had occasion to refer, and the disappearance of many lakes, together with the abridgment of others (including the Hkamti lake), may all be due to one climatic cause acting over the whole region.

As might be expected, the vegetation of the plain varies widely with the nature of the soil and the amount of inundation during the rains. There are large areas covered with high grass, without a tree or a bush to vary the monotony. This is especially the condition at the south end, on the laterite platforms, and at the apex, where the soil is sandy. Very few flowers are found over this barren area, particularly in winter. A few small Compositae and a white-flowered slate-spotted Swertia are seen, besides one or two Labiate undershrubs, species of Justicia, and other insignificant Acanthaceae. But these are lost in the sea of high grass.

Thick jungle covers all the surrounding ranges, and overflows on to the plain, filling the "nullas" and fringing the river banks and sometimes the flanks of the ridges. Down in the cultivated area (where many a curious plant many be found in the Shan gardens) are wide pastures where buffaloes graze.

Finally there are the park lands—open spaces dotted over with trees and bushes, especially Citrus and Melastomaceae, the long pendent racemes of a purple-crimson Melastoma being very conspicuous.

The jungle is evergreen (though there are scattered deciduous trees, such as species of Ficus) and Indo-Malayan in composition. There are few flowers here in December. Clumps of straw-coloured Strobilanthes and species of Agapetes are met with in flower, also a few Orchids.

However, there is only a slight interruption of vegetative activity in December and January; and with the February rains, flowers begin to open. During the latter part of November I kept a temperature record, the average minimum (sheltered) for thirteen nights being 48.9° and the average maximum for eight days 71.2°, with extremes of 45° and 75°. It does not freeze on the plain, though the early morning mists which lie sometimes till ten o'clock make it feel very cold; also the snow on the surrounding hills keeps down the temperature, while in the summer the heat inside this basin is fierce. Certainly the climate is not pleasant. Biting flies of all kinds make the upper Irrawaddy jungles unpleasant to the last degree. Ague and blackwater fever are unpleasant diseases. Altogether it is not surprising the Burma Government is contemplating giving up the place.

The gardens in the Shan villages are interesting, and I derived much pleasure and instruction from wandering through them. There is good fruit, but in small quantity—Bananas, Medlars, Pumelos, and Pineapples. A little Sugar cane is also raised; on the other hand, it is impossible to obtain a single Potato, or any other respectable vegetable. A few flowers are seen—mostly aliens derived from European gardens at Myitkyina. Hedges of Lantana add a little colour to the scene, but it never seems to get out of hand, as it does further south. Another favourite shrub is a tall, untidy-looking Sunflower with bright golden blooms. Three or four species of Palm, including the graceful Sago Palm and a climbing rattan, are met with in many places; but the most surprising shrub of all was a form of Rhododendron indicum with bright carmine flowers—evidently the one seen on the Taron. (K.W. 5568). It must have been brought in from the hills, but whether as a shrub or raised from seed it is impossible to say.

Immediately after Christmas I left Hkamti, heading south for Myitkyina, distant 214 miles. But the road is fairly good.

In most respects—in its scenery, its people, even in its climate—the Hkamti country bears no more resemblance to Burma proper than does Sussex, say, to the Scotch Highlands. But, botanically, there is no break in the vegetation from Victoria Point to the sources of the western Irrawaddy, only a very gradual change; except in so far as the high ranges carry a temperate or even alpine flora southwards through the Indo-Malayan forest. Only on the upper Taron is there a real temperate flora. Our first march took us straight across the grass-covered plain to the Nam Kin. It was monotonous, for not till we were within a mile of the river did we enter the belt of jungle.

Here the reeds grew twenty feet high. But the jungle soon became as monotonous as the plain—just a wall of sombre green, striped with the ash-grey pillars of big trees. Various as the trees really are, they all look very much alike, on account of these tall, unbranched, smooth, white runks. It is quite the exception here to see a tree with rough bark, or branched low down—if the latter it is almost invariably a Ficus.

But if one looks at the tree tops, instead of at the trunks, it is a different story. The wide divergence of types is then obvious. For several days we marched through low-lying uninhabited country. Not a village or a hut did we see. Every morning we awoke in a thick clammy mist, through which the sun did not break till close on eleven o'clock. But presently, after a very gradual ascent, we found ourselves up in the hills. The early morning mist now lay below us. *F. Kingdon Ward.*

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17, July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, March 10, 24, April 7, 21, May 5, June 2, 23, July 7, 21, August 18, September 1, 29, October 20, November 3 and 17, 1923.

THE INDIAN GARDEN IN AUTUMN.

THE month of October on the plains of India is a most interesting and busy time for the gardener and, in many respects, may be compared with April at home, except that here we are saying farewell to excessive heat, whilst at home in April it is the reverse. After October 15, the sun begins to cool down a little, and it is no longer the treacherous enemy of the European; insects and reptiles are no longer abroad but in their winter haunts; the atmosphere is genial to cool, especially after sun down, and the native gardeners, who for six months has been naked except for a loin cloth, now covers his head and shoulders with a rug.

By that time, many annuals are already in the seedling leaf in boxes and pots, while others are waiting to be sown in their flowering quarters after the removal of the hot-weather plants, such as Coleus, Cockscombs, Celosias, Zinnias, Amaranthus, and Crotons; Roses are being pruned and will flower in February—Tea Roses do especially well here—and much repotting is required to be done in the cases of Carnations, Aloysia, Liliums, Hydrangeas, Plumbago, Scabious, Violets, and a host of other useful subjects. Hedges of flowering shrubs are beginning to show colour: Lantana Camara, of which we have many hedges, is particularly bright just now with its compact orange and yellow flowers. Nerium odorum (syn. Oleander) we use extensively as a tall hedge plant as a border to Eucalyptus woods, and the plant

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grows to a height of 12 to 16 feet. Its beautiful pink flowers reminds one of Rhododendron Pink Pearl when seen at a distance, but unfortunately the juice of the stem is a deadly poison and this prevents its use for purposes of cut bloom. Poinsettias are grown by the tens of thousand for the outer edgings of avenues. The plants are pruned severely every March and they make rapid, strong growth in our somewhat hungry, sandy soil, but require planting on slightly raised ground above the flooding level. Bougainvilleas of several kinds are already in flower and may be seen to the top of many forest trees. Tecoma stans, with its bunches of yellow flowers, is now at its best; this, too, is used for hedges. Plants raised from seed sown in March bear an abundance of flowers the following winter. In the fruit gardens Oranges are the next crop and are now ripening. The variety Santea is very popular here; it is a loose-skinned Orange of the Mandarin type, very sweet, and when mature, about the size of a tennis ball. Another variety which we grow extensively is Ladu, shaped like a semi-flattened ball, but delicious in flavour. Seedless Oranges are being grown, but not yet extensively. Our finest Orange trees are in the enclosed courts of the once famous Barhardinghar Ford, which was built by one of the great Mohammedan rulers. It consists of eight or more palaces, each having a square garden in its centre, a great Mohammedan Temple, and Indian village; the whole surrounded by a deep moat and gigantic wall, on the top of which is a drive 25 feet wide. The Oranges here have been noted for centuries and are much sought after.

The work in the vegetable gardens at this time is the same as that followed at home in April and March, *i.e.*, sowing and planting. The native gardeners are very interested in English vegetables, but Onions and Cauliflowers are the only two kinds they have taken to themselves, and of these many acres are grown for sale in the bazaars. Potatos are seen extensively in the Indian markets, and do remarkably well between October and March. I have just purchased some English ploughs, and am getting my carpenters and blacksmiths to make various kinds of other useful implements, such as harrows and drills. These workmen, like the Indian tailors, are very clever, and can make anything in a very short time, if given a sample or a drawing. For instance, a short time ago I had several of the best type of watering cans from home, and before they had been unpacked twenty-four hours my blacksmiths brought me one they had made from a kerosine tin; rough, of course, but exactly the same in every other respect. Our latest arrival is a motor mower, this they are very anxious to take to pieces, but Sahib has had to say no. *George Burrows, Superintendent of the State Gardens, Potiala, India.*

GARDEN NOTES FROM S.W. SCOTLAND.

IT would add materially to the autumnal beauty of British woodland if the Willow Gentian (Gentiana asclepiadea) were more frequently naturalised therein. No plant is more easily established in the floor of an open wood, at least on a soil free from lime; I do not know how it agrees with chalk or limestone. All that is necessary is to scatter the seed, which is produced in vast abundance, on places fairly bare of rank vegetation. Scrape the surface with a rake and sprinkle the seed thinly, and two years later there will appear in August and September arching sprays strung with beautiful, blue, vase-shaped flowers. Care should be taken to save seed from plants of a good colour strain—blue as nearly pure as that of G. septemfida. There are inferior varieties with muddy or ruddy-blue flowers and these should be suppressed; but the pure white variety shows in pleasing contrast with the best blue. For flower borders, the Willow Gentian is a somewhat unruly inmate, springing self-sown in places allotted to less robust plants; but in the woods one cannot have too much of it. Its root system does not lend itself readily to transplanting, except when quite small. I shall be happy to forward seed of a good strain to anyone who cares to send a stamped directed envelope.

It was a lucky chance that caused me to invest a shilling in a packet of seed of Echium plantagineum, Linn. This plant is reputed to be biennial; but, sown in the open last March and rigorously thinned out, it has flowered continuously throughout the summer and autumn months, until nipped by frost early in November. It grows about two feet high; the flowers are larger than those of Vipers' Bugloss, resembling them in opening red and turning violet-blue; they are produced in the utmost profusion, and almost everyone perambulating our garden asked for the name of "that beautiful thing." It is a native of southern Europe, spreading up the west coast so far as Jersey and reappearing near Penzance. It looks a likely plant for naturalising on barren ground near the sea, and is one of the most beautiful and common roadside weeds in Andalusia.

The same frost that finished the bloom on Echium destroyed the massive ivory panicles of Fatzia japonica, a near relative of our common Ivy, but of very different habit and appearance. When Mr. Bean was writing his admirable work on *Trees and Shrubs Hardy in the British Isles*, he was justified in describing Fatsia as bearing "about the largest leaves of any hardy evergreen"; but since that time Rhododendron sino-grande has unfurled its magnificent foliage in this country, taking the wind, so to speak, out of the sails of Fatsia.

The frost took no effect upon the flowers of Alstrœmeria pulchella (syn. psittacina), which has continued to display its quaint crimson and green blossoms since early in August, and was still quite gay on November 19th. The choicest gem of that family is A. Hookeri, which I received from the late Mr. Elwes who collected it on a high pass over the Chilian Andes. It grows only a foot high and bears most delicately tinted flowers, which harmonise admirably with its linear sea-green leaves. It is less hardy than most of the other species, indeed, Mr. Elwes grew it under glass; but it has passed through several winters here without protection.—*Herbert Maxwell, Monreith.*

FIG. 117.—THE WATERFALLS IN THE KING OF THE BELGIANS' GARDEN AT LAEKEN. (SEE P. 317.)

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FLORISTS' FLOWERS.

CHOICE EXHIBITION CHRYSANTHEMUMS.

A CLOSE scrutiny at several of the autumn Chrysanthemum shows this season revealed the most popular varieties and blooms, as staged. I have on my visits to shows made many notes which may be of assistance to intending exhibitors. Amongst varieties that have specially attracted my attention are Major Wheatley, a crushed-Strawberry coloured sport from Mrs. J. Gibson, the bloom being an exact counterpart of that excellent variety; it makes a fine "back-row" flower. Helmuth is a large Chrysanthemum of exhibition size, the colour being a rich crimson; the florets are wide and the flower is reflexed in shape and of great depth. Lord Lambourne is a handsome variety with long, twisting and incurving florets, coloured on the surface a bright chestnut-red, the underside being tinted with old gold.

The Prince is also a noble flower, coloured rich crimson-scarlet with golden-bronze reverse. It is an attractive flower of large proportions and a variety easy of culture. The shoot should be stopped in the first week of May for first crown buds. Mrs. B. Carpenter is a distinct sport from that excellent sort Mrs. Algernon Davis, the colour is a pleasing shade of deep rose and the variety is one of the best of its class. It appealed to me as one of the best winning flowers in the shows.

Ida, a deep gold-coloured variety, with the later buds showing bronzy colouration, promises to become very popular, for the bloom is of graceful appearance and of very large size, whilst the habit of growth is desirable in every respect. It makes a "back-row" flower which counts with good effect. The variety D. B. Crane produces blooms of bright scarlet colour; the flowers are of reflexing style, exquisite in form and possess broad florets. It is a striking colour and the variety is a distinct acquisition. The variety Mrs. Chas. Fox is coloured golden yellow with an orange-red flush. The blooms are of enormous size and the florets of great length, forming a most pleasing and interesting flower; it is just the sort to catch the judges' eye and command points. Major Dalgety is a well-shouldered flower of chestnut-red colour, deepening to crimson in the centre. The florets are broad and natural first crown buds produce blooms of noble size and pleasing contour. Mrs. Rupert Wilkes is one of the showiest Chrysanthemums in cultivation, the colour blendings, a beautiful golden-bronze with crimson markings, being so charming as to catch the eye at once. The flowers are of reflexing form This variety should prove useful for growing as small bush plants, the colour being in great request for table decoration. Rose Day is a Japanese incurved variety similar in tone to Rose Mrs. J. Laing; it is a flower of surpassing beauty and a telling bloom for showing either on boards or in vases. Golden Champion is truly named and a variety of great merit. Shirley Golden is an immense rich yellow variety with long, broad, reflexing florets which incurve at the tips, forming a bloom eleven inches to twelve inches deep. It makes a grand "back-row" flower for showing in vases. Victory is a well-known white variety, with long, twisting florets; the blooms are often twelve inches deep and eleven inches across.

Whilst modern progress in Chrysanthemums is largely in the direction of the decorative type, the big exhibition variety still maintains its own, and there are large numbers of enthusiasts who grow their plants mainly for the production of show blooms. The number of novelties submitted for awards this season has embraced a fair share of exhibition varieties, including Pink Pockett, a sport from the well-known Louisa Pockett; Sulphur Queen, a big, sulphur-yellow Japanese variety; Mrs. Harold Wells, a large, ivory-white variety, tinted with the palest green shade; Norman Davis, a notable addition to the big exhibition crimson varieties; and Gigantic, a charming flower of silvery-pink colouring. *G. L.*

THE IMPERIAL FORESTRY CONFERENCE OF 1923.

THE first Imperial Forestry Conference ever held in the British Empire took place in London in 1920, and originated in the idea that a stocktaking of the timber resources of the British Empire had become an urgent necessity and could only be effected by the active co-operation of the various dominions, colonies, and dependencies throughout the world. Under the leadership of Lord Lovat and others associated with him, a proposal to call together all who had a common interest in the conservation, development, and exploitation of forests throughout the British Empire became an accomplished fact. For many years previously forest policies had been left like a rudderless ship drifting on the surface of an unchartered sea. Governments and State Departments, assuming that they recognised forestry as a vital feature of rural economy in any way, were quite uncertain how far they should go in accepting a responsibility which the older States of Europe had taken upon themselves centuries before.

Apart from the British Isles, the forest possessions of the Empire exist in regions and latitudes influenced by every form of climate, degree of civilisation, and stage of economic development which could possibly be found. From the Arctic Circle to the Equator, from Colonial ambition to primeval apathy and fatalism, and from newly created industrial or mining districts to virgin bush and jungle, the custodians of Empire resources find themselves faced with problems which are continually changing in extent and complexity in whatever direction they turn. Forest Departments were formed one time or another in most British possessions, from the dominions to the dependencies, but few had any clear notion as to what they meant, nor had forest officials themselves the opportunity to initiate policies or the power to carry them out. When reforms were needed or action became desirable in any particular direction, the forest official usually found himself confronted with a higher personage or department whose sole object was to avoid friction or trouble at any cost. The preservation or improvement of a few thousand acres of forest was, in the opinion of most directors of State policy, a small matter compared with the profits from a timber concession, or the gratifying of some native village by additional grazing or fuel privileges. In short, the forest policy in most parts of the Empire was that of taking the line of least resistance, paying the salaries of a few officials, and issuing reports which demonstrated the existence of vast activities on a microscopic scale. These forest policies had nebulous objectives and indefinite aspirations, and, therefore, formed no effective barrier to the onrush of forest destruction, which has been going on for thousands of years, and can only be stopped by organised opposition on the part of the State.

Under the conditions outlined above it may easily be understood how difficult steady progress in forest development has been, whether this was concerned with the preservation of indigenous woodland or the afforestation of waste land. In the British Isles Commissions and Committees have time after time prepared schemes at the invitation of various Governments, but it was not until the European War forced the timber-using public to realise their dependence upon outside sources of supply that anything substantial was done. Any method which could crystallize ideas on forestry problems and concentrate the energies of State Departments along definite channels could not but prove of immense value, and the inauguration of conferences to be held periodically in different parts of the Empire will probably lead to far-reaching results. Conferences of this kind call attention to the increasing necessity for making the most of the earth's surface as population increases. While thinly populated countries may have a large proportion of natural forests, and be under little necessity for actual afforestation, the yield of timber per acre is invariably low, and sylviculture is impossible through lack of supervision and control. Exploitation is usually considered of more importance than conservation, and not until supplies begin to decrease does public opinion take any interest in the matter. The older and more thickly populated countries have now realised the importance of forestry, and are attempting to make good losses incurred before the value of timber was fully realised.

The above facts were kept clearly before the Forestry Conference of 1920, and a number of resolutions were passed which indicate the scope and nature of the discussions taking place. These resolutions were briefly as follow:—

(1) That each of the Governments of the Empire should lay down a definite forest policy to be administered by a properly constituted and adequate forest service.
(2) That a survey of the existing forest areas should be made and their capability to maintain an adequate supply of timber investigated.
(3) That the forest policy of every Government should be defined in a Forestry Act or Ordinance; that land should be reserved for timber production; that the Forest Authority should be assured of sufficient funds for carrying out the policy adopted: and, that officers should be appointed with the necessary training and status required by the nature of the work.
(4) That the Forest Authority should keep in close touch with timber industries.
(5) That methods of education and publicity should be encouraged for furthering the interests of the forest policy.
(6) That tree planting should be encouraged by the distribution of plants at cost price raised either in Government or private nurseries

Other resolutions dealt with research, education, and the setting up of forestry bureaux, and a final resolution recommended that the next Conference should be held in 1923 and take place in Canada.

The above is a brief history of the events which led up to the Conference in 1923 being held in Ottawa, and it is interesting to note how far the resolutions referred to above have been followed by results in the course of three years. At the opening meeting held in Ottawa on the July 25, reports were handed in from the United Kingdom, Australia, India, Irish Free State, New Zealand, South Africa, Canada, and many other Crown colonies, and marked progress was announced in certain directions, especially as regards forest policy, survey of resources, and constitution and status. Matters affecting education and the setting up of forest bureaux had not advanced owing to financial difficulties, but this could hardly have been otherwise in view of the general situation.

The 1923 Conference devoted a large share of its proceedings to the question of softwood supplies, a question very largely affecting the country in which the Conference was being held. The importance of this question to the United States was also emphasised by Colonel Graves who read a paper by Colonel Greeley in which it was shown that the annual cut in the United States was now greatly in excess of the increment. Papers were also presented setting out the approximate coniferous supply in the various parts of Europe, and showing generally that the consumption was getting ahead of the increment in practically every country, with the exception of one or two of limited importance.

Another question to which much time was devoted was the forest fire problem, from which Canada probably suffers more than any other part of the world. While it was considered that these fires could not be altogether prevented, the conclusion was arrived at that public support obtained by education and publicity in fire control, combined with more modern sylvicultural methods, would go a long way towards curing this evil.

Various other matters of minor importance were discussed. *A. E. Forbes.*

(To be continued.)

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TREES AND SHRUBS.

EUONYMUS EUROPAEUS.

EUONYMUS EUROPAEUS (Spindle-tree) is seldom seen in our northern gardens, where it well deserves a home. In Renfrewshire it is quite hardy, and in the dull days of November it makes a brave show. True it has little to compete with, except the lingering glories of a few Michaelmas Daisies, Tritomas, or Autumn Crocuses, which it easily puts to shame.

The flowers are insignificant little yellow things, born in early summer, of no decorative value whatsoever, but the fruits are very striking, being of a brilliant red, and when they open and expose their seeds, which are orange in colour, the effect is not only striking but very pleasing. Branches may be used most effectively for house decoration.

With me it is a small tree or shrub some ten feet in height, but Loudon refers to it as a tree twenty-five to thirty-five feet high in Scotland. I find it is one of the few berried plants which birds seem to have no taste for; almost everything else of that nature seems to come in useful as a form of food for some species or another. E. europaeus will grow in any well-drained ordinary garden soil, and if, perchance, it claims a wall, it is entitled to it. There are quite a number of varieties but this is the only kind with which I am familiar. The wood is hard and was at one time used for making spindles, hence the name Spindle-tree. The plant has a further advantage, to Scotsmen at least; it is cheap, mine having cost 6s. per dozen. *Formakin.*

THE CEDAR GROVE ON MOUNT LEBANON.

THE information about the Cedars on Lebanon, taken from the French journal *Jardinage*, which appeared in the *Gardeners' Chronicle*, November 10, page 272, is not accurate, as the measurements given are grossly exaggerated. All who are interested in trees would like very much to know what has become of the Cedars which grew at the head of the Kadisha Valley in the Lebanon at about 6,200 feet elevation. This famous grove, which has been often described by travellers, was reported in the *Timber Trades Journal*, September 4, 1920, page 615, to have been almost totally destroyed by the Turks during the war, the timber being used as fuel for the locomotives of the Palestine Railway.

The trees are of great age, but owing to the extreme severity of the climate at the high elevation, and the very poor calcareous soil in which they stand, they are extremely slow in growth and make amazingly narrow rings annually. The growing season is remarkably short, the snow rarely quitting the basin, in which the grove is situated, before the end of July or the beginning of August. When Sir Joseph Hooker visited the grove in 1860, there were 398 trees, of which 15 where much larger than the others. The two largest had each a trunk 13 feet in diameter, or about 40 feet in circumference.

It is unnecessary now to go into any detailed description of this remarkable grove, which is in fact a sacred grove, dating from ancient times, as is evidenced by the strange ceremonies that are carried out under the shade of the Cedars on the eve of the Transfiguration of our Saviour. The Maronite Fathers and numerous pilgrims spend this night in dancing a kind of Pyrrhic dance, in singing and in feasting; and on the following day the patriarch celebrates high mass on an altar built under one of the largest and oldest Cedars. This festival is called The Feast of Cedars. The fact that the grove was sacred no doubt accounts in part for the preservation of the old trees through centuries.

The story of the grove is too long to tell here. I may hint at its significance by mentioning that the Valley of the Kadisha (*i.e.* holy) river, which takes its source amongst the Cedars, was one of the seats of the worship of Tammuz, the Syrian god, who was identified with the Phoenician Adon and the Greek Adonis.

The latest observations and measurements of the big trees in the grove were published by Monsieur Gadeau de Kerville, the author of a remarkable book concerning the old

FIG. 118. THE CEDARS ON MOUNT LEBANON, AS SKETCHED BY CAPT. S. P. OLIVER IN 1879.

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trees of Normandy, who visited Lebanon in 1908. As a considerable number of travellers now go to Palestine it is very desirable that the grove of Cedars should be again accurately described and photographed, and the number of the trees and their dimensions ascertained. The judicious traveller will be well advised to study carefully Sir Joseph Hooker's admirable description and plan of the ground. The latter's notes and exact measurements of the different trees were given in the extinct periodical *Woods and Forests*, May 7, 1884, page 328. An article on the age of the Cedars of Mount Lebanon by the present writer was published in *Country Life*, December 11, 1915, pages 810-813, with a reproduction of Sir Joseph Hooker's plan of the grove, which shows exactly how the Cedars were grouped at the time of his visit in 1860. *A Henry.*—Fig. 118 shows what they were like in 1879.

VEGETABLE GARDEN.

PROTECTING BROCCOLI.

In many districts, it is necessary to protect Broccoli from severe frost.

The best method is to heel the plants over, which is done by taking a spadeful or more of earth out of the north side of each plant and pushing the stem of the plant into the hole formed. When this work is finished the head of each plant should face to the north, and the soil removed should be placed directly on the opposite side and trodden down solid with the foot.

If the work is done properly the head only will be visible, as the stem will be covered with soil. The object of this is to prevent the heads when frozen becoming thawed by the sun during severe weather, as this would seriously injure them the following night.

Should there be no severe weather, the time taken in performing this work is by no means wasted, as in mild weather with frequent rain, Broccoli is very liable to get sappy or woody. The slight check caused by breaking many of their roots acts in much the same way as root-pruning a fruit tree; it is beneficial, as it dries up much of the sap, and causes the plant to produce much better hearts than they would otherwise do.

In very severe weather the most forward plants may be lifted carefully and replanted closely together in pits or cold houses, covering the later varieties with a little dry litter, which should be removed forthwith when the weather turns milder.

WATERCRESS IN STREAMS.

The present is a suitable time to form Watercress beds in streams, for gathering stems next summer. The beds should not be more than four feet wide, with two alleys between them, and they should slope gently, as stagnant water or a very feeble flow generally proves very unsatisfactory to the Cress.

It is wise to have dams at intervals, as by this means the stream and Cress may be purified from time to time; it will also greatly reduce the number of insects that infest some streams, rendering the Cress almost unfit for use.

A suitable depth for the beds is eight inches, and the best Cress is grown in clay soil, although very good results are sometimes obtained from a sandy soil. Before planting the Cress the muddy refuse should be cleared out and two inches of good soil added. The shoots should be planted six inches apart each way, and covered with water to the depth of one inch. When the plants have reached the surface of the water, allow the latter to rise three inches above them, and, as the weather becomes colder, it is an advantage to let the plants be covered to a depth of six inches.

Cress planted in November should be ready for gathering throughout next summer; it is always advisable to use a knife for this purpose, and the shoots should be cut two inches long. Brown-leaved Cress is best to grow for any season. *W. Miller, Warley.*

PEA SENATOR.

I read with much interest the note on page 266 on this variety of Pea. My experience with Senator last year may be of interest to others. During the drought several of my rows of Peas, Senator included, failed before maturing properly, although some good Peas were gathered. Instead of pulling the haulm up, I had the sticks removed and the haulm cut down some six inches from the ground, not requiring the land for several weeks. I was greatly amazed to see that almost every plant of Senator broke into fresh growth. I carefully mulched each side of the rows and had the plants staked afresh and gave attention in watering, etc. I gathered a good crop of Peas which beat those of the variety Gladstone that was sown the second week in June, they were also free from Mildew. Some years ago I had an experience with the variety William Hurst. I sowed the seed in January, gathered a fine crop and left the plants alone after the Peas had finished and they broke into growth again and gave a second crop. I have always found that this Pea has a tendency to bear perpetually if left alone. I may state I tried this year to get a second crop from Senator in the same way as last, but the plants failed to break into fresh growth. *W. E. Wright, Henstaff Court Gardens, Pontyclun, S. Wales.*

BOKHARA CLOVER.

I READ with interest a little article in your issue of August 11, 1923, entitled "Bohkara Clover" and was especially interested to note that the writer considered it very doubtful whether cattle will take kindly to this Clover. This is the same doubt that has to a certain extent delayed the wide-spread use of this crop in the United States. In sections where the crop is not well known farmers still insist that cattle will not eat it, but it is nevertheless a fact that it is rapidly becoming one of the most important forage crops in the middle west. In Saskatchewan it is largely grown for both hay and pasture.

Sweet Clover is used at present more as a grazing crop than for hay, and as our farmers understand the nature of the crop better they are able to use it to greater advantage.

It is quite true that if cattle are turned on to Sweet Clover after it has attained some size, especially after it has commenced to bloom, and is consequently, becoming woody, they will not eat it unless starved to it. However, when turned on to Sweet Clover early in spring when the young growth is soft and luscious and there is little else that is green, the Sweet Clover is eaten greedily, If a sufficient number of stock is kept on the field so that the Clover does not make a growth of more than a few inches or a foot, it remains fit for grazing until about the middle of July.

An interesting practice which is gaining favour among the best farmers in the north-west is to have two fields: one of Sweet Clover in its first year and one in its second year. Cattle are turned on to the second year's growth in spring and kept there until early in July. With a good stand Sweet Clover will carry between two and three head of mature stock per acre from spring until July. Meanwhile the other field is making its first year's growth and by early July the plants have become large enough to graze. The cattle are now turned on to the first year's growth and the second year's growth is allowed to make seed.

This system once established will usually take care of itself so that the land need not be ploughed nor even disked as the Sweet Clover volunteers each year making a really permanent pasture. I believe these facts may interest your readers. *A. J. Pieters, In Charge of Clover Investigations, U.S.A. Dept. of Agriculture, Washington.*

RED PLANT OF STRAWBERRIES.

IN view of the seriousness of, and loss caused by, Red Plant disease in Strawberries, and the correspondence that has taken place on this subject, in the *Gard. Chron.*, I (as one who has been in close association with this serious trouble) venture to express an opinion and add a criticism of the treatment of Mr. Johns in this matter.

Mr. Johns should be given credit for having attributed this trouble to eel-worm so far back as 1920 (I can vouch for this fact), and although I differ with Mr. Johns and do not accept the recent paper by the experts on this matter as final, I think folk with scientific training should at least be given credit for observations made and work done. Many members of the Horticultural Educational Association will remember with what ridicule Mr. Johns' eel-worm theory was received at Long Ashton, at the meeting of the Association, only one short year before the Bristol experts made the "discovery" that Aphelenchus fragarieae is responsible for the trouble. Probably this was where Mr. Johns missed the mark; if he had not been so commonplace as to call it "eel-worm" he would have received credit for his work.

I have hinted that I am not entirely satisfied with the eel-worm theory. I have for the past four years had an opportunity of studying and watching this complaint. It must be remembered that other individuals have worked on this subject in the Tamar Valley, and although the results of many small experiments have been negative, the efforts of such persons as Messrs. Johns, Gough, Stoddart, and Walbank must not be overlooked. Although only a working instructor, with little time for research, I would like to give my views for what they are worth. Wherever Red Plant disease occurs there seems to be some correlation between this and a previous attack of aphis, eel-worm, or Strawberry-leaf spot. Marked or observed plants, particularly those attacked by aphis, have shown this, whilst others, unaccountably red—for example, when none of the three carriers are present—may be the result of damage by other pests or tools, and also by taking the runners from infected plants. It seems to me that some agent gains an entrance by the means mentioned and breaks down the normal functions of the plant. I also feel that we have much to learn concerning the "patch" and "cauliflower" troubles, and I think it is too early to record observations made on these. Our great need as growers is to find a way out of our numerous Strawberry troubles, by prevention, eradication, or immunisation. Whatever efforts are made in the above direction should be economic and practical. *Hy. W. Abbiss, Horticultural Superintendent to the Cornwall County Council.*

FRUIT REGISTER.

PEAR BERGAMOTTE ESPERIN.

THIS fine old Pear is a late variety of excellent quality, in season from February until April. The fruit is of medium size with a somewhat rough skin of a dark green colour, covered with brown russety dots and often tinted with faint orange colour. The eye is small and open, and the stalk about an inch long.

PEAR SANGUINOLE.

This is a remarkable variety of Pear owing to the juice and flesh being a blood red colour. I found a specimen of this variety at Dilwyn, a village a few miles from Leominster, the tree being of great age. The fruit is of medium size, with a green skin changing to pale yellow and dotted with grey dots, and a pale red colour on the side exposed to the sun. The flesh is red, crisp and juicy with a sweet flavour. This variety sells well in the northern markets. *Pomona*

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PUBLIC PARKS AND GARDENS.

CHRYSANTHEMUMS IN THE GLASGOW PARKS.

THE parks department of the Corporation of Glasgow deserve congratulations on the magnificent display of Chrysanthemums on view in the City parks this season. In a large span-roof show-house in Queen's Park over 1,000 plants are arranged in undulating banks, consisting of bold groups of Mrs. G. Monro, His Majesty, A. F. Tofield, and Mrs. R. Luxford. These brightly-coloured sorts are flanked by groups of White Queen, Mrs. C. Beckett, Souv. de Wm. Clibran and Frances Jolliffe. Pink is a popular colour with the public, and the groups of Mrs. E. A. Tickle, Sir E. Letchworth, and Mary Poulton are much admired. Other noticeable sorts include Majestic, Mrs. G. C. Kelly, Miss A. E. Roope, Mrs. A. Davis, and Fred Green, a large purple flower, particularly effective in the mass.

In one of the houses scarlet and crimson are the predominant colours. Acalypha hispida (Sanderi), with long, drooping, crimson inflorescences, is arranged over a groundwork of Asplenium and Nephrolepis, with Clerodendron fallax, the red-berried Ardisia crenulata, and Rivina humilis, the last with long racemes of bright scarlet berries. Another house contains batches of the rose-coloured Ruellia macrantha, the blue-flowered Browallia speciosa major, Salvia splendens, and Humea elegans.

At Springburn Park the Chrysanthemums are arranged in a large three-sided group; from a broad base the plants slope gently to a good height, presenting three imposing walls of flowers. One side of a house is gay with perpetual-flowering Carnations and a display of these flowers is maintained by successive batches of plants for about nine months of the year. Ornamental Gourds of various shapes and colours are displayed in the Reid Winter Garden. These were grown under the rafters of the roof, and are a source of much interest to visitors. On the supports of the gallery, Tibouchina semidecandra, a large violet-coloured Melastomad, is flowering.

A feature of the Chrysanthemum display at the Botanic Gardens is the large number of dwarf, late struck plants in 6-inch pots with one bloom each, of exhibition size. These are arranged on the side stages in the two greenhouses opening off from the Kibble conservatory. Orchids flowering in the Botanic Gardens include Odontoglossum crispum in variety, Cattleya Bowringiana, C. labiata, Zygopetalum Mackayi, Epidendrum cochleatum, Vanda tricolor, V. suavis, and Maxillaria picta.

In the succulent house the red racemes of Greyia Sutherlandii are conspicuous. Interesting plants in bloom in the greenhouses are the yellow-flowered Candollea cuneiformis, Sparmannia africana, Whitfieldia lateritia, with terminal clusters of brick-red flowers; Acacia platyptera, Buddleia madagascariensis, having leaves and stems coated with white tomentum, and yellow flowers in branched racemes; Teucrium fruticans, and Abelia chinensis, the last a splendid plant for a pillar in the cool greenhouse. The foliage of small, pot-grown plants of Vitis Henryana has turned from green to ruby, with median silvery bands. In the exquisite stain of its autumnal colouring this hardy vine resembles the tropical Leea amabilis splendens at Tollcross Park, on the eastern fringe of the city, where there is also a display of Chrysanthemums and other seasonable flowering plants. *F. W. J.*

During the past three weeks an excellent display of Chrysanthemums has been on view to the public in Chalkwell Park, Westcliff-on-Sea. The greenhouse, a fine large building, was erected a year or so ago, and adds to the amenities of this pretty park. The house is now filled entirely with Chrysanthemums of all types, including large Japanese, Incurved, Single and Anemone-flowered sorts.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

R.H.S. Award to the Grapes from Aldenham.—In your issue of November 17 (page 300) you report that the award given to the excellent exhibit of Grapes from Aldenham was a Gold Hogg Medal. On reference to the annual report of the R.H.S. I find it specifically stated that the Hogg Medal "is struck in silver-gilt, silver or bronze," and no mention is made of there being a *Gold* Hogg Medal! The official card placed on the Aldenham exhibit was one for a Silver-Gilt Hogg Memorial Medal! As I was one of the Committee which recommended the award to this exhibit, I should like in fairness to the exhibitor and the Committee to state that the Gold Medal of the Society was awarded, and *not* the Hogg Medal at all! And as this was by the unanimous vote of the Committee—not a dissenting voice, or motion against it—it seems very strange that a medal so unanimously awarded should be withheld, and another of lesser value substituted by the Council. I carefully examined the Grapes before the Committee met and, in my opinion, as well as that of other practical Grape growers, they were about the finest lot of Muscat Grapes staged anywhere this year, and had they been set up in open competition at Shrewsbury, Glasgow, or Edinburgh, they would have won a valuable prize. Having regard to the care and attention required—extending over a long period—to produce Grapes of such clean, even quality of berry, and size of bunch, I am still of opinion that the award of the Society's Gold Medal was a fair and just one. It seems to me an explanation is due from the Council to its Fruit Committee for over-riding their unanimous award on points of genuine merit. *N. F. Barnes, Eaton Gardens, Chester.*

[In view of the differences of opinion concerning the award made to the Grapes exhibited by the Hon. Vicary Gibbs at the meeting of the Royal Horticultural Society, on November 13, we wrote to the Secretary of the R.H.S., asking him to let us know what award the Fruit and Vegetable Committee recommended and what was the award sanctioned by the Council. In reply to our enquiry, Mr. Dykes wrote as follows: "The Fruit Committee, I believe, recommended a Gold Medal of some sort, possibly a Hogg Medal, to Mr. Vicary Gibbs' exhibit of Grapes, but the award made by the Council was a Silver-gilt Hogg Medal. Our attention here was drawn to the fact that you erroneously published a notice saying that a gold medal had been awarded to the Grapes and I think you must realise the undesirability of taking for publication the results of the Committee meetings. All that the Committee can do is to recommend awards which are made by the Council, and, as you see in this instance, it by no means follows, though, of course, it generally happens, that the recommendations will be accepted without alteration by the Council. In the circumstances, we should be glad if you would publish a note to the effect that the medal awarded was a Silver-gilt Hogg Medal and not a Gold Medal, as previously stated."—EDS.]

Apple Broad-Eye Pippin.—Owing to the scarcity of Apples in my immediate neighbourhood, I had to go some distance afield before obtaining a supply for personal use. In the direction of Thakeham (Sussex) I visited an orchard lying in a depression, where most of the trees were somewhat protected from the bitter northerly winds which play havoc with so many orchards during the flowering season. I was struck with the appearance of the trees, for they were old and decrepit, covered with Lichen, whilst many had split branches, thus showing utter neglect. I suggested the trees were from forty to fifty years old when, to my surprise, the owner stated they were a hundred years old. He further stated, his father—whom I saw—was seventy-seven years of age, and the orchard was thirty years old when he bought it. The trees had never been pruned, limewashed, or grease banded, and yet he had always obtained fair or average crops. I wanted cooking Apples of a late variety, and he produced an Apple called Broad-eye which he said would keep for a year. In appearance it is like a Bramley's Seedling, about the same size, but with a little less colour. The flesh is firm, in fact, quite hard. I cannot find this variety mentioned in *Hogg's Fruit Manual*. Is it known to any of your readers? *Worthing.*

[Broad-eyed Pippin is an Apple described by Hogg (see p. 31, fifth edition), as a very old English variety mentioned by Ray.—EDS.]

Colin-Pullinger Mouse Trap.—In February of last year I addressed a letter to you with regard to my experience of the usefulness of the Colin-Pullinger Balance Mouse Trap for the capture in a garden of field mice and voles, and have been much surprised to receive letters from different parts of the country, stating that the traps had not caught a single mouse. Knowing how well the traps work, it did not occur to me until recently to inquire of my gardener how my own had been catching, and I was astonished to learn that they had not caught any mice for a long time, although a drop of oil of aniseed had been placed on the flannel in the bait rack every few weeks. As oil of aniseed has been the only bait used for my traps for the past forty years, and only until now has failed to attract, it occurs to me that during the war some alteration was made in its manufacture, but it will be very difficult to prove this, for on inquiry I have learnt that most of this oil is distilled in China. I am also informed that there are several common brands on the market from which a portion of the active constituent (anethol) has been removed, so this may be the cause of the failure of the oil to attract. Several specimens have been sent to me, but, according to my sense of smell, they are not either so pleasant or so strong as the oil of years ago. I am informed that Messrs. Duke, Waring, Crisp and Co., 139, Wardour Street, London, W.1., who are now the sole manufacturers of the trap, on seeing my letter, attached a slip recommending oil of aniseed as a bait, and this probably has led to the oil being used more widely than it would otherwise have been done. However, knowing the fondness of mice for cheese, I had the scented flannel removed and substituted with a slice of cheese, about one-eigth of an inch in thickness, the size of the bait rack, and since this was done the traps have caught as well as they used to do. I feel it a duty to let you know what has occurred, for many of those who purchased traps, on seeing my letter, have probably been disappointed with the result, if they have followed the advice given to bait only with oil of aniseed. *Mark Hovell, Lemsford House, nr. Hatfield, Herts.*

Absence of Coloured Blooms at Chrysanthemum Shows.—I venture to make a few remarks concerning your observation *re* the absence of coloured blooms in two prize-winning exhibits at the recent exhibition of the National Chrysanthemum Society. This lack of colour I attribute to faults in the drafting of the schedule, and to the judges' award in favour of size in preference to colour. Exhibitors are, therefore, encouraged to include the larger blooms which, unfortunately, present only the dull colours and are, in my experience, more easy to grow to perfection than the more highly-coloured sorts. Those exhibitors who attempt to have their collections as attractive as possible generally go unrewarded because they have failed to make the florets and their blooms hang over the sides of the stands. Nothing gave me more pleasure than the three fine exhibits in the Wells Memorial Class at the National Show; each was represented by flowers of all the best colours. *G. J. Miller, Codicote Lodge, Welwyn.*

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SOCIETIES.

ROYAL HORTICULTURAL.

Nov. 26.—Doubtless the severe frost and the foggy weather of the preceding day and during the early morning of Nov. 26 were responsible for the small exhibition at Vincent Square, and also for the small attendance. Three large specimen Chrysanthemum plants proved attractive, and suggested comparisons between the present and old-time methods of plant cultivation for exhibition. A few Alpine plants, some Succulents, Carnations, Orchids, Chrysanthemums, Begonia Gloire de Lorraine, shrubs, dried flowers, and clipped trees were the principal subjects shown.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. J. O'Brien (Hon. Secretary), Gurney Wilson (Assistant Secretary), R. Brooman White, J. Wilson Potter, T. Armstrong, H. T. Pitt, Fred. K. Sander, H. G. Alexander, Chas. H. Curtis, J. Cypher and the Hon. Henry McLaren.

FIRST CLASS CERTIFICATES.

Cypripedium Gwen Hannen (*Florence Spencer* × *Christopher var. Grand Duke Nicholas*), from G. F. MOORE, Esq., Chardwar, Bourton-on-the-Water (gr. Mr. W. H. Page). A grand hybrid of the type of C. Christopher, which has been one of the leading features in this section of hybrids raised at Chardwar. The fine white dorsal sepal is over four inches in width, a broad band of purple running up the middle and smaller purple lines on each side The large petals and lip are honey-yellow, tinged with chocolate purple.

Cypripedium Chrysostom var. Amy Moore (*Christopher var. Grand Duke Nicholas* × *Pyramus magnificum*), from G. F. MOORE, Esq. The white sepal is of fine substance, being 4¼ inches across, the basal half emerald-green spotted with purple; both the petals and the lip are broad and well displayed, the colour being greenish-yellow tinged with purple.

Cypripedium Chrysostom var. Richard Fort, from G. F. MOORE, Esq. The dorsal sepal is white with purple spotted lines from the base, the petals and lip of honey-yellow, tinged with chocolate-purple.

Cypripedium Prince Albert var. Mecca (*Tommy Curte* × *Pyramus magnificum*), from G. F. MOORE, Esq. The dorsal sepal is white, evenly spotted with claret-purple; the very broad petals are tinged with mahogany-red on the upper half and spotted on the lower part. The lip is yellowish, tinged with purple.

CULTURAL COMMENDATION.

To Messrs. ARMSTRONG & BROWN, Orchidhurst, Tunbridge Wells, for a beautiful specimen of Lælio-Cattleya Schroderæ var. The King (L.-C. Bella alba × C. Maggie Raphael alba), with a fine inflorescence of seven large white with a crimson-purple lip and a small yellow disc.

A Silver Floral Medal was awarded to Messrs. SANDERS, St. Albans, for an excellent group with a centre of Dendrobium Phalaenopsis Schroderianum and white Vanda Watsonii. A fine and varied selection of Cypripediums formed the body of the group with a selection of Cattleya Hardyana alba and other hybrid Cattleyas, the two novelties being C. Cressidæ (Cooksonii alba × Hardyana alba), a very pretty and distinct white flower with a transverse, bi-lobed, crimson-purple band on the lip; and Lælio-Cattleya Troila (C. Rex × L.-C. Canhamiana Rex) with pretty Primrose flowers, and crimson-purple lip. A very interesting selection of species was also shown, including Dendrobium cymbidioides, Maxillaria venusta and other Maxillarias.

Floral Committee.

Present: Messrs. H. B. May (in the Chair), E. A. Bowles, G. Reuthe, J. F. McLeod, Donald Allan, H. V. Warrender, Reginald Cory, H. D. McLaren, Thos. Stevenson, W. H. Page, H. J. Jones, J. Jennings, C. R. Fielder, Clarence Elliott, W. Cuthbertson, J. B. Riding, Chas. E. Pearson, W. B. Gingell, A. Turner, D. B. Crane, W. P. Thomson, and W. J Bean.

There were sixteen entries before the Floral Committee, but no award was recommended. Among Chrysanthemums submitted, the varieties Mr. A. Robertson, a pink single, and Mrs. Wilfred Ashley, a pink terra-cotta decorative sort, were very promising.

GROUPS.

Chrysanthemums again were prominently displayed and in large quantities. On either side of the entrance Messrs. W. WELLS & Co. and Messrs. KEITH, LUXFORD & Co., had extensive collections of excellent blooms. Amongst the large-flowered Japanese blooms shown by Messrs. W. WELLS & Co. were excellent specimens of Peace, Louisa Pockett, and Wm. Turner. Amongst their single-flowered sorts Molly Godfrey, Margaret and Bronze Molly were very prominent, while the many well-coloured blooms of decorative type included December Gold, Nagoya, and Baldock's Crimson (Silver Flora Medal).

Messrs. KEITH LUXFORD & Co. gave the central position to an unusually good collection of tiny Pompons. Their exhibition Japanese varieties included magnificent specimens of Helena Margerison, H. V. West, Sulphur Queen, and Mrs C. Edwards. Large singles were also of great merit, and amongst these were vases of Nora, Cannell's White, Reginald Godfrey, and Absolute (Silver Flora Medal).

Several decorative varieties of Chrysanthemums grown as sprays were set up by Mr. F. G. WOOD, who staged such sorts as Golden Marvel, Cranfordia, and Ashstead Pink. He also showed his miniature alpine gardens.

A large group of magnificent plants of Begonia Gloire de Lorraine were exhibited by J. B. BODY Esq. (gr. Mr. C. Hay), Hindhead Court, Hindhead. These very large plants bore countless numbers of flowers and illustrated especially skilful cultivation (Silver Gilt Banksian Medal). A smaller collection of the same Begonia was shown by Mrs. CONSTANCE JOY (gr. Mr. A. J. Bright), Marylands, Bentley, but most unfortunately the plants had been damaged by frost in transit. On a floor space Mrs. JOY showed three particularly good specimen plants of Chrysanthemum Mrs. R. Luxford. Each bore about 150 beautiful flowers (Silver Banksian Medal).

Mr. SYDNEY SMITH arranged a collection of Succulents with considerable taste. There were small plants of Cereus, Maxillaria, Echinocactus, Opuntia, Sempervum and Sedum and all were exceedingly well grown (Silver Banksian Medal).

Carnations were especially bright and good. In addition to a small collection of Dianthus Allwoodii, Messrs. ALLWOOD BROS. set up excellent vases of such perpetual-flowering Carnations as Edward Allwood, Wivelsfield Claret, Jazz, Chintz and Topaz (Bronze Flora Medal).

Amongst the many valuable sorts displayed by Mr. C. ENGELMANN were Enchantress Supreme, Tarzan, Topsy, Peerless, Laddie, and Delice (Silver Flora Medal). Messrs. STUART LOW AND CO. again staged a large quantity of the beautiful pink Eileen Low, with Coquette, Amos Grove, Lady Inverforth, and White Pearl (Silver Banksian Medal).

An unusual but interesting and useful exhibit was that of "Everlastings," set up in an admirable manner by the FRENCH INTENSIVE GARDENS LTD. The sprays had been well handled since they were cut so that the colours were very good. This exhibit included Helichrysums, Acroclinium, Statice, Gypsophila, Tamarix, Physalis and Agrostis. The method of writing the names of the different species on Laurel leaves added to the effect of the collection (Bronze Banksian Medal).

A varied and interesting collection of ornamental shrubs was arranged with considerable taste by Messrs. L. R. RUSSELL, LTD. Such shrubs as Eleagnus pungens picta aurea and Euonymus ovata alba were splendidly coloured. Other attractive shrubs included Cotoneaster pannosa and Skimmia japonica heavily berried, and a standard Rosemary in full bloom. On an adjoining table Messrs. RUSSELL showed especially well flowered examples of Jacobinia chrysostephana and Tillandsia Lindenii (Bronze Flora Medal).

New Zealand Veronicas such as V. cupressoides and V. selaginoides, suitable for planting in the rock garden were shown by Messrs. BAKERS, LTD., who also had vases of decorative Chrysanthemums in an undisbudded state.

A large collection of Conifers was assembled by Mr G. REUTHE. These were shown as small shapely bushes and as cut branches. In some instances the branches bore their cones, and there was also a collection of cones of Pinus, Abies, Cedrus and Picea on view. The specimens of Abies Webbiana, A. bracteata, Podocarpus chilana and Pinus Teocote attracted considerable attention (Silver Banksian Medal.

The COUNTESS CAWDOR (gr. H. Windibank), Frensham Hall, Hazlemere, sent an admirable collection of Pernettya macronata which bore an unusual quantity of berries. Several forms were included, and one, which bore bright crimson berries, was of especial value (Silver Banksian Medal).

Mr. ELISHA J. HICKS again showed splendid blooms of the rich Pink Rose America, and Mr. J. KLINKERT brought well-trained topiary specimens.

Miss WINIFRED WALKER, Mrs. ADIE, Miss ALLEN WARRINGTON, Miss G. DORRIEN-SMITH, Miss A. F. WILKINSON, Miss MAUDE ANGELL and Mrs. TOWNSEND, took advantage of the dull season to exhibit paintings of garden scenes and floral studies for which various medals were awarded.

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (Chairman), J. Cheal, H. S. Rivers, Geo. F. Tinley, W. F. Giles, G. Reynolds, G. Kelf, Ed. Beckett, Ed. Harriss, T. Pateman, A. Bullock, J. Harrison, W. H. Divers, E. A. Bunyard and A. N. Rawes.

There were only two exhibits submitted to this Committee, the one, some excellent pods of Climbing French Bean Tender and True which Mr. Geo. Reynolds brought from Mr. Leopold de Rothschild's garden at Gunnersbury Park, Acton, for which a Cultural Commendation was recommended, and the other, Apple George Carpenter shown by F. C. Stoop, Esq., West Hall Gardens, Byfleet (gr. Mr. G. Carpenter), which was recommended at a previous meeting for inclusion in the trial of commercial varieties at Wisley. This Apple is the result of a cross between Blenheim Pippin and King of the Pippins, and it has the high colouring of the latter parent and the eye and texture of the Blenheim parent. It is a very showy Apple, but the specimens had apparently been kept in a rather dry place, for they were a little shrivelled. It is an Apple of merit, but the Committee did not think it was sufficiently superior to existing varieties to be worthy of an award.

In the hall Messrs. GEO. BUNYARD, LTD., displayed a very interesting exhibit of Apples for the special purpose of showing varieties in season, and we understand that they propose to show collections at following meetings whilst Apples are available. The fruits shown on this occasion were splendid specimens of Pineapple Russet, Royal Jubilee, Rival, Blenheim Pippin, Baumann's Winter Reinette, Lord Derby, Allington Pippin, Peasgood's Nonsuch, Cox's Orange Pippin, Warner's King, Cockles Pippin and Bismarck.

HULL & EAST RIDING CHRYSANTHEMUM.

THE Hull Chrysanthemum Society resumed its annual exhibition on November 21 and 22, after the shows had been in abeyance for a period of ten years. The 23rd Exhibition was originally fixed for a date in November, 1914, but with the outbreak of war in that year the exhibition was cancelled.

The City Hall, Hull, is splendidly adapted for exhibitions such as the one under notice and on the present occasion the Society also had the use of the Art Gallery, where cut flowers and fruits were seen to great advantage. In the City Hall groups of Chrysanthemums were tastefully disposed in the centre and

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mirror groups were arranged at the base of each pillar and at the two ends of the Hall. Where there were not enough exhibits to fill each of the spaces allocated to groups, Mr. H. B. Witty, the Parks Superintendent, and his staff arranged charming groups of Chrysanthemums of a representative character, and in ideal form and condition. The show of the present season worthily maintained the high reputation which the Hull Show has enjoyed in the past. In some instances the classes were not well filled, but, generally, there were sufficient exhibits to make a keen competition.

The Right Hon. T. R. Ferens, P.C., J.P., continues in the position of President, which office he very ably fills, and he is supported by a very enthusiastic Committee, while Mr. H. Harland and Mr. J. White, are joint Honorary Secretaries. The Exhibition was opened by the Lord Mayor of Hull before a distinguished company, and music was discoursed by the band of the Coldstream Guards. The Society is to be complimented on the very able manner in which every detail of the Show was carried out. It was possible to purchase a schedule of the classes giving the list of entries in each class and the awards made within about half an hour of the conclusion of the judging.

GROUPS.

There was only one exhibitor in the class for a group of Chrysanthemums interspersed with foliage—arranged on the floor in an oblong twelve feet by eight feet. This was shown by Mrs. ARTHUR WILSON, Tranby Croft (gr. Mr. W. J. Earl). It was an attractive exhibit but two huge vases in the centre of the group might have been improved.

There were four exhibits in the class for a mirror group of Chysanthemums, miscellaneous flowers and foliage, arranged on a ground space not exceeding twelve square feet. A charming exhibit of the single-flowered Chrysanthemum Florrie King (pink and white) arranged on both sides of the mirror, and Begonia Gloire de Lorraine, with Pandanus and other foliage plants at the base, made a display well meriting the award of first prize which it received. This exhibit was put up by Mr. A. C. STOREY (gr. to the President, Holderness House, Hull). Mr. EARL gained second prize with an attractive group, and R. H. MICKS, Esq., Hotham House, Brough (gr. Mr. B. Gray), came third with a bright display.

CUT BLOOMS (OPEN CLASSES).

The leading class for cut flowers was that for twenty-four Japanese blooms in not fewer than eighteen varieties, shown on boards, for which a silver cup and attractive money prizes were offered. There were three competitors and each of them staged blooms of splendid quality. First prize was awarded to T. M. G. HEWITT Esq. (gr. Mr. F. J. F. Fleming), Weelsby Old Hall, Grimsby; his best flowers were of Lady Talbot (2), Majestic (2), Louisa Pocket (2), W. Rigby (2), Mrs. Gilbert Drabble (2), Mrs. R. C. Pulling, Princess Mary, Gen. Petain, Mrs. G. Hardy, Mrs. A. Davis, Queen Mary (2), Mrs. Chas. Fox, Mrs. J. Gibson, Mrs. J. Balmer, and Lady Stuart of Wortley. Second prize was awarded to Mr. H. WOOLMAN, Shirley, Birmingham, some of whose blooms, notably those of Majestic, W. Rigby, Queen Mary and Norman Chittenden, were very fine. Third prize was awarded to JAMES ARMITAGE, Esq., Clova, Harlow Oval, Harrogate (gr. Mr. Robert Jones).

There were only two exhibits in the class for six vases of three incurved blooms, in six varieties, one variety in each vase. First prize was awarded to Mr. ARMITAGE who shewed popular sorts quite well. No other prizes were awarded in this class. The five competitors in the class for one vase of three blooms of a yellow Japanese variety made a capital display, first prize being won by T. FERENS, Esq. with splendid blooms of Mr. Rigby. T. HEWITT, Esq., was second with good specimen blooms of Mrs. R. C. Pulling, and ARNOLD LECKITT, Esq., Westerland, Elloughton, Brough (gr. Mr. W. P. Barnes), was third, also with Mrs. R. C. Pulling.

There were five exhibitors also in the class for one vase of three blooms of a white Japanese variety, and MISS BENNETT, Westlands, Grimsby (gr. Mr. G. B. Burrows), was placed first with grand examples of Queen Mary; second, Mr. WOOLMAN, with shapely blooms of Mrs. Gilbert Drabble; third, J. ARMITAGE, Esq., with Wm. Turner.

Only three exhibitors came forward in a similar class for a pink Japanese variety; Mr. FLEMING was first with good examples of Mrs. F. J. F. Fleming, Mr. EARL was second, and Mr. JONES third. The five exhibits in the class for one vase of three blooms of bronze or other dark Japanese in one variety made an interesting display. First prize was awarded to Mr. H. WOOLMAN, for large, fairly even blooms of Majestic. Mr. FLEMING was second with large, though less pleasing, blooms of the same variety, and third prize went to Mr. STOREY, for beautifully finished blooms of Mrs. G. Monro. A useful class was that for one vase of six Japanese blooms in six varieties. Good blooms of high colour won first prize for Mr. H. WOOLMAN; second, T. HEWITT, Esq.; third, J. ARMITAGE, Esq.

It was unfortunate that only two competitors entered in the class for two vases of three Japanese blooms; magnificent examples of Majestic and Queen Mary won first prize for Mr. WOOLMAN, and splendid examples of Lady Talbot and Majestic secured second prize for T. HEWITT, Esq. We noted with interest the class for six vases of reflexed decorative Chrysanthemums (really, disbudded market varieties). The three exhibits contained useful material, and first prize was won by Mr. MONTAGUE STATHER, Arlington Nursery, Cottingham, who showed Mrs. Buckbee, Miss J. Stather, Miss Olive Dumsday, Wellington Wack (very pretty), Sorcerer and Sunshine; Mr. WOOLMAN came second with excellent flowers, and W. H. THICKETT, Esq. (gr. Mr. J. Irvine), Bradley Gardens, near Grimsby, was third.

One of the most interesting and attractive classes in the whole show was that for a table of single varieties arranged for effect, one colour in each vase or stand, with natural undyed foliage, exhibits to face one way and to be arranged on a table space 10 feet by 2 feet, 6 inches. There were only two exhibits but they were excellent; a highly artistic display won first prize for Mr. M. STATHER, to which prize a Silver Cup was also attached. There was only one defect in this display, the exhibitor did not make so much of the central background as he might have done. His exhibit, otherwise, left nothing to be desired. His best varieties were: Mildred (bronze), Susan (yellow), Absolute (bronze), Sandown Radiance (chestnut), Mrs. W. Smith (cream), Edith Dimond (bronze), Robert Collins (apricot), and Floria (pink). Mr. WOOLMAN followed very closely, but his exhibit lacked the artistic finish of the first prize display, although his blooms were splendid.

DECORATIVE OPEN CLASSES.

Mr. STATHER led among four exhibitors in the class for a basket of single Chrysanthemums arranged for effect, and Miss M. NOBLE, 3, Northgate, Cottingham, came second. The same exhibitor also won first prize for a table of Epergnes, bouquets, button-holes and other floral arrangements, illustrating the decorative value of the Chrysanthemum.

LADIES' DECORATIVE CLASSES.

The five dessert table decorations arranged by local ladies were a centre of interest for many visitors. The class provided for a table completely laid out for dessert for six persons, Chrysanthemum flowers only admissible, with any kind of natural foliage: and fruits allowed. The first prize was won by Mrs. HAROLD SISSONS, North Ferriby. This exhibitor used a rather small, crimson, single Chrysanthemum very effectively, and in other respects the arrangement was very good. Most of the other competitors used rather dull, uninteresting, bronze Chrysanthemums, and there was little to choose between them. Mrs. E. TINLEY SISSONS, Cottingham was placed second, and Mrs. EDWIN ROBSON, Sutton, third.

Competition was good for a bowl of Chrysanthemums for a dinner table decoration. First prize deservedly went to Mrs. E. ROBSON for a reddish-crimson, single variety, and second and third prizes went to Mrs. M. E. THOMPSON and Miss E. F. HARLAND respectively.

LOCAL CLASSES.

These were well represented and many fine exhibits were staged. One class calls for special mention, viz., that for six vases of single Chrysanthemums, five stems in each, disbudded to one flower on each stem, in not fewer than four varieties, one variety in each vase. There were six competitors, and Mr. ROBERT THOMPSON, 37, Woodlands, Beverley, won premier honours with a beautiful series of flowers, showing such sorts as Molly Godfrey, Susan, Elsie Waters, Edith Dimond, Catriona and Phyllis Cooper; Mr. A. E. WILSON, Hull, was placed second, and Capt. J. H. BROADLEY, Welton House, Brough, third.

VEGETABLES AND FRUITS.

The competitions in the vegetable classes appeared to be chiefly confined to allotment holders of which there are many groups and associations. Competition in most of the fruit classes was poor, but some of the exhibits were highly meritorious.

Obituary.

Julius Roehrs.—We regret to learn of the death of Mr. Julius Roehrs, President of the Julius Roehrs Co., of Rutherford, New Jersey, U.S.A. Mr. Roehrs was a great lover of Orchids, stove plants and greenhouse plants, and was the moving spirit in the firm's business as nurserymen, seedsmen, and landscape contractors. Death took place on October 31 following a brief and severe attack of cerebral meningitis.

TRADE NOTES.

THE Council of the Chamber of Horticulture on the 14th ult. discussed the Government's Draft Rating and Valuation Bill, and it was unanimously agreed that the principle of the Bill as a whole be adopted. It was the general opinion of the meeting that the time had arrived for reform in rating and valuation and that as regards its application to horticulture this Bill might afford the opportunity of obtaining a better basis of valuation. A proposition was put forward to make an application for glasshouses to enjoy the same relief as agricultural land, but it was considered highly improbable that an attempt to introduce such an amendment in the Bill would be successful, but that endeavours should be made to obtain concessions as regards depreciation.

It was stated that the railway companies have recently issued a number of terms and conditions agreed to between the Traders' Co-ordinating Committee and the Railway Companies for merchandise carried by merchandise train at owners' risk. These terms and conditions are more favourable to traders than those at present in force and are the outcome of objections lodged by various associations, including the Chamber of Horticulture. Following negotiations with the Railway Clearing House, the Companies submitted at the end of July last, new rates for the cut flower traffic from the Spalding and Wisbech areas which at first appeared to be favourable, but it has since been definitely stated by the Railway Clearing House that the rates submitted are subject to a 50% increase. This does not improve the position to any appreciable extent and no doubt the Council will consider further action necessary.

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ANSWERS TO CORRESPONDENTS.

CHECKING WOODY GROWTH IN FRUIT TREES: *R. J. A.* We have not heard of any process of boring the stem and injecting some preparation to check the growth of fruit trees. Possibly you are thinking of ringing the bark, which has sometimes been done to check growth and promote fruitfulness. But any system which involves wounding the stem is undesirable, owing to the risk of introducing disease. The only safe and reliable methods of steadying growth and inducing fruitfulness are (1) root-pruning, and (2) moderating the usual pruning of the head. The former is the usual method adopted in gardens. The latter is more often followed by market-growers, for whom root-pruning on a large scale would be too expensive. If pruning can be confined to mere thinning out for a year or two, or even if the leaders are allowed to grow whilst the laterals are not pruned too closely, the trees will almost invariably come into fruit, provided that they are not forced with manure.

NAMES OF FRUIT: *J. T. W.* Small Apple, Norfolk Stone Pippin; large, Blenheim Pippin.—*C. E. B.* 1, Flander's Pippin; 2, Lady Henniker; 3, Bramley's Seedling; 4, Reinette du Canada; 5, Pear Beurré Diel; 6, Broad-eyed Pippin.—*Constant Reader.* Dark Apple, Norfolk Beefing; red, Lord Burghley.—*A. S. W.* The variety is Blenheim Pippin. The stock possibly makes the difference. There are a few trees in Kent called Bastard Blenheim, the fruits of which are considered of better flavour. The stock, whether Crab or Paradise, has some influence on the shape of the fruit, and possibly the flavour; the nature of the soil also is a factor in this respect.

WATER IN A TARRED TUB: *D. M. M.* If the tub is tarred inside and the tar allowed to become perfectly dry, water stored in it should not have any harmful effect when it is used in a greenhouse. It will be advisable, however, to first fill the tub with water and allow this to stand for a few days and pour it away before filling it with the water which will be used in the house.

NAMES OF PLANTS: *G. H. J.* 1, Abutilon Sawitzii; 2, Ophiopogon Jaburan; 3, Helxine Soleirolii; 4, not recognised.—*W. R. R.* Phytolacca decandra.—*M. N.* 1, Veronica angustifolia; 2, V. Diamant; 3, Viburnum Opulus (Guelder Rose); 4, Centaurea rutifolia.

GRAPE PRINCE OF WALES: *T. M.* The perfect fertilisation of the flowers of the Prince of Wales Grape is rarely effected without artificial aid. It is therefore advisable to collect pollen from other varieties, especially Black Hamburgh and Alicante, and fertilise the flowers of Prince of Wales with this. It is a good plan to leave three or four buds when pruning this variety, or better still to grow it on the extension system and shade the vinery lightly when the sun is very strong.

VINE AND PEACHES INFESTED WITH RED SPIDER.: *K.* When pot plants are kept in vineries or Peach houses throughout the winter months, it is difficult to keep the vines and Peach trees free from red spider. It is a good plan to anticipate an attack by dressing the vine rods and Peach trees with a solution of Gishurst Compound, made according to directions given by the makers. It is also necessary to keep careful watch for an attack in the spring. A dry atmosphere, and especially one produced by means of artificial heating, is conducive to attacks of red spider, while dryness at the roots of the vines and trees and improper ventilation are other contributing causes. The roots should be watered freely during the growing season and the atmosphere kept moist, especially during periods when the temperature is high. In the case of an attack of red spider while the vines or trees are in full leaf, the foliage should be washed with soapy water and sulphur and syringed frequently with clear, soft water.

MARKETS.

COVENT GARDEN, Tuesday, November 27, 1923.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz.	10 0	18 0
—elegans	10 0	12 0
Aralia Sieboldii	9 0	10 0
Araucarias	30 0	48 0
Asparagus plumosus	12 0	15 0
—Sprengeri	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Cacti, per tray, 12's, 15's	5 0	7 0
Chrysanthemums —white, doz.	12 0	18 0
—pink ,,	12 0	15 0
—bronze ,,	12 0	15 0
Crotons, per doz.	30 0	42 0
Cyrtomium	10 0	15 0
Erica gracilis, 48's per doz.	21 0	24 0
Erica gracilis —60's, per doz.	12 0	15 0
—nivalis, 41's ,,	24 0	30 0
,, 60's ,,	12 0	15 0
Hydrangeas white, doz.	18 0	24 0
Lilium longiflorum, each	4 0	6 0
—speciosum album, each	3 0	4 0
—speciosum, rubrum, each	3 0	3 6
Nephrolepis, in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	24 0	30 0
—60's	15 0	18 0
—Cocos	24 0	36 0
Pteris, in variety	12 0	21 0
—large 60's	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's	3 6	4 0
Solanums, per doz.	12 0	15 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum decorum, doz. bun.	9 0	12 0
—cuneatum, per doz. bun.	8 0	10 0
Asparagus, plumosus, per bun.		
long trails, 6's	4 0	5 0
med. sprays	2 6	3 6
short ,,	1 0	1 6
—Sprengeri, per bun.		
long sprays	2 6	3 0
med. ,,	1 3	1 6
short ,,	0 9	1 0
Bouvardia, white, per doz. bun.	9 0	12 0
Camellias, 12's, box	3 6	4 0
Carnations, per doz. blooms	3 6	5 6
Chrysanthemum, per doz. blooms		
—white ,,	2 6	6 0
—yellow ,,	2 6	5 0
—bronze ,,	2 6	3 6
—pink ,,	3 0	4 0
spray, doz. bun.	9 0	18 0
—singles, disbudded blooms	3 0	5 0
—singles, sprays, per doz. bun.	15 0	18 0
Croton leaves, var., per bun.	2 0	2 6
Gardenias, per box	8 0	12 0
Fern, French, per doz. bun.	1 0	1 3
Forget-me-not, per doz. bun.	0 0	12 0
French Flowers— —Acacia (Mimosa) per bun.	1 0	1 6
—Marguerite, yellow, per doz. bun.	3 0	3 6
—Narcissus Paper White, per doz. bun.	3 0	3 6
French Flowers— —Ranunculus carmine, per doz. bunc.	5 0	6 0
French Flowers— —Ranunculus Romano, large red, per doz. bun.	12 0	15 0
—Violets, single per doz. bun.	2 0	3 0
—Violets, Parma, per bun.	5 6	6 0
Heather, white, per doz. bun.	9 0	12 0
Lilac, white, per doz. sprays	6 0	8 0
Lilium longiflorum long, per doz.	8 0	9 0
short ,, ,,	9 0	10 0
—speciosum album, long, per doz. blooms	4 6	5 6
—short ,, ,,	3 6	4 6
—rubrum long, per doz. blooms	3 0	3 6
—short ,, ,,	2 6	3 0
Lily of the Valley, per doz. bun.	24 0	36 0
Orchids, per doz. —Cattleyas	18 0	24 0
—Cypripediums, per doz. blooms	4 0	6 0
Pelargonium, per doz. bunch, double scarlet	12 0	15 0
Poinsettias, per doz. blooms	15 0	18 0
Richardias (Arums)— per doz. blooms	10 0	12 0
Roses, doz. blooms— —Melody	4 0	6 0
—Ophelia	5 0	8 0
—Golden Ophelia	5 0	6 0
—Liberty	5 0	6 0
—Mme. Butterfly	5 0	8 0
—Mme. Abel Chatenay	5 0	6 0
—Niphetos	3 0	4 0
—Richmond	5 0	8 0
Smilax, per doz. trails	3 6	4 6
Violets, doz. bun.	4 0	7 0

CUT FLOWERS.

REMARKS.—Supplies were sufficient to meet all requirements during the past week, with the exception of Roses and Violets. Prices continued steady throughout the week, and this was the case with the imported flowers, of which only Parma Violets varied in price owing to the erratic and uncertain arrivals of these flowers. There appeared to be a falling off in supplies from home growers this morning, more especially amongst Roses and Carnations. Owing to the colder weather Roses promised advance in price if the wintry weather continues. Of Chrysanthemums there appear to be sufficient disbudded blooms both white and coloured, for present requirements, amongst "Spray" Chrysanthemums, Wilcox (bronze), and Winter Cheer (pink), are the latest arrivals. A few bunches of Roman Hyacinths were on sale to-day, being the first consignment this season. White Lilac from Holland is arriving in much better condition. Anemones, Acacia (Mimosa), Narcissus, Scarlet and Cerise Ranunculus, Safrano Roses, Parma and Single Violets, constitute the main supply of the French consignments. Single Violets from that country are not reliable. Paper White Narcissus is also arriving in excellent condition, and is moderate in price. Richardias (Arum) and Smilax, are the chief supplies from the Channel Islands. A few Violets have been received from this quarter, but they suffer in transit, and are practically unsaleable. Further supplies are expected from French growers shortly.

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus, forced—		
Italian	12 0	14 0
French	10 0	14 0
English	7 6	8 0
Beans		
Guernsey, lb.	0 10	1 6
Beets, cwt.	8 0	10 0
Cabbage, doz.	1 3	2 0
Carrots, cwt.	8 0	10 0
Cauliflower, doz.	3 0	4 6
Chicory	0 6	0 8
Celery, fan	1 6	2 0

Vegetables: Average Wholesale Prices—*Contd.*

	s. d.	s. d.
Cucumber, doz.	8 0	12 0
Lettuce, French— crate	3 0	5 0
Endive, doz.	2 6	3 0
—Batavia, doz.	2 0	2 6
Mushrooms— —Forced, lb.	2 0	4 0
Mint, doz.	6 0	8 0
Onions, Valencian, case	14 0	16 0
—English, cwt.	12 0	13 0
—Dutch	10 0	11 0
—Italian, pot	12 0	13 0
Parsnips, cwt.	7 0	8 0
Peas, lb.	0 10	1 0
—Guernsey, lb.	3 6	4 0
Potatos, cwt.	5 0	8 0
—Guernsey, lb.	0 2	0 4
—Forced	0 8	0 10
Savoys, doz.	2 0	2 6
Seakale, punnet	2 6	3 6
Spinach	2 6	3 6
Sprouts, bus. bags	4 0	5 0
—Bags	3 0	3 6
Tomatos— —English Pink New Crop	6 0	7 0
Others	1 0	4 0
—Pink and White New Crop	6 0	7 0
Others	1 0	3 0
—Guernsey	2 0	8 0
—Jersey	2 0	7 0
—Canary Island	12 0	20 0
Turnips, cwt.	5 0	8 0

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples— —Cox's Orange Pippin, ½ bus.	10 0	20 0
—Allington Pip	3 0	4 0
—King of the Pippins	4 0	6 0
—Blenheim	3 6	5 6
—Bramley's Seedling, bus.	7 6	12 6
—Lane's Prince Albert	7 0	10 0
—Oregon Newtown	10 6	14 0
—Californian Nova Scotian—	9 0	10 0
—Blenheims	21 0	25 0
—Kings	22 0	26 0
—Ribston Pip	20 0	24 0
—Russetts	30 0	32 0
—States	23 0	24 0
—Baldwin	23 0	25 3
—Ben Davis	22 0	20 0
—Jonathan	9 0	11 0
Bananas, singles	14 0	25 0
—doubles	16 0	25 0
Dates, Tunis, doz. cartons	4 6	6 6
Grapes— —Alicante	1 6	2 6
Grapes— —Almeira, barrel	20 0	30 0
—Cannon Hall	3 0	7 0
—Gros Colmar	1 3	3 6
—English Muscat	2 6	7 0
Grape Fruit— —Cuban	25 0	—
—Jamaica	20 0	25 0
Lemons— —Messina, case	25 0	30 0
—Messina, box	12 0	15 0
—Murcia	12 0	15 0
Melons, Guernsey, each	1 6	3 6
Nuts— —French Walnuts bags	8 0	13 0
—Brazil, cwt.	60 0	68 0
—Cobs	1 3	1 4
—Italian Walnuts, bag 50 kilos	56 0	—
Oranges— —South African	25 0	32 6
—Spanish	9 0	25 0
Pears— —D'Anjou, cases	18 0	24 0
—Winter Nelis	24 0	26 0
Pines, each	1 6	4 0

NEW HORTICULTURAL INVENTIONS.

LATEST PATENT APPLICATIONS.

26,965.—Guy, F. E.—Weed-lifter. October 29.

27,468.—Wilson, R. C.—Machine for littering fruit beds with straw. November 1.

26,001.—Cox, S.—Method of packing seeds. October 18.

25,751.—O'Callaghan, J.—Combined cutters and fingers for mowing and other machines. October 16.

SPECIFICATIONS PUBLISHED THIS MONTH.

206,433.—Haws, A. E.—Watering-cans.

205,979.—Elias, J. J. M.—Machines for weeding.

205,310.—Tallgren, H.—Destruction of weeds or the like.

205,718.—Pugh, Ltd., C. H., and Bull, G. F.—Lawn mowers.

205,749.—Blackbourn, B.—Bird-scaring device.

ABSTRACT PUBLISHED IN NOVEMBER.

Transplanting Seedlings.—Patent No. 203,275.—An appliance particularly for transplanting seedling trees has been invented by Mr. A. M. Morrison and Mr. R. I. Morrison of Alness, Burnside, Rutherglen, Lanarkshire. The device is constructed with metal supporting members, suitably stiffened and combined with a spacing member. The transplanter may have timber members, in which case the spacing member is a fitting forming part of or secured to a table on which the transplanter is filled with the young plants. The spacing members are clamped to a bar secured to the table edge, each member having a notch to receive a plant. When the plants are positioned, the other board member is swung over and clamped on to the stems by suitable means, such as by ings. The spacing device may be a bar notched or grooved, or the table edge may be similarly shaped to position the plants. The resilient member of the transplanter may also be notched or grooved to receive the stems of the plants.

This list is specially compiled for *The Gardeners' Chronicle*, by Messrs. Rayner and Co., Registered Patent Agents, of 5, Chancery Lane, London, from whom all information relating to Patents, Trade Marks and Designs can be obtained gratuitously.

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THE
Gardeners' Chronicle
No. 1928.—*SATURDAY, DEC.* 8, 1923.

CONTENTS.

Alpine Garden—
Erythraea diffusa ... 339
Potentilla aurea ... 339
Ranunculus amplexicaulis 339
Balfour, the late Sir Isaac Bayley, memorial to 336
Bulb garden—
Allium triquetrum ... 323
The Chinkerichee ... 333
Castanea sativa heterophylla 342
Flower border, the mixed 338
Frost, the November ... 331
Fruit garden—
Apple cuttings ... 341
"Gardeners' Chronicle" seventy-five years ago 332
Gloucestershire Society, diamond jubilee of a 331
Gordon of Birnie, Dr. 337
Hardy flower border—
The Christmas Rose 338
Imperial Forestry Conference 340
Indoor plants—
Bignonia grandiflora 338
Three good cool greenhouse Climbers ... 338
Lilies, sterility in ... 342
McMillan, Mr. A. ... 332
Musk, loss of scent in the 342
Obituary—
Cheeseman, T. F. ... 343
Orchid Club 332
Orchid notes and gleanings—
Odontoglossum Beryl 335
Odontoglossum crispindia 335
Parks and gardens, public—
Chrysanthemums at Southport 341
Potatos, fewer 332
R.H.S. award to the Grapes from Aldenham 342
Rose garden, the—
Interesting Roses in a University garden 333
Richardia africana Beyton Purity 342
Rothschild, the late Hon. N.C., bequests by ... 332
Societies—
Derbyshire Gardeners' 342
Manchester and North of England Orchid
National Chrysanthemum ... ...
Trees and shrubs—
Branches of shrubs for decorative purposes 339
Camellias in the open 339
Erinacea pungens ... 339
Syringa villosa ... 339
Vegetables—
Onions for pickling ... 341
Week's work, the ... 334

ILLUSTRATIONS.

Bayley Balfour Memorial Garden, views of the 335, 336, 337
Chrysanthemums in the conservatory at Hesketh Park, Southport 341
McMillan, Mr. A., portrait of 332
Ornithogalum thyrsoides and O. lacteum imported from South Africa, spikes of 333

COLOURED SUPPLEMENTARY ILLUSTRATION:
Ixora macrothyrsa

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 40.5.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, December 5. 10 a.m.: Bar, 29.5; temp. 41°. Weather—Foggy.

The November Frost.

No gardener who happened to be in a district where the sun shone during the days of the severe November frost will ever forget the scene of magical beauty which the garden presented on the morning of November 25. The crystalline frost which embellished all vegetation made the upstanding shoots of Broom look like sheaves of spears. Wherever the frost touched green things it covered them with a white mantle, but wherever it tried to put its cold finger on red-leaved or red-stemmed plants it failed, and the red centres of Androsaces on the walls and the red stems of Dogwood and Willow (Salix cardinalis britzensis) refused to have their brightness hidden by the frost. This physiological puzzle still awaits an explanation. From the point of view of garden management the frost was no unmixed evil. It may have destroyed some tender things particularly if they had been recently planted or transplanted. But wise gardeners in the latter case had surely discounted this risk by scattering leaves over the soil round the roots, and in the case of more precious things, covering them with Bracken. The chief loss due to the frost fell on Potato growers who had not been fortunate enough to get the whole of their crop lifted. That which remained in the soil is, we fear, irrevocably lost. Other loss there may and and probably must be of nursery and florists' stock which found itself in transit and exposed at railway junctions to hard weather. It is likely on the other hand that the gardener who was well forward with the digging of heavy land will reap a good reward for his timeliness. After the "bone" has gone out of the ground it should work in kindly fashion, and also, as it is to be hoped, not a few soil pests and weed seeds may have received their quietus. Vegetation this year has, doubtless owing to the generally wet autumn, shown such a reluctance to leave off growing that the frost may prove to have done more harm than seems apparent now. It will be interesting to see whether this applies to those plants which have in certain districts a reputation for tenderness. Of these Cupressus macrocarpa is one. So far as may be judged, where this Conifer fails it is due rather to its habit of excessive and prolonged growth than to a real tenderness. A young hedge under our observation, the members of which had made extremely rapid growth this year, should provide a test of this theory. These Cupressus had certainly not ripened their wood when the frost fell upon them, and it remains to be seen whether they will be found to have been permanently damaged. It is curious to notice in gardens in times of severe frost how the domesticated animals stand stock still. Instead of running about as we might expect they remain stationary. Is this because the cold air which they would meet when in active motion would dislodge the warm air entangled in their feathers which remains to form a blanket whilst they are still? The early frost this season doubtless caught certain gardeners napping, and it was a forcible, and, in view of the mild winters of recent years, perhaps a necessary reminder that tender plants should be housed and preparations made for protecting the less hardy subjects in the garden even before October is over. The frost was welcomed most by growers of indoor flowers for market, for Covent Garden and other markets were filled with autumn flowers from out-of-doors, and these reduced the value of choice material in many cases below that of production. The frost also completed the defoliation of deciduous trees and shrubs, and what promised to be a late season for lifting was made earlier, to the advantage of the tree and shrub nurserymen, who find a difficulty in executing their orders when the few weeks at their disposal are curtailed by late growth.

Our Coloured Plate.—The supplementary coloured plate to the present issue illustrates an inflorescence of the beautiful stove plant Ixora macrothyrsa, sometimes known as I. Duffii. It is a native of the South Sea Islands, and was introduced in 1878. The large trusses of deep red flower are exceedingly handsome, and they are set off by the large, deep green leaves which often attain a length of ten inches or more; indeed, the species is one of the finest of the genus. The Ixoras are splendid subjects for the stove and warm greenhouse, as they are of simple culture and may be propagated very easily. They grow well in a compost consisting of a mixture of fibrous loam, peat, and sand, with a little broken charcoal added. Large specimens may be grown without repotting for several years, provided they are fed occasionally with some form of liquid manure.

Diamond Jubilee of a Gloucestershire Society.—There are very few societies devoted to the interests of agriculture and horticulture that have celebrated their diamond jubilee, but the Gloucestershire Root, Fruit and Grain Society accomplished this feat on the 9th ult. when the Sixtieth Annual Exhibition of Flowers and Produce was held at the Shire Hall. These shows were held through the darkest days of the war, and have a time-honoured association with the civic authority of the old City of Gloucester. On November 9th the Mayor is appointed, and the first business of the newly-appointed Mayor, with the Corporation, in their robes of office, is to proceed to the Shire Hall and open the exhibition. The ceremony seems to have grown old with the Society, but it never loses its novelty, never fails to attract an attendance, and the way that the West Country crowd sings "God Save the King," after the opening function is over, is worth going some distance to hear. The Gloucester Root, Fruit and Grain Society had a small beginning. It orginated in fact over a bet made by two farmers as to which had the heaviest roots, and Mr. William Priday is, and has been, the only Chairman. In his long term of office he has probably welcomed more mayors to an opening function than any living man. In its sixtieth year the Society has a great influence on the agricultural and horticultural interests of the county, for in addition to the annual show it gives prizes for the best cultivated farms, field crops, root crops, and the best managed orchards, and counted amongst its members are many of the leading agriculturists in Gloucestershire. The annual show is a kind of reunion of the latter; they were at the Shire Hall on the 9th ult., and if owing to the shortage of fruit crops this year the show was smaller than usual, the interest seemed quite as keen, and county farmers mixed with the city people just in the old sweet way. A few years before the War an addition was made to the show in the shape of an exhibition of produce organised by the County Education Authority, and open to elementary schools and adults who have received instruction under the above authority. This exhibition has grown so much in size and improved so much in quality that it now makes a second show, and the display on the 9th ult. was considered to be the best yet held. It consisted of fruit, vegetables, cheese, butter, eggs and poultry, and not the least interesting section was the collection of vegetables grown in elementary school gardens, with accompanying note books. It may be observed in passing that a few years ago visitors to the show used to smile at the produce in the school garden classes and remark that it was quite good for boys; but now some of the finest specimens in the whole exhibition come from school gardens, and the boys unaccompanied by teachers bring the produce to the show and arrange it. In another part of the building there was one of the finest exhibitions of honey ever seen in the county, arranged under the auspices of the Gloucestershire Beekeepers' Association. The secretarial duties for this interesting exhibition at which farmers, fruit growers, gardeners, poultry-keepers, bee-keepers, and school teachers join hands, so to speak, are carried on by Mr. Sidney Starr for the Root, Fruit and Grain Society, and Mr. G. H. Hollingworth, Agricultural Organiser, for the County Education Authority.

Legacies to Gardeners.—The late Mr. Harry Manstield, J.P., of Moulton Grange, Northamptonshire, left a legacy of £250 to his gardener, Mr. Harry French. Mr. Manstield also left legacies to others of his servants, including £250 to his farm foreman and a sum equal to six months wages to each of his other gardeners and outdoor servants. The late Sir Albert John Hobson, of Esholt, Ranmoor, Sheffield, left an annuity of £50 to his gardener, Mr. John Cowan, if still in his service and not under notice. The late Mrs. Frances Ralle, of Rossefield, Bradford, bequeathed £50 to her gardener, Mr. Robert Mellish.

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The Orchid Club.—On the 9th ult. The Orchid Club was inaugurated at Manchester with Mr. Fred. Hardy as President; Mr. F. J. Hanbury, the Hon H. D. McLaren, Mr. G. F. Moore, and Sir Edward Thomas Vice-Presidents; Mr. J. H. Walker, Treasurer; Mr. Bertram J. Beckton, Daisy Bank, Irlams-o'-th'-Height, Manchester, Hon. Secretary; and Dr. Craven Moore, Dr. R. N. Hartley, Mr. W. Morton Jackson and Mr F. T. Paul as members of Committee. Arrangements have been made to hold meetings in the Houldsworth Hall, Manchester, on December 14, 1923, and January 11, February 1, March 7, April 11, May 2 and June 6, 1924; the annual meeting will also be held on the last-named date. The objects of the Orchid Club include the promotion of a more intimate knowledge of Orchids, their natural history, morphology, cultivation and hybridisation, and the encouragement of investigation into the many interesting problems awaiting elucidation. The Committee will sit at 12 noon on the dates mentioned to adjudicate the merits of Orchids exhibited; the categories of awards will be (1) Premier Diploma; (2) Diploma of Merit; (3) Certificate of Cultural Commendation; and (4) Certificate of Commendation for instructional exhibits and demonstrations. Further, a special certificate or medal may be added to any of these awards to signify some exceptional and new feature, but only by the unanimous vote of the Committee. A meeting for the reading of communications and for discussion will take place at 3 o'clock on each meeting day. The annual subscription is two guineas for local members and one guinea for country members. We understand that the Manchester and North of England Orchid Society also will hold its meetings in Houldsworth Hall in the coming year on January 18, February 13 and 29, March 14 and 28, and April 25. If these two associations work together in harmony the cultivation of Orchids should receive a great impetus in the Manchester district.

Canada's Grain Harvest.—The average yield of Wheat in Canada this year is 20¾ bushels an acre, according to a second provisional estimate, compiled by the Dominion Bureau of Statistics. The estimate is based on the crop outlook on September 30. The wheat yield is approximately 3 bushels an acre higher than last year. All other grains show a considerable increase in this year's yield, Oats ranging on an average of 5 bushels an acre higher than in 1922. The total estimated crop for the year, in comparison with the 1922 crop, is as follows: Wheat, 469,761,000 bushels, against 399,786,400; Oats, 531,378,000 against 491,239,000; Barley, 80,357,000 against 71,865,300; Rye, 26,936,000 against 32,373,400; mixed grains, 29,090,000 against 27,707,700; Flax, 6,942,000 against 5,008,500. According to Canada the Wheat yield of the Prairie Provinces shows a heavy increase in the Alberta crop and a sharp drop in the yield of Manitoba, while Saskatchewan shows a slight increase. The total Wheat yield, by province, is as follows; Manitoba, 36,481,000 bushels; 1922, 60,0501,00. Saskatchewan, 252,622,000; 1922, 250,167,000. Alberta, 157,467,000; 1922, 64,976,000. Other Provinces, 23,191,000; 1922, 24,592,400.

Fewer Potatos.—According to the Agricultural Returns compiled by the Board of Agriculture, the total crop of Potatos in England and Wales this year is estimated at 2,756,000 tons, as compared with 4,012,000 tons last year, and 2,958,000 tons in the very dry year 1921. The average yield per acre in estimated at 5.9 tons, or 1¼ ton less than the very high figure of last year, and one-third of a ton below the average of the ten years, 1913-22. Yields are below the average in most counties, but of the chief Potato-growing districts Lancashire has the most unsatisfactory crops, the yield in that county being one ton below the average. In the Holland division of Lincolnshire and in Isle of Ely yields were only one-fifth of a ton below average.

Mr. Alexander McMillan.—Mr. McMillan, who retires during the present month after completing twenty-five years of service as head gardener to the Fulham Borough Council, has had an interesting career, his success proving the value of varied experience in different parts of the country, combined with a real love for his calling. Born at Newton Farm, Inverness, on February 15, 1849, he is the son of a farmer, who had eleven other sons. After leaving Inverness Grammar School at seventeen years of age he served three years in the extensive gardens of the late Sir W. G. Cumming at Altyre, near Forres. Thence he came to London. His first London experience was with Messrs. James Veitch & Sons, of Chelsea, after which he spent two years in the gardens of the Marquis of Zetland at Upleatham, near Saltburn, Yorkshire, and later, a similar period in the gardens of the late Marquis of Abergavenny at Eridge Castle, near Tunbridge Wells. For seventeen years he had charge of the extensive gardens at Oakley Park, Suffolk, first under the late Sir E. Kerrison, Bart., and afterwards under the latter's sister, the Rt. Hon. Lady Bateman. During this period he was a successful exhibitor of fruit, flowers and vegetables in Norfolk and

MR. ALEXANDER McMILLAN.

Suffolk, besides being a lecturer on Horticulture to the Suffolk County Council, travelling far and wide throughout the county. Leaving Oakley in 1896, he served for two or three years as lecturer and practical instructor in Horticulture to the London County Council. He was then appointed head gardener at Fulham by the old Vestry. When Mr. McMillan first went to Fulham, Bishop's Park, a tiny place, was the only public park there, but during the past twenty-five years it has been incresed to four times its original size, and another park has been laid out, besides a recreation ground. He also introduced glass, and being expert in plant culture he has made the Putney Bridge entrance to Bishop's Park a very pretty spot indeed, and one which always attracts people crossing the river from the Surrey side. One day this summer during Mr. McMillan's absence on duty, a motorist pulled up at the Putney Bridge entrance and was so enamoured of the beautiful flower beds and banks that he called a park attendant and voluntarily wrote on his visiting card: "I have been in all the London parks and this is the best of the lot." Mr. McMillan retires on a pension and regrets leaving his staff. He is settling down at Kew near the gardens "where," he writes, "I hope in my spare time to be a frequent visitor."

Bequests by the late Hon. N. C. Rothschild.—The will of the Hon. Nathaniel Charles Rothschild, J.P., of Ashton Wold, Oundle, Northampton, included several bequests of interest to gardeners. To the Royal Botanic Gardens, Kew, he left such of his collection of Orchids at Ashton Wold as were collected in New Guinea by Dr. A. F. R. Wollaston, or which represent Orchids so collected, and also any other specimens of his Orchids as may be desired as being of botanical, though not necessarily of horticultural, interest. He left his collection of Irises to his wife subject to selection therefrom by the Royal Botanic Gardens, Kew; the Edinburgh Botanic Garden; the Glasnevin Botanic Gardens, and the Cambridge Botanic Garden. The authorities of the various Herbaria at Kew, the British Museum, Oxford, Cambridge, Dublin and Edinburgh are also to have the opportunity of taking any specimens they may desire He bequeathed to the National Trust for Places of Historic Interest or Natural Beauty, whom failing, to the Society for the Promotion of Nature Reserves, his sporting rights over the Tring Reservoirs, the Fen and property in Angelsea Fen near Woodwalton, Huntingdonshire, and the Turf Farm and buildings (about 232 acres) adjoining, and if he shall have acquired it, the Ray Island property in Essex, together with a sum in the discretion of his executors, not exceeding £3,000, of which the income shall provide for the outgoings of the properties.

Appointments for the Ensuing Week—Monday, December 10: National Chrys. Soc. Floral and Executive Committees meet; United Hort. Benefit and Provident Society's meeting; Bath Gardeners' Society's meeting. Tuesday, December 11: Royal Horticultural Society's Committees meet; Jersey Gardeners' Society's meeting. Wednesday, December 12: East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting. Thursday, December 13: Heathfield and District Horticultural Society's annual meeting; Wargrave and District Gardeners' Society's meeting.

"Gardeners' Chronicle" Seventy-five Years ago.—*Slate for Gardening Purposes.*—I have no hesitation in saying that slate is the best material that can be used for gardening purposes, such as for plant stages, slabs for Mushroom houses, hothouse floors etc., in the place of flags or bricks. Its chief recommendations are durability, neatness, efficiency, exemption from fungi, and from the accumulation of filth. It is a well-known fact that in houses where much humidity is required, bricks and flags often get covered with a species of fungus, the latter particularly, and to get rid of it is almost impossible, even though washing be practised every day. No such unsightly appearances occur in houses where slates are used; a rinse over now and then is all that is required, and they are clean. I am told that slate is in use at one of the principal London bridges for steps, where it has stood for more than three years without scarcely any apparent sign of wearing, even although thousands of people weekly pass over it. Nothing has been brought forward better adapted for tanks for holding water. In this point it deserves the highest praise and will prove a lasting benefit to those who use it. It is also valuable for tubs for large Orange trees or Rhododendrons. In the conservatory here are four beautiful specimens of Rhododendron arboreum, which are upwards of thirty years of age, two of them nearly as many feet in height, and are said to be the original seedlings from the Himalayas; they are flourishing luxuriantly in slate tubs. Slate is also extensively used in aquariums and with good effects. It deserves the attention of every lover of horticulture. *Robert Cox, Exotic Nursery, Gard Chron. December 2, 1848.*

Publications Received.—*Ferns and How to Grow Them.* By J. E. Smith. The London Fern Nurseries, Loughborough Junction, S.W.9. Price 3s. 6d., post free.—*Apple Growing.* By M. C. Burritt, MacMillan and Co., St. Martin's Street, W.C. Price 4s. 6d. net.

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BULB GARDEN.

A GOOD HARDY PANCRATIUM.

AMONGST the Pancratiums, of which there are several it cultivation, the hardiest undoubtedly is Pancratium illyricum, an attractive bulbous plant and one too seldom cultivated in the open garden. It would not be fair to assert that it would withstand the winters of many parts of the midlands and North of England and Scotland, but there are several mild districts, especially near the sea, where this plant would flourish and increase. It is a good plant in every respect, sending up from among its attractive leaves a stout stem which bears at its summit a number of fair-sized white flowers. These, in addition to the beauty of their form and colour, are also deliciously fragrant.

This species is considerably hardier than P. maritimum or P. littorale, which are probably more resistant to our winters than most others, but even these cannot be reckoned worth growing in the open, because of their tenderness. On the contrary, P. illyricum does not always even require the covering of litter or ashes which is recommended for it.

Planted about six inches deep in light, loamy, well-drained soil it will withstand the severity of an average winter, in all seaside districts at least. I know of one famous Scottish garden where this Pancratium has been established in the open for years, and where it receives no protection whatever. It is best planted as soon as the leaves decay in autumn. Offsets may be taken off at that time, and some recommend lifting and replanting the bulbs every three or four years, yet this seems unnecessary where they are doing well.

ALLIUM TRIQUETRUM.

GARLICS, beautiful as many of them are, never gain high favour in the garden. The odour which some of them possess and emit in a pronounced way, is not agreeable in the garden. Yet, the Alliums include some pretty plants, a proportion of which are not so lavish with their odour as to be offensive. This is true of Allium triquetrum, which in the garden is practically odourless, except when touched or bruised. It is not a plant that one would commend for cutting for the home, pretty as it looks when in a small vase.

It is of most value in groups in the border or large rock garden, while it has also been employed with advantage in grass and in the wild garden.

The plant grows about one foot high, more or less, according to the nature of the soil, and has rather pretty and curious triangular stems, and drooping white flowers in considerable numbers.

This Allium increases fairly freely from self-sown seeds and offsets, but is not so pervasive as some of its allies. Bulbs may still be procured and planted at a depth of about two inches. The plant will thrive in sun or shade, and is not fastidious as to the nature of the soil, being satisfied with any medium of reasonable texture. *S. Arnott.*

THE CHINKERICHEE.

RARELY does a year pass without one or more spikes of the Chinkerichee arriving at the offices of the *Gard. Chron.* Usually the spikes are sent by some visitor to South Africa to a friend in the British Isles, and the latter sends along a specimen for identification, accompanied by an expression of wonderment that flowers so beautiful should survive the long journey in a postal package and that new flowers should appear on the spikes for a considerable period when the stems have been newly cut and placed in water. In most instances the flowers are those of the Chinkerichee — Ornithogalum thyrsoides — but sometimes spikes of O. lacteum are received. On occasion baskets of these Ornithogalum flowers have been exported from South Africa, and during the past week at least one salesman in Covent Garden has exposed such flowers for sale.

At the meeting of the Royal Horticultural Society, held at Vincent Square on November 13, Miss I. E. Wright, of Kayhough, Kew, exhibited a bowl of flowers of O. thyrsoides and O. lacteum; she received the spikes from South Africa on October 22, after they had experienced a voyage of three weeks in cold storage. The accompanying illustration (Fig. 119) is from a photograph of these same flowers taken on November 21, when they were still fresh and appeared to be well able to continue in good condition for some time to come. Both O. thyrsoides and O. lacteum are in cultivation in this country, and though not often seen there are obvious and good reasons why the cultivation of these bulbous plants should be taken up by amateurs. Although the popular title of Star of Bethlehem is usually assigned to Ornithogalum nutans, this name is also applied to O. thyrsoides in South Africa. Yet another title is that of Viooltje, but this is not so commonly used as Chinkerichee, which is but a slight variant on the "Tinterintjes" of Thunberg's time.

FIG. 119.—SPIKES OF ORNITHOGALUM THYRSOIDES AND O. LACTEUM IMPORTED FROM SOUTH AFRICA.

THE ROSE GARDEN.

INTERESTING ROSES IN A UNIVERSITY GARDEN.

THE Annual Report of the Botanic Garden Syndicate, Cambridge, states that Major C. C. Hurst during 1922-1923 has been doing research on the genetics and cytology of Rosa. He has found a number of distinct forms in the Botanic Garden. Two of these are apparently new to science, and several seem to be the original types of specimens of Lindley and others. Of the two new forms one is a pentamerous R. sericea Lindl., from the Western Himalayas. It differs from the ordinary forms in having, as a rule, five petals and sepals instead of the four peculiar to the species of the section Sericeae, Crepin. Genetically this is an interesting example of meristic reversion to the ordinary type of the species of the other sections of Rosa. Steps have been taken to "bag and self" a number of flowers of this plant in order to ascertain its genetic composition. This plant is growing at the north-west entrance of the rock garden, and has been named provisionally R. sericea, Lindl., f. pentamera. The other new form is apparently a spontaneous hybrid between the Himalayan R. sericea, Lindl., and the Chinese R. Hugonis, Hemsl. This hybrid has the yellow and pentamerous flowers of R. Hugonis with the habit of growth and the glandular leaves of R. sericea. A detailed analysis of 50 taxonomic characters of the hybrid shows the dominance of R. Hugonis in 23 and the dominance of R. sericea in 19. The remaining 8 characters are intermediate between the presumed parents. The hybrid was found growing in the middle of an extraordinary free-flowering bush of the Himalayan R. sericea, Lindl., which on account of its habit Major Hurst has distinguished as R. sericea, Lindl., f. floribunda. This bush is growing in the middle of the collection of Rosa species, between the Middle Walk and the east side of the Pond. In view of the position of the hybrid, it is not unlikely that R. sericea floribunda was the mother parent. The presumed father parent, R. Hugonis, is growing a few yards away. This year it was observed that at the time these two species were in flower together, they were constantly visited by the larger kinds of bees, so that there was every facility for cross-fertilisation. In order to test the postulated parentage of this hybrid crosses between these two species have been made artificially, both ways. Attempts have also been made to breed the F_2 of this hybrid by selfing and back-crossing it with its presumed parents, which, if successful, should yield results of genetic importance. It is proposed to name this new hybrid R. cantabrigiensis. If the above parentage is confirmed experimentally the hybrid will be not only a specific one between R. sericea, Lindl., and R. Hugonis, Hemsl., but also a sectional hybrid between Sericeae, Crepin and Pimpinellifoliae, DC.

THE BEST ROSES IN AMERICA.

ONE of the largest growers of Roses in America for cut blooms considers the variety Premier the most profitable and grows 100,000 plants of it. Columbia comes next, and Mme. Butterfly third in quantity, 75,000 plants of the former being grown. Milady and Crusader are the red sorts cultivated by this firm, whilst of white varieties White Killarney and White Ophelia are grown, the latter proving very good. Mrs. Aaron Ward, Phantom and Cecile Brunner are varieties cultivated for their small flowers.

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, late Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Cypripedium.—Many plants of this most useful genera are past, or nearly past, their flowering period, and the plants, unlike those of other families of Orchids, may be repotted at any season. Those that require repotting should be attended to as soon as possible, and one of the first to be done is the lovely Cypripedium insigne Sanderæ. Those plants, the stock of which it is desired to increase by division, should have the old material carefully picked out, to see where the rhizome may be best cut through. Care should be taken with the roots, but even with the greatest care some will be broken. Plants that are not to be divided may be potted on, should their centres be quite sound and well filled up, but if the centres are weak they should be picked to pieces, the old dead rhizome cut away, the portions placed together again and potted in the same-sized pot. I do not favour the use of too much loam for these Orchids, as I find they develop more freely and produce finer flowers when grown in a more open compost. The rooting-medium I recommend for green-leaved Cypripediums consists of equal parts peat and A.I. fibre, with live Sphagnum Moss, well mixed together, with a small quantity of the best fibrous loam carefully placed in the lower layers; if it is placed near the surface the loam is likely to become dry and hard. These plants, unlike many Orchids, require a reasonable amount of pot room, and are so easily grown that they are to be recommended to anyone who can give them the requisite temperature. Cypripedium plants that have been newly potted should be thoroughly cleansed, placed at a warmer end of the house, and watered with extreme care. The compost for potting should be neither too wet nor too dry, and should be warmed to the same temperature as the house before it is used. Light sprayings overhead will be beneficial to the plants on all favourable occasions, and assist them greatly in becoming re-established.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Wolverstone Park Gardens, Ipswich.

Early Vines.—Where it is desired to have ripe grapes in May, the vinery should be closed forthwith, if the necessary work of pruning, etc., has been completed. If this has been done no further operations are required beyond examining the borders to ascertain if they require soaking, and if so give the soil a good watering with clear water warmed to about 80°. In the early stage the vines should not be unduly forced; a night temperature of 50°, and a day temperature of 55° to 58° will suffice until the buds are swelling freely, when both the night and day temperatures may be a few degrees higher. Thoroughly damp the rods once or twice daily according to the weather, and promote a moderately moist atmosphere by damping the paths and other bare spaces. Admit air when the weather is favourable, to sweeten the atmosphere of the house. When the buds are swelling freely and evenly the young canes which have been tied down should be attached to the trellis. If the borders are out-of-doors they should be covered, preferably, with mild fermenting materials, and this in turn should be covered with spare lights, wood shutters, or other material, as a protection against snow and rain. Failing this, cover the border with a thick layer of Oak or Beech leaves, and on top of the leaves place a few inches of long stable litter, or dried Bracken Fern, to prevent the leaves from being blown away.

Strawberries.—If early berries are required, a batch of plants should be started this month. In most cases, a special Strawberry house is out of the question; an early vinery just started is, however, suitable for the purpose. If there is a mild hot-bed in the house the plants may be placed over it, preferably on trellis-work as, by leaving a space between the fermenting material and the pots, there is less danger of the plants being unduly hastened into growth. It is essential that growth should be steadily maintained from the start to obtain stout, healthy foliage and strong flower spikes. As soon as growth becomes active, the plants should be removed to a position near the roof-glass, either in an early vinery or early Peach house. Before taking the plants indoors remove any partially-dead leaves, mossy growth, and weeds. It is advisable to dip the foliage in an insecticide. Ram the soil firmly around the edge of the pots, if it is not too wet, otherwise defer the operation until the soil is in a more suitable condition. Ascertain that the drainage is perfect and, if worms are troublesome, water the soil with clear lime-water; this will clear out the worms and benefit the plants at the same time. Watering should be done with great care during the early stage of forcing.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL Ampthill Park, Ampthill, Bedfordshire.

Helleborus niger.—Where the flowers of this plant are appreciated for indoor use the old-time plan of covering a few clumps with glass to keep the flowers clean should be adopted. In the case of a few odd plants, a large piece of glass fitted in niches cut in four strong sticks and arranged over the clumps will suffice, but requirements on a larger scale are best met by placing a hand-light or movable frame over several roots. Fresh air circulating about the plants is necessary at all times, except in frost-bound days. The Christmas Rose responds well to gentle forcing but lifting and forcing the plants is unnecessary if the method described above is followed. A good place for planting Helleborus is among hardy Ferns under the shade of trees, the lower branches of which have been removed so that the shade is not too dense.

Fruiting Crabs.—Notwithstanding the great ornamental value of these trees, their merits do not meet with the recognition in gardens which is their due. In my opinion the decorative value of the flowers in spring and of the fruits in autumn easily eclipse that of some of the more widely-planted flowering shrubs. These Crabs are equally free in fruiting as in flowering, and the inclusion of a few specimens in any garden cannot be other than a perennial source of pleasure, and also of utility if the fruits are used for the making of Crab-Apple jelly. The planting of these trees may be done now, and an open space in the woodland or pleasure ground, or the back of large flower borders suggest themselves as suitable sites for planting. The varieties John Downie and Dartmouth should be included in a collection of the best sorts.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Stephanotis floribunda.—Where this sweet-scented climber is grown the present is a suitable time to thin the plant of weak or old shoots that are not required. At the same time cleanse the plant thoroughly if it is infested with mealy bug.

Clivia.—Plants of Clivia that have been kept in a cool house and fairly dry at the root, will now respond to gentle warmth. A portion of the stock may be placed in a house having a temperature of 55° to 60°, giving the plants more water at the roots than hitherto. Well established plants with plenty of roots will be benefited by frequent applications of diluted liquid manure or soot water. Clivias succeed very well planted out in beds or borders in a cool conservatory.

Eucharis grandiflora (syn. amazonica).—This beautiful stove plant was at one time common in gardens, but is now seldom cultivated. Plants that have been rested in a house having a low temperature and kept somewhat dry at the roots, may now be introduced to a warm house, affording them more water at the roots, and, if possible, plunging the pots in a hot-bed. This plant needs a very warm temperature, but at this season 65° to 70° is sufficient warmth. When in good condition the Eucharis should be fed liberally with liquid manure, which will give strength and substance to the flower scapes. This plant is often reputed to be difficult to cultivate successfully; failure is usually due to exhaustion by over-flowering and drying off the plants too severely. The plant is an evergreen, and if a rest is considered necessary, it is best given by keeping the plants slightly dryer at the roots and growing them in a slightly lower temperature. The Eucharis succeeds very well when planted out in beds, with bottom heat at command. They are subject to attacks of mealy bug and thrips, and should be kept clean of these pests by sponging them on frequent occasions. Other beautiful and desirable species are E. candida, E. Sanderi, E. subdentata and the hybrid E. Stevensii.

Hydrangea paniculata var. grandiflora.—This hardy Hydrangea is very useful for growing in pots, as it may be had in flower during the late spring and early summer. To obtain the best results, young, strong-growing plants are essential. They should be potted forthwith to allow time for them to become established at the roots before they are taken indoors for forcing. After potting they should be stood out-of-doors, plunging the pots to their rims in ashes or packing around them with hay. As the plants produce their flowers on the ends of the current year's growth, they should be pruned hard back when they are introduced to the forcing house. They are best brought on slowly in an intermediate temperature of about 50°.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Asparagus.—This vegetable forces readily, and, although the stems are not so good flavoured as those cut from the open beds, they are very acceptable at a time when fresh vegetables are scarce. Heated frames may be used for the purpose, if desired, but frames over hot-beds made of leaves and stable litter are preferable, as the warmth from these fermenting materials is accompanied by plenty of moisture. The materials should be well mixed, two parts of leaves to one of litter, and well trodden as the bed is formed. Allow a space of about two feet around the outsides of the frames in order to have room for placing fresh manure and leaves as linings to conserve the heat. Place a little rough material in the frames, and, on this, spread three or four inches of old potting soil mixed with fresh loam, and then place the Asparagus roots evenly all over the surface, just touching each other. Cover the plants with about four inches of fine soil and press them down lightly. Water the plants with tepid water, using a rosed can, then place the lights in position, and keep the frame close except on bright mornings when a little air should be admitted. The warmth from the bed should be allowed to decline before placing the crowns on the soil. The condition of the hot-bed may be determined by using a plunging thermometer, or a stick will answer the purpose. If examined every day, one may soon determine when it will be safe to plant. Very little moisture will be needed by this method of forcing, but if a heated frame is employed, it will be advisable to damp the surface of the bed with a syringe each afternoon, and especially in parts near to the water pipes.

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Plants in Frames.—Attend closely to Lettuces and Endive growing in frames, admitting air on all possible occasions. Damp will do most damage now, therefore do not water the plants unless moisture is necessary, and then only on bright mornings when the weather is not excessively cold. Even in severe weather, a little air should be admitted some time during the day to counteract excessive damp. Autumn-sown Cauliflowers that are being wintered in frames should be well protected in the event of severe frosts, and given air whenever possible. Keep the surface soil stirred between the plants, and water the plants sparingly.

General Remarks.—Endeavour to get as much ground dug or trenched as weather permits, as it is very helpful to have so much of this kind of work done as possible before the New Year. In frosty weather ground to be trenched may be covered with a good thickness of stable litter to prevent it becoming too hard to dig. On no account should snow be dug in. In bad weather much may be done to relieve pressure of work later. Pea and Bean sticks may be sharpened and sorted into different lengths; labels of different sizes made, and all tools examined and well cleaned and greased. Each member of the staff should have his own tools, and be responsible for their proper upkeep. Boxes may be made for pricking out seedling vegetables.

HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

The Training of Fruit Trees.—Fan-trained trees are usually of three types, those having a stem 5 feet to 6 feet tall, or they may have stems 3 feet high, and those which have radiating shoots starting about 1 foot from the ground. Peaches, Apricots, Plums, Cherries and Nectarines are trained in this form. Espalier, or horizontally trained trees, may also have a long stem with three or more tiers of shoots trained horizontally; cordons may have from one to five main stems. These, and especially the toasting-fork type, are very useful for growing on wire fences. The oblique single cordon is also useful for this purpose; Pears are often grown under this system of training. In gardens of restricted areas espalier and cordon Apple and Pear trees are the most useful, and these types of trees are valuable in larger gardens for growing on walls and fences. In large gardens the bulk of the Apple trees should be of bush form in a plantation by themselves and not dotted over the garden. The gridiron or fork-shaped method of training is suitable in the case of Gooseberries and Currants when trained on walls. The usual distance at which Apples and Pears are planted is 12 feet by 12 feet, but for Apple Blenheim Pippin the distance should be increased. If on the crab stock, large-growing varieties should have a distance of 18 feet by 18 feet. These may include Bramley's Seedling, Newton Wonder, Bismarck, Warner's King, Prince Albert and Lord Grosvenor. If Cherries are grown in bush form, the trees should be planted together where protection from birds, in some form, can be provided. Pyramidal-shaped trees are not often planted; this style is usually adopted in the case of Pears. Figs are usually fan-trained, and are only suitable for growing on warm walls. Notwithstanding Figs will grow in almost any kind of soil, the ground should not be very rich or the trees will make too much wood growth. The rooting medium for Figs should be restricted and the soil about their roots made very firm. The object is to obtain short-jointed, well-ripened shoots.

Orchard Trees.—Orchard trees are usually of standard form. Their pruning consists in thinning out the branches, to let in air and light; all growths that cross others should also be removed, and all saw cuts pared smooth with a sharp knife and the surface painted with gas tar. The removal of large trees with a ball of soil may be undertaken at any time when the weather is open.

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM BERYL.

MR. W. J. STABLES, gardener to Clive Cookson, Esq., Nether Warden, Hexham-on-Tyne, sends a flower of this beautiful cross between O. Uro-Skinneri splendens and O. Amethyst, flowering on a plant acquired at the dispersal of Mr. Phillip's seedlings. It was first flowered and named by Messrs. Charlesworth & Co. The flower, which adheres closely to the O. Uro-Skinneri parent, but is on a much larger scale and darker in colour, has the sepals heavily blotched with dark claret-purple, the petals being densely spotted with a lighter tint. The broad front of the lip, which is circular in outline, has a white ground closely spotted, like the petals, with mauve-purple, the base having a prominent yellow crest on a purple ground. The column is white with purple markings. It is one of the darkest and best of the O. Uro-Skinneri crosses.

ODONTOGLOSSUM CRISPINDIA.

C. J. LUCAS, Esq., Warnham Court, Horsham (gr. Mr. Duncan), sends a first flower of a cross between O. crispum var. Rossendale and O. Empress of India, which promises to develop into a very distinct, large-flowered Odontoglossum of the lighter-coloured section. The flower is nearest to the crispum parent; the ground is white with red blotches and a cluster of purplish lines in the middle of the petals. The lip is white, crimped at the margin and has rose-purple spots round the yellow crest.

FIG. 120. THE BAYLEY BALFOUR MEMORIAL GARDEN: VIEW IN THE LOWER PART OF THE ESTATE (SEE PAGE 336).

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EDITORIAL NOTICES.

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Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury*

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MEMORIAL TO SIR ISAAC BAYLEY BALFOUR.

DURING his thirty-four years' tenure of the office of Regius Keeper of the Royal Botanic Garden at Edinburgh, the late Sir Isaac Bayley Balfour won the respect and regard of so many individuals that a spontaneous desire to honour his memory made itself evident soon after his death.

As often happens at such times, suggestions were mooted for memorials of various kinds, and there were not a few who felt that the Edinburgh Botanic Garden itself afforded as appropriate a monument as could be found to the distinguished savant who made it what it is to-day. As, however, there are obvious difficulties in permanently linking the name of a particular Director with a National Garden, some other form of memorial had to be sought. Proposals were made for an architectural monument to be placed in the Inverleith Garden; for a triennial lectureship on the lines of the Masters Memorial Lecture Fund, administered by the Royal Horticultural Society; and for the foundation of a scholarship at Edinburgh University.

Sir Isaac Balfour's views on the subject of architectural monuments precluded the adoption of any proposal of the kind, and it seemed doubtful if either of the other proposals would be of sufficiently tangible character to command wide support. In these circumstances, a happy solution of the difficulty has been proposed by some of Sir Isaacs' friends, and the more appropriately, because it will bring to fruition a scheme he himself suggested some years ago. It is nothing less than the enclosure and consecration to Sir Isaac Balfour's memory of an area in a wild but accessible district, where the natural Orders of plants in which he was more particularly interested, may be grown in a natural way. Sir Isaac's interest in the botanical explorations which have been going on in Western China and the confines of Tibet for more than twenty years, and the brilliant service he rendered to botanical science and practical horticulture in the enumeration and classification of the results of those explorations are well known; but it is not so well known that several years ago, when he realised the almost illimitable extent of the mountain flora of Western China and particularly of the Rhododendron genus, which was—and still is—in process of discovery, Sir Isaac conceived the idea of forming a plant sanctuary or reserve in some district where the flora in question could be grown under wild conditions, not, of course, approximating to those of their native land—for that is impossible—but as favourable to them as we can hope for in Great Britain.

Sir Isaac realised better than most the limitations of space, climate, and soil imposed upon the cultivators at the Inverleith Garden, and was aware that there are areas on the west side of Scotland where those limitations are profoundly modified, even if they exist at all. When he first conceived the idea, the pre-occupations of the War compelled him to lay it aside, but it was seldom out of his mind, and some years ago he revived the project and had gone so far on the road towards the execution of it, as to examine the suitability of more than one area, and to interest a few friends in it.

By that time, however, his over-taxed strength was failing him and he found himself unable to take further official part in the scheme. But the seed he had sown bore fruit, and though he never lived to see the fulfilment of the project he had so much at heart, it gave him unfeigned satisfaction to learn from the Forestry Commission, soon after his retirement, that subject to arrangement with the Office of Works, the Department responsible for the administration of the Edinburgh Botanic Garden, the Commissioners proposed to place at the disposal of his successor an area in Glenbranter Forest which it was thought would meet the requirements he had laid down. It is this area, which, thanks to a happy inspiration, it is now proposed to dedicate to Sir Isaac Bayley Balfour's memory. To the end Sir Isaac took a keen interest in the Commissioners' plan, and assuredly nothing could have pleased him more than to know that his suggestion of a sanctuary for Western Chinese plants was about to be carried out.

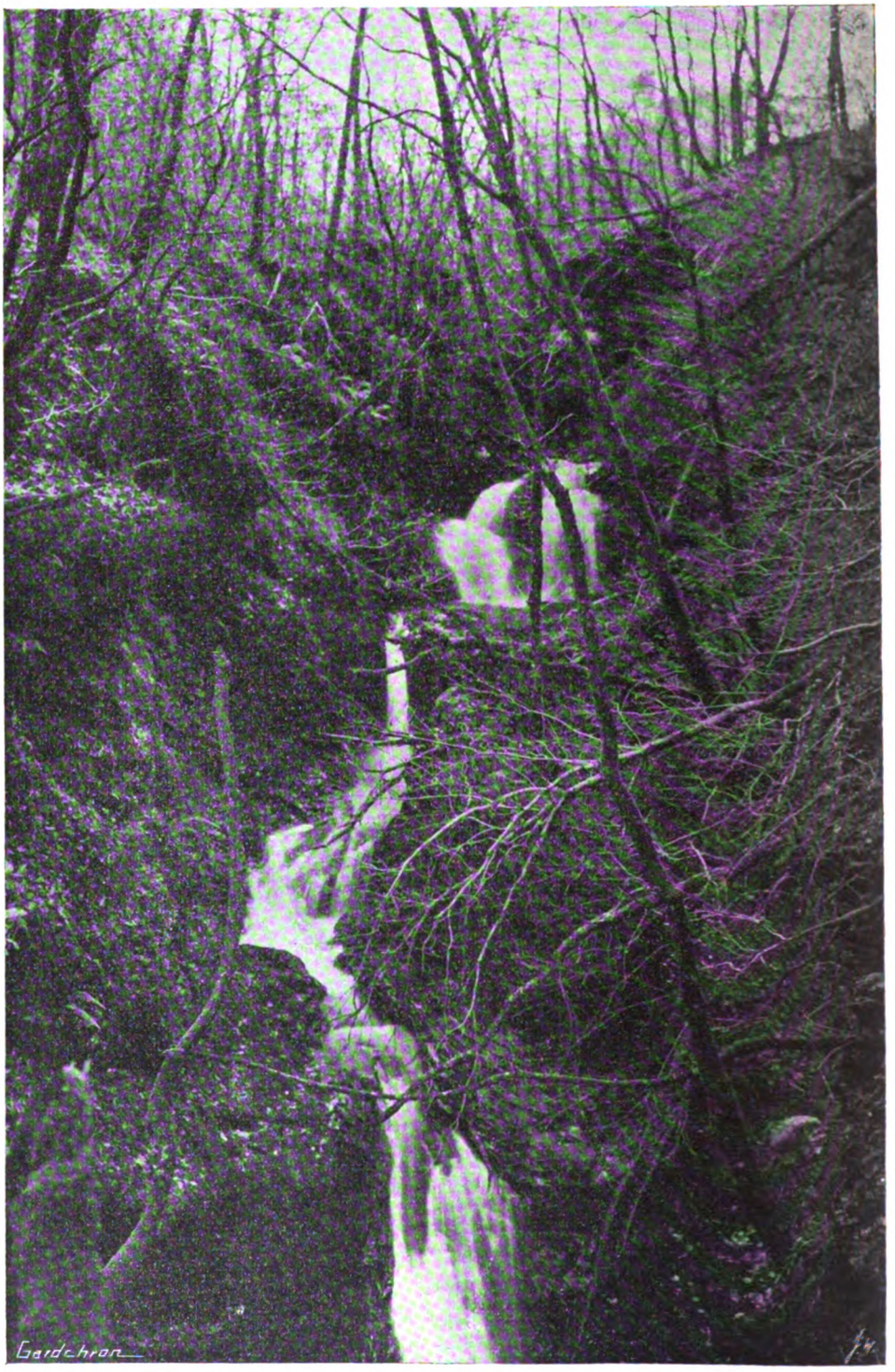

FIG. 121. THE BURN IN THE BAYLEY BALFOUR MEMORIAL GARDEN AT GLENBRANTER.

Sir Isaac always held that the Reservation, as we may call it, should be worked in conjunction with the Edinburgh Botanic Garden, the latter being drawn upon for the raw material in the shape of plants and the skilled superintendence necessary for their arrangement, planting, etc. The Reservation in turn would provide the Regius Keeper and the Forestry Commission with a valuable testing ground, and at the same time furnish students and the cause of botany and horti-

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IXORA MACROTHYRSA

(Native of South Sea Islands. Nat. Ord. Rubiaceae).

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culture in general with first-hand information such as could hardly be obtained elsewhere in Great Britain, at any rate, in a ring fence.

It is satisfactory to know that Sir Isaac's successor in the office of Regius Keeper, Professor Wright Smith, considers that the proposed site of the Bayley Balfour Memorial Garden is admirably adapted to the purpose, and that his opinion is shared by Sir Isaac's old pupil, Mr. George Forrest, whose epoch making pioneer work in Western China will provide Glenbranter with material for years to come.

The total acreage of the area it is proposed to allocate to the Memorial is about fifty. In one part of it, a burn has cut for itself a gorge through which the water cascades into boiling "cauldrons" (Fig. 121). On each side of the gorge is a thin Oak wood (Fig. 120), providing an ideal situation for many of the Chinese Rhododendrons, and there could hardly be a more happy home than the banks of the

FIG. 122. GLENBRANTER: VIEW FROM THE UPPER PART OF THE BAYLEY BALFOUR MEMORIAL GARDEN, LOOKING SOUTH, ACROSS GLEN SHELLISH, TO BEINN BHEAG (2,029 FEET).

burn for many of the Primula family of which Sir Isaac Balfour was master. The ground is true forest soil, with a generous accumulation of humus; and here and there deposits of peat. The climate has the mild humidity so characteristic of the atmosphere of the west coast of Scotland, and frosts are rare. As is clear from the accompanying reproductions of splendid photographs made by Sir John Maxwell, who has done so much to bring the Memorial garden into shape, Glenbranter is set amid magnificent scenery (Fig. 122), and it would be difficult to find a site more entirely appropriate to the objects Sir Isaac Balfour had in view.

Glenbranter is about fifteen miles north of Dunoon on the Clyde; it is between Loch Goil and Loch Fyne, and lies a little to the north-west of Loch Eck. It is easily reached from Dunoon, or one can go to it by road from Glasgow via Arrochar, at the head of Loch Long.

It is hoped to erect a modest rest-house for the use of students and others interested in the genera growing in the area, to furnish it with a small library of botanical books of reference and to place in it a simple memorial tablet to Sir Isaac Bayley Balfour.

Sir Isaac Balfour probably did more than any other man of his generation in the cause of botany and horticulture. His Masters Memorial Lecture, "Some Problems of Propagation"—a classic of its kind—has brought light to many who were groping in the dark over the interesting problems the author illuminated in his famous paper. His insistence on the principle that it is the duty of the director of a national garden to assist the practice of horticulture to the best of his power, and his broad-minded application of the principle during his reign at the Edinburgh Botanic Gardens, were of immense practical service to professional and amateur gardeners all over the country. A more generous giver could hardly be conceived, nor a more accessible holder of a public office. There can hardly be many persons seriously interested in botany or horticulture who, at one time or another, have not derived pleasure or benefit from Sir Isaac Balfour's work. They will assuredly welcome the opportunity of paying a tribute to his memory by helping on what is certainly the most appropriate kind of memorial imaginable—Glenbranter.

DR. GORDON OF BIRNIE.

THE *Northern Scot and Morayshire Express* for April 20 of this year contained an account of a dedication ceremony held in the Birnie Parish Church, for the purpose of perpetuating the memory of the late Rev. George Gordon, LL.D. Students of botany interested in the flora of the northern counties of Scotland will remember Dr. Gordon as the author and compiler of a little book of some fifty pages, popularly known as the *Flora of Moray*, but having on its title page the following inscription. "Collectanea for a Flora of Moray; or a List of the Phænogamous Plants and Ferns hitherto Found Within the Provence. Elgin. Printed by Alex. Russell, Courant Office, 1839."

The Horticultural Directory and Year Book for 1923, refers to the time when this Flora appeared as "the dawn of what is commonly termed the scientific age," and we have only to read the following paragraph from the descriptive preface, written perhaps twenty years before Charles Darwin's name was publicly identified with the science of evolution, to admit that Dr. Gordon already understood tha environment had some definite influence on the origin of species:—

Dr. Gordon is dealing with the Meadow Oat-grass, and writes, "In a few spots within the Provence such as Craighelkie, near Gominloul, where the beds of limestone subordinate to the primary stratified formations crops out, there is occasionally to be found several species of plants whose range is evidently circumscribed within the influence of the calcareous soil. Avena pratensis seems confined to soils of this nature, changing its habit as the proportion of their ingredients differs; where there is a superabundance of limy matter the plant often assumes a glaucous and rigid appearance, which has probably originated the A. alpina, and causes it still to hold a place as a distinct species."

There are 724 species in the catalogue of Moray plants, of which "sixty-five are doubtfully native and seventy certainly introduced." Arranged in the artificial classification of Linnaeus, the system then in use, but as showing that botanical taxonomy was undergoing a change, they apperr further on in the book generically grouped in almost the same sequence as in the Natural System of the present day.

In 1839 there were growing in Morayshire the following plants of interest to horticulture:—at the Castle of Old Duffus, Parietaria

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officinalis, Anchusa sempervirens, Berberis vulgaris, Prunus domestica, Arum maculatum; Humulus Lupulus and Scolopendrium vulgare, Elgin Cathedral had Verbasum Thapsus; Cheiranthus Cheiri, and Malva rotundifolia, at Spynie Castle were Hordeum murinum; at Pluscarden Priory, Papaver somniferum; at Kinloss Abbey, Atropa Belladona; at Drainie Manse was Datura Stramonium and in the Churchyard Carduus acanthoides; on a wall near Greyfriars, Elgin, was Sedum reflexum; at Innes House grew Euonymus europaeus, and at Gordon Castle and its vicinity, Ligustrum vulgare, Epimedium alpinum, Pulmonaria officinalis, Symphytum tuberosum, Galanthus nivalis, Narcissus Pseudo-Narcissus, Convallaria majalis and C. multiflora, Spiraea salicifolia, Meconopsis cambrica, Hieracium aurantiacum, Euphorbia dulcis, and Salix Russelliana, and on the garden wall Linaria Cymbalaria. The "doubtfully native" but highly-poisonous Conium maculatum was common in the churchyards of Spynie, Duffus, and Drainie.

As showing the interest taken in what might be called practical field botany, of the thirty or so names of those associated with Dr. Gordon and who are given credit for collecting particular species, ten of them were men of university education, seven ministers, and two doctors. With his personal knowledge of the climate, he claimed that "In Moray there are examples of all the Regions described in the *Geography of British Plants*, whether tested by its temperature or its plants (indigenous or exotic)." In his opinion, the Flat, or How, of Moray is in every sense the "Region of the Plains," and, no doubt, it is this same "Region" to which a correspondent of *The Gardeners' Chronicle* of July 28 refers when he singles out the Moray Firth as one of the "relatively mild" and "specially favoured districts" of the east Coast of Britain.

At the dedication service referred to, a brief reference was made to Dr. Gordon's high standing in the field of science, and it has occurred to me that readers of *The Gardeners' Chronicle* might be interested in him and this little book which has now seen eighty-five years of useful service. *George Fraser, Ucluelet, British Columbia, Canada.*

INDOOR PLANTS.

THREE GOOD COOL GREENHOUSE CLIMBERS.

I have often been asked for a list of the best climbers for a cool greenhouse or conservatory. There are few plants that are sufficiently robust to withstand the deleterious atmosphere in gardens in close proximity to large towns, yet a few evergreen climbers are suitable for the purpose. These are grown for their foliage alone, and may be highly recommended provided the temperature of the house does not fall below 35° to 40° in winter. Amongst them is Vitis (syn. Cissus) antarctica, and Vitis (syn. Cissus) rhombifolia. Although now classed with Vitis, Cissus is the title best known to most gardeners. There are not many species of Cissus that have any pretension to beauty suitable for cool treatment or for decorative purposes with the exception of the two mentioned. C. discolor, a free growing species with purplish leaves that are beautifully marked with white, and shaded pink, needs a stove temperature, and is not a success in a cool house. These two cool-house species were in great demand during the seventies and eighties of the last century and were grown largely for decorative purposes, for furnishing the pillars and rafters of cool greenhouses. They were also much used for house decoration, for screening fire-places, etc., as the foliage remains fresh and bright over a very long time, but of late years they seem almost to be lost to cultivation and forgotten. They are both of the easiest culture and cuttings formed of half-ripened shoots root freely in a hand-light or frame with slight bottom heat. During the summer the plants may be grown with scarcely any fire-heat; they should be kept shaded from the bright rays of the sun, and given plenty of moisture. As pot specimens they make useful decorative plants, and when planted out they grow so freely as to soon cover bare walls and pillars of cool greenhouses. There are few evergreen climbers more suitable for withstanding fogs. C. antarctica is a most useful species; it is a quick-growing, ornamental, evergreen climber or twiner. C. rhombifolia is distinct from C. antarctica; the trifoliate leaves are dark green and of graceful habit; it is a fine decorative plant and most distinct. Both species are admirably adapted for situations where vigorous climbers are required. The flowers on each are inconspicuous. Both may be grown into handsome specimen plants by placing two to three plants in a large receptacle and training the shoots upright on strong sticks or poles; they will soon form good specimens and may be placed in any vacant position with good effect either in the conservatory or dwelling house. The most suitable soil for these plants is a mixture of good turfy loam, leaf mould or fibrous peat, and silver sand added. Both species are quite exceptionately immune to attacks by insects. Syringing them two or three times daily is beneficial during the summer. When well rooted and growing freely the plants need liberal supplies of water, and plenty of drainage should be provided to prevent the soil becoming sour.

Another beautiful evergreen climber not often met with at the present day is Ruscus androgynus. This is an elegant, quick-growing climber, most suitable for growing in a large greenhouse or conservatory, and one of the most useful plants for covering rafters and roofs of a large house. It forms masses of lustrous, bright green foliage, and is of rapid growth, especially when planted out in a cool, moist part of the house and kept shaded from the direct rays of the sun. When planted permanently in a large house, strong specimens should be selected and set in a hole 3 feet to 4 feet across and about 3 feet deep, with plenty of drainage material in the bottom of the hole. Remove the unsuitable soil and substitute a mixture of good, turfy loam and fibrous peat or leaf mould in equal parts with silver sand added; manure is not necessary. The plant does well if afforded similar treatment to that given to Lapageria rosea. The error of deep planting should be guarded against. Cover the crown of the plant with about 3 inches to 4 inches of soil, and water the roots freely during the summer, when the plant has started into growth. A beautiful specimen of this plant grew for many years in the corridor to the King's Road entrance to the Royal Exotic Nursery, Chelsea, against the wall in a shady position, and was the admiration of visitors on account of its neat growth and dark green foliage. The plant was given very little attention, and often during the winter the temperature of the corridor fell to freezing point. The plant produces its flowers and fruits on the leaf-like expansions of the stem. It thrives fairly well out-of-doors in warm and sheltered situations where it is protected from severe frost. *John Heal, V.M.H.*

BIGNONIA GRANDIFLORA.

This plant (see page 273), is quite hardy on a south wall as far north as Belvoir Castle, Grantham, but it does not flower there every year. Like some other flowering shrubs, this Bignonia flowers on wood of the current year's growth, which needs to be produced early and well ripened. There are many places south of London where it would succeed in warm summers. The finest plant I have seen was growing at Andover, in the hot and dry summer of 1921. It was trained roughly over an old shed and was nearly twenty feet across. The roots were restricted but were near the bed of a stream and had not suffered from the drought. The plant was almost covered with the beautiful flowers and formed one of the finest specimens of flowering shrubs I have seen. *W. H. Divers, V.M.H.*

HARDY FLOWER BORDER.

THE CHRISTMAS ROSE.

Although Helleborus niger is perfectly hardy it is best to give the plant a little protection before the flowers open. This may take the form of a cold frame placed over the plant and the lights may be placed in position when much rain or frost is expected. A single plant may be covered with a bottomless box, with a sheet of glass placed on the top of the box each night; and in very cold weather a mat should be used, removing this early the following morning.

The Christmas Rose resents root disturbance, but where there is ample stock a few plants may be potted in November to produce extra fine flowers for Christmas decoration. After these pot plants have flowered they may be broken into pieces with about three leaves attached to each to increase the stock. Planted eighteen inches apart each way, they will grow into large clumps.

The Christmas Rose requires a deep, rich, loamy soil, and one containing plenty of leaf-mould and well-decayed manure. It always pays to form a special bed on the north side of a hedge or wall that may be covered easily with a frame or handlight in winter.

The plants are also very effective in clumps in a sheltered part of the garden, or when grown in woodland borders.

They should be top-dressed annually with decayed manure and given plenty of water in dry weather.

Helleborus niger is the best known species, and bears white flowers from December to March. H. juvernis has very fine white flowers, and blooms during the same period, but is not so hardy as the former.

The Lenten Rose is often confused with the Christmas Rose, but the flowering period of this plant is from January to April. There are several kinds including H. atrorubens, deep purple; H. caucasicus, pale green, and Duchess of Cleveland, rose-lilac. *W. Miller, Warley, Essex.*

THE MIXED FLOWER BORDER.

A charming flower border is one composed of the various sections of flowers—perennials, biennials, annuals, fibrous and bulbous. It may be of any size, long or short, narrow or wide, and according to these dimensions, furnished with suitable plants, a narrow border asking for plants of dwarfer habit than those of a wide border. Hollyhocks and other tall plants which add to the dignity and good effect of the latter are quite unsuitable for the other.

A vast amount of pleasure may be obtained from a border of this kind, if arranged so that a choice selection of spring-flowering plants commences the year, and is followed on until latest autumn, with the added pleasure of a changing group of colours, as for instance, of yellow, blue and red in spring, blue in the time of Delphiniums, yellow again later, and a change to shades of rose, mauve and white later still. There is, in fact, no end to the combinations that with forethought may be worked out.

But one must be careful in the choice of material, of which there is probably an over-abundance, and, moreover, in the case of choice annuals, one must be sure that the colours are true, which frequently means the saving of one's own seeds. The soil, too, needs attention, for unless it is kept quite fertile, not all the plants will come up to expectation. On that account I have for a long period lifted all but a few plants in the latest autumn, cultivated the ground, adding rotted dung, and re-planting the roots immediately behind the diggers. By this treatment, too, the arrangement may be altered every year, thus adding to the pleasure one expects: for change is always pleasing. Again, in April or early May a top-dressing of artificials or of pigeon

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manure or soot is worth consideration. Trampling the border as soon as it is dry enough in spring is to be commended. The plants grow far better in firm than in loose soil, drought is less obvious in its effects, and, of course, a hoe must be run through the surface to at once render it smooth, and produce a loose buffer against the dry air.

Should a hedge of any kind form the back of the border, the roots must be cut close in every year at the annual digging, and the same with Box edging, if that material is employed.

I consider the main bulk of the plants should be herbaceous perennials, the positions occupied by spring-flowering bulbs being filled later with annuals, biennials and choice florists' flowers. The first essential of all sections used is, of course, pure and beautiful colouring, and while that is kept in view in the case of perennials, one may strain a point and find a place for interesting plants whose contribution to colour is nil. Examples of such are Eryngium pandanifolium, Euphorbia Lathyrus and Southernwood. They detract nothing from the general good effect, and they add considerably to its interest. On the contrary, there are some valuable plants such as Paeonies and Funkias that I would grow elsewhere, and Irises to some extent also, finding places however for Iris reticulata, I. sibirica alba and I. pallida dalmatica. Similarly with Phloxes, many of which, beautiful as they are, should be disposed by themselves, confining those for our border to a very select choice of which the old P. paniculata alba is by far the best. Naturally some of the colours detract from rather than enhance the beauty of the composition, and it may be stated that should this happen—and almost certainly it will—if any plant on flowering is discovered minimising the beauty of the border it should be removed and its place filled with a plant suitable to the position and its associates. *R. P. Brotherston.*

(To be continued.)

ALPINE GARDEN.

RANUNCULUS AMPLEXICAULIS.

THE Stem-clasping Crowfoot, Ranunculus amplexicaulis, is one of the best members of the family in every respect. It is so easily cultivated and so accommodating in the matter of soil and position that almost every flower lover who has a border or rockery can find a place where the plant will flourish and flower. It seems to prefer a rich, fairly stiff soil. In such a rooting medium it grows tall and strong, but in lighter and drier soil it will not live and flower so contentedly. It is a pretty, erect-growing plant varying from 6 to 12 inches in height, according to the nature of the soil and the amount of moisture present. It has somewhat narrow leaves which clasp the stems at their bases. The white flowers are of good size for the plant and of much beauty. They appear in spring and summer, and in favourable conditions the plant will last in bloom for some considerable time. In the Alpine garden this Crowfoot should be planted on a level spot not too high up the rockery. It is increased by division, and also by seeds when the latter can be procured, but these are slow in germinating. *S. Arnott.*

ERYTHRAEA MASSONII.

THIS is a most charming diminutive Alpine from the Azores. The plant revels in sandy soil, and produces a profusion of bright pink blossoms on slender stems not more than 4 inches high. Plants I saw at Southend-on-Sea this summer, although in full exposure to the sun, were well furnished with blossom. Partial shade is, however, beneficial to the plant, and it grows best in well-drained, sandy soil.

POTENTILLA AUREA.

POTENTILLA AUREA is a most beautiful and indispensable dwarf-growing Alpine for the rock garden. The close tufts of foliage are in summer freely studded with rich canary-yellow flowers that have an orange zone. It is a very effective Alpine. *W. L.*

TREES AND SHRUBS.

BRANCHES OF SHRUBS FOR DECORATIVE PURPOSES.

DURING recent years a good deal of attention has been paid to the production of long, slender growths of various trees and shrubs for room decoration, used either alone or with flowers. In some cases the branches are used in autumn for their coloured foliage, but in others they are cut indiscriminately, whether the leaves are green or coloured. For autumn effect the kinds with large leaves are most popular, but for general use small foliage and graceful habit are the points sought after.

To produce suitable branches it is necessary to cultivate plants solely for this purpose, the object being to obtain, long, elegant growths bearing healthy leaves and few or no side branches. To effect this the plants should be given rich soil and they must be cut down annually in the same way that Willow is cut down for basket-making. The plants are placed fairly closely together in nursery borders and are cut to within an inch or two of the ground line in February or March. Only those kinds that break freely after being cut down are worth using, and, as the method of cultivation is an exhaustive one, the plants should be fed liberally, and as soon as they show signs of exhaustion they should be replaced by young stock. Considerable numbers of shrubs and some trees lend themselves to this method of cultivation. Notable amongst shrubs there are Spiraea prunifolia flore pleno, S. arguta, S. Thunbergii, Tamarix pentandra, T. gallica, and T. tetranda, Prunus japonica flore pleno, Colutea arborescens, Cornus alba var. Spaethii, C. alba sibirica variegata, Prunus Pissardii, Stephanandra flexuosa, Acer palmatum and Kerria japonica. In addition, the evergreen Berberis Aquifolium is a very useful shrub for cutting during winter, for the leaves take on effective shades of red and bronze.

Amongst trees and shrubs with larger foliage than those already mentioned, there are Quercus coccinea, Q. rubra, Acer platanoides, A. Negundo vars. aurea and variegata, Sweet Chestnut, Liquidambar styraciflua, the Common Beech, and the purple-leaved Beech, Paulownia imperialis and Ailanthus glandulosa. The last two are not very useful for coloured foliage, but they form very large handsome leaves on stems six feet high, which are valuable where bold effects are desired in large rooms. The Paulownia has leaves two feet across and the Ailanthus produces foliage three feet long.

The same method of cultivation may be practised with certain kinds of shrubs in order that long, wand-like branches of flowers may, be cut in spring or early summer, for the plants may be forced or allowed to bloom naturally. For this purpose a few good plants are Prunus japonica var. flore pleno, Prunus triloba var. flore pleno, Spiraea arguta, Deutzia gracilis, Spiraea prunifolia flore pleno, Philadelphus Lemoinei and others of the same group, and Kerria japonica flore pleno.

Still another group of shrubs that may be grown on the same principal is that characterised by brightly coloured bark. Of these, Salix vitellina with yellow bark; the Cardinal Willow with red bark; Salix daphnoides with bluish or glaucous bark; Cornus alba and its varieties, with red bark; Leycesteria formosa, with green bark; the Philadelphuses, with brown bark, and Stephanandra flexuosa with brown bark, may all be easily grown and effectively used for room decoration in winter. These coloured-stemmed shrubs are not often seen in markets, although there is something to be said for their inclusion amongst the subjects used for room decoration.

Gardeners who are called upon to supply large quantities of flowers and foliage for indoor decoration, would do well to set aside a piece of ground for the cultivation of ornamental foliage that may be cut at any time without thought of whether a good plant is being injured or not. When branches are wanted and they are cut from ordinary shrubbery plants, not only is the future possibility of flowers impaired but the branches are less generally useful than are those that are grown specifically for the purpose in view. *D.*

ERINACEA PUNGENS.

The Hedgehog Broom, as this very dwarf shrub is called, is a native of Spain and although it has been known to our gardens for more than 150 years it is still rarely seen. For the rock-garden it is an ideal shrublet, for it seldom if ever, attains a height above 1 ft., but is usually only about half that stature. The almost leafless, grey-green branches, standing stiffly erect, are sharply pointed and when not in flower the shrub might easily be passed-by unnoticed. But in the later spring, when the sapless-looking twigs break into bloom, the little shrub becomes a most beautiful object. The flowers, borne in pairs or fours, are of the characteristic form of the Leguminosae to which E. pungens belongs. They are very large for the size of the plant (over half-an-inch long) and of a most charming soft blue colour, a tone which is rare in the Pea family.

E. pungens appears to be sufficiently hardy for most places, but it is an inveterate sun-lover and one that enjoys a warm nook with ample drainage. It occasionally sets seed in this country, but the usual method of propagation is by cuttings or layers,

SYRINGA VILLOSA.

Though long known in this country this Lilac, a native of Northern China, is still far from common in gardens, yet it is a shrub of undeniable merit. Whether grown as a specimen or associated with other shrubs of like character it is always a striking and interesting object.

S. villosa is a deciduous species, sending its erect, or slightly-arched branches to a height of some 10 feet. The olive-green leaves are narrow and pointed and about 2 inches long near the extremities, but when the shrub is planted in good soil those nearer the ground will be two or three times as long with a broad, rounded base, and tapering to a fine point. The blossoms appear in the late spring or early summer, when those of most other Lilacs are over. They break from terminal buds of the current year's shoots in a beautiful inflorescence, 6 inches to 12 inches long, and in colour are a bright rosy-lilac. There may be two or three of these handsome panicles drooping elegantly from the tips of the graceful branches and the flowers have a delicate and refined fragrance. S. villosa is quite hardy. It will succeed in an ordinary well-drained loam in an open situation. A top-dressing of half-decayed manure in early spring is of benefit to the plant. *A. T. J.*

CAMELLIAS IN THE OPEN.

Concerning Mr. Stenning's remarks on page 260 that it is only in the warmer parts of the country that Camellias do really well in the open, this is, no doubt, true, but it is also equally true that the Camellia is much hardier than is generally supposed. Where, however, there may be a doubt on the matter, the best way is to treat the Camellia as a wall shrub, tying in the growths to a wood trellis attached to the walls, or securing them with nails direct to the bricks, but not so tightly as to spoil the natural effect. Thus grown there are few gardens in which Camellias would not succeed successfully.

Another method of ensuring their well-doing in the open is to plant specimens between evergreen shrubs that are rather taller than the Camellias, thus forming a screen around the latter. Some years ago I saw this system adopted in a rather cold Middlesex garden, and it answered admirably, the flowers of the Camellia opening well. There were at one time splendid Camellias in the pleasure grounds of St. Leonard's Hill gardens, Windsor. *C. T., Ampthill*

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THE IMPERIAL FORESTRY CONFERENCE OF 1923.

(*Continued from p.* 324.)

As a result of the hospitality extended to the Conference delegates by the Canadian Government and the untiring energies of the Forestry Branch, by whom the details of the programme were worked out, excellent opportunities were afforded of seeing all types of forest growth throughout the Dominion, varying from those in the Eastern provinces of Quebec and New Brunswick to British Columbia and Vancouver Island. In the course of these tours samples were seen both of forest types and also of lumber and pulp activities, which have done so much to change the character and value of the Canadian indigenous forest during the past fifty years.

To realise what these changes are a reference must be made to the original composition of the Eastern forests so far as tradition and the recollections of old settlers can go. Before the white man invaded Canada the whole of North Eastern America, extending from Labrador on the East to the Great Plains of Manitoba, was covered with a vast forest in which White Pine was the dominant tree wherever the soil was sufficiently deep and dry to maintain its growth. The Northern limit of this species appears to have been somewhere along the 50th degree of latitude, extending further north along river valleys, and ceasing in the south where the Laurentian Shield of pre-Cambrian rocks presented vast stretches of exposed rock and peat swamps on which White and Black Spruce, Jack Pine, Birch and Maple form the normal crop. The White Pine region appears to have embraced the St. Lawrence basin, the region of the Great Lakes, extended northwards wherever the soil and situation were suitable, and only stopped on the edge of the prairie where increasing aridity and the presence of alkaline soil checked further extension. To the South the barrier of White Pine extension was the Southern hardwood belt, which, increasing in vigour and complexity of composition, allowed the Pine to exist only where poor soil and exposed situations gave it the advantage over other species. Mixed with White Pine and forming a second story to it over vast areas were such species as Sugar Maple, Silver Maple, Paper Birch, Yellow Birch, Cypress, Hemlock, and many other subordinate species, above which the White Pine was able to stand out and develop unchecked by competition. Wherever soils were too thin or swampy White Spruce, Jack Pine, and Tamarack took its place, but scarcely a square mile could be found within its natural limit of distribution which did not show magnificent White Pines reaching to a height of from 150 to 200 feet and having diameters of from 4 feet to 6 feet at breast height. Plentiful proofs can be found to-day of the previous existence of these trees in the stumps and roots which occur everywhere on land cleared within the last twenty or thirty years, or which has been allowed to degenerate into scrub. Occasional patches of virgin White Pine forest still exist, but over the greater part of Eastern Canada this species only occurs in scattered clumps, and has almost passed out of commercial knowledge as a saw timber for export.

The forests seen to-day in Eastern Canada are almost entirely composed of species which the older lumbermen considered of no importance. Amongst Conifers White Spruce is probably the principal tree, with a certain proportion of Red Pine or Pinus resinosa, which by some freak of nomenclature is known as Norway Pine. Next in importance to White Spruce, Jack Pine is coming into prominence, while Cypress is also valued for shingles wherever it can be got in sufficient quantity. Mixed with these Conifers are the broad-leaved species already referred to, together with several Poplars such as Populus tremuloides, P. balsamifera, and P. grandidentata, while the Jack Pine is generally found in pure groups on the poorest soils, and Cypress and Tamarack in swamps or damp places. The Birches, Maples, and Poplars generally form a mixed forest with White or Red Spruce, the latter gradually getting the upper-hand if not interfered with by fire or cutting. The change brought about by the removal of White Pine has been entirely due to lumbering operations, and changes of a similar character are being brought about by the removal of the White Spruce, each species in turn being drawn upon to make good deficiences in the more valuable types.

Strange to say fire, which is responsible for so much of the devastation witnessed throughout the Dominion, is, under certain conditions and when confined to limited areas, one of the most valuable agents in bringing back both the Pine and the Spruce where these have been cut out in too reckless a manner in the past. By clearing the surface down to the natural soil, fire leaves a seed-bed on which Pine and Spruce are able to germinate and establish themselves better than where the seed falls beneath living trees, under which the shade is more or less detrimental to the young plants. If fires could be effectively controlled and lumbering operations restricted to reasonable limits, there is little doubt that Pine and Spruce would quickly restock the ground, but under present conditions not only are lumbering operations being carried on too rapidly to allow second growth to nature, but the appalling destruction caused by accidental fires during dry seasons periodically wipes out vast stretches of young middle-aged forest which should constitute future supplies.

After a forest fire the ground is thickly covered with stool shoots of Maple, Birch, Willow and Poplar, forming, in the course of a few years, a growth closely resembling pure coppice in many parts of England. An examination of the surface beneath this coppice usually reveals numerous seedlings of White Spruce and Jack Pine, and occasionally White and Red Pine, but owing to the dense canopy overhead these Conifers have little chance of working through to the light until the hardwood growth has opened out, either artificially or by the natural thinning which takes place by the suppression of the weaker branches. Provided seed trees exists in the neighbourhood, ultimate re-establishment of the Conifers appears to be the regular course of events, but when, as frequently happens, fires sweep over the area again and again, not only is the supply of seed gradually reduced, but the surface becomes sterilised by the destruction of humus, and more or less unsuitable for successful germination and establishment of delicate seedlings. Under these conditions Jack Pine appears to be the only tree which can hold its own, but even with this species the destruction of seed trees over wide areas must ultimately lead to its reduction and local extinction. Broad-leaved scrub appears to be the only type of growth which can renew itself more or less indefinitely, but as this is practically of no commercial value, the ground covered with it must be regarded as barren from an economic point of view.

How much of the surface of Eastern Canada has been reduced to the scrub stage by fire no one can say with certainty. Various estimates have been made, but all are more or less inaccurate owing to the impossibility of defining the boundaries of any particular class of forest on given areas. What may be regarded as scrub to-day may be a satisfactory forest of Conifers in fifteen or twenty years time These conversions from one type to another are continually going on. All that can be said with certainty is that scrub areas are increasing rapidly, and an estimate made by the Dominion Forest Service of 1,300,000 acres of young growth forest land burnt over annually may be rather below than above the mark.

Apart from the clearances made by lumbering and pulp-wood demands, and those caused by forest fires, the loss in the Eastern Canadian forest areas is determined chiefly by soil conditions. Where these are good, and the areas within easy reach of railway or existing settlements, clearances for agricultural purposes are being made at a fairly rapid rate, and naturally the best sites were given over to settlements so far back as 200 or 300 years ago, and these now form the chief industrial or trading centres of the Dominion. Land now being cleared for settlement is usually of a much inferior type to that cleared in the early days, and it is doubtful if many districts remain in the Eastern provinces which can be more profitably used for agriculture than for timber producing. This question has got to be taken up seriously in the near future. Hitherto the Government has been inclined to regard all settlements as beneficial, regardless of the fact that many abandoned farms and even villages can be found in every province, due to the fact that the soil conditions were hopeless for tillage purposes. So long as settlers can obtain employment in felling and sledging work during the winter they can generally exist with a minimum of land of an inferior type. When, however, this employment disappears through the working out of the surrounding forests, or the shutting down of saw or pulp mills, the settler is no longer able to sustain himself on the proceeds of his holding, and is usually compelled to leave the locality. The Forest Department is pressing strongly for a more accurate soil survey before settlements are sanctioned on Crown lands, and there is no doubt that this step will be taken in the near future.

The above facts are fairly generally recognised, not only by the Government and Forest Service, but also by lumbermen and pulp manufacturers, who realise that over-cutting and fire damage must be checked by some means or other if the forests of the Eastern provinces are to retain their productivity. Until quite recently it was generally supposed that pulp manufacturers had only to remove further north to obtain inexhaustible supplies of raw material. Recent surveys have shown, however, that although vast quantities of Spruce still exist in what is known as the "Northern Forest," yet these supplies are so scattered, and involve such a high expenditure in transport that it it doubtful if they can be made use of on anything like remunerative terms. Moreover, the fact has to be recognised that these remote forests are not only exposed to fire risk, but that the control measures which are possible in the neighbourhood of settlements or lumber mills are quite out of the question in remote regions. The regeneration of burnt forest of Black Spruce, the chief species in the North, is an extremely slow business, and probably little progress can be witnessed in less than a hundred years. Pulp mill proprietors are doing their best to check fires, and some have even instituted planting programmes, but the fact still remains that many of them are faced with a serious shortage within the next fifteen or twenty years, the alternative being either to draw supplies from distant fields, or to sacrifice vast capital expenditure by transferring their mills to other districts. *A. C. Forbes.*

(*To be continued.*)

THE FORESTRY COMMISSION.

At a meeting of the Forestry Commission held at Aberdeen this autumn, the Chairman, Lord Lovat, stated that the Forestry Commission proposed to carry out a scheme of planting 1,500,000 acres for the State, during the next eighty years, the most of it in the course of the next forty years. They also hoped to encourage proprietors not only to keep up their area, which was 300,000 acres before the war, but to convert the production from some twenty-seven cubic feet per acre to between fifty and seventy cubic feet. The Commission operating from London would control the questions of policy, finance, education, research and personnel. The executive work was delegated to assistant commissioners in England and Wales (one unit), Scotland (one unit), and Ireland (a third). On the educative and research side they hoped soon to formulate a policy for discussion with the various Universities and agricultural colleges.

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VEGETABLES.

ONIONS FOR PICKLING.

Of all the uses to which Onions are put, pickling, until comparatively recent times, seems not to have occupied a very prominent place. Neither Miller in his famous *Dictionary*, 1759, nor Justice in the *Scots' Gardiners' Director*, 1754, have a word to say about their use for this purpose. Looking back over an experience of seventy years I note that the Onions used for picklers in my early days were the smallest bulbs taken from a general sowing of standard varieties.

Mr. Beckett, so recently as 1908, in his valuable book, *Vegetables for Home and Exhibition*, states:—"Pickling Onions may usually be selected in abundance from the general sowing of main crop and James's Keeping varieties, or a sowing may be made towards the end of April, thickly on poor soil." But later in the same work Mr. Beckett states:—"The variety named Silver Queen is very largely grown for pickling, and I know of nothing to equal it for the purpose."

Onions of the James's Keeping type have coloured flesh and are very solid, the flavour being more pungent than that of the softer, white-fleshed Onion. Where the eye has to be pleased, Silver Queen, pickled in white wine vinegar, is an easy first. Moreover, the larger varieties have thicker stems and this militates against the perfect sphere which is the ideal form aimed at; in addition to this there is a tendency to softness at the crown which is objectionable. To remedy this defect some growers chose the five-bladed variety, a small, globe-shaped, brown-skinned bulb with only two blades, each about the size of the leaves of Chives. John C. Circuit, market gardener at Rainham, Essex, grew a very large acreage of this Onion for many years, his manager, Henry Swann, having developed a special strain which yielded a very large percentage of "firsts" of a very pale colour when graded for bottling. After the bulbs had been ripened they were sent to East Ham to be skinned and brined, and for several months in the year travellers by rail to Southend had strong olfactory evidence of their whereabouts.

About 1867, Beck, Henderson and Child introduced a variety named Cantello's Prize, an extra early form of the pale sulphur-yellow strain of White Spanish. It was raised by a cloth weaver named Cantello. This variety soon became popular with the growers of pickling Onions, and is still highly esteemed for the purpose.

The Queen variety was sent out in 1868 by Waite, Burnell, Huggins and Co., and is still one of the most popular Onions grown. It succeeds in any climate, and is adapted to all the uses to which Onions can be put. If the spring-sown bulbs are lifted as soon as they are ripe and allowed to rest for a couple of months and then replanted, they produce in a very few weeks a shapely bulb from two to three inches in diameter, which, if properly cared for, will keep in sound condition until the following spring. In some of the warmer Colonies the bulbs are thinned and left in the ground until they have made this second growth. In more recent times extra early selections of the Queen, such as Barlatta and Marvel of Pompeii, have been raised, and these are equally valuable for pickling.

At the Wisley trials during the present year another silver white Onion made its appearance. The sample came from Morse of California, and the variety is named White Portugal. Although this variety has been known in America for many years, and is very largely grown there, especially in the South, little attention has been paid to it in Europe. It has a pure white, waxy skin and silver white flesh, and, as grown at Wisley this year, developed bulbs about the same size and shape as those of the Queen. The flesh, however, is more solid, and its keeping qualities are superior. It is quite distinct, and as it can be grown to a good marketable size, it is largely used for Onion sets. Like all other Onions of Southern origin, the flavour is pleasantly mild.

The name is unfortunate so far as Britain is concerned, seeing that the sulphur-coloured White Spanish has been known under the name of White Portugal for more than two hundred years. *S. B. Dicks.*

FRUIT GARDEN.

APPLE CUTTINGS.

May I remind your readers that they can now, when renovating old-established Apple orchards, utilise the sound branches cut off as Apple cuttings. The branches should be inserted about 3 feet deep in the ground, in open spaces between very old trees, in holes made by means of a crowbar. By this method, fruit-bearing trees are obtained much sooner than by re-grafting old trees. When the branch cuttings are fully established and growing well, the old and worn-out trees may be removed entirely. I am a visiting gardener in Somerset, and I am very sorry to see the Apple orchards in such a neglected condition, in striking contrast to those in Norfolk, where the soil is much poorer. *E. M. Hewat, Langford, Somerset.*

FIG. 123.—CHRYSANTHEMUMS IN THE CONSERVATORY AT HESKETH PARK, SOUTHPORT.

PUBLIC PARKS AND GARDENS.

CHRYSANTHEMUMS AT SOUTHPORT.

Southport must be included among the many towns in which there is a Chrysanthemum exhibition provided by the local authorities. Here, in the large conservatory at Hesketh Park, a very fine display has been provided and the skill with which the plants have been grown and arranged reflects the greatest possible credit upon Mr. W. Clark and his assistants. Plants carrying large flowers are grouped together in a huge bank, while on the side stages and the ground floor near-by many decorative varieties are displayed, including a number of varieties with single flowers.

Prominent amongst the large Japanese varieties to be seen at Hesketh Park are Edith Cavell, Frances Jolliffe, General Petain, Helena Margerison, Mrs. R. C. Pulling, Mrs. S. Chichester, the enormous Louisa Pockett, Major Chichester, Mrs. Algernon Davis, Mrs. J. Gibson, Fred. Green, Mrs. John Balmer, the highly coloured Lord Stuart of Wortley, Victory and Mrs. P. Murray. The illustration in Fig. 123 indicates the extent and beauty of the display in Southport's fine conservatory.

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HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

R. H. S. Award to the Grapes from Aldenham.—(See p 327).—I see in your issue of December 1 that my friend Mr. Dykes rebukes you for having "erroneously published a notice saying that a gold medal had been awarded to the grapes" recently exhibited by me. If instead of the word "awarded" you had written "unanimously recommended by the expert Committee appointed by the R.H.S. Council," you would have been strictly accurate. Two years ago I had the experience of having the unanimous recommendation of myself and colleagues ignored when we were acting as judges; now the unanimous recommendation of experts in my favour, when figuring as exhibitor, is similarly treated. As I do not propose to sell any medals that I may receive I am quite indifferent to what metal may be used in their construction, and am more than satisfied when experts decide that exhibits from the Aldenham garden are worthy of the highest honour. Nevertheless, proverbial wisdom has long ago decided that it is not a good plan to keep a dog and bark oneself, even though the R.H.S. Council may have formed a different opinion.—*Vicary Gibbs, Aldenham House, Elstree.*

—— As there has been some correspondence in your columns regarding the award made at the R.H.S. Meeting of Nov. 13 to the collection of Grapes from Aldenham, perhaps you will allow me, as Chairman of the Fruit Committee on that day, to state that the award recommended unanimously by the Fruit Committee was a Gold Medal, and that the Committee were not notified the Council had altered this award until a fortnight later. I understand that the exhibitor had first been notified of the Committee's recommendation of a Gold Medal, and afterwards that the award had been changed to a Silver-Gilt Medal. Some time ago the Fruit Committee made a protest to the Council concerning the alteration of its recommendations without first informing the members of such a decision, and the Council then arranged not to alter such recommendations without first interviewing the Chairman for the day. This arrangement was acted upon for a time, and I remember being sent for by the Council then sitting, to discuss with them an award of this kind; but the Council appears to have departed from that rule, and to have again reverted to the practice of altering awards without in any way consulting or informing the Fruit Committee of such a decision. Some of us feel that this is not quite a courteous way of treating a responsible Committee, whose members serve the Society to the best of their ability.—*Joseph Cheal.*

Castanea sativa heterophylla (see p. 309).—Some years ago Mr. W. J. Bean had a shoot of this variety of the Spanish Chestnut from Esher Common, Surrey, bearing leaves less than ¼-inch in diameter. This may have been the tree I noted on the same common about twenty years ago. In 1921, after the trees had been felled to a great extent, I found a young tree about six feet high, and this would seem to conform to the tree at Verrières, France, described by *A. M.* This young tree certainly bore dimorphic leaves, or they might be described as polymorphic, for scarcely two leaves are alike on a shoot I possess. Eight of the lower leaves are roughly linear, but vary in width in different parts, one having two finger-like lobes on one side. The five upper leaves are broad, but variously gashed or sinuate on one or both sides. The arrangement of the leaves all on one shoot is entirely different from those represented by Fig. 113, p. 309. Whether any of the forms is constant or not it would be difficult to say without seeing trees grown for comparison side by side for a considerable number of years. Certain it is that several names have been given to different forms, such as dissecta, dissecta nova, filipendula and linearifolia. A similar variation occurs in Fagus sylvatica heterophylla. *J. F.*

Sterility in Lilies.—With reference to the article on "Sterility in Lilies" (see p. 308), we have a considerable number of plants here, and although most of them were cut down after flowering, I know none of the Japanese Lilies would have developed seed pods. I did not see any signs of seeding on the Tiger Lilies, but one plant of Lilium regale carried three pods. I have sown the seeds from one pod out-of-doors and the seeds of another have been sown under glass. I shall be very much interested to see whether they produce plants. *F. L. Govett, Lavershot Homestead, Windlesham.*

Old Scottish Plant Names (see pp. 278, 312).—Cibes, Cives, or Civies for young Onions, are still current names in this district, as also is Bourtree for Elder; Tussilogie, Tushalogie, Dishalogie. for Coltsfoot, are also common. Is this a corruption of Tussilago? *J. G. Roberts, Trees Cottage, Barrhead, Glasgow.*

Eradication of Chickweed.—In reply to Mr. Brown's enquiry (see p. 282) as to the best method of eradicating Chickweed, I have found that pigs, old sows more especially, will pull up and eat every portion of the plant they can get at, and they do the work in a very short time, and also by treading on it, tend to solidify the ground, as Chickweed generally grows in very loose soil. *A. H. Maude, Finchampstead.*

Richardia africana Beyton Purity.—On the occasion of a recent visit to Mr. Jas. D. Hay, the well-known commercial fruit grower of Beyton, Bury St. Edmunds, I was shown several plants of a pure white Arum for which there ought to be a very large demand. The spathes are identical with those of the old favourite so far as size and substance are concerned, but they differ in being pure white and in having a much paler spadix. The plants have all the natural vigour of the type and cannot be distinguished from them except when in flower. Mr. Hay proposed to exhibit specimens before the Floral Committee of the Royal Horticultural Society and I shall be much interested to learn the opinion of that body. Its purity should ensure it a welcome for all the purposes to which the Arum Lily is put, and the fact that it is pure white will entitle it to a place in those floral decorations from which its parent is excluded owing to its colour. *H. J. W.* [So far as we are aware the R.H.S. Floral Committee passed this variety without comment on the 27th ult.—Eds.]

Loss of Scent in the Musk.—Apropos to this subject (see p. 273) it may be said that a botanical collector found it running wild or naturalised in the River Lyon, Glen Lyon, Perthshire, but it was quite scentless, and the reason presumed was that the proper insects for fertilising it probably did not exist in this country. During September last an announcement was made in a daily paper that the wild Musk of New Zealand, originally introduced by the settlers, was fragrant, and that the curator of the Royal Botanic Gardens had arranged for seeds to be sent to him. Some months ago the subject was discussed in the *Gardeners' Chronicle* (American), but no one in the United States seemed to possess the real old scented Musk. Last year some specimens were sent to England from New York, but they were scentless. The Musk is a native of North-west America, and surely it would not be impossible to find it there. If it is found to have lost its scent in its wild habitats, the fact would afford a fresh item for discussion in Hugo de Vries' theory of mutation in plants. Probably he would consider the scentless Musk only a variety and not an elementary species, because it has merely lost a character or quality in a negative way. *J. F.*

SOCIETIES.

DERBYSHIRE GARDENERS'.

THE show of the Derbyshire Gardeners' Association, held in the Royal Drill Hall, on November 9th and 10th, was considered to be the best Chrysanthemum show seen in Derby. Captain H. FitzHerbert Wright, J.P., performed the opening ceremony.

The entries constituted a record and the general effect and arrangement of the show earned many complimentary remarks. Foremost were the groups of miscellaneous plants, in and out of bloom, arranged for effect on a space of 144 square feet, in the centre of the hall. Mrs. WALTER EVANS, of Darley Abbey (gr. Mr. J. Maxfield), was placed first, a Gold Medal (offered by H. T. Ann, Esq., Derby) being included in the first prize, and it is interesting to note that this is the fourth successive year Mr. Maxfield has won this award. The group comprised a stately Kentia Palm at the head surrounded by winter-flowering Begonias, of the varieties Optima, Ideala, Exquisite, Scarlet Beauty, and Britannia, with Eulalias and Nandina domestica, while prominent at the corners were Cupressus macrocarpa lutea, intermixed with single and bush Chrysanthemums. Next in merit was a similar display by A. PRESTON JONES, Esq., Mickleover House (gr. Mr. J. Bacon), whose group contained Bamboos, Eulalias, splendid large Japanese Chrysanthemums, Primulas, Celosia pyramidalis, Dracaenas and exotic Ferns.

In the class for eighteen Japanese blooms arranged in six vases, J. G. Shields, Esq. offered a silver cup, which was won outright by J. A AITON, Esq., Duffield (gr. Mr. G. Neale); Mr. AITON was also awarded a special prize offered for the premier bloom in the Show, for the variety Majestic; second, G. H. STRUTT, Esq., Belper (gr. Mr. J. Tannock). Of seven competitors in the class for three vases of Japanese Chrysanthemums Mrs. WALTER EVANS was first and A. PRESTON JONES, Esq., second. The best table of large single Chrysanthemums comprising twelve vases in not fewer than eight varieties, arranged for effect to show one front, was exhibited by J. A. AITON, Esq.; second, Mr. J. BROWN, Kilburn.

For six vases of Perpetual Carnations, not fewer than three varieties, the first prize was won by Mrs. W. EVANS, and the second by LORD BELPER, Kingston Hall (gr. Mr. J. McCartency).

Six vases of two varieties of Violets were shown best by Mrs. W. EVANS: second, Mr. J. COLEY, Duffield.

In the Derbyshire Members' Classes a silver Challenge Cup, given by Messrs J. Peed & Son, West Norwood, for twenty-four single Chrysanthemums and twelve Japanese blooms, arranged for effect, was awarded to Mr G. H. STRUTT; second, LORD BELPER.

For eighteen Japanese blooms, Mr. G. POTTER Derby, was first, and for twelve incurved blooms, Mr. G. H. STRUTT excelled. The best group of Chrysanthemums in a semi-circle occupying thirty square feet was shown by Mr. A. SCAIFE, Risley, the award including a special prize offered by Mr. J. M. Stewart, seedsman, Derby; second, Mr. G. POTTER, Derby.

Other prize-winners were:—(a) Six table Plants; first, Mr. G. H. STRUTT; second, Mrs. W. EVANS. (b) Six winter-flowering Begoinas in variety; first, Mr. J. A. AITON; second, Mrs. W. EVANS. (c) Six Salvias; first, Mr. J. A. AITON; second, Mrs. W. EVANS.

In the open classes for fruit the quality was excellent

For Apples and Pears, Mrs. W. EVANS was first and Mr. J SNAIPE second. The Silver Challenge Cup offered by F. N. Smith, Esq., Wingfield Park, for a collection of fruit, with decoration, was won by Mrs. W. EVANS; second, LORD BELPER, who exhibited excellent bunches of Black Alicante Grapes.

In the class for two bunches of Black Grapes, LORD BELPER was first with Ali-

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cante; second, Mrs. W. EVANS; and this lady was first for two bunches of White Grapes, showing Muscat of Alexandria very well finished.

In the Open Vegetable Class for nine kinds, the first prize was awarded to Col. SCOTT, Draycott (gr. Mr. J. Woodward).

READING AND DISTRICT GARDENERS'

THE meeting of this Association, held on Monday, 19th November, was set apart as an "Open Meeting," when lady friends are invited. The President (Mr. Councillor Frank E. Moring, presided, and among the large audience present were Mr. Leonard Sutton (Vice-President), Mr. Martin H. F. Sutton, Mr. E. P. Foquett Sutton, Mr. L. H. Sutton, Mr. Councillor T. Waldron (Honorary Members), Mr. A. H. Fulker (Chairman), and Mr. M. Goddard (Vice-Chairman). The subject of the illustrated lecture given by Mr. F. Townsend, Hillside Gardens, Reading, was "A ramble among the flowers in a Berkshire garden," and by the aid of a beautiful series of auto-chrome slides, he was able, in imagination, to conduct the party through the glasshouses at Hillside from the first of January to December 31st. Commencing in the spring, groups and specimen plants of Cinerarias, Tulips, Daffodils, Calceolarias and annuals in pots under glass came under notice. Then followed spring bedding plants, including lovely views of Daffodils in the grass. Summer greenhouse flowers were represented by Gloxinias, Streptocarpus, &c.; summer bedding by Antirrhinums in beds and borders, Salpiglossis, Asters, Stocks, in fact by all the leading sorts of half-hardy and hardy annuals. Autumn time brought pictures of Begonias, Primula obconica and Chrysanthemums, and winter, those most popular of Winter-flowering plants, Primulas and Cyclamens.

In the competition for six Onions there were eight entries and the first prize was awarded to massive bulbs of Ailsa Craig shown by Mr. D. TURNER, Coley Park Gardens.

In the non-competitive section a First Class Certificate was awarded to Mr. E. BLACKWELL (gr. to Mr. H. Hirst, Foxhill, Reading), for massive blooms of Mrs. R. C. Pulling Chrysanthemum, whilst a similar award was given to Mr. R. BULLER, a Reading allotment holder, for fine bulbs of Al and Ailsa Craig Onions. Award of Merits were made to the following: Mr. A. H. FULKER, Elmhurst Gardens, Reading, for decorative Chrysanthemums; Mr. G. TOVEY, Leighton Park Gardens, Reading, for decorative Chrysanthemums, and Mr. H. SHARPE, Tidmouth Grange Gardens, Reading, for single Chrysanthemums.

Five new members were elected.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Thursday, November 8. *Committee present*: The Rev. J. Crombleholme in the chair). Messrs. R. Ashworth, J. Birchenall, A. Coningsby, D. A. Cowan, J. Cypher, J. Howes, J. Jackson, D. McLeod, E. W. Thompson and H. Arthur (Secretary).

FIRST CLASS CERTIFICATES.

Brasso-Laelio-Cattleya maculata magnifica (*B.-L.-C. The Baroness* × *L. C. Thyone*). A well-formed flower with canary-yellow coloured petals, the sepals and lip being a richer shade of yellow. The lip is frilled and margined with rose. From S. GRATRIX.

Odontonia Papillon (*M Bleucana* × *Odm. loochristiense*) a very fine hybrid, the flowers heavily spotted with reddish-brown on a rich yellow ground. From P. SMITH, Esq.

AWARDS OF MERIT.

Odontoglossum Mrs. James Wood; *O. crispum Rosy Rapture*; *O. promerens, var. Sunbeam*; *Cypripedium Bright Eyes* (*Earl Tankerville* × *Sultan*); *C. Madrigal* (*Charltonii* × *Royal George*); and *Laelio-Cattleya Eastern Monarch.* (*L.-C. calistoglossa* × *Mendelii*). From S. GRATRIX, Esq.

Cypripedium J. M. Black, West Point var; *C. Papyrus* (*Earl Tankerville* × *Charlesworthii*) and *Laelio-Cattleya Glory, var. Golden King* (*C. fulvescens* × *L.-C. Thyone*). From MRS. GRATRIX.

GROUPS.

S. GRATRIX, Esq., West Point (gr. Mr. J. Howes) was awarded a Silver-gilt Medal for a group.

Messrs. J. Cypher and Sons, Cheltenham, staged a group for which a large Silver Medal was awarded.

Thursday, November 22.—Committe present: R. Ashworth, Esq. (in the chair), Messrs. A. Coningsby, D. A. Cowan, J. Cypher, A. G. Ellwood, J. Evans, J. Howes, J. Jackson, A. Keeling, D. Losh-Thorpe, E W. Thompson, and H. Arthur (Secretary).

FIRST CLASS CERTIFICATE.

Cypripedium Maudiae, Westonbirt var., the finest variety of the type. From Messrs. KEELING AND SON.

AWARDS OF MERIT.

Cypripedium Major Keppel and *C. Mrs. Keppel* (both of unknown parentage). From the Hon. ROBERT JAMES.

Odontoglossum promerens rotundum. From P. SMITH, Esq.

Cypripedium Mrs. James Wood (parentage unknown). From JAMES WOOD, Esq.

GROUP.

Messrs. CYPHER AND SONS, Cheltenham, staged a group for which a Large Silver Medal was awarded.

NATIONAL CHRYSANTHEMUM.

THE output of new Chrysanthemums has been well sustained throughout the present season, for even so late as November 26 no fewer than twenty varieties were submitted for the consideration of the N.C.S. Floral Committee at Westminster, notwithstanding the cold and very foggy weather prevailing. Awards were made as follow:—

FIRST-CLASS CERTIFICATES.

Mrs. Arthur Brown, II.i.a.—This is a large, full, Japanese variety of great substance; the colour is pale blush. Shown by Messrs. KEITH LUXFORD AND CO.

Monarch, II.2.a.—A big incurving Japanese variety with very broad florets; the colour is bronze-buff, a pleasing and effective shade. Shown by Mr. H. SHOESMITH.

Chestnut Glory. V.2.a. — A bright and pleasing single variety of medium size. The colour was officially given as terra-cotta bronze, a description which suggests the difficulty of defining the shades of colouring in many new varieties. Shown by Mr. G. CARPENTER, West Hall Gardens, Byfleet.

Lynette. II.1.b.—One of the most beautiful white varieties we have seen for a long time. The flowers are of medium size and Japanese form, but the florets reflex regularly and gracefully, making up bloom of great refinement and one that will last a long time when cut. Shown by Messrs. CRAGG, HARRISON AND CRAGG.

Mrs. Charles Fox. II.2.a.—A yellow Japanese variety of good size, with loosely incurving florets of clear golden yellow colour. Shown by Mr. C. FOX, Linden Gardens, Tunbridge Wells.

W. H. Bilney. II.1.a.—An immense Japanese variety of full exhibition size and yet quite graceful and attractive by reason of its long gracefully drooping florets. The latter are rich golden yellow but the outer florets are shaded with crimson. This fine variety was inadvertantly placed before the Committee under the name of Mrs. Gertie Salmon. Shown by Mr. T. STEVENSON, Cowley.

Star of Gold. II.1.c.—A useful decorative variety with short slightly reflexing florets; golden yellow; stems long and stiff. Shown by Mr. T. STEVENSON, Cowley.

COMMENDATION.

Dainty. II. 1. c.—A pleasing decorative variety of the smaller Japanese type, but, nevertheless, very pretty, and well named, as the colour is shell pink. Shown by Mr. H. W. THORPE, Worthing.

Obituary.

T. F, Cheeseman. We have received news of the death of Mr. T. F Cheeseman, botanist, and curator of the Auckland Museum, at Auckland, New Zealand, on October 15th. Mr. Cheeseman was born in 1846 at Hull, Yorkshire, arriving in New Zealand, with his parents, at the age of eight years. Botanists will know him through his *Manual of the New Zealand Flora*, which deals with a subject he had continuously studied since 1876, and during the intervening years he had visited all parts of New Zealand from the North Cape to Otago, and also the Kermadec Islands, a group lying 600 miles north of New Zealand. He had recently completed fifty years service as Curator of the Auckland Museum, which he had brought into the front rank of similar institutions. It is a matter for regret that he could not have lived to see the splendid new building about to be erected as a War Memorial—chiefly at his suggestion. As recently noted, a new edition of his *Manual* is in the press, the first edition published in 1906 having run out of print. A companion work is Mr. Cheeseman's *Illustrations of the New Zealand Flora*, in two large volumes, which was published in 1914. Mr. Cheeseman was awarded the Hector Memorial Medal in 1918 by the New Zealand Institute, and this year the Linnean Society awarded him its medal. New Zealand with the unique and varied flora has attracted many noted botanists and among the names of those noted men from Banks and Solander in 1769 to the present day that of Thomas Frederick Cheeseman will not be counted the east.

TRADE NOTES.

MR. R. S. STURTIVANT, Secretary of the American Iris Society, in an article in *The Flower Grower*, U.S.A., passes a great compliment to raisers of Irises in this country and especially to the work done by Mr. Amos Perry. He states: "The Perry Catalogue is, I think, the outstanding one this year. There are a host of new varieties, some of which were registered recently, and the descriptions just bristle with fascinating terms like apricot, rose, and crimson. Report has it that many of these new seedlings were derived from an extremely tall seedling of no intrinsic merit except height, and that they carry this good quality. For the most part they seem to be pallidas and neglectas, often with velvety falls."

MESSRS. KENT AND BRYDON, Darlington, send us the following comment on the crop of Potato Catriona grown by Mr. H. S. Dean, Elton Hall Gardens, Peterborough, referred to on p. 312:—"It may interest your readers to know that Mr. Dean was awarded 1st prize for the best dish of this variety at the National Potato exhibition at Birmingham, where our stocks gained 1st, 2nd, 3rd and 4th prizes in this class. The prize of £5 was offered for the best six tubers, open to all."

GARDENING APPOINTMENTS.

Mr. G. Humphrey, previously Gardener at Wooderoft, Rochester; Coldharbour Park, Hildenborough; Kingsmead, Matfield, and Ewell Manor, West Farleigh, as Gardener to Colonel Bartley, Brandfold, Goudhurst, Kent. (Thanks for 2s. 6d. for R.G.O.F. Box.—EDS.).

Mr. C. Frost, for the past five years Gardener to Col. C. W. DARWIN, C.B., at Elston Hall, Newark, Nottinghamshire, as Gardener to Sir ROBERT KINDERSLEY, Plaw Hatch Hall, Sharpethorn, Sussex,

Mr. F. H. Stenner, for four-and-a-half years Gardener to C. H. WILDING, Esq., Wexham Place, Stoke Poges, Buckinghamshire, as Gardener to M. U. DEWAR, Esq., Danesbury House, Welwyn, Hertfordshire.

Mr. F. J .Stapley, as Gardener to T. P. TEW, Esq., Brightling Park, Brightling, in succession to the late JAMES STAPLEY. (Thanks for 2s. 6d for R.G.O.F. Box—EDS.)

Mr. Frankish, for over eight years Gardener to Major W. EATON WALKER, V.D., as Gardener to Sir DENNIS READETT BAYLEY, K.B.E., Staunton Hall, Nottinghamshire.

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ANSWERS TO CORRESPONDENTS.

CELERY WILH PITHY STALKS: *E. B.* The pithy nature of your Celery is caused through drought at the roots followed by copious watering. An excess of nitrogenous manure at the roots and earthing up the plants too soon will also cause the stems to become pithy.

EMBOTHRIUM AND PERSIMMON: *J. O. M.* Write to Mr. G. Reuthe, Nurseryman, Keston, Kent.

EMPLOYER'S LICENCE FOR GARDENER: *H. P.* It is clear from the Regulations that an employer must take out a licence to employ an under-gardener under the conditions named by you. It would be otherwise if the man were employed merely occasionally or in the capacity of a labourer.

FAILURE WITH GRAPE VINES: *W. S. C.* As your vines used to crop well we can only suggest that their failure in recent years is due to neglect during the war period. Dress the rods with Gishurst Compound, thoroughly cleanse all parts of the vinery with soft soap and sulphur and wash the walls with hot lime wash and sulphur. Afterwards lightly point the surface of the border, remove all loose and inert soil and provide a top dressing of some approved vine manure added to fresh loam and lime rubble. Pay careful attention to watering and to ventilating, and be particularly careful to provide sufficient atmospheric moisture during hot weather. Train the rods at least twenty inches below the glass. Crop the vines lightly next season, and in other ways encourage them to make as much healthy growth as possible; if they fail to respond to this treatment, they should be rooted out and the vinery replanted next season

FUNGUS ON BRASSICAS: *A. E. J.* The fungus attacking your Brassicas is Cystopus candidus, or White Rust. This disease frequently develops extensively on species of Brassicas during damp, mild weather, Nothing can be done to exterminate the fungus once it has attacked the plants, but its presence may be reduced by the avoidance of close planting and over manuring.

GOOSEBERRY SHOOTS: *H. F.* The shoots are not affected by Gooseberry mildew; the symptoms are those of attack by aphis, which was doubtless present on the bushes earlier in the season.

NAMES OF PLANTS: *Reader.* 1, Fuchsia Thalia (hybrid); 2, Pilea spruceana; 3, Fuchsia splendens; 4, Hymenanthera crassifolia; 5, Epilobium nummularifolium; 6, Thymus Serpyllum.—*G. R.* 1, Taxodium. distichum (Deciduous Cypress); 2, Quercus acuta, var. ambusaefolia.

POTATOS WITH SCABBY SKINS: *J. H.* The tubers are affected with Potato Scab, Actinomyces scabies. The presence of scab may almost certainly be attributed to your use of sea-sand; sea-weed would not cause it. Your best plan is to dig or plough into the soil a green manure or a green crop. In gardens and small holdings decayed leaves, spent Hops, and grass mowings may be incorporated with the soil. Where grass mowings are plentiful these certainly should be used, as they give excellent results. The materials mentioned should be dug in the soil previous to planting the tubers, at the rate of a barrow-load to four square yards. The grass may also be placed in the trenches at the time when the tubers are planted, but in this case care must be taken not to place the grass too thickly about the sets or the latter might be injured through the grass fermenting.

MARKETS.

COVENT GARDEN, Tuesday, December 4, 1923.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz.	... 10 0	–18 0
—elegans	... 10 0	–12 0
Aralia Sieboldii	... 9 0	–10 0
Araucarias	... 30 0	–48 0
Asparagus plumosus	... 12 0	–15 0
—Sprengeri	... 12 0	–18 0
Aspidistra, green	48 0	–72 0
Asplenium, per doz.	... 12 0	–18 0
—32's	... 24 0	–30 0
—nidus	... 12 0	–15 0
Cactl, per tray, 12's, 15's	... 5 0	– 7 0
Chrysanthemums —white, doz.	... 12 0	–18 0
—pink ,,	12 0	–15 0
bronze ,,	12 0	–15 0
Crotons, per doz.	30 0	–42 0
Cyrtomium	... 10 0	–15 0
Erica gracilis, 48's per doz.	... 21 0	–24 0
— 60', per doz.	... 12 0	–15 0
Erica hyemalis 48's per doz.,	... 24 0	–30 0
—nivalis, 41's ,,	24 0	–30 0
— —60's	... 12 0	–15 0
Hydrangeas white, doz.	... 18 0	–24 0
Lilium longiflorum, each	—	—
—speciosum album, each	... —	—
—speciosum, rubrum, each	... —	—
Nephrolepis, in variety	... 12 0	–18 0
—32's	... 24 0	–36 0
Palms, Kentia	... 24 0	–30 0
—60's	... 15 0	–18 0
—Cocos	... 24 0	–36 0
Pteris, in variety	12 0	–21 0
—large 60's	... 5 0	– 6 0
—small	... 4 0	– 4 6
—72's, per tray of 15's	... 3 6	– 4 0
Solanums, per doz.	12 0	–15 0

REMARKS. — Supplies were held up during most part of last week owing to the severe weather. Ericas are the main attraction in flowering plants. Chrysanthemums begin to show signs of finishing. Solanums are in first-class condition and the demand is fairly good. Ferns and Palms of various sizes, of the usual market sorts, appear to be fairly plentiful. Business should be more brisk in this department during the next fortnight, to meet the requirements of the provinces. A few Azaleas are now on sale, principally coloured sorts.

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum decorum, doz. bun.	9 0	–12 0
—cuneatum, per doz. bun.	... 8 0	–10 0
Asparagus, plumosus, per bun, long trails, 6's	4 0	– 5 0
med. sprays	... 2 6	– 3 6
short ,,	... 1 0	– 1 6
—Sprengeri, per bun. long sprays	... 2 6	– 3 0
med. ,,	... 1 3	– 1 6
short ,,	... 0 9	– 1 0
Bouvardia, white, per doz. bun.	... 9 0	–12 0
Camellias, 12's, box	3 6	– 4 0
Carnations, per doz. blooms	... 4 6	– 6 0
Chrysanthemum, per doz. blooms —white ,,	2 6	– 6 0
—yellow ,,	2 6	– 5 0
—bronze ,,	2 6	– 3 6
—pink ,,	3 0	– 4 0
spray, doz. bun.	12 0	–18 0
—singles, disbudded blooms	... 3 0	– 5 0
—singles, sprays, per doz. bun.	15 0	–18 0
Croton leaves, var., per bun.	... 2 0	– 2 6
Gardenias, per box	8 0	–12 0
Fern, French, per doz. bun.	... 1 0	– 1 3
Forget-me-not, per doz. bun.	... 0 0	–12 0
French Flowers— —Acacia (Mimosa) per bun.	... 1 0	– 1 6
—Marguerite, yellow, per doz. bun.	3 0	– 3 6
—Narcissus Paper White, per doz. bun.	... 3 0	– 3 6
—Narcissus Soliel d'Or, per doz. bun.	... ... 3 0	– 3 6
—Ranunculus carmine, per doz. bunc.	... ... 5 0	– 6 0
—Ranunculus Romano, large red, per doz. bun.	12 0	–15 0
French Flowers— —Violets, single per doz. bun.	2 0	– 3 0
—Violets, Parma, per bun.	... 5 0	– 6 0
Heather, white, per doz. bun.	... 9 0	–12 0
Lilac, white, per doz. sprays	6 0	– 8 0
Lilium longiflorum long, per doz.	... 8 0	– 9 0
short ,, ,,	... 9 0	–10 0
—speciosum album, long, per doz. blooms	... 4 0	– 5 6
—short ,, ,,	3 0	– 4 6
—rubrum long, per doz. blooms	... 3 0	– 3 6
—short, ,, ,,	2 0	– 3 0
Lily of the Valley, per doz. bun.	24 0	–36 0
Orchids, per doz. —Cattleyas	... 18 0	–24 0
—Cypripediums, per doz. blooms	4 0	– 6 0
Pelargonium, per doz. bunch, double scarlet	12 0	–15 0
Poinsettias, per doz. blooms	... 15 0	–18 0
Richardias (Arums)— per doz. blooms	10 0	–15 0
Roman Hyacinths, per doz. bun., 6's	... 24 0	–27 0
Roses, doz. blooms— —Melody	... 5 0	– 8 0
—Ophelia	... ... 5 0	– 8 0
—Golden Ophelia	5 0	– 6 0
—Liberty	... 5 0	– 8 0
—Mme. Butterfly	5 0	– 8 0
—Mme. Abel Chatenay	... ... 5 0	– 6 0
—Niphetos	... 3 0	– 4 0
—Richmond	... 5 0	– 8 0
Smilax, per doz. trails	... ... 3 0	– 3 6
Violets, doz. bun.	4 0	– 7 0

REMARKS. — There has been a general falling off in supplies during the past week, especially amongst Carnations and Roses. Carnations advanced to 6s. per dozen for best bloom on Thursday and Friday of last week, and all supplies were cleared very early. The principal varieties offered are Aviator (scarlet), Carola and Enid (crimson), Delight, Enchantress Supreme, Laddie, May Day, Mrs. Hemus, Mrs. Ward, Peerless, Winsor, Daydream (pink), White Wonder, White Enchantress, and White May Day. All these are arriving in good condition and supplies are a little more plentiful this morning. Roses are also fewer, and prices firmer. There will be practically no supply of Lily-of-the-Valley from home growers for a few days; only small consignments from Holland are available. Roman Hyacinths are arriving in larger quantities. Chrysanthemums are chiefly of the varieties mentioned last week, but all are a little firmer in price. Liliums remain as quoted previously. Richardias (Arum) are more limited, and their prices are rising. English Violets are exceptionally scarce, owing to the severe weather.

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus, forced— French	... 9 0	–10 6
English	... 6 0	– 8 0
Beans	... ...	
Guernsey, lb.	... 1 0	– 2 0
Madeira	... 3 0	– 5 0
Beets, cwt.	... 8 0	–10 0
Cabbage, doz.	... 1 3	– 2 0
Carrots, cwt.	... 8 0	–10 0
Cauliflower, doz.	2 6	– 4 0
,, Italian	6 0	– 8 0
Chicory	... ... 0 6	–0 6½
Celery, fan	... 1 6	– 2 0
Cucumber, doz.	... 8 0	–12 0
Lettuce, French— crate	... ... 3 0	– 4 6
Endive, doz.	... 2 6	– 3 0
—Batavia, doz.	... 2 0	– 2 6
Mushrooms— —Forced, lb.	... 2 0	– 3 0
Mint, doz.	... 4 0	– 6 0
Onions, Valencian, case	... 14 0	–16 0
Onions, English cwt.	... ... 10 6	–12 6
—Dutch	... ... 9 0	–10 0
Parsnips, cwt.	... 7 0	– 8 0
Potatos, cwt.	... 5 0	– 7 6
—Guernsey, lb.	... 0 3	– 0 4
—Forced	... ... 0 8	–0 10
Savoys, doz.	... 2 0	– 2 6
Seakale, punnet	3 0	– 4 0
Spinach	... ... 3 0	– 3 6
Sprouts, bus.	... 4 0	– 5 6
—Bags	... ... 4 0	– 4 0
Tomatos— —English Pink New Crop	... 4 6	– 6 6
Others	... ... 1 0	– 2 0
—Pink and White New Crop	... 4 0	– 6 6
Others	... ... 1 0	– 2 0
—Guernsey	... 2 0	– 6 6
—Canary Island	10 0	–14 0
Turnips, cwt.	... 5 0	– 8 0

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples— —Cox's Orange Pippin, ½ bus.	10 0	–20 0
—Allington Pip	... 3 0	– 4 0
—Blenheim	... 3 0	– 5 6
—Bramley's Seedling, bus.	... 7 0	–13 0
—Lane's Prince Albert	... ... 7 0	–10 0
—Newton Wonder	8 0	–10 0
—Oregon Newtown	... ... 10 0	–14 0
—Californian	... 9 0	–10 0
—Jonathan	... 9 0	–11 0
Nova Scotian— —Blenheims	... 21 0	–25 0
—Kings	... ... 22 0	–26 0
—Ribston Pip	... 20 0	–24 0
—Russets	... 30 0	–32 0
—States	... ... 23 0	–24 0
—Baldwin	... 23 0	–25 3
—Ben Davis	... 22 0	–20 0
—Albemarle, barrels	30 0	–34 0
Bananas, singles	14 0	–27 6
—doubles	... ... 16 0	–27 6
Dates, Tunis, doz. cartons	... ... 4 6	– 6 6
Grapes— —Alicante	... 1 6	– 2 6
—Almeira, barrel	14 0	–25 0
—Belgian	... ... 1 6	– 2 6
Grapes— —Cannon Hall	... 3 0	– 7 0
—Gros Colmar	... 1 6	– 4 6
—English Muscat	3 0	– 7 0
Grape Fruit— —Cuban	... 25 0	—
—Jamaica	... 20 0	–25 0
Lemons— —Messina, case	... 25 0	–30 0
—Messina, box	... 10 6	–15 0
—Murcia,	... 12 0	–15 0
Nuts— —French Walnuts bags	... ... —	13 0
—Brazil, cwt.	... 80 0	–100 0
—Cobs	... ... 1 3	– 1 4
—Italian Chestnuts, bag	... 16 0	–20 0
—Italian Walnuts, bag 50 kilos	... 60 0	– 65 0
Oranges— —South African	14 0	–18 0
—Spanish 300	... 17 0	–25 0
— —360	... ... 10 0	–16 0
— —504	... ... 9 0	–15 0
Pears— —D'Anjou, cases	20 0	–24 0
—Winter Nelis	... 16 0	–21 0
Pines, each	... 1 6	– 4 0

REMARKS.—In more than one section there is a tendency for business to improve which, after the dull period of the last week or two, is a satisfactory change. Canadian and American Apples are quoted comparatively low and ample stocks are in the country. English Apples are scarce; first grade cookers are keenly inquired for. Cox's Orange Pippin is also in demand. A better trade is being experienced for hothouse Grapes and both home-grown and Belgian produce is selling freely. A fair demand is ruling for South African and Jamaican Oranges. Oranges from Spain are plentiful and moving slowly. Tomatos from the Canary Islands are not selling so freely as could be desired, and prices will probably weaken in this section. English Tomatos are almost finished; the bulk of recent consignments have not realised prices sufficiently high to cover expenses, and only well coloured fruits of the new crop are wanted. A few Cucumbers are selling fairly well but supplies are small. English Asparagus is selling badly, well coloured Paris Green Asparagus being a serious competitor with the home-grown heads. After a quiet time there is an improvement in the demand for Guernsey Beans, and their prices are now at a better level from the producer's point of view. Beans from Madeira this week were in fair condition and sold moderately well. There is little or no improvement in the trade for new Potatos. Small quantities of Seakale are on offer at a firm price. Brussels Sprouts and Cauliflowers are fairly plentiful and selling well. Mushrooms are a steady trade and prices remain firm.

CATALOGUES RECEIVED.

THE BARNHAM NURSERIES, Barnham, Sussex.—Roses and Fruit trees; Alpines, rock plants, etc.; ornamental shrubs, climbers, etc.

W. DRUMMOND AND SONS, LTD., Stirling.—Forest, ornamental and Fruit trees, etc.

HURST AND SON, 152, Houndsditch, E. 1.—Vegetable and Flower seeds (wholesale).

W. WELLS AND CO., Merstham, Surrey.—Chrysanthemums.

HILLIER AND SONS, Winchester.—Trees and Shrubs.

J. W. COLE, AND SON, Peterborough.—Chrysanthemums, Pelargoniums, etc

WILLIAM FELL AND CO., LTD., Hexham.—Forest Trees, Roses, etc.

JESSE HANDSCOMBE, The Nurseries, Feltham, Middlesex.—Roses; Rhubarb Roots; Carnations, etc.; Sundries.

DERWENT FOUNDRY CO. (1920), LTD., Derby.—Lawn Mowers.

H. J. JONES, Ryecroft Nurseries, Lewisham.—Chrysanthemums, Michaelmas Daisies, Phlox, etc.

LITTLE AND BALLANTYNE, Carlisle.—Forest Trees, Fruit Trees, Roses, etc.

Communications Received. — N. T. — E. B. — G. G.—A. M. M.—R.—F. L. G.—W. J. F.—I. E. W.—Y. E. W.—O. W.—F. A.—W. P.—W. W.—J. P.—G. A—G. C.—F. A. B.—J. F.—H. S.—F. D. H.—W. F.

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THE
Gardeners' Chronicle

No. 1929.—*SATURDAY, DEC.* 15, 1923.

CONTENTS.

Alpine garden—
Calandrinia umbellata 349
Gentiana lagodechiana 349
Menthella Requienii... 349
Polygonum sino-capitatum 349
Apples, market 354
Bayley-Balfour Memorial Garden ... 346
Books, notices of—
Flowering Plants of South Africa ... 345
National Hardy Plant Society's Journal ... 346
Bulb garden—
Gladiolus primulinus hybrids 353
Flower border, the mixed 353
Fruit garden, the market 350
Fruit register—
Apples Forge and Nanny 354
Apple Broad-eyed Pippin 355
"Gardeners' Chronicle" seventy-five years ago 346
Heath garden, the ... 355
Indoor plants—
Evergreen shrubs with white flowers ... 347
Cestrum elegans ... 347
MacKellar, Mr. A. ... 346
Obituary—
Brown, James ... 357
MacNeill, Dugald ... 357
Phygelius and other things 355
Plants new or noteworthy—
Boenninghausenia albiflora 351
Hakea suaveolens ... 351
Prunus species suitable for forcing 353
Rothamsted and agricultural science ... 345
Societies—
National Chrysanthemum 357
Royal Horticultural 356
Royal Scottish Aboricultural ... 357
Trees and shrubs—
Eucalyptus whittingehamensis 352
Leycesteria formosa... 352
Vegetable garden—
Broad Beans 354
Veronica salicifolia ... 355
Week's work, the ... 348
Welsh garden, notes from a 352
Wembley, Delphiniums and Tulips at 346

ILLUSTRATIONS.

Acokanthera spectabilis 347
Apples Forge and Nanny 355
Boenninghausenia albiflora 349
Hakea suaveolens 351
MacKellar, Mr. A., portrait of 346

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.1.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, December 12. 10 a.m.: Bar, 30.4; temp. 45°. Weather—Dull.

Rothamsted and Agricultural Science.

THE achievements of the Rothamsted Experimental Station have often been recounted, but we doubt whether they have ever been presented with such clarity and succinctness as they are in Sir John Russell's address.* These achievements are being steadily augmented year by year, and as knowledge of the growth of crops becomes more precise, it becomes necessarily of more value to the gardener. In the old days, when experience of the value of artificial fertilisers was but fragmentary, the scientific and economic use of fertilisers as means of supplementing farmyard manure, seemed easy of realisation. Once gardeners had grasped the elementary facts that most soils benefit by the application of lime and most crops give larger yields when supplied with fertilisers containing nitrogen, phosphorus, and potash, it seemed as though all that need be known was known. But, as more and more experiments were made, it was discovered that these three types of artificial manure have each their special role to play. Thus it was found that nitrogen-containing manures are specially effective in promoting leaf growth and phosphatic manures in augmenting root—and fruit—growth, whilst potassium-containing manures are particularly potent in promoting the growth of "roots"—Turnips, Swedes, Potatos and the like. Hence there grew up the practice of using special manures—nitrogenous, phosphatic, or potassic—for different crops. With further investigation, however, the discovery was made that as circumstances alter cases, so seasons and soils affect the value of fertilisers. For example, as Sir John Russell points out, the long-continued experiments on the heavy land at Rothamsted show clearly that in some seasons complete artificials give better results than are obtained by farmyard manure (at the rate of fourteen tons to the acre), and that in other seasons the farmyard manure plots give a higher yield than is given by the complete fertiliser plots. This fact, although of general interest, is of no particular practical significance to the good gardener who applies to his crops not only farmyard manure but artificial manures, *e.g.*, phosphatic and potassic fertilisers, as well. There are, however, other facts of the same order related by Sir John Russell, which are of great practical value to the gardener. Thus a complete artificial manure which proved to give excellent results on the Rothamsted soil was found, when applied to the light sandy soil of Suffolk, to increase the yield of Barley by only five-and-a-half bushels per acre. When, however, phosphates were *omitted* from the fertiliser, the yield was increased over that obtained with the use of the complete fertiliser by no less than six bushels. The explanation of this curious fact is simple. Light soils are early soils. In a dry or even normal year the crops upon them will finish early—it may be too early indeed for a full yield. By adding phosphates the earliness is yet further promoted, and hence the smaller yield obtained by the use of the complete fertiliser. Evidently this property of phosphatic manures must be taken into account by the gardener and exploited by him. If he wants earliness and is not so set on yield, he will be helped to achieve his object by making use of phosphatic manures even though his soil be light. If the soil be heavy, he can hope for larger and less belated crops by employing phosphatic fertilisers. Recognising that the effect of manures varies with many factors, Rothamsted has set itself the laborious but highly important task of disentangling those factors and estimating their several results. Already conclusions of importance have been reached. It has been shown, for example, that yields from plots manured with farmyard dung fluctuate less than those from plots on which complete artificials are used. It has also been shown that in a year following an autumn rainfall above the average, manures generally give results above the normal; but if more than an average amount of rain falls in summer, manures fail, as it were, to pull their weight and the crops treated with them are smaller than might have been expected from experience of average years. Spring excess of rain appears to interfere less with the beneficial action of manures. Sir John Russell hopes that presently weather effects and soil-condition effects on yields will be known with such certainty that experts may be able to give an accurate forecast to farmers of the likelihood of the application of a prescribed artificial fertiliser increasing a given crop by a definite amount. He points out that were this to become possible a farmer would be able to insure his growing crop. Gardeners will be also deeply interested to learn that the Rothamsted experiments justify their determined preference for farmyard manure; although it scarcely needs to be repeated that this preference, if it excludes the supplementary use of artificials, is mistaken and uneconomical, and is becoming more and more so every day. But as between a complete artificial and farmyard manure, Rothamsted finds that the latter is rather more efficient than the former and, what is even more important, that the farmyard manure maintains the fertility of the soil better than does a complete artificial fertiliser. This conclusion is of special interest, for it proves that the opinion held by Lawes and Gilbert that farmyard manure owes its fertilising value solely to its ash and nitrogen compounds is, though mainly, not wholly accurate. What is this extra virtue possessed by farmyard manure? This problem is now engaging the attention of the investigators at Rothamsted. The general opinion, of course, is that farmyard manure affects favourably the porosity of the soil—increasing pore space and thereby providing for a larger reserve of water and a better supply of air in the soil. But it is possible that other effects co-operate with these. In its gradual decay, farmyard manure gives rise to a series of compounds, and some of the intermediate members of this series may be of special value as plant food. Lastly, no account, however brief, of the work of Rothamsted may omit mention of the discoveries concerning the microflora and fauna of the soil. These discoveries reveal the soil as the natural home of numerous micro-organisms, the members of each of which are constantly increasing or decreasing. Every day throughout the year the total and relative numbers of the soil population change, and it is significant that increase of soil-amoebae—which prey on bacteria—is attended by decrease of the latter and decrease of the amoebae by increase of soil-bacteria. No one can peruse Sir John Russell's account of the work of the Station over which he presides with such energy and distinction, without expressing gratitude for and pride in the work which is being done at Rothamsted, nor without a recognition that the method of work practised there must have no less in the future than it has in the past great and beneficial influence on the progress of the science and practice of agriculture and horticulture.

* A Discourse delivered at the Royal Institution, February, 1923, by Sir E. John Russell, F.R.S.

"Gardener's Chronicle" Almanac for 1924.—We shall publish in our issue of January 12 a "Gardeners' Chronicle" Almanac for the year 1924. In order to make it as useful as possible for reference we shall be obliged if Secretaries of Horticultural, Botanical, and Allied Societies, or any of our correspondents WILL SEND US IMMEDIATE INFORMATION OF ALL FIXTURES FOR THE ENSUING YEAR.

Flowering Plants of South Africa.—Part 12 of Volume III. of the *Flowering Plants of South Africa* contains illustrations and descriptions of ten plants. Aloe microcantha (tab. 111), has the characteristic concave leaves with rigidly ciliated margins; from the crown of leaves arises a tall corymbose inflorescence of tubular flowers that are pale red at the base tipped with green. The plant flowers during January and February and so soon as the seeds have set, a few months later, the leaves wither almost completely to their bases. The plant was figured in the *Botanical Magazine* so

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far back as 1821. Erythrina Humeana (tab. 112), is a very bright Leguminous plant with a spike of dark red flowers that are succeeded by articulated pods of a violet colour. This species was also figured many years ago in the *Bot. Mag.*; it has been in cultivation in Europe for over one hundred years. Adenia digitata (tab. 113) is a member of the Passifloraceae, and both the roots and fruits are poisonous. It has long, graceful branches provided with tendrils by which it climbs up neighbouring bushes and shrubs. The flowers are axillary and not so attractive as in most of the Passiflora race. Wachendorfia paniculata, (tab. 114) is said to have been noticed in the Kew Gardens so far back as 1867, but it is not of very great value in gardens. The inflorescence has a somewhat superficial resemblance to that of Tritonia; the petals are dull yellow with bronzy-red markings and the flower buds are also bronzy-red. Crassula congesta (tab. 115) was first described by Mr. N. E. Brown in *Gard. Chron.*, September 6, 1902, p. 171, who stated that it was of botanical rather than of horticultural interest. Gladiolus psittacinus (tab. 116), is the showiest of the ten plants illustrated in Part 12 and well-known in gardens in this country. It is figured in the *Botanical Magazine* (tab. 3032) and was known in cultivation in England as early as 1830. Venidium macrocephalum (tab. 117) in an interesting Composite that is said to be well worth cultivating for supplying cut blooms, as the plant flowers freely and makes a splendid display. The flowers are about two inches across and have pale yellow florets. The ray-florets are lemon-chrome with orange at the base; the cushion-like disc is brownish-red. Lonchostoma monostylis (tab. 118) is a member of a genus comprising only four known species. It is said to be a graceful plant with long, thick, erect stems, at the apices of which the flowers are borne in heads. Eulophia Zeyheri (tab. 119), is an Orchid sometimes known as Eulophia bicolor and was successfully cultivated by the late Mr. H. J. Elwes. It is figured in the *Bot. Mag.* (tab. 7330) but the colouring on the lip is quite different in the two plates, being more purplish violet in the one under notice and the petals and sepals yellow. Hessea Rehmanni (tab. 120) is an Amaryllidaceous plant with flowers that suggest a Crinum. The plant usually produces only one leaf which is either quite terete or has a shallow channel. The peduncle is also terete and is terminated by an umbel of about nine flowers, the segments of which have wavy margins.

R.H.S. Rose Judging Committee.—The Council of the Royal Horticultural Society has invited the following to form a Judging Committee for their trials at Wesley of Roses for garden purposes, and all have accepted the invitation. Chairman, the President of the R.H.S., the Rt. Hon. Lord Lambourne, J.P., V.M.H.; the Chairman of the Wisley Committee, Mr. W. Cuthbertson, J.P., V.M.H.; Mrs. Wightman, of Bengeo; Messrs. Wettern, Holland, Darlington; Drs. Lamplough and Williams, Messrs. Easlea, Prince, G. M. Taylor, A. Dickson, jun., Hay, Coutts, Pernet Ducher, and Poulsen.

National Hardy Plant Society.—The second issue of the *Journal* of the National Hardy Plant Society is a great improvement on the first. The reading matter and illustrations extend to fifty-two pages, and the principal contents are "The Bearded Irises," by Mr. A. J. Bliss; "Methods of Propagation," by Mr. R. V. Giffard Woolly, the Editor, which contains a list of months wherein seeds of certain kinds of plants should be sown; "British Plants in the Rock Garden," by Mr. Frank Bouskell, President of the Society; "New or otherwise Noteworthy Hardy Plants of 1921 and 1922"; and "About Staking Perennials." The *Journal* is well printed, amply illustrated, and a very useful publication. It is issued free to members of the Society and at 2s. 6d. to non-members. All communications concerning the Society and its *Journal* should be sent to the Hon. Secretary, 20, Tavistock Street, W.C.2.

Mr. A. MacKellar, V.M.H.—The King's gardener necessarily occupies an exalted position in ths world of horticulture, but among those who have had charge of the Royal Gardens at Windsor none has been more successful or more modest than Mr. A. MacKellar. He commenced his gardening career under his father at Auchindarroch House gardens, Argyllshire, and, as was the custom in those days, he was apprenticed to the profession of gardening. After his apprenticeship he served as journeyman under Mr. Niven of Hopetoun House, and thence went as outdoor foreman at Tyninghame House gardens under Mr. Lees. His next appointment was as journeyman at the famous gardens at Chatsworth under Mr. Speed. Later Mr MacKellar acted as general foreman at Penrhyn Castle and remained in these splendidly kept gardens for seven years. He left Penrhyn Castle to become gardener at Floors Castle, a position he occupied with great success—and wherein he became famous—for about ten years, when he obtained the appointment of gardener to King Edward VII. (then Prince of Wales) at Sandringham. After the death of Queen Victoria and soon after King Edward ascended the throne, Mr.

MR. A. MACKELLAR, V.M.H.

MacKellar left Sandringham to take charge of the gardens at Windsor and Frogmore, and this high position he has occupied to the utmost satisfaction of his Royal employers down to the present time. Mr. MacKellar's duties are onerous and extensive, and few people have any idea of the vast amount of produce he cultivates in the gardens and glasshouses at Frogmore, though some have a fair idea of his ability as a landscape and garden artist from their knowledge of the gardens around Windsor Castle and elsewhere. Both at Floors Castle and at Sandringham, Mr. MacKellar carried out extensive improvements, and at Frogmore he has reconstructed all the glasshouses and extended the fruit and kitchen gardens. Mr. MacKellar does not appear very prominently before the public, as his time is fully occupied in the conduct of the King's garden. He is, however, known to a wide circle of gardening friends and his skill as a gardener has won for him the award of the Victoria Medal of Honour in Horticulture from the Royal Horticultural Society. He takes a keen interest in the horticultural charities and endeavours by every means in his power to advance the education of young men who come under his charge at Windsor.

Bayley Balfour Memorial Garden.—We are asked to state that enquiries regarding the Memorial to Sir I. Bayley Balfour—of which full particulars were printed on pages 336 and 337 of our issue of December 8—and donations thereto should be addressed to Mr. John Sutherland, 25 Drumsheugh Gardens, Edinburgh. Donations to the Memorial Fund and promises of financial support amounting to £600 have reached the committee which has been formed to carry out the Memorial.

Delphiniums and Tulips at Wembley.—We are informed that over five thousand Delphiniums have been planted in the grounds of the British Empire Exhibition at Wembley, and over one hundred thousand bulbs of the finest British-grown Tulips.

Snails and Plants.—In an address before the Royal Medico-Chirurgical Society of Glasgow, Professor F. O. Bower stated that some plants no doubt protect themselves from attack by snails by the sharp crystals called raphides which are embedded in mucilage. The latter, as well as the tissues, are gnawed, the cells rupture, and the sharp needles penetrate the delicate mouth of the marauder. Professor Bower stated that it has been shown by experiments that even hungry snails avoid plants so protected.

Appointments for the ensuing Week.—Tuesday, December 18: Sevenoaks Gardeners' Chrysanthemum Society's meeting; Winchester Horticultural Society's meeting. Friday, December 21: Eastbourne Horticultural Society's meeting. Saturday, December 22: Dumfermline Horticultural Society's annual meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*The late Mr. M'Nab.*—We have this week to record the decease of one of the oldest and best gardeners of whom this country has had to boast. Mr. William M'Nab, of Edinburgh, died on the 1st of the present month. An interesting history of his career is contained in the following extract from the proceedings at a public dinner given on March 14, 1844, upon the occasion of presenting him with the M'Nab Testimonial: "William M'Nab first saw the light in 1780, in the parish of Dailley, in Aryshire, where his father was a farmer. His early years were devoted to the duties of a shepherd on the hills of his native country. Amid those scenes, his genius was early directed to the beautiful forms and variety exhibited by vegetable life; and our stripling shepherd was inspired with a strong predilection for the occupation of a gardener. His father, yielding to his wishes, had him apprenticed to the gardener of Mr. Kennedy, of Dalquharran, at the age of sixteen. After serving three years in that place, he was recommended by Mr. Kennedy to the late Mr. Walter Dickson, of Edinburgh, who procured him a situation in the gardens of Lord Haddington, at Tyningham. There he remained about a year when, being anxious to improve still farther in his profession, he went to London, where he had the good fortune to be recommended by Mr. Aiton, superintendent of the Royal Garden at Kew, and to obtain employment in that magnificent establishment; after three years' service in the different departments he was appointed to the responsible situation of foreman. There he remained for several years, acquiring knowledge and experience; and here his conduct and intelligence recommended him to the favourable notice of His Majesty George III., then a frequent visitor at Kew, and brought him in contact with Sir Joseph Banks, the ready patron and judicious friend of modest merit. On the death of the curator of the Royal Botanic Garden at Edinburgh, the late Professor Rutherford consulted his friend Sir Joseph on the choice of a successor, and the baronet strongly recommended Mr. M'Nab, who immediately received the appointment and entered on the duties of his new office in May, 1810. It is therefore more thirty years since Mr. M'Nab was called to Edinburgh." *Gard. Chron., December 9, 1848.*

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INDOOR PLANTS.

EVERGREEN SHRUBS WITH WHITE FLOWERS.

SOME of the most useful and interesting flowering plants for the decoration of the intermediate stove house, warm greenhouse or conservatory during several months of the year are to be found amongst shrubs bearing a profusion of white, fragrant flowers, that are set off by bright, evergreen foliage. Such white flowers are always in great demand for the making of floral designs. All of the plants described below are of easy culture, when the means at the grower's disposal are fairly good, and they may be increased readily by cuttings of half ripened wood placed in a hand light or frame with a moist atmosphere and slight bottom heat. During the winter a temperature of 55° to 60° is suitable, and the plants may be allowed to rest. In summer the temperature should be 60° to 70° with plenty of atmospheric moisture; in warm weather the plants should be shaded from the sun's rays. They all thrive in a mixture of good turfy loam, fibrous peat, or leaf mould in equal parts, with silver sand added. A free drainage is necessary to keep the soil sweet. When the plants are established and commencing to show their flower buds, give the roots liquid manure once a week.

Plants with pure white flowers are always attractive, and should have every care and attention bestowed on them. Unfortunately, during the past few years many of them have gone out of cultivation, excepting in a few places where a collection of indoor plants is still cultivated, or in botanic gardens. The following evergreen shrubs with white flowers comprise a select list: Acokanthera (syn. Toxicophlaea) spectabilis (see Fig. 124) is a warm house plant that produces large sprays of white fragrant flowers in spring. It is very floriferous, and even young plants flower freely. The blooms are very useful for the making of floral designs, being delightfully fragrant as well as pure white.

Gloneria jasminiflora is a very compact and free-growing extremely floriferous shrub, with pure white flowers. It is a charming plant for a warm house, and most useful for cutting purposes.

Coffea arabica, a pretty intermediate-house evergreen shrub, with bright foliage, produces white, sweetly-scented flowers in the autumn. Oxera pulchella may be grown as a climber or cultivated as a pot plant. It is of free growth, the ivory-white flowers being produced in large, axillary, pendulous clusters. This is a most valuable winter-flowering plant.

Thunbergia fragrans, a pretty trailing plant bearing white, fragrant flowers is very floriferous. It is suitable for growing in suspended baskets, or covering a wire trellis in a plant house.

Tabernaemontana coronaria flore-pleno flowers in winter and spring and requires the temperature of an intermediate house. Its clusters of fine white, double flowers are produced very abundantly, and they are set off by the neat, deep-green foliage.

Posoqueria longiflora is a very old evergreen shrub, bearing pure white, tubular, sweetly-scented flowers in dense clusters, It requires similar treatment to that afforded the Gardenia. Stephanotis floribunda Elvaston variety is far superior both in size of flower and truss to the type, and may be highly recommended. This is a beautiful, well-known, white-flowered evergreen climber most suitable for planting out in an intermediate temperate house, and the flowers are invaluable for cutting purposes for the making of wreaths and crosses or other floral designs.

A well-grown plant commences to flower early in the spring and remains in bloom continually until May or June. At that time it makes a considerable amount of growth and, where necessary, the shoots should be thinned. It is generally trained near the roof-rafters in a warm, moist, house. This exotic does best planted out, but it grows and flowers well in a pot with the shoots trained around a balloon-shaped trellis. It makes a useful plant when grown as single stem specimens and flowers freely. Plants in 48-sized pots will bear four to six trusses of flowers; the shoots should be trained over an arched stick. The value of such plants grown in this way for decorative purposes can scarcely be over-estimated.

The Stephanotis may readily be propagated from cuttings made of half-ripened wood and placed in a hand light or frame over moist bottom heat. Should the plant become infested with mealy bug it should be syringed at least once daily with diluted soot water, and occasionally with an insecticide. Mealy-bug may easily be kept in check if measures are taken as soon as it appears. Gardenias are amongst the most useful of plants we possess for furnishing cut blooms. They grow luxuriantly in pots plunged in bottom heat, in a warm temperature with plenty of atmospheric moisture. The bottom heat should be produced from fermenting material such as dung and leaves mixed; the warm, moist conditions of the hot-bed act as a preventive to attacks of insects. Syringe the plants two or three times during the day when the weather is suitable for spraying. When the plants are well rooted and commence to show their flower buds, a little liquid manure applied to the roots once or twice weekly will be beneficial to them, as the stimulant encourages the flowers to open freely. Where large numbers of plants are cultivated, they may, with a little extra attention, be had in flower throughout the year. When planted out they make fine bushes and produce a large quantity of flowers; having green, shining, leaves, they are a great acquisition to warm house plants. On warm days, a little air may be admitted to the house, but draughts and a dry atmosphere should be guarded against. Cuttings of half-ripened wood root freely in sandy soil in a moist bottom heat of about 70°, under a hand light or frame. Strong cuttings will give plants that will flower the same year as they are rooted. The soil for potting should consist of two-thirds good turfy loam and one-third fibrous peat or leaf-mould with silver sand added. The best species for general purposes is G. florida, a very free-flowering plant with fragrant white flowers and glossy green foliage. *John Heal, V.M.H.*

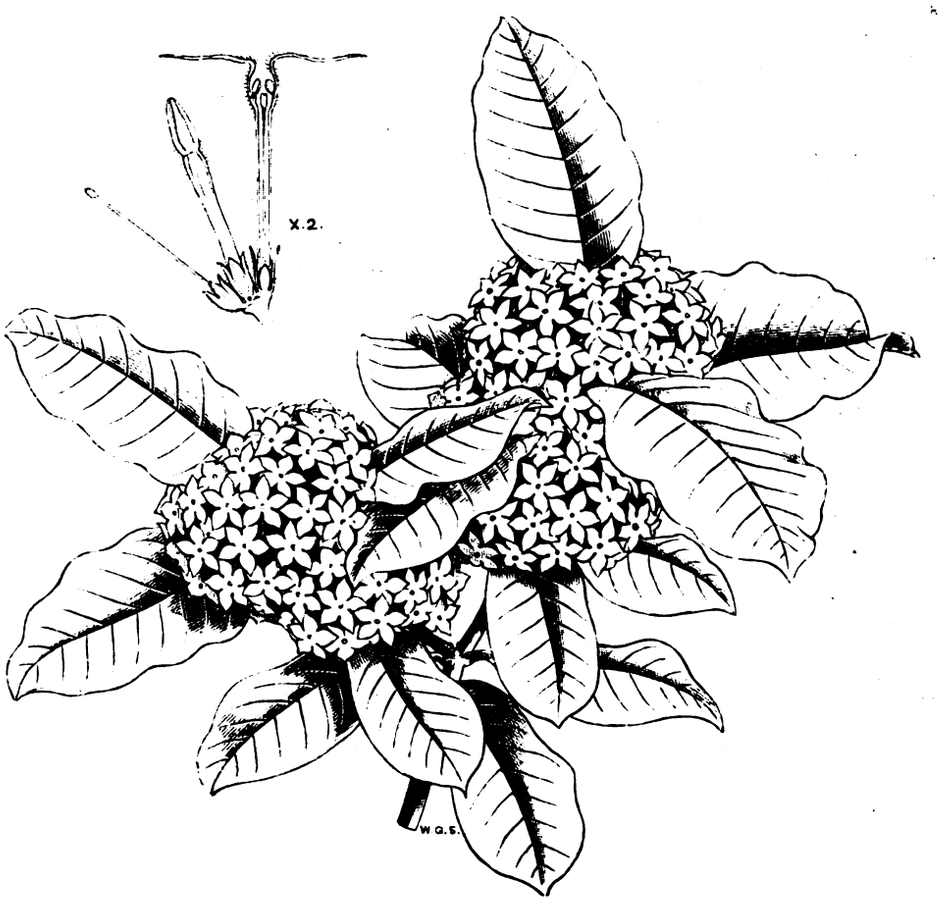

FIG. 124.—ACOKANTHERA (TOXICOPHLAEA) SPECTABILIS.

CESTRUM (HABROTHAMNUS) ELEGANS.

DURING the past two or three decades our gardens have been enormously enriched by the introduction of a large number of new plants from all quarters of the globe. This is all to the good, and adds to the joys of gardening, but is there not a danger of losing sight of some of the old, well-tried and beautiful plants that we loved in the closing decades of the last century? Such a plant is Cestrum (Habrothamnus) elegans, a winter-flowering greenhouse shrub of incontestable merit.

Introduced from Mexico about 1840 it soon became widely spread, and the fact that it flourished in a house of low temperature quickly made it a universal favourite for covering the walls and pillars of the cool greenhouse, for which purpose it still has few equals. Its red, elongated, tubular flowers, gradually widening to the top into a five-parted limb are borne in large clusters on long, slender branches clothed with alternate entire leaves, which are dark green above and downy on the under-surface.

For covering walls and pillars this Habrothamnus should be planted in a border and receive liberal treatment. It is also well suited to growing in pots. Cuttings struck in late spring, pinched several times and grown on outside during the summer make useful specimens for the decoration of the conservatory in winter. *W. Auton.*

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, late Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Sophronitis grandiflora. — This delightful Orchid is now in bloom; its brilliant flowers are always appreciated, and those who are fortunate in possessing choice varieties should take care of them, as undoubtedly they will become very valuable as time goes on. By using this Sophronitis as a parent, raisers have given us hybrids of rich colouring and great beauty. The flowers are produced on the partly-made pseudo-bulbs, and whilst in bud, care should be taken that no water lodges in the crown of the growth, as it might set up decay of the flower spike and new growth. Until the flowers are produced, the plants may be afforded water at the roots whenever they are seen to require it. Plants needing attention at the roots, are best attended to in the spring, when fresh roots are developing from the new growths.

Hybrids of Sophronitis.—The hybrids of Sophronitis grandiflora comprise plants of various characters; some being of small growth and others large. They have no particular season of flowering, as, owing to the different parents with which Sophronitis has been crossed, some one or the other is in bloom the whole year round, for this Orchid has been crossed with Cattleya, Laelia, Laelio-Cattleya, Brasso-Cattleya and others. The numerous forms mostly have flowers of vivid colours, whilst there are some with flowers of a yellow hue. In a family with such a varied parentage, it is obvious that constitutionally there is much diversity, but as I have pointed out before, a close observation of the different plants will soon teach one their requirements. Some of them have the character of being bad growers, but to my mind it is only a question of finding a place to suit them, and the ability to meet their requirements. The majority of them succeed in a light, warm position, in the Cattleya house, whilst the Sophronitis parent delights in the temperature of the cool or intermediate house. These plants are best grown suspended where no water from the syringe can reach them, and where they may enjoy all the light possible. They should be watered judiciously at all times, as the young growths decay and turn black if the compost is watered indiscriminately. Some of the hybrids have fine, and others thick roots. The thick rooting plants are generally of a more robust nature than those with finer roots, therefore they may be grown in larger receptacles, but over-potting must be guarded against in every case. The repotting of any of these delightful hybrids which have recently bloomed will be best deferred until the spring.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Pot Vines.—As soon as the vines have broken into growth satisfactorily the night temperature should range from 55° to 60° according to the weather, with a corresponding rise during the day. When the leaves appear raise the temperature by 5° both night and day. In favourable conditions admit air during the morning, closing the house at mid-day. The vines should be tied to the trellis soon after they have commenced to grow. Remove all weak and crowded growths at an early stage of their development. When the bunches begin to elongate discontinue the syringing of the vines, but promote atmospheric humidity by damping the bare spaces several times daily. To maintain a steady bottom heat it may be necessary to partially renew the fermenting material. Watering should be done carefully; keep the soil moist without saturating it. When the shoots attain a length of one foot a more liberal supply of water may be applied to vines in perfect health.

Early Muscat Vines.—If ripe muscat Grapes are required during the latter part of June this vinery may now be closed, and sufficient fire-heat used to maintain a night temperature of 50°, and 55° to 60° by day in mild weather. A mild hotbed placed on the border will stimulate root-action and obviate, to a certain degree, the need for artificial heat, which is an advantage. The condition of the border as regards moisture should be ascertained, and tepid water applied if required. Young rods should be tied down half-hoop fashion, so as to cause them to break regularly. Syringe the vines twice daily, and damp the paths and borders occasionally on sunny days. Where the roots are growing in both inside and outside borders, the latter should be covered with a mild hotbed of previously prepared fermenting materials; failing this apply a thick layer of freshly gathered Oak or Beech leaves, which may remain until warm weather returns, when it may be reduced in bulk by degrees.

Late Vines.—It will be necessary to examine late Grapes frequently with a view to removing bad berries. Muscats will need very careful treatment throughout this month and the next. If the bunches are shaded on the top with opaque paper, and a temperature of 48° to 50° is maintained, the Grapes will retain their freshness for a considerable time. Vines partially cleared of the bunches may have the remaining ones cut and placed in bottles in the Grape-room. This done the vinery may be thrown open, for plenty of cold air will be beneficial to the vines. If the borders are approaching a state of dryness they should be watered freely. Grapes such as Gros Colmar and Lady Downe's which are required to be kept as long as possible, should be allowed to remain on the vines for a month or five weeks longer before bottling them, keeping the vinery cool, and ventilating it whenever the weather is favourable for admitting air, but not on foggy and damp days.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL Ampthill Park, Ampthill, Bedfordshire.

Lawns.—Where lawns have had heavy usage during the past season or the land is naturally on the poor side, some form of enrichment should be given to make up for the loss experienced. The top-dressing may consist of well-decayed farm-yard manure, old potting soil and a seven inch potful of bone meal to each barrow load of the compost. The manure should be broken as finely as possible, and then passed through a coarse sieve, adding the soil in the proportion of one part to every two parts of manure. Scatter the mixture evenly over the lawn and harrow it into the surface from time to time during the next two months or so. Should any depressions be noticeable these should be made level before applying the top-dressing.

Christmas Evergreens.—The securing of a supply of evergreens for Christmas decorations will occupy much time in most gardens during the current week, in addition to which there will be lengths of rope to be covered with short sprays of greenery for festooning purposes. For this latter use practically every kind of evergreen available should be secured to give variety and colour to the decorations. The supply of these evergreens should be taken from the back portions of woods and shrubberies as much as possible to avoid spoiling the frontal effects. Where it may be necessary, however, a little thinning of congested evergreen shrubs may be done anywhere by an experienced worker, even at this season of the year. On occasions one has to give ear to the cry of exigency before that of recognised custom.

PLANTS UNDER GLASS.

By JOHN COUTTS Assistant Curator, Royal Botanic Gardens, Kew.

Winter-flowering Begonias.—As these plants pass out of flower a sufficient number of strong healthy specimens should be selected for stock. In the case of the hybrids between B. socotrana and the tuberous-rooted varieties, as represented by Elatior, Optima, Mrs. Heal and Fascination, it is wise to retain plenty of stock plants, as they are by no means easy to keep over their resting period. The plants are best grown in a temperature of 50° to 55°, and water should at all times be carefully given at the roots. Aim at keeping the leaves in a fresh and healthy condition for so long as possible; as the foliage gradually dies off less water will be required, but at no time should complete drying-off be attempted. Frequent damping between the pots, and light sprayings rather than direct watering at the roots, will do much to tide them over the critical period. About the beginning of May they should begin to show signs of fresh growth; one may then regard the difficult period as being past. Some cultivators at this time resort to shaking the plants out, and replacing them in smaller pots with fresh compost; this I have not found necessary, unless it is desired to grow on some of the old plants as large specimens, for which purpose it is best to select young plants that were propagated late last season.

Begonias Gloire de Lorraine.—Begonias of this type do not, as a rule, present any difficulty. Plants selected for stock should be shortened somewhat, and kept on the dry side for a time, and later afforded more water at the roots. Young growth suitable for use as cuttings will then be produced from the bases of the old plants.

Other Begonias that flower during the winter include B. coccinea, B. Luzerna, B. fuchsioides, B. polyantha and B. Corbeille de Feu; they all belong to the evergreen or sub-shrubby section, and although most of them were commonly grown at one time they are seldom seen now-a-days. They are useful for furnishing the greenhouse during the winter, some of them, indeed, flower the year round.

Allamanda. — During the winter months Allamandas should be kept somewhat dry at the roots. While pot-grown specimens may, with advantage, be kept in a lower temperature, the warmth of the house should never fall below 55°. Where the strong growing species are planted out and trained under the roof glass, it may be necessary—for the sake of plants standing underneath them—to partly thin out the shoots, but the final pruning should not be done until January or February, when they should be pruned hard back, except such shoots as may be required for extension. With the exception of A. violacea, which should be grafted on young plants of the stronger growing species, Allamandas are easily propagated at any time by means of cuttings, plunging the pots in a close case with plenty of bottom heat. When they are are pruned back early in the year the ends of the shoots may be used as cuttings.

Solanum Wendlandii.—This handsome climber, where planted out, should be kept on the dry side during the winter. Plants in pots may be dried off and stored in a greenhouse, but the amount of drying off should be regulated by the age of the plants. Young plants with little or no old wood will not withstand so much drying off as older specimens. They should be pruned during February, when some of the more slender shoots may be cut into lengths of about four inches and used as cuttings, which will root readily in a warm propagating case.

Solanum Seaforthianum.—This is a much more slender growing species, and very useful for planting out in an intermediate house. It produces its pretty, pale, purple flowers more or less all the year round, and may be propagated at any time by means of cuttings.

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THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Broad Beans.—The grower who has ample room under glass may obtain an early supply of Broad Beans by sowing five seeds each in eight-inch pots. Put plenty of drainage in the pots and use a compost consisting of good fibrous loam broken small, with a liberal addition of old Mushroom-bed manure. Three parts fill the pots with the soil, press the seeds edgeways firmly into it, and cover them by adding about an inch more compost. Water the soil and stand the pots in a vinery or Peach house, or even a cold frame will answer provided the plants are protected from severe frost. Broad Beans will not force, in the strict sense of the word, but young beans may be produced early in the spring if the crop is allowed to develop steadily and careful attention is given to watering, top-dressing with good soil, and staking the shoots when they require supporting.

Peas.—Good crops of Peas may also be produced by sowing seeds now in pots of eight or ten-inch diameter, using similar compost to that advised for Broad Beans. Make the soil fairly firm, sow ten or twelve seeds in each pot, and cover them with an inch of sifted soil. Water them, and transfer the seed pots to a cold house. The seeds will soon germinate, and as soon as the seedlings are large enough to handle, thin them to five or six in each pot. Grow the plants as near to the light as possible to prevent them becoming drawn and weakly, and as soon as they are large enough topdress them with some of the same soil. Place neat twigs in the pots for supporting the shoots. There are many varieties, both dwarf and tall, among the first earlies that will give good results in pots.

Lettuces.—Autumn-sown Lettuces will soon be past their best, Endive, Chicory, and Dandelion taking their place as salad plants. A sowing of one or two of the early and quickly-maturing varieties of Lettuces should now be made in a warm house. As soon as the seedlings are large enough they should be pricked out into boxes and transferred to frames on hot-beds. The non-hearting varieties may be pricked out in boxes and placed in a genial temperature. They will be ready for cutting before the hearting kinds as they grow very quickly, and, if kept fairly well watered, make a welcome addition to the salad bowl early in the spring.

Rhubarb.—Continue to lift small batches of Rhubarb roots and let them remain exposed to the air for a few days before placing them in the forcing house. The permanent beds should receive a good top-dressing of well-rotted manure; the winter rains will wash the nourishment down to the roots thereby greatly benefiting the crowns. The dung may be dug in when the beds are being tidied up before growth starts.

HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Orchard Trees.—The trees in old established plantations are usually of standard growth. With reasonable care an orchard that has not been too neglected may be brought into condition, to give a reasonable return. The first essential is to cut out the thick shoots that cross each other to let light and air enter the tree. Trees that are infested with lichen and insect pests should be sprayed with alkali wash after the work of pruning has been completed. The soil around the roots may need nourishment, either manure or lime; a good dressing of the latter is necessary in many instances. If the impoverishment is due to grass, it may be well to remove the turf about the bole of the trees to a diameter of 8 to 10 feet. Young trees will not thrive if grass is near them, but older trees are not so affected, only so far as a close or dense turf prevents a considerable amount of air reaching the roots. The work of repairs to fences, hedges, and boundaries of orchards may be undertaken when frost puts a stop to other work. Where rabbits abound the trees should be protected by wire netting to the height of about 4 feet up the stems. Where cattle are grazed in orchards, iron tree protectors may be necessary, and these should be inspected to see they do not injure the bark in any way. The iron-work will also need painting or tarring periodically. All trees should be labelled, and the wires by which they are affixed examined to see that they are not cutting into the bark.

Pears.—Self sterile varieties of Pears, as in the case of Apples, should be interplanted with free setters. These flower at the same time. The following varieties are suitable for providing a succession of fruit. Early: William's Bon Chretien, Beurré d'Amanlis, Louise Bonne of Jersey, Emile de Heyst, Beurré Hardy, Durondeau, Marie Louise, and Doyenné du Comice. Good late Pears include Beurré Diel, Glou Morceau, Beurré Clairgeau, Beurré Rance, Josephine de Malines, Le Lectier and Olivier de Serres. For rich, loamy, and heavy soils, Pears are best worked on the Quince stock, which has the same advantages as the Paradise Stock for Apples. Standard Pears should be grafted on the Pear stock.

FIG. 125.—BOENNINGHAUSENIA ALBIFLORA AT KENTONS, 1913. (SEE P. 351).

ALPINE GARDEN.

POLYGONUM SINO-CAPITATUM.

THIS is a very showy, prostrate-growing plant suitable for creeping over rocks. It has a curious combination of bronze and crimson colouring in its ovate leaves. It produces terminal heads of globular, soft pink flowers that are quite distinct. This plant needs to be grown in partial shade. *L.*

GENTIANA LAGODECHIANA.

MANY very beautiful Gentians have been introduced during recent years, and of these very few are of greater garden value than the subject of this note.

This magnificent Chinese species is very easy to grow, thereby differing from several other lovely Gentians; it appears to thrive equally in sun or in half-shade, provided the root-run is deep and cool. The flowers are produced at the extremities of the prostrate stems They are of good size and a brilliant deep blue in colour, with a little suspicion of green in the interior of the trumpet. Gentiana lagodechiana commences to bloom during July and continues to produce a succession of flowers until well into October.

Seed is plentifully produced and provides the best means of propagation. A mixture of loam, peat and sand, with a surfacing of stone chips suits this delightful plant, which needs the protection of a piece of glass during the winter but only if the weather is immoderately wet.

The flowers are of very long duration and a brilliant feature of the rock garden. *Ralph E. Arnold.*

[This plant received the R.H.S. Award of Merit on July 29, 1919, when shown by Messrs. Bakers, Wolverhampton. It was then regarded as a form of G. septemfida. EDS.]

CALANDRINIA UMBELLATA.

BIENNIAL in some positions, suitably placed in the rock garden or retaining wall, this bright little plant is a true perennial.

As this Calandrinia greatly resents transplanting, a few seeds should be sown thinly in small pots and the seedlings planted from the pots into their permanent quarters.

The brilliant magenta-crimson flowers are freely produced and wonderfully effective in bright sunshine; they are of long duration but remain closed during dull weather.

Planted in gritty soil on a rocky ledge or in the chinks of a wall, the plants take upon themselves a partially shrubby character and will thrive and flower over a number of years. Damp is the greatest enemy of this Alpine, therefore a position, such as the almost vertical face of a rock, or in a wall where some protection may be afforded against excessive damp, should be selected for the plants. Cuttings may be used for the purposes of propagation, but seeds germinate quickly and freely.

MENTHELLA REQUIENII.

THE names of some plants are exceedingly elusive, and this is one of these. In my early gardening days it was known as Mentha Requienii. Later we were informed that this was an error and that this tiny plant should be named Thymus corsicus. Now we are told that t should be termed Menthella Requienii. So far as regards its odour it is a Mint, with a pungent, yet delightful smell of peppermint, so powerful as to make one wonder that such a tiny plant could emit a scent so patent to all. But it requires adversity to bring out the possession of this virtue. As it carpets the ground or fights for existence among grass the tiny green leaves and the small blue or lavender flowers appear like a lichen's growth. Tread on it or touch it with the fingers and the perfume is apparent. It is a worthy little plant, which delights in a cool and damp nook where it will cover the ground closely with its leaves, which, about August, are decked with the tiny flowers already referred to. *S. Arnott.*

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MARKET FRUIT GARDEN.

NOVEMBER, the best month for the planting of fruit trees and bushes, gave no suitable opportunity for this work. Rather more than the average rainfall for the whole month (2·63 inches on 9 days) fell during the first fortnight in my district, and then wintry conditions set in, the ground being frozen hard every night for the rest of the month. It is quite likely that there will be no chance of planting until February. However, there is much compensation in the fact that the frost must have done the land a great deal of good. I had several acres ploughed in readiness for planting, and there is no doubt that this will work down all the better, when the time comes, for having been subjected to hard frost. This is just what we have missed in recent winters, and the land has worked badly in spring as a consequence.

Progress with Pruning.

Work on the land being impossible, the horses have been usefully employed carting farmyard manure from a neighbouring farm, and the skilled hands have made good progress with pruning. There was a time when we were afraid to prune during frosty weather, and warnings against this practice are still seen from time to time in horticultural journals; but repeated experience has shown me that there is absolutely nothing to be feared. I have never seen the slightest harm follow pruning in any weather which men can tolerate.

I like to get the Plums pruned first. This consists almost entirely of cutting out dead wood; and there are many cartloads of it this year as a result of the severe attack of brown rot. It is promptly burnt, of course. Fortunately there is plenty of new growth to take its place. In the case of old Plums I leave the new shoots alone, except where they are crowded or interfering with others. The danger of silver-leaf makes it advisable to reduce the pruning of Plums to a minimum once they get to full fruiting condition. The trees should be shaped, as far as possible, whilst young, and then allowed to go pretty much their own way. There will always, unfortunately, be quite enough to do in the way of cutting out dead wood, which, in most cases, keeps the trees quite open enough.

When it comes to Apples I believe in lightly tipping the leading shoots of the old trees, as this keeps them growing. For many years the trees on my place, after the first few years of hard pruning to form the foundation, were allowed to go so far as leaders were concerned, pruning being practically confined to mere thinning out. This plan undoubtedly brings the trees quickly into bearing, and may be advisable for this purpose; but I think there should, at any rate, be a return to the tipping of leaders after the trees have been got into full bearing. Otherwise, on my rather poor land, they are apt to cease growing and to become a mass of fruit spurs. During the last two winters I have worked to get such trees growing again. The branches have been cut back to some kind of bud, almost dormant in most cases, and the tips cleared of fruit spurs for about six inches. In most cases this plan has been successful in producing a little growth, and it will be continued. On better land strong-growing varieties on free stocks may continue to grow quite enough without shortening the leaders, but for my conditions I believe the light tipping is advisable even for such a vigorous variety as Bramley's Seedling.

As for laterals, these are cut right back to fruit buds, where there are any, as is usually the case on old trees. Where there is no fruit bud the lateral is shortened to about five inches. Short spurring is strictly avoided, except in the case of varieties that make thin, twiggy laterals, and are liable to make too many fruit spurs, of which Allington Pippin is an outstanding example. My object is to make the pruning of old trees practically fool-proof, so that the ordinary hands can be put to it. Almost the only point on which they are required to show judgment is in deciding what laterals should be allowed to extend (treated as leaders) in order to furnish the tree with new branches. Here they are apt to fail, the tendency being to spur too many of them, with the result that the trees become too sparsely furnished at the tops.

The pruning of young trees can never be made fool-proof, judgment being continually called into play. A few men have an instinct for it; others can never be taught. I do this work myself as long as I can cope with it, which generally means until the trees are six or seven years old.

Pests and Diseases in 1924.

Present indications encourage the hope that pests and diseases will give less trouble next year than they did in the past season. Whilst pruning young Apples I have not found any eggs of the permanent Apple aphis, whereas last autumn many of the shoots were smothered. Several growers who have grease-banded their trees report a very light catch of winter moths, and I have observed none of the males on the wing. A few growers, however, report a full catch on grease-bands; so caterpillar trouble may be expected to be local next summer. I do not think that we often get two really bad aphis years in succession. One would think that the hosts of aphides about during the past season would be certain to lay enough eggs to ensure a severe attack in 1924; but nature in some way upsets the normal course of events. Possibly weather conditions may accomplish it, or natural enemies in the way of parasites. The latter are said by entomologists not to help us very much against aphides; but it seems to me that, though the parasites come too late to deal with a heavy insect attack before it has done a lot of damage, by the end of the season they have become numerous enough to make a clearance of the pests and so prevent a repetition of the serious attack in the following season.

Still more curious is the way in which fungus diseases fluctuate from year to year. Apple scab and brown rot of Plums have been very severe with me this season, and the weather throughout the year has been wet, and of a type, one would think, to encourage the spread of these diseases. Yet the young wood of Apples and Plums is now unusually free from scab and brown rot respectively.

It would be foolish, of course, to relax precautions on the ground of such observations; but I certainly expect 1924 to bring less trouble in the way of pests and diseases then its predecessor.

Organic Manures.

Few market growers nowadays are able to obtain as much farm-yard manure as they need for their trees, and town stable manure is much scarcer than it used to be, and never so good. This, no doubt, is one reason why so many growers are grassing their orchards and doing most of their manuring by grazing pigs beneath the trees There remain, however, plenty of cultivated orchards, for which a certain amount of organic manure is essential. Probably we can successfully supply any needed phosphate and potash in mineral form, but there seems to be no getting away from the call for nitrogen or ammonia in organic form, and the bulkier the source the better. Shoddy or wool waste always gives good results, and is probably the best substitute for farm-yard manure, though it is not a complete plant food, supplying nothing beyond nitrogen and organic matter, the latter in considerable bulk, since a fair dressing is 2 tons per acre, and the material is light if in dry condition. I like what is sold as grey shoddy, because it is in a finely-divided state, easily applied, which is more than can be said of all shoddy. This appears to be the actual raw wool, the dirty portions clipped off the fleeces. Some growers object to it because it contains a lot of weed seeds. I understand that these are of some species of Clover which grow in Australia, and I find that, though they germinate freely here, the seedlings soon die off in our climate. Castor meal is another organic nitrogenous material which I have used with success; but, although cheap on the face of it, if the price per unit of ammonia is worked out it is found to be rather high. Rather a favourite source of nitrogen with growers is ground hoof or horn. I have not tried this, as it seems to me that such indestructible stuff must be very slow in action, particularly as many samples are coarsely ground. However, its reputation is undoubtedly good, and I mean to try a finely-ground meal some day.

Meat meal and fish meal are largely used, and I have found them excellent, particularly for bush fruits. These differ from the materials already mentioned, in that they supply phosphates in addition to ammonia, and fish meal a little potash as well. If bush fruits can have farmyard manure every few years, they do very well with meat or fish meal in the intervening year.

Can we Pack too Well?

The Imperial Fruit Show at Manchester has revived interest in the subject of packing, and growers have again been blamed for not marketing all their best fruit in bushel boxes. Undoubtedly much more of this ought to be done for the big markets where there is a demand for Apples packed in this way. But I find that some of the provincial markets simply will not have it, or rather will not pay for it. The fact is that very many of the provincial markets do not make their own prices, but base them on report from Covent Garden. These reports give average prices, and not the prices which would be made by fruit graded and packed in an exceptional manner. The provincial salesman can get for his clients a little more than these average London prices, but if he goes too far above them it pays the retailers to get their supplies direct from Covent Garden, or opens the way for little wholesalers who hang about the market on the chance of buying produce cheaply and running it out to provincial towns on motor lorries. It works out that the grower cannot obtain more than a certain level of prices in a provincial market, no matter how well he packs; and, therefore, if he grades and packs any better than he need to secure those prices, he is simply throwing money away. I have always been an advocate for good grading and packing, and I box Apples for the London market whenever it pays me to do so; but it is still much more profitable to market the bulk elsewhere in half-sieves. Growers get all the blame for not adopting the boxing system, whereas quite as much belongs to the salesmen and retailers. The latter are popularly supposed to be ready

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to jump at English boxed Apples in preference to those in baskets; but this is far from the truth. As things are at present boxed Apples meet the need of exceptional trade only, and it is not particularly easy to find a profitable outlet for them.—*Market Grower.*

PLANTS NEW OR NOTEWORTHY.

BOENNINGHAUSENIA ALBIFLORA.

BUT for the inexorable law which decrees that once correctly named a plant must always bear the title originally bestowed upon it, it is certain that the Rue whereof the beauty and floriferous character are so well portrayed in the photograph (Fig. 125), would long since have reverted to the pleasant name, Ruta albiflora, assigned to it by Hooker a hundred years ago, and of which it was deprived by Reichenbach in 1828.

The literature of our subject is scant, and if we take the most recent example, we find that Farrer* reports of Boenninghausenia that it is "a foot to eighteen inches high with sprays of the most ravishing small flowers, fine snow-white, all through the later summer It ranges from moderate elevations of 4,000 to 8,000 feet from Marri to Sikkim, and thence through those marvellous mountains of Asia across into Japan." From this we may conclude—did we not already know—that the species, which Farrer never saw in his Asiatic expeditions, did not prosper at Ingleborough, where he had his home, and that he was content to re-affirm Hooker's account of the plant.

The first mention of the species is found in Hooker's *Exotic Flora*,† wherein it is described and figured as a new species under the name of Ruta albiflora. Five years later, without apparently placing his reasons on record, Reichenbach,‡ possibly impressed by the obscurity of the generic character noticed by Hooker, removed the species from the Rue family and made a new monotypic genus of it, under the cumbrous title by which it has been known ever since. All we find in Walpers,§ is that Boenninghausenia grows in Nepaul, and Bentham and Hooker‖ gave it a range: "*Indiæ borealis montanæ et Japoniæ incola.*" Since then references to the plant have been few and far between, and that is the more remarkable in times like the present, when the virtues of plants are chronicled to such an extent as often to render their reiteration tiresome.

Under cultivation, Hooker's standard of height may become a yard and Farrer's "late summer" is often September and October, for the species is one of the latest of plants to bloom, and is regularly nipped by frost. In a backward season it may not commence to flower until about Michaelmas. The writer had several plants in his garden from 1903 till 1921, and beyond the fact that they were placed where the cold winds of spring could not reach them, they had to take the weather of those nineteen years as it came. The plants were frozen stiff several times during the period in question, and when that happened they generally lost their leaves, and much of the growth was cut some way back, only, however, to spring up again the following summer. The plants never received protection and did not seem to need it, even in the trying winter of 1908-9.

The specimen figured was about seven years old when photographed in 1913. It was then rather more than a yard high and as much across, and, fully exposed to the sun, grew in granite chippings mixed with equal parts of leaf-mould and a mere sprinkling of loam. It was over a subterranean irrigating pipe, and we may perhaps conclude that that may have had something to do with the fine growth of the plant. As it eventually outgrew its space, the plant had to be moved, and never recovered the operation, which, perhaps, was not done so carefully as would have been the case had it seemed difficult to cultivate. Of several other plants, two, growing under the same conditions, did as well as that shown in the illustration; the rest, in ordinary garden soil and without underground watering, did not prosper. The species is easily raised from cuttings, or seed, but the latter plan is to be preferred.

A. Grove.

* *The English Rock Garden*, Vol. 1, p. 145.

† Vol. '. Pl. 79 (1823). Ruta albiflora: plant woody and apparently perennial, about a foot in height, forming a small but handsome branching shrub . . . the whole giving out when bruised a smell similar to the Common Rue. This interesting little species of Ruta, so unlike all the others with which I am acquainted, in the general appearance and colour of the flowers has, nevertheless, the same structure of leaves and the same smell with the rest of its congeners. The number of parts in the species of this genus seems to be variable; but the stamens appear to me to be more frequently eight than ten. In regard to the generic character too, there seems to be some obscurity; at least, in the species I do not find "puncta mellifera," which are described as existing on the receptacle. There is, indeed, a remarkable gland or nectary surrounding the base of the germen, as in the other species of Ruta; but there are no distinct spots. The germen is pedunculated, which I do not find to be the case with other Rutæ, and the styles, though united so as to appear but one, are in reality four, or as many as there are lobes to the germen; and these are frequently separated as the lobes diverge in the capsules advancing to maturity. It is the only species with which I am acquainted that has white flowers. The plate is figured from a specimen in the garden of P. Neill, Esq., at Canonmills, in Edinburgh; it was raised from seed received from Nepaul.

‡ *Conspectus*, p. 197 (1828).

§ *Repertorium*. 1, p. 517 (1842).

‖ *Genera Plantarum*. 1, p. 287 (1862).

HAKEA SUAVEOLENS.

THE flowering shoot of Hakea suaveolens illustrated in Fig. 126 was kindly forwarded by Mr. W. H. Honess from Viscount St. Cyres' Gardens at Walhampton, Hampshire. Mr. Honess states that the plant from which the shoot was taken is growing in a cool house, and is about five years old from the seed. Mr. Honess also states that they have a plant of Hakea suaveolens in an open border, where it has been growing for the past two years. This plant was recently subjected to frost of 20° and 18° respectively on two consecutive nights, and Mr. Honess is not able at present to state whether it received severe injury. It will be interesting, however, if he would communicate later how the plant behaved after experiencing such severe cold.

FIG. 126.—HAKEA SUAVEOLENS.

Hakea suaveolens is a Proteaceous shrub some eight to fifteen feet high and a native of Western Australia. The whitish flowers are produced in small clusters, as shown in the illustration, and apparently they are sweetly scented. The foliage is very elegant, and is somewhat similar to that of certain shrubby New Zealand Veronicas, and the leaves are as stiff as those of some Conifers, to which they bear no little resemblance: they are borne on erect, reddish barked stems

The specimen sent by Mr. Honess has remained perfectly fresh in water in our office for more than a week and shows no sign of withering.

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A BI-GENERIC HYBRID: FATSHEDERA LIZÉI.

At the recent horticultural exhibition held in Paris (see *Gard. Chron.*, November 17, 1923, p. 298) MM. Lizé, nurseryman, Nantes, showed under the name of Aralia Lizéi, a very interesting plant, said to be the result of a cross between Fatsia (Aralia) japonica var. Moseri and the Ivy (Hedera Helix var. hibernica).

M. Guillaumin, of the Paris Natural History Museum, has studied the plant in question, and has written a note about it, which he read at the recent meeting of the Scientific Committee of the Société Nationale d'Horticulture de France. The plant shows a curious mingling of the characteristics of the Ivy and the Fatsia. It has the bearing of a Fatsia, but the stem is more slender and more branched; the medulla is like that of the Ivy, with secretory glands and regular, unpunctuated cellules. The leaves have from 3 to 5 lobes, as on the sterile branches of the Ivy; the petioles are long, with numerous libero-ligneous fascicles like those of the Fatsia; but there are no secretory glands in the sub-epidermic collenchyma, as in the Ivy. The flower-buds resemble those of the Ivy, and are equally hairy, unarticulated, with plain sepals, but having five distinct styles, like the Fatsia

The only characteristics intermediate between the two genera are (1) The texture of the hairs, which are starred (? rayed) and stiff in the Ivy; sparse, simple, or more rarely flexuous in the hybrid; (2) The shape of the disc which crowns the upper portion of the ovary is also intermediate in the hybrid. The stamens are always sterile and have no anthers.

One may thus conclude that this is really a bi-generic hybrid, and M. Guillaumin proposes that it shall be named :—Fatshedera Lizéi, Guillaumin (Fatsia japonica var, Moseri ♀ × Hedera Helix war hibernica ♂). *A. M.*

NOTES FROM A WELSH GARDEN.

Lithospermum rosmarinifolium has been a most beautiful object for some weeks, ceasing temporarily to flower only during the short spell of frost in late November. We have this fine subject growing in very poor, stony soil at the top of a low, dry wall in full sun, where it has made a spreading mass of its dense, rich green foliage. It is very seldom that this beautiful plant is injured by frost, although the blossoms are sometimes affected; but no sooner does the weather get milder than the intensely blue flowers expand as freely as ever.

Another bright spot in the rock-garden has been afforded by that charming little Daisy from Southern Europe, Bellis sylvestris. In general appearance and habit this pretty plant is much like our own field Daisy, but the foliage is larger and looser and the taller flower stems each bear a blossom that leans over, and whose white rays are tipped with a full rose-madder. That other delightful species, B. rotundifolia cœrulescens, with its distinct, grey-green foliage and pale bluish-lilac blossoms, which have been maintained in succession all summer, has only just ceased blooming.

With the approach of winter several of the Sedums develop that blue-white "bloom" which renders their foliage so attractive. Among these a few good and distinct forms of S. spathulifolium purpureum are most striking, the mealiness giving the red-purple rosettes a delicate dove colour. An old and distinct form of S. brevifolium (probably Pottsii) undergoes the same change, but in its case the white of the little round leaves assumes an electric-blue brilliance which is very effective. I think the charming S. Palmeri is more delightful at this season than at any other, as its pale yellowy-green rosettes now take on their glaucous winter sheen. Another member of the same genus which is at its best from autumn to late spring, practically going "out of business" in summer, is the little blue-grey S. amplexicaule.

In a half-shady place in the woodland Vinca difformis has been very lovely for a considerable time, and it still carries clusters of buds which will expand, as weather permits, throughout the winter. Though not unlike the Common Periwinkle (V. major) in foliage and habit this is a smaller and much less aggressive plant. In the form we have the flowers are a cold, icy white, with the merest tinge of blue. They are smaller than those of V. major and as the segments are sharply pointed to one side, they have that "whirling" appearance common to some of the smaller varieties.

Though the spell of hard weather, with the help of the birds, finished off most of the autumn berries, the Pernettyas are as gay with fruit as ever. The fact that they are thus left to remain in berry not only for the winter months but possibly until the new crop is appearing, should be sufficient to make these little shrubs popular with gardeners of all classes. But they are still quite uncommon in many localities. One rarely sees their fruiting sprays used for decoration in houses or shops at Christmas-time—a purpose to which they are admirably suited—and there are many uses in large and small gardens to which Pernettyas might be put, and which are now filled by shrubs of inferior merit.

The last of the Heaths to flower, Erica stricta, will not lose all its colour until E. darleyensis begins to bloom. Thus the former links-up the autumn with the winter-flowering kinds and these will "carry-on" to spring and so complete that chain of colour which the Heath garden maintains unbroken throughout the year. But E. stricta itself will be a subject of no little attraction for months to come, for its foliage is very distinct and its fine green affords a very telling setting for the bright rusty-red of the withered corollas which adorn the tips with delightful effect. Nor can one, in speaking of Heath foliage, pass-by without mention the warm coppery tint of Calluna vulgaris var. cuprea and the brassy gold of the variety aurea of the same species.

Arbutus Unedo and A. Menziesii never look quite so attractive as they do at this season in our woodland garden, the lustrous green of their beautiful foliage contrasting well with the brown of fallen leaves and dead Bracken fronds. The former, moreover, is furnished with both flowers and fruit, but although A. Menziesii has outstripped its neighbour it has not yet put forth a bloom.

Probably on account of the cold summer and autumn Fatsia japonica has not flowered with its customary freedom. Its bold, ivory-white knobs of blossoms are usually among the most striking features of the later autumn garden here. But this is, after all, a foliage shrub before anything else, and as such it would always be an object of distinction if it never produced a flower. Some specimens in a sea-coast garden a few miles away are nearly ten feet high, but the foliage undoubtedly loses colour by exposure to too much sun and such large leaves are ill-adapted to withstand wind. *A. T. Johnson, Talycafn, N. Wales.*

TREES AND SHRUBS.

EUCALYPTUS WHITTINGEHAMENSIS.

In the current issue of the *Transactions* of the Royal Scottish Arboricultural Society,* Mr. G. U. Macdonald gives an interesting account of an excursion made to Lord Balfour's seat at Whittingehame by members of the Society. In this account he refers to the famous Eucalyptus tree in these gardens, and states that its age is said to be seventy-one years, and its circumference about two feet from the ground is sixteen feet one inch.

Reference is made to this particular tree in the *Trees of Great Britain and Ireland* by Elwes and Henry, where it is given the name of Eucalyptus whittingehamensis. The following is an extract: "A tree raised at Whittingehame, Scotland, from seed which was probably obtained in Tasmania. This differs usually from typical E. Gunnii in the absence of glaucous bloom on the branchlets and the leaves of the adult plant. This tree is considered by Maiden, who has seen branchlets both of the parent tree and of its seedlings, to be E. Gunnii; but it does not match any of the specimens in the Kew Herbarium. It resembles E. acervula in the absence of the leaves; but has only three flowers in each umbel and bears different fruit. It is certainly not E. urnigera. Seedlings of the parent tree show considerable variation in the foliage, which in some specimens, together with the branchlets and flowers, is glaucous; and this points to a hybrid origin. Moreover, some of the seedlings at least are considerably hardier than the parent. I have not been able to make a study of the seedling trees in the fruit stage; but I suspect that the Whittingehame tree is a hybrid, with E. Gunnii as one of the parents. The peculiar urn-like shape of the fruit suggests the probability of E. urnigera being the other parent, though the tree at Whittingehame does not resemble the latter in foliage,"

Mr. Macdonald points out that particular attention was paid to four trees, growing in the policies, which were raised from seed from the foregoing tree. The young trees were five years old when planted in their present position, and their rate of growth is indicated below:—

No. 1.—This tree was planted in 1891, and is now 45 feet high with a circumference of 5 feet 3 inches, at 5 feet from the ground.

No. 2.—Planted in 1894, is 43 feet high, and it also has a circumference of 5 feet 3 inches at 5 feet.

No. 3.—Planted in 1898, is 40 feet high, with a circumference of 3 feet 10 inches

No. 4.—Planted in 1912, is 30 feet high and 19 inches in girth.

* *Transactions* of the Royal Scottish Arboricultural Society, Vol. XXXVII., Part II., November, 1923.

LEYCESTERIA FORMOSA.

Mr. Irwin Lynch's remarks on this flowering shrub, on page 259, both interest and surprise me He writes, "Although it does its best to live in various parts of the country, it is rarely seen in a satisfactory condition, except under very special circumstances or in localities at least as mild as Torquay." Leycesteria has been growing here luxuriantly for a number of years. I am afraid we have hardly appreciated it at its true worth, and have been inclined rather to look upon it partly as a nuisance, as the plant is continually springing up in places where it is not wanted. At first one was tender hearted and left such seedlings in *situ*, only to find that a year or so later they had grown so big as to be smothering other plants in their vicinity. They had then to be rooted out. Birds are evidently very fond of the berries and thus distribute the plant about the garden and elsewhere. Recently I had a good-sized specimen pulled out of a yard wall.

Though of subdued colouring the shrub is striking and graceful in appearance. The pendulous racemes remind me of miniature inverted pagodas. It is not the small white corollas which render the plant conspicuous; but the port-wine coloured fracts, and as these remain fresh after the corollas have fallen the shrub, from the gardening standpoint, has a long flowering period—throughout the summer and even autumn. The berries when miniature are of the same colour as the bracts. When ripe they take on a browner hue and become very juicy, with a skin so thin that they are apt to burst in pulling them off. The pulp has rather an evil odour, reminding me of that of sour milk.

We find the plants, which may reach a height of seven or eight feet, tend to get top heavy with age. Instead of supporting them, we usually root them out and put in their place chance seedlings which make good-sized plants the second season. It is true that severe frosts may cut back the shoots considerably, but they recover wonderfully. Probably it is a plant that likes abundant

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moisture and usually there is little lack of rain here.

Mr. Lynch's remarks as regards planting this shrub for effect will have my consideration and I am grateful for them. *John Parkin, Blaithwaite, Wigton, Cumberland.*

FREMONTIA CALIFORNICA.

MR. AUTON states on p. 277 that Fremontia californica does not live to a great age. I would draw his attention to a fine plant at Leonardslee on the wall of the mansion, some 25 feet high with a stem girth ten years ago of 15½ inches. Whilst I was at Leonardslee, the tree was considered then to have been planted at least thirty or forty years. It flowered fairly well but never freely, and we experienced great difficulty in propagating the plant. We found layering the best method. *W. A. Cook.*

SPECIES OF PRUNUS SUITABLE FOR FORCING.

ON page 217 due praise is given to Prunus triloba for forcing, but I should like to bestow equal praise to the single form of this Peach, not that I have seen it as a forced plant, but I see no reason why it should not force more readily than the double form.

Grown naturally out-of-doors it has a bushy habit; the rich pink flowers appear earlier than those of the double one and are of simple charm for decoration. As growth is twiggy on the old tree no doubt the shoots would be long and strong if the plant were pruned hard back after flowering. With further reference to the double form, Prunus triloba var. flore-pleno, it is as well to mention that it is prone to Silver-leaf, and considering the great number of trees sent out by nurserymen they should take heed that stock is propagated from the healthiest plants.

There are other species of Prunus which I am certain would meet with approval if forced; they may have been used for this purpose, but I am not aware of it.

Take for instance Prunus Conradinae, which in ordinary seasons out-of-doors flowers during February. Judging from this fact but very little fire heat would be required to have it in flower for Christmas.

Prunus Conradinae out-of-doors grows strongly and makes long arching growths; the twiggy wood is crowded with blush tinted flowers disposed along the branches at flowering time.

Prunus pilosiuscula, another recently introduced Chinese species, should be added to the list; it has a different habit to the aforementioned as it is more ascending, having pink flowers densely clustered on the short twigs.

Another very fine Prunus which so far appears to have escaped the attention of growers is Prunus incisa, a Japanese species very near to P. subhirtella, especially in the colour of the flowers, which are of a pleasing shade of pink. Both kinds in the early spring are almost smothered in flowers. Prunus incisa differs from the other in being earlier to flower, stiffer in habit and less in size; it also sets fruit each year whereas C. subhirtella scarcely ever fruits in this country; the fruits of both are shining black and smaller than Black-currants. Prunus subhirtella is by now very well known and by some must have been tried as a forced tree, but it is worthy of being grown extensively for forcing, although for this purpose there is no need to have both species. Established trees out-of-doors are unequalled for their beauty when in flower. Both the white and pink-flowered forms of Prunus Davidiana should be introduced to the earliest Peach to flower out-of-doors. It has a splendid habit, grows fast, soon makes a good bush, and lends itself splendidly for early forcing and as a conservatory plant.

Although I base my remarks on trees that I have seen growing out-of-doors I am sure of their success for the purpose indicated. *C. F. C.*

BULB GARDEN.

GLADIOLUS PRIMULINUS HYBRIDS.

I HAVE gone through the chronology of the modern Gladiolus from the days of long ago when Dean Herbert first experimented with some of the then known species in his garden at Spofforth, and saw enough to be able to say, "I am persuaded that the African Gladioli will become great favourites when their beauty in the open border, the facility of their culture and the endless variety that may be produced from seed by blending the several species are fully known; nor will they be found to yield in beauty to the Tulip and Ranunculus": I have, as it were, heard the marriage bells of G. psittacinus and G. cardinalis, and taken part in the rejoicings over their first born G. gandavensis in 1841; I have noted the coming of G. purpureo-auratus in 1870, followed by the birth of G. Lemoinei in 1875; I have, so to say, been on the quay-side when a year or two after G. purpureo-auratus, came G. Saundersii, and I have its beautiful children, G. Nanceianus, the first born (1889), and a little later G. Childsii; then came G. princeps.

Last of all Africa sent us in 1904 from the Victoria Falls on the Zambesi G. primulinus. Fortunately for us it is not only a great beauty in itself, but it has that strange subtle power, whose possession ranks in Mendelian language as a "dominant," which in this case means that it is able to impose something of its own clean yellow colouring and its curiously shaped top petal on all its offspring. Again, fortunately for us, it has been found to be at least as hardy as the older sorts and its progeny equally so, in fact I have been told of a few boxes of seedlings that stood out-of-doors in the open all last winter and were none the worse for it, but one has to remember that it was the antithesis of the type we label "good old-fashioned." Two sets from Messrs. R. H. Bath this last autumn have enabled me to enjoy a large number of the most beautiful flowers. There were no mauve or purple shades amongst them, and I cannot recall having seen any at shows, but the list of different colours or shades was a long one. In Ridway's colour chart nomenclature there were examples of peach-red, eosine-pink, Begonia-rose, orient-pink, capucine-orange, sulphur-yellow, scarlet, pinnard-yellow, thulite-pink, shell-pink, Geranium-pink, light greeny-yellow, spectrum-red, orange-pink, and flesh-pink. In the way of colour the influence of G. primulinus is much the same as that of the lightly stretched nets before tableaux vivants. It is a great softener. It is their exquisite softness that is one factor in the wonderful charm of these hybrids. A second factor is their petitness. Their stems are thin; their flowers are not over large and they are gracefully placed on the stems, with spaces between; they remember the past and the part that that distinctive upper petal has played in the preservation of their race amid the spray of the falls and it is displayed with pride.

I have written "are (' and "is," but I seem to see in the seventy-times-seven sailing over from the States, and swooping down upon this sea-girt isle from our neighbour on the far side of the North Sea, symptoms which suggest that ere long "are" and "is" will have to give place to "were" and "was." It was a sad report that I got from a very famous gardener after one of the R. H. S. meetings, when many G. primulinus hybrids, as well of course as other types, were staged "coarse beyond belief." Poor hybrids, are all your charms to be "butchered to make a Roman holiday?" I fear, if straws show how the wind blows, and if coming events cast their shadows before, that indeed it may be so. But may such a calamity be averted. If all our hybrids may not be Nydias and Woodcotes, let us hope that there will always be a remnant left which have not bowed the knee to Baal.

Among the most attractive of the true primulinus-shaped hybrids may be mentioned Woodcote (coral red), Nydia (blush), Souvenir (yellow), Elberton (cream), Eden (pink), Eurydice (rose), L'Yser (orange-scarlet), Nightingale (soft rose), and Orange Brilliant (orange-scarlet). Of those that are not so near the type Alice Tiplady (orange), Ming Toy (salmon), Latonia (rose), Walter Bloem (scarlet), and Sunrise (yellow).

Many of these above are high in price, but where these primulinus hybrids have been coming to the front, we have found how easy and simple it is to raise our own seedlings. Firms which make a speciality of them sell seed, and (this is good news) I am assured by Mr. Gibson, of Messrs. Lowe and Gibson, that if the seed is sown in late January about 20 per cent. of the seedlings may be expected to bloom in the same year. I am going to make the experiment myself. A warm house is necessary, and the seed must be underground before the 7th of February. Margarine boxes are handy receptacles. The seed should be sown thinly, for the young seedlings should not be moved until they flower, but be kept steadily growing on under glass until they bloom in September or October. There should be good drainage provided, and over it a rich, porous rooting medium, covered with an inch-and-a-half of light soil to receive the seeds, which should be placed about half-an-inch below the surface. Out-of-door sowing should not be made until late March or April, according to the district. Flowers must not be expected in the same year from such sowings, nor from sowings made in a cold house in February or March. Flowers are only obtained in the same year when the early sowings are made in gentle heat. *Joseph Jacob.*

THE MIXED FLOWER BORDER.

(*Concluded from p.* 339.)

In planting, the individuality of the subjects ought to be consulted. I have seen it recommended to set out all plants in triplets. It is an easy way of disposing of a matter that obviously demands more consideration if justice is to be done to the qualities of the plants, and the requirements of the whole. For there are some that in an extensive border may be arranged in tens, and others that give their best effect in single isolation. A well-grown Kniphofia or a Delphinium is representative of the one, and the Hollyhocks, Larkspurs, or Carnations of the other.

Nor must we forget the pleasure of the looker-on may be increased by variety. Colour is not everything. It is much better to have white, for instance, in a variety of distinct plants than in those of the same species. How much to be desired is it to have a white Campanula and Perry's white Achillea, a white Aconitum autumnale, Galtonia candicans and white Carnation, than a variety of white Phloxes—beautiful as they may be.

The question of support to herbaceous perennials is of consequence on at least two counts. Staking demands much labour, and at best it is of no advantage to the border as a whole. All that can be said of it is that there are plants that must be supported; but where it can be omitted—and means for obviating it can be used—then such should be made use of. I often see plants staked that need no support. Some merely need a string tied around them to keep them steady, combined with the support of other plants near or almost touching them. And there are others, which by a judicious trimming in June, are kept dwarf, and, therefore, independent of the help of the stick they would otherwise require. Moreover, there are plants pretty enough, but with an Uriah Heep disposition which it is as well to exclude from the garden altogether. Such is Crucianella—now, I believe, dubbed Phuopsis—stylosa, and Polygonum vaccinifolium. These are not the worst offenders either, but they will serve as illustrations..

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What is to be done with the moisture loving plants, Astilbe Davidii for instance? My experience with these is that an extra supply of rotted cow dung, and keeping the plants young by frequent division almost meets the case. I write "almost," for when a period of drought bad enough to affect other plants comes, these too are badly affected. So then, water, if it can be had, must be applied. With regard to watering generally, it should not be too long delayed, first of all applying water to those plants that first exhibit signs of exhaustion, which often will be enough. And pure water is certainly not nearly so efficacious as that strengthened by some efficient manure.

The border I have in mind is not a one-colour border, nor a border of various flowers shading from one colour to another, but a border of mixed colours, which is more difficult to arrange than either of these. It is found that white used with restraint is a great help in overcoming colour incompatibilities, and perhaps even better than white is a free use of grey, of which there is a choice ample enough to meet any exigency. I will name only Cerastium Biebersteinii, Cineraria maritima, Lychnis Agrostemma, crimson, or the white-flowered variety—one of the choicest border plants. Almost too lowly to mention is common Wormwood (Artemisia Absinthium), but certainly a decorative plant of great value when well treated. Santolina Chamæcyparissus is also good, and Lavender, selected for its greyness. I would even try Teucrium fruticans where the climate is propitious, and Eryngium giganteum can scarcely be left out.

Annuals and biennials, however lax may be the choosing of the permanent plants, must be selected with the utmost care, and florists' flowers similarly. Probably, beautiful as Gladiolus are they may be dispensed with, or only a clump or two of such telling sorts as Prince of Wales, Chris, General Foch or Czar Peter introduced.

Pyrethrums again should always be used with great caution, or not at all. Of Carnations, I would select Grenadier as almost indispensable; Raby Castle, Mabel and Dom Pedro, are also valuable. Dahlias may be represented by the Pompon sorts, Nerissa and Darkness, a few of the tall Decorative section and Coltness Gem.

Annuals may be admitted among perennials because they provide colours not only distinct from the latter, but also, if anything, more refined and beautiful. Thus, in blue, we have the lovely Cynoglossum amabile, blue shades of Stock-flowered Larkspurs, Miss Jekyll's variety of Love-in-a-Mist, mauve Scabious and China Asters, to mention no others. In yellow there is nothing finer than a first rate strain of African Marigolds which, however, should be grown apart until in flower, when the double-flowered forms may be selected for groups, and the no less attractive orange-coloured singles similarly disposed of. Then, what is so charming as a bold group of Tagetes pumila signata, or so distinct as Golden Gem Matricaria? There is room also for the very tall, pure yellow Antirrhinums, and so in other colours, always, however, restraining oneself in the choice so that only the very best is selected. Personally, I have no objection to the lowly bedding Lobelia, if it be Waverley Blue, or of a good bedding Begonia, or a Verbena of character. But, of course, here again there must be restraint.

Nothing is more important than the removal of decaying flowers. It is not enough to wait to remove the seeded parts when the plant has become strained in their production. No; the only perfect method is to remove the inflorescence when a few of the flowers have seeded. The plant will then, in fertile soil, go on producing more flowers, and, if not, it will maintain its position of respectability among its neighbours, while the jaded seed-bearer never overcomes its condition of semi exhaustion and disreputableness. In a word, it continues an eyesore till cut down. *R. P. Brotherston.*

VEGETABLE GARDEN.

BROAD BEANS.

LOVERS of the wholesome and highly-nutritious Broad Bean will do well to make their first sowing on the first fine dry day, and to choose a fairly strong soil in a warm, sheltered position, the object being to obtain well-developed plants before the spring droughts set in. A thin sowing of well-developed seed is strongly recommended, as poorly developed and overcrowded plants fall an easy prey to drought and the pestiferous "Black Dolphin," producing, in any case, an unprofitable and unsatisfactory crop.

The Broad Bean is distinctly European in its origin, and its developments are of a well-fixed character. This is shown by the fact that of the eight varieties quoted in the catalogue of Drummond, Edinburgh, for 1750, one-half are the popular varieties to-day, and the remaining four are also quoted under "up-to-date" names On the contrary, of the twenty-six varieties of Peas quoted by Drummond, only one variety (Dwarf Sugar) is quoted in seed catalogues to-day.

It is somewhat remarkable that a vegetable which is held in such high esteem from Seville to Iceland should be considered as mainly a poor man's food in Great Britain. Truly the poor man is to be envied in being provided with a plant which is easily cultivated in our proverbially trying climate, and which, in the flowering stage pleases the eye by the form and colouring of its beautiful and numerous flowers which perfume the countryside with their agreeable odour, and in its fruiting stage presents him with a nutritive and pleasant food when young and tender, and a solid and lasting nourishment when old and dry.

As regards the latter point, the testimony of Jas. Justice, F.R.S., in 1754, may be interesting. "The Green Genoa Bean I allow to be quite ripe before I gather it for winter use. After they were dried, I steeped them in water for some days to soften. If you boil them with bacon and fowls they not only retain their colour but eat as well as in summer." As regards the development of new varieties, it is rather remarkable that they have been neither numerous nor distinct either in colour or form, but mainly amplifications of properties and qualities already in existence. The variety, Green Harlington Windsor is an exception to this rule, as it displays the colouring of both parents with the form of the white variety. It should properly have been named Greenish Harlington. It was first offered about 1866 under the name of Westbury Prize, it having appeared as a natural sport in a market garden near that Wiltshire town. To-day it has a larger sale than any other Windsor variety. Messrs. Sutton and Sons have recently exhibited some interesting and promising hybrids, which, when thoroughly fixed in character, will be welcome additions to the table of rich or poor. Beck's Gem, one of the most interesting varieties, itself a natural hybrid, sent into commerce by the introducers of the Westbury Prize, is a prominent feature in the Sutton hybrids.

In reply to the question which is the best variety for earliest open air sowings, opinions are somewhat divided, some holding with Justice who states: "The Mazagan, grown from seed obtained from Lisbon, is one of the earliest kinds which I prefer, because it is a very great bearer and has a fine taste," while others, like Mr. Edwin Beckett, pin their faith to the Aquadulce. In my opinion Bunyard's Exhibition, which combines the merits of the Spanish types with greater hardiness and purer strains of the English varieties, takes a lot of beating for earliness, quality and crop.

For forcing, the dwarf white Fan, and its offspring, Beck's Gem are invaluable.

For a main crop, choose any of the improved strains of white and green Longpods, and for latest crops Taylor's and Harlington Windsor, greenish and white, may be relied on. *S. B. D.*

MARKET APPLES.

THE articles by *Market Grower* are always interesting and practical, and it is seldom that I do not feel able to endorse everything that he writes: yet I disagree, to a very considerable extent, with his remarks on p. 297, when he advises those who may be raising new Apples to study colour before other considerations. There is not the slightest doubt but that the unthinking are apt to be attracted by colour for a time, but even they, in the end, will not buy poor Apples for their colour alone.

This year Apples have been scarce, and rubbishy fruits have sold at good prices. Green, sour windfalls have realised sixpence per pound retail in my town, and it is not surprising that *Market Grower's* Fearn's Pippin sold so well, but I am glad to know that the public is becoming every year more alive to real quality in Apples. This autumn excellent York Imperial Apples from America have been available; this is not a red Apple but the local retailers found it their best seller, and I am not surprised as it comes very near to our best Blenheim Pippin in intrinsic merit. Could we grow Apples like these in quantity we need not worry about import duties on fruit. Many imported Apples are yellow, not red, but they sell on their merits, and the public has discovered that these imported Apples require but little sugar when cooked and that most of them are as good for dessert as for culinary use. York Imperial is an excellent cooker, free from excessive water in the final result in an Apple pie. I do not know whether we can raise in this country Apples of the type that reach us from overseas, sweet and clean and prolific in yield, but I fear our climate is not sunny enough taking an average of years. Apart from Blenheim Pippin I can hardly name a first-class English market Apple that is healthy and prolific and delicious either cooked or raw. Blenheim Pippin when well grown is a noble fruit, and an Apple that a salesman is proud to handle.

It may not be impossible to combine colour and quality in an English market Apple, but if raisers took as much pains to evolve good new Apples as they do to evolve new flowers we should be rewarded with success, unless our climate is hopeless, which I do not believe, seeing that we grow a few sorts such as Blenheim Pippin and Cox's Orange Pippin to perfection. *W. J. Farmer.*

FRUIT REGISTER.

APPLES FORGE AND NANNY.

THESE two old varieties of Apples are so extensively cultivated in Sussex that they are usually described as of Sussex origin; but if the statement made by Mr. G. Chawley, of Coasters Nursery, Midhurst, Surrey, in Barron's *British Apples*, is correct, Nanny appears to have been raised in Surrey, for he states (p. 42) specimens he exhibited at the National Apple Congress, held in the Royal Horticultural Society's Gardens at Chiswick in 1883, were gathered from the original tree. Forge, according to Hogg, in the *Fruit Manual*, originated at Forge Farm, near one of the old forges in the iron districts of Sussex, near Crawley. Mr. Joseph Cheal, who brought a dish of both of the varieties illustrated in Fig. 127 to the meeting of the Royal Horticultural Society on November 13, states it is one of the most popular Apples in Sussex, and that it is used there both as a dessert and culinary variety; but Hogg describes it merely as a kitchen Apple. The fruit, as will be seen on reference to the illustration, is of medium size and roundish in shape; the skin is streaked with

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orange-red. The tree is a prolific bearer, and the fruits are of excellent cooking quality.

Nanny, whatever its origin, is most largely cultivated in Sussex, for Mr. A. E. Bunyard in *A Handbook of Fruits* states that it is not commonly met with in other parts of the country. Hogg describes it as a dessert Apple of excellent quality, and when in perfection a first-rate fruit. He also states that the flavour bears some resemblance to that of Ribston Pippin, and describes the tree as a better bearer than that variety. The flesh is tender and of a greenish-yellow colour. The skin also is greenish-yellow, freely streaked with red on the shaded side, and bright red, streaked with dark crimson on the side next to the sun. In Messrs. Cheal's catalogue this Apple is stated to be worthy of inclusion in every collection. Those who are planting Apple trees this season should not overlook the merits of some of these free-cropping older varieties, as they would serve as pollinators to self-sterile sorts, besides giving profitable returns.

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for the opinions expressed by correspondents.*]

Phygelius and other Things.—I was recently in the Carse of Gowrie, and took the opportunity to call on Mr. Maxwell of Errol Park, where among other good things I found Phygelius capensis established and thriving in one of the borders. I thought it worth noting that a plant that is not hardy enough to withstand wintry weather several hundreds of miles further south should be happy here on the north side of the Tay. Near-by was a representative of another genus that dislikes our Scottish winters, Kniphofia Saundersii, with a crop of its striking orange spikes, and clumps of Anemone pulsatilla in unblushing luxuriance gave evidence of the quality of the soil, for cold is not its bane. But from the exuberance of the growth of all kinds of vegetation, from monster Yews to humble Leeks, one might well conclude that soil and climate are alike very good. Mr Maxwell attributes much of the freedom of the estate generally from weather disabilities to the grounds standing on a big knoll, and it must have been a wise hawk that chose this particular spot, and secured to its earliest owner, the first of the Hay's, this pleasant spot for his possession. I had a stroll through the pleasure grounds and saw the quaint, sunk, oval, bowling green, the long line of ancient Yews the notable deciduous Cypress (can this be the Abor Vitae that attracted Pennant's attention?) and other fine trees. I had also a look into the Apple room, and unlike so many fruit rooms where there are no Apples, here was abundance of very fine fruit, and probably the finest Cox's Orange Pippins in Scotland. But the Carse is famed for Apples and Pears and I was sorry to know that the old orchards of Golden Knaps, Carnocks and others are slowly dying out all down the Carse. The glass department at Errol is notable for its corridor, the back wall whereof is clothed with a fine selection of climbers. Cyclamens and Cinerarias were present but the plants that appealed most to me where the Carnations, in the most perfect health, and with unspotted foliage. So here was something that soil and climate had not much to do with. Unfortunately I did not see everything. For one of my companions, womanlike, asked me afterwards, "Did you notice the door handles"? I had to confess I did not. But I had seen door handles elsewhere rubbed as bright as these while the inmates of the houses were by no means as well cared for. I was pleased to see a garden unspoiled by pergola, stone-paths and other modernities that some people take for gardening. *R. P. Brotherston.*

The Garden Heath. — Your correspondent, *W. Auton* gives an excellent list of Ericas on p 293. I would draw attention to two of the best Heaths which he has omitted, viz., Erica Veitchii, said to be a cross between E. arborea and E. lusitanica (codonodes), and E. arborea. E. lusitanica is one of the best of the family and is extraordinarily free in flowering. The plant presents a very conspicuous feature used either as dot specimens in the border or massed in a bed—especially in a Sussex or Surrey garden. The other species Erica arborea —or Tree Heath—from the Mediterranean region is a beautiful plant and is, moreover, Almond scented. It comes into flower later than E. lusitanica. Clumps of this Erica are most pleasing, especially for the fragrance. Both the Heaths I have referred to may be raised from seed very quickly, in fact one often sees young plants growing naturally from seed under the old plants where the ground has not been disturbed Erica Mackayi var. fl. pl. is a pretty dwarf Heath. It is found in Ireland and Spain and is well worth a place in any collection of Ericas. *W. A. C.*

Veronica salicifolia. — My experience of Veronicas is that there are only three sorts really hardy and that on the East Coast, a severe frost destroyed V. salicifolia with other not quite hardy shrubs; it did not merely cut the plant down but killed it, root and branch. Seedlings supplied at a later date took its place. *R. P. Brotherston.*

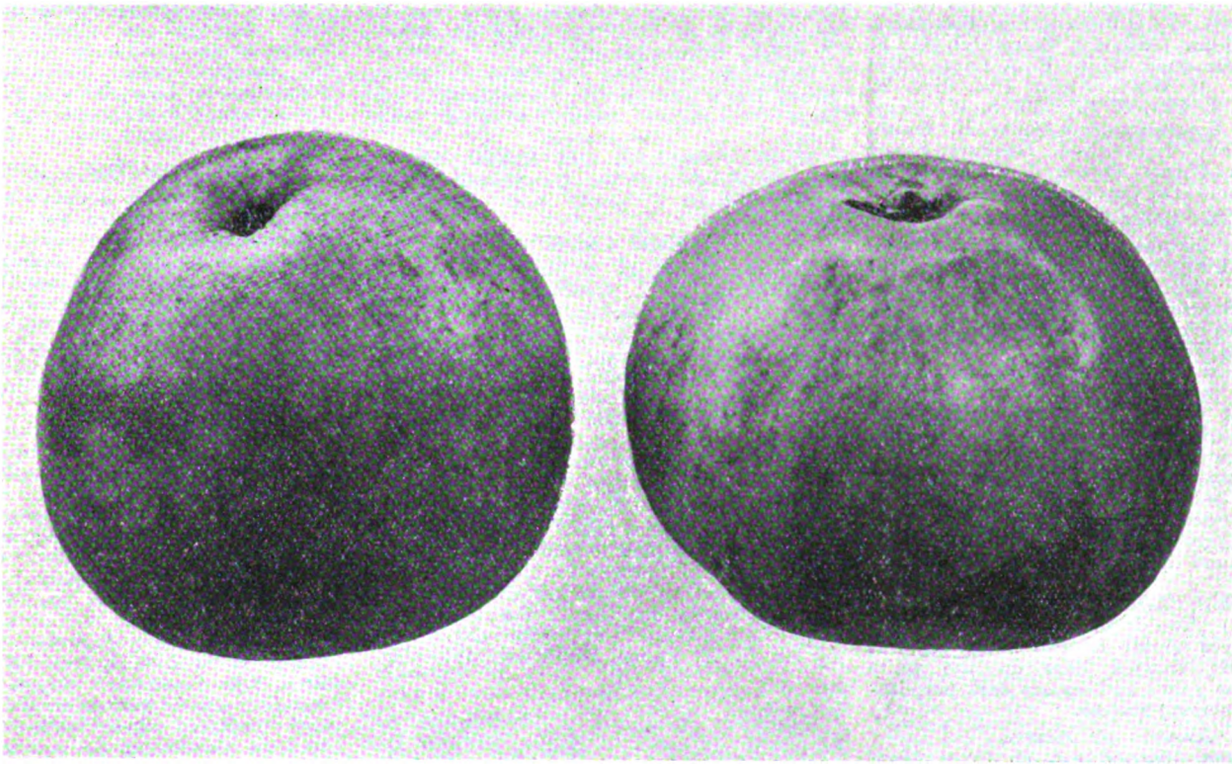

FIG 127.—TWO OLD SUSSEX APPLES: FORGE (LEFT) AND NANNY (RIGHT).

APPLE BROAD-EYED PIPPIN.

THIS splendid culinary Apple, to which reference is made on page 327, is well known in some parts of Herefordshire, and it is surprising that it is not more extensively planted, the fruits being of large size and of rich colour. This variety is obviously of great antiquity as many of the trees I have seen are well over one hundred years old. It is a persistent cropper and specimens of this Apple, quite sound, have been brought for my notice in the month of March. The fruit is large and oblate in shape. The skin is greenish yellow, faintly streaked with red, and with bright red and darker coloured streaks on the side next to the sun. The eye is large and open and set in a wide and shallow basin. The flesh is yellowish-white, firm, crisp, brisk and juicy.

The bastard Blenheim is known in Herefordshire as the Dewsan Apple, a synonym of Hambledon deux Ans, of which large numbers of trees are distributed in many orchards on the Ross side of the county. *Pomona.*

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SOCIETIES.

ROYAL HORTICULTURAL.

DECEMBER 11.—The concluding meeting of the year is never remarkable for the extent of the exhibition at Vincent Square, and the one on the above date was no exception. There were comparatively few exhibits of flowers and plants, but considerable space was occupied by paintings, garden plans, photographs of garden scenes, and garden sundries.

The chief attractions among plants and flowers were the Orchids, Chrysanthemums, Carnations, and hardy shrubs. Among Orchids, the wonderful Cypripediums from Mr. G. F. Moore were the outstanding feature, and the fact that he has gained seven First Class Certificates at two meetings is evidence of the splendid size, form and colour of his seedlings.

The Orchid Committee made awards to five Orchids and three groups; the Fruit Committee made no awards; and the Floral Committee granted an Award of Merit to a Chrysanthemum, and medals to ten groups.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. J. O'Brien (Hon. Secretary), Gurney Wilson (Assistant Secretary), G. F. Moore, R. Brooman White, C. J. Lucas, Clive Cookson, W. H. White, Arthur Dye, Fred. K. Sander, H. T. Pitt, J. E. Shill, S. W. Flory, J. Cypher, T. Armstrong, Henry H. Smith, E. R. Ashton, Frederick J. Hanbury, Stuart H. Low, J. Wilson Potter, J. Cypher, Chas. H. Curtis and Dr. Craven Moore.

FIRST CLASS CERTIFICATES.

Continuing his phenomenal success of obtaining four First Class Certificates at the last meeting for Cypripediums, Mr. G. F. Moore, Chardwar, Bourton-on-the-Water (gr. Mr. Page), secured three similar awards on this occasion. The varieties were as follow:

Cypripedium Chrysostom, Chardwar variety. (*Christopher var. Grand Duke Nicholas* × *Pyramus*). This variety has a very large dorsal sepal, white with purple lines, and broad petals; the lip is honey-yellow marked with red-brown.

Gwen Hannen, Chardwar variety. (*Florence Spencer* × *Christopher*). A massive flower with broad, white dorsal sepal with spotted lines on an emerald-green ground on the lower half. The petals and lip are tinged with mahogany-red.

Prince Albert, Chardwar variety (*Tommy Curte* × *Pyramus*) The darkest of this fine section which has yet appeared. The dorsal sepal is mauve with claret-red lines on the white margin. The petals and lip are dark purplish-red with a shining surface.

AWARDS OF MERIT.

Cypripedium Warrior var. H. Green (*Lord Wolmer* × *Alcibiades*), from Messrs. ARMSTRONG AND BROWN, Tunbridge Wells. A model flower from a new batch and which promises to develop into a superior form. The broad, circular dorsal sepal is pure white with a greenish base heavily spotted with dark claret colour; the petals and lip are yellow tinged with claret-red.

Sophro-Laelio-Cattleya Eileen, Low's variety (*S.-L. heatonensis* × *Cattleya Mossiae*), from Messrs. STUART LOW AND CO., Jarvisbrook A very distinct and bright flower with sepals and petals vinous purple, and ruby-crimson lip.

GROUPS.

G. F. MOORE, Esq., Chardwar, Bourton-on-the-Water (gr. Mr. Page), was awarded a Silver-gilt Lindley Medal for a magnificent group of Cypripediums in which his famous hybrids of C. Christopher were prominent. Specially noteworthy in this grand collection, in which all the specimens were superbly grown, were C. Mrs. Eley, C. H. J. Elwes, C. Memoria F. M. Ogilvie and C. W. H. Page. Fine specimens of the white Odontoglossum Pescatorei were arranged at the back of the exhibit.

Messrs. SANDERS, St Albans, received a Silver Flora Medal for an effective group, pretty novelties in which were Rolfeara Charm (B.-C. Mrs. J. Leemann × S.-C. Thwaitesii), a truly charming, blush-pink flower with Primrose-yellow disc; Cypripedium Rosalind (Niobe × Reginald Young), a perfect flower of the Niobe class, but more heavily marked, and C. Cyclopian (Cyclops × Leeanum Gratrixiæ), a good, distinct flower. Choice hybrid Cattleyas and Laelio-Cattleyas were also included in the group as well as a selection of species.

Mr. HARRY DIXON, Spencer Park Nurseries, Wandsworth Common, was awarded a Silver Banksian Medal for a group of the favourite yellow and white Cypripedium insigne Sanderæ, with several massive hybrids.

Messrs. FLORY AND BLACK, Slough, staged a group of exceptionally fine hybrids, in the centre of which was the very massive and finely-marked Cypripedium Maisie with a large dorsal sepal heavily blotched with dark claret-red, the petals and lip tinged with reddish purple. Other varieties of the same cross were also exhibited, but were not so showy.

OTHER EXHIBITS.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood) showed Angraecum distichum, Gomeza Barkeri and other species.

Sir HORACE MONRO, Woodland, Binfield, Bath, sent two Cypripediums imported from India as C. insigne Maulei, which was the correct name of one. The other was near to C. insigne Bohnhoffianum.

Messrs. STUART LOW AND CO., sent Cattleya Syros, Low's variety (Enid × labiata), a very large rosy-mauve flower, with a broad, purple-lip and white margin.

Messrs. ARMSTRONG AND BROWN, sent the new Cypripedium Luna (Desdemona x Mrs. Carey Batten) a pretty and well-formed flower.

Floral Committee

Present: Messrs. H. B. May (in the chair), W. J. Bean, E. A. Bowles, G. Reuthe, G. Harrow, J. F. McLeod, C. R. Fielder, H. J. Jones, T. Hay, Gerald Loder, W. Howe, Hugh Dickson, G. W. Leak, D. B. Crane, Andrew Ireland, H. V. Warrender, W. B. Gingell, Reginald Cory, W. G. Baker, Clarence Elliott, W. B. Cranfield and R. C. Notcutt.

AWARD OF MERIT.

Chrysanthemum Brightness.—A pleasing, small flowered Japanese variety of a deep but rather hard tone of purplish pink. It should be useful for late flowering and for cultivation in spray form. It is of interest to observe that this variety failed to obtain recognition at the hands of the National Chrysanthemum Society's Floral Committee on the previous day. Shown by Mr. H. W. THORP, Durrington, Worthing.

GROUPS.

Carnations presented a very bright and attractive appearance. Messrs. STUART LOW AND CO., arranged an especially meritorious group, which include several vases of the rich crimson Sir Mackay Edgar, while other sorts of similar bright colouring were British Triumph, Red Ensign, Reginald Cory and Lady Iverforth. Adjoining the Carnations they displayed floriferous plants of Acacia platyptera and Erica melanthera (Silver Flora Medal).

In a graceful stand Messrs. ALLWOOD BROS. continued their illustrations of the long-flowering season that is enjoyed by their Dianthus Allwoodii in many charming varieties. Amongst their perpetual-flowering Carnations were vases of Edward Allwood, of brilliant colour, Wivelsfield Claret, and Topsy, while the hybrid Malmaison, Mrs. C. F. Raphel, provided delicious fragrance and bright colour. (Silver Banksian Medal.) White flowered Carnations were prominently displayed by Mr. C. ENGELMANN. The chief varieties were White Wonder, White Enchantress, White Supreme, and Crystal White. Besides these there were many vases of other sorts, notably the 1924 variety, Donald, of bright crimson colour, and Topsy (Silver Banksian Medal).

While Chrysanthemums were not so numerous as at recent meetings, these autumn flowers was well represented. Messrs. KEITH LUXFORD AND CO. had some highly desirable Japanese varieties of exhibition size, as well as other types. The Japanese sorts of decorative size included Teresa and Kathleen May, of considerable value. Thora, a mauve coloured variety, was very attractive, as also were such singles as Merstham Jewel, Flora and Robert Collins. Two large vases of Pompons attracted considerabe attention. Mary Pickford white; Yellow Snowdrop, Julie Lagrave, crimson-maroon, and Francis Hutchinson, amaranth, are the names of a few of the dainty varieties. (Silver Flora Medal.)

Messrs. SCOTT AND WICKHAM staged several vases of splendidly grown blooms of Golden Butterfly. These were of rich colour, good size and borne on long stout stems (Bronze Banksian Medal). Chrysanthemums were associated with miniature gardens by Mr. FRED. G. WOOD, and with small bushes of various Conifers and Pieris floribunda by Messrs. BAKERS, LTD.

Just inside the entrance, Messrs. SUTTON AND SONS has a very attractive display of Chrysanthemums grown from seed sown this year. The flowers were mostly singles of medium size, and they illustrated a great variety of colours, besides being very free flowering. (Silver Banksian Medal.)

On a floor space, Messrs. L. R. RUSSELL, Ltd., displayed an attractive collection of hardy shrubs of value for their foliage. Ivies in standard and bush form, standard Euonymus and Lavender, well berried Skimmias, Pittosporum Silver Queen, and Corokeas were the principal shrubs shown. (Silver Banksian Medal.)

The Orpington Nurseries Co. set up a considerable variety of compact little Conifers, of value for planting in the rock garden, and also displayed healthy examples of Skimmia japonica and Berberis dulcis nana (Silver Banksian Medal). The Misses HOPKINS had an exhibit of alpine and rock garden plants. Mr. JOHN KLINKERT again displayed well grown topiary specimens and Mr. S. SMITH showed a number of miniature gardens of varied succulent plants (Bronze Banksian Medal).

A further selection of dried flowers and grasses was exhibited by the FRENCH INTENSIVE GARDENS COMPANY, the grasses included graceful bunches of Hordeum jubatum, Anthoxanthum gracile, Eragrostis elegans, E. nebulosa, Lagurus ovatus and Agrostis pulchella. Helichrysums, Statices, Acroclinums and Gomphrena globosa were the principal flowering plants used (Bronze Banksian Medal).

Several exhibits of garden sundries added variety to the meeting. Major WOOD showed his Fruit Tree Protector. Mr J. HAWS set up watering cans of various sizes. Messrs. HARDY LTD. displayed their rustless spades. The RADIUM FERTILIZER Co. and the CROSS BONE MANURE Co. had samples of their preparations.

Paintings of garden scenes and flowers were shown by Miss WINIFRED WALKER, Miss G. DORRIEN-SMITH, Miss ADIE, Miss ELLEN WARRINGTON, Miss M. AUMONNIER, Miss ALICE WILKINSON, Miss EDITH FISHER, Miss M. KILPATRICK, Miss MAUDE ANGELL, Miss EVA FRANCIS, and Mrs. EDITH A. ANDREWS, while Mr. C. CANE showed garden photographs and plans.

Fruit and Vegetable Committee.

Present: Messrs. J. Cheal (in the Chair), Geo. F. Tinley, W. J. Jefferies, S. B. Dicks, W. F. Giles, A. Bullock, H. Markham, W. H. Divers, W. Poupart, E. Neal, E. Beckett, A. Metcalfe, W. G. Lobjoit, A. E. Smith, J. G. Weston, T. Pateman, G. Reynolds, F. Jordan and A. Rawes.

The only exhibit in this section was a collection of Apples staged by Messrs G. BUNYARD AND CO. LTD., to show the best varieties in season. The fruits were all splendid specimens; the varieties were Orleans Reinette, Hormead's Pearmain, Claygate Pearmain, Newton Wonder, Rival, Lane's Prince Albert, Belle de Boskoop, Lord Derby, Cox's Orange Pippin, Baumann's Red Winter Reinette, Bramley's Seedling and Allington Pippin.

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TRIAL OF BRUSSELS SPROUTS.

THE following awards have been made to Brussels Sprouts by the Royal Horticultural Society after trial at Wisley.

AWARDS OF MERIT.

Solidity, sent by Messrs. WHEELER, Warminster; *One and All*, sent by Mr. F. C. HEINEMANN, Erfurt, Germany; *Darlington*, sent by Messrs. NUTTING AND SONS, LTD., 106, Southwark Street, London.

HIGHLY COMMENDED.

Standard, sent by Messrs. BARR AND SONS, 11, King Street, Covent Garden, London; Half Long Paris, sent by MESSRS. TOOGOOD AND SON, Southampton; Walton Dwarf No. 12, sent by Messrs. W. ROWLANDS AND CO., Childwell Nurseries, Liverpool; Walton Dwarf No. 2, sent by Messrs. W. ROWLAND AND CO.

COMMENDED.

Dwarf Selected, sent by Messrs. ZWAAN AND DE WILJES, Scheemda, Holland; Ideal, sent by Messrs. DICKSON, BROWN AND TAIT, 57, Cross Street, Manchester; Early Tall Improved, sent by Messrs. ZWAAN AND DE WILJES; Walton Dwarf No. 8, sent by Messrs. W. ROWLANDS AND CO.; Selected No. 1, sent by Messrs. G. COOPER, 125, Midland Road, Bedford; Selected No. 2, sent by Messrs. G. COOPER; Masterpiece, sent by Messrs. J. P. HARVEY, Kidderminster; Early Giant, sent by Mr. J. L. CLUCAS, Moor Street, Ormskirk.

NATIONAL CHRYSANTHEMUM.

THE Floral Committee of the National Chrysanthemum Society met at the Royal Horticultural Hall on the 10th inst., and considered the merits of no fewer than twelve novelties, two of which received awards.

FIRST-CLASS CERTIFICATES.

Bronze Age. (II. 1.B.).—A very useful, deep bronze-coloured Japanese variety of medium size and pleasing form, and apparently useful for the production of flowers in sprays. Shown by Mr. H. W. THORP, Worthing.

Mr. J. Barrell (V. 2.A.).—A particularly handsome, single variety of large size and fine substance. The florets are broad and of a brilliant chestnut-red colour, with yellow base. The flowers are carried on long, erect, stiff dark stems. Shown by Mr. T. STEVENSON, Cowley.

The Executive Committee of the Society met during the evening of the 10th inst., and arranged many matters in connection with the Society's activities during the coming year. The financial position of the Society appears to be quite sound, and the results of the exhibition in November last were very satisfactory. At the close of the routine business, Mr. T. Stevenson gave an address on "Bud Manipulation," and added greatly to the interest of his observations by a display of flowers showing the results of various methods of stopping and bud-taking.

The Annual Meeting of the Society will be held on Monday, February 4th, 1924.

ROYAL SCOTTISH ARBORICULTURAL.

ABERDEEN BRANCH.

The Annual General Meeting of the members of this branch was held in Aberdeen on Saturday, the 8th inst., Sir John R. Gladstone, Bt., of Fasque, Kincardineshire, presiding. Mr. George D. Massie, advocate, Aberdeen, secretary and treasurer of the branch, submitted his annual report, which showed that the branch had had a successful year, the membership being one hundred and four an increase of four over the previous year. The finances are satisfactory, there being a credit balance of £22 6s. 0d. The following office-bearers were elected:—President: Sir John R. Gladstone; Vice-Presidents: Mr. John Michie, M.V.O., Kincairn, Blairs; Mr. S. J. Gammell of Countesswells, Captain R. J. Nicol, of Ballogie, and Provost Donald Munro, Banchory. Mr. George D. Massie was unanimously re-elected secretary and treasurer.

A feature of the proceedings was the reading of an instructive paper by Mr. G. K. Fraser, M.A., B.Sc., of the Forestry Department of Aberdeen University, on "Silvicultural Practice in Relation to Soil," in which he pointed out that to the forester it was abundantly evident that the quality of his crop was influenced to a high degree not only by the condition of weather and of exposure to which the crop was subject, but also by the quality or type of soil upon which the crop was grown.

Owing to our climatic position, any soil which was left free of tall shrub or tree growth tended to become invaded by numerous plants which had the tendency to cause a distinct loss in the mineral fertility of the soil and a deterioration of quality by a gradual increase in sourness, and the final formation of Peat Moss or barren heath. The first crop after war felling was a magnificent growth of Foxgloves, which might be taken as indicative of a good quality of Spruce land; then in a year or two the areas were covered by soft meadow grasses; and now we have grassy heaths overrun by heather and moor grasses, rendering the land quite unsuited to the growth of Spruce; indeed, in a generation or two peat-cutting may be possible on these areas. This shows that all land from which trees had been felled should be replanted as soon as possible. When the forest was felled the increased action of the sun and weather caused a quicker decay of leaf-mould and hence supplemented the amount of food supply in the soil.

After dealing with the question of brushwood burning, in which he advised the burning of fairly large sizes of brush which could not be marketed, Mr. Fraser touched on soil improvement. The process of soil deterioration seemed to be due to a very considerable degree to the rapid drying of the surface of the soil by wind, or to the greater liability of the soil to weather variations in general. One of the effects of immediate planting was to reduce this danger to a minimum.

Obituary.

James Brown.—We regret to announce the death, at his residence, Hillhall, Aberlour, Banffshire, of Mr. James Brown, who was for over thirty years head forester to the Findlays of Aberlour. He was chosen for the post by the late Mr. J. R. Findlay of Aberlour, and leading proprietor of *The Scotsman* newspaper, and right well did he justify the choice. Possessed of very high qualifications, Mr. Brown was held in warm esteem by the present proprietor, Sir John R. Findlay, and his household. The funeral, which was largely attended, took place on Wednesday, the 5th inst., at Aberlour Churchyard. Mr. Brown, who was 59 years of age, is survived by a widow and grown-up family.

Dugald MacNeill.—Many gardeners will regret to learn of the death of Mr. Dugald MacNeill, aged 74 years, which occurred at Gargunnock Gardens on the 4th inst. Mr. MacNeill, who was a native of the Island of Colonsay, served his apprenticeship as a gardener in Killoran Gardens, Colonsay. During his career he was employed at Burnhead, Edinburgh, and in the nurseries of Messrs. R. B. Laird and Son. Subsequently, he became gardener at Yair, Selkirkshire, where he served for a period. After leaving Yair, he was appointed gardener and overseer to the late Colonel Stirling, at Gargunnock House, which position he retained for over forty years. He was an intimate friend of the late Mr. W. Thomson, of Tweed Vineyards, and from him he gained an excellent knowledge of vine culture. A keen judge of a good flower, fruit, or vegetable, his services were greatly appreciated by local horticultural societies. At the shows of the Stirling Chrysanthemum Society he was a prominent prize-winner, in all sections. He was a man of quiet disposition, ever ready to help members of his craft, and did all he could to assist the struggling young gardener along the road to success. He leaves three sons and one daughter to mourn his loss.

TRADE NOTES.

MR. R. J. WALLIS has taken over the nurseries formerly belonging to the Scott family at Merriott, near Crewkerne, Somersetshire. Mr. Wallis is well known to many of our readers, for he was at one time Secretary to the Floral Committee of the Royal Horticultural Society and assistant in the Wisley Gardens; he was also for some considerable time in the employ of Messrs. R. W. Wallace and Co. in their old nurseries at Colchester. The nurseries at Merriott specialise in fruit trees and Roses, and also include large stocks of Conifers and ornamental trees. In addition, Mr. Wallis is cultivating the finest types of hardy plants, including herbaceous flowers and Alpines, and is also undertaking the designing and planting of gardens for clients.

HERR HEINRICH KASTNER, the head gardener, or "Garteninspector," in the well known Berlin nursery firm of M. L. Späth, has just celebrated his seventieth birthday. He has been manager of the despatching department and of the Arboretum for forty-four years, and still has the oversight of these departments. He is quite hale and hearty, and his birthday was celebrated by his friends and employers in great style.

THE WEATHER.

THE WEATHER IN NOVEMBER.

THIS was one of the sunniest Novembers on record locally; but yet, in great part, exceedingly wet. After the first few days, it was also very cold. The concluding ten days were mainly dry and calm, and were particularly cold. The mean temperature of the complete month was 39.8°, or 3.5° below the fifty years' average. Frost occurred in the open on no fewer than 18 nights, and on 12 of these in the shade also; but no especially low readings were recorded. The duration of sunshine amounted to 75 hours, the normal being exceeded by 20 hours. Rain fell on 19 days, or two more than usual; and the total was so much as 4.86 inches, or 1.78 inch above the average. In five days, from the 12th to the 16th inclusive, more than the whole month's normal rainfall was precipitated. The underground water level rose considerably. Hail fell on no fewer than 10 days, and thunder occurred on three days; each of these is the largest number for November in the local records. There was ice on the lake in Hesketh Park on 11 days, and by the 30th it had attained a thickness of 1.8 inch. Dense fog was confined to the morning of the 30th, the usual south-easterly winds of the end of autumn being replaced by much clearer northerly and north-easterly ones. Gales were experienced on six days. During a curiously prolonged and violent squall, shortly after noon on the 15th, several gusts were at the rate of 85 miles per hour. *Joseph Baxendell, Borough Meteorologist, The Fernley Observatory, Southport.*

THE WEATHER IN SCOTLAND.

"CHILL NOVEMBER" continued to maintain its reputation, a considerable drop in the temperature occurring from the previous month, snow, and snow lying, being recorded in the last three days. Bright sunshine totalled 79.6 hours, giving a daily average of 2.65 hours and a percentage of 30. There were only four absolutely sunless days. Rain was collected to the extent of 2.20 inches, being slightly under the normal. There were 11 official rain days, the 15th yielding the most, viz., .65 of an inch, 10 days of precipitation and 9 days on which no rain fell. In the screen, the highest maximum temperature occurred on the 2nd, viz., 54°, the lowest maximum of 36° on the 23rd, 27th and 29th respectively. The highest minimum 45° occurred on the 12th and the lowest 26° on the 15th. On the grass the 12th also gave the highest reading of 44°, while the lowest, of 22°, was on the 25th. There were 14 days of ground frost. The soil temperature, at a foot deep, dropped from 46° at the beginning to 35° at the close of the month. Barometric pressure was greatest on the 10th, viz., 30.405 inches, and lowest on the 14th, 28.867 inches, the 12th to the 18th being a period of comparatively low pressure. The sky was frequently obscured by haze, mist occurring on the 5th and a fog of extreme density on the 27th. Wind velocity was seldom great; only on the evening of the 15th did it assume gale force. Lunar coronas were observed on the evening of the 19th and morning of 30th, also a rainbow at 2.35 p.m. on the 20th.—*John Davidson, Director of Studies, Training College Gardens, Mayfield, Dundee.*

CATALOGUES RECEIVED.

HEWITT AND CO., LTD., The Nurseries, Solihull.—Gladioli, JAMES CARTER AND CO., Raynes Park, S.W. 20.—Seeds, etc.

BARR AND SONS, 11, King Street, Covent Garden, W.C. Alpines, rock plants and climbers; bulbs.

Foreign.

ALESSANDRO SQUADRILDI, Naples, Italy.—Seeds (Wholesale).

SPRUIJT AND CO., Utrecht, Holland.—Vegetable and Tree Seeds.

CONYERS B. FLEU, JR. Germantown, Philadelphia U.S.A.—Tree, Shrub, Perennial and Fruit Seeds.

SLUIS 'AND GROOT, Enkhuizen, Holland.—Flower and vegetable seeds (wholesale).

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ANSWERS TO CORRESPONDENTS.

CYCLAMEN DISEASED: *E. M.* Although we could find no mites or red spider on the leaves, the colouring of the underside of the foliage suggests that there have been attacks of one or both of these pests. As prevention is better than cure, it will be desirable to watch for an early attack or prevent one by frequently dusting the undersides of the leaves with tobacco powder.

FUNGUS IN A PEACH BORDER: *G. A.* The fungus growing as a white, fluffy mycelium in the two samples of soil sent is one of the "Fungi Imperfecta" (Rhinotrichum Thwaitsii). So far as we are aware this fungus causes no damage. It is not infrequent in woods, particularly where the soil is of a heavy, clayey nature.

GRUBS AMONG CYCLAMEN ROOTS: *J. P.* The Grubs which have eaten the roots of your Cyclamen are the larvae of Otiorrhynchus sulcatus, the Vine weevil, which are often imported in leaf mould. If your plants have suffered very much, shake the soil from the roots and repot them in a sterilised compost. In every case it is desirable to sterilise leaf mould before it is used, as it frequently contains destructive pests.

HOGG'S "FRUIT MANUAL": *T. T.* You may possibly obtain a copy of Hogg's *Fruit Manual* from one of the firms who deal in second-hand books, or you might advertise for a copy, as no doubt there are some gardeners who would be willing to dispose of one. A useful book dealing with Apples and Pears is Bunyard's *Handbook of Fruits*, which may be obtained from our Publishing Department, price 8/- post free.

NAMES OF FRUITS: *W. W.* 1, Adams's Pearmain; 2, probably Gravenstein; 3, Warner's King.

NAMES OF PLANTS: *W. F.* 1, Thuya dolabrata var. variegata; 2, Cupressus pisifera var. squarrosa; 3, Juniperus communis var. fastigiata; 4, Cupressus pisifera var. plumosa; 5, C. Lawsoniana var. erecta viridis; 6, C. nootkatensis; 7, Picea Omorica; 8, Abies firma; 9, Cedrus Deodara; 10, Cupressus obtusa var. gracilis aurea; 11, C. obtusa var. gracilis; 12, Cupressus Lawsoniana; 13, Viburnum rhytidophyllum; 14, missing; 15, Quercus cuspidata; 16, Quercus glandulifera; 17, Cassinia fulvida; 18, Quercus lanuginosa. *F. D. H.* Pittosporum undulatum.

PLANTING ON THE SEA FRONT: *J. J* The Wych Elm will prove much more satisfactory than the Canadian Poplar as an avenue tree near the sea. The Sycamore, White Poplar, Willow, Ash, and Maritime Pine are suitable subjects as wind screens for the protection of better class trees on the sea coast. Always provided that the climate is suitable the following shrubs do well in the vicinity of the sea:—Guelder Rose, Escallonia, Fuchsia Riccartonii, Laurustinus, Gorse, various species of Veronica, Weigela Buckthorn, Olearia Haastii, and Tamarix.,

PROPAGATING BEGONIA MRS. PETERSEN: *J. N.* This variety of Begonia may be propagated by means of leaves at this time, but November is the best month for inserting the leaves, as this slow growing variety needs a long season of growth. The leaves are best put in without cutting off the leaf-stalk; the blade of the leaf can thus be kept clear of the soil, and damping will be largely obviated. They are best dibbled into a bed of cocoa-nut fibre and sand in an open propagating bed; or peat-moss litter and sand may be used in place of cocoa-nut fibre. Cuttings inserted during November and December give the best results, and by this method of propagation you should experience no difficulty in producing good plants in 48-sized pots. If large specimens are required the plants should be grown on for the second year.

MARKETS.

COVENT GARDEN, Tuesday, December 11, 1923.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz.	10 0	18 0
—elegans	10 0	12 0
Aralia Sieboldii	9 0	10 0
Araucarias, per doz.	30 0	42 0
Asparagus plumosus	12 0	15 0
—Sprengeri	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Cacti, per tray, 12's, 15's	5 0	7 0
Chrysanthemums —white, doz.	12 0	18 0
—pink "	12 0	15 0
bronze "	12 0	15 0
Crotons, per doz.	30 0	42 0
Cyrtomium	10 0	15 0
Erica gracilis, 48's per doz.	24 0	30 0
— 60's, per doz.	12 0	15 0
— hyemalis 48's per doz.,	24 0	30 0
—nivalis, 41's "	24 0	30 0
— —60's	12 0	15 0
Hydrangeas white, doz.	18 0	24 0
Nephrolepis, in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	24 0	30 0
—60's	15 0	18 0
—Cocos	24 0	36 0
Pteris, in variety	12 0	21 0
—large 60's	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's	3 6	4 0
Solanums, per doz.	12 0	18 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum decorum, doz. bun.	15 0	18 0
—cuneatum, per doz. bun.	9 0	10 0
Asparagus, plumosus, per bun, long trails, 6's	4 0	5 0
med. sprays	2 6	3 6
short "	1 0	1 6
—Sprengeri, per bun. long sprays	2 6	3 0
med. "	1 3	1 6
short "	0 9	1 0
Bouvardia, white, per doz. bun.	9 0	12 0
Camellias, 12's, box	3 6	4 0
Carnations, per doz. blooms	3 6	0
Chrysanthemum, per doz. blooms —white "	2 6	6 0
—yellow "	3 6	5 0
—bronze "	3 0	4 0
—pink "	3 0	4 0
spray, doz. bun.	12 0	24 0
—singles, disbudded blooms	3 0	5 0
—singles, sprays, per doz. bun.	15 0	18 0
Croton leaves, var., per bun.	2 0	2 6
Gardenias, per box	—	—
Fern, French, per doz. bun.	1 0	1 3
Forget-me-not, per doz. bun.	0 0	12 0
French Flowers— —Acacia (Mimosa) per bun.	1 0	1 6
—Marguerite, yellow, per doz. bun.	3 0	3 6
—Narcissus Paper White, per doz. bun.	5 0	6 0
—Narcissus Soliel d'Or, per doz. bun.	3 0	3 6
—Ranunculus carmine, per doz. bunc.	5 0	6 0
—Ranunculus Romano, large red, per doz. bun.	15 0	18 0
French Flowers— —Violets, single per doz. bun.	3 0	4 0
—Violets, Parma, per bun.	5 6	6 0
Heather, white, per doz. bun.	9 0	12 0
Lilac, white, per doz. sprays	6 0	8 0
Lilium longiflorum long, per doz.	9 0	10 0
short " "	10 0	11 0
—speciosum album, long, per doz. blooms	4 6	5 6
—short " "	3 6	4 6
—rubrum long, per doz. blooms	3 6	4 0
—short, " "	2 6	3 0
Lily of the Valley, per doz. bun.	24 0	36 0
Orchids, per doz. —Cattleyas	18 0	24 0
—Cypripediums, per doz. blooms	4 0	6 0
Pelargonium, per doz. bunch, double scarlet	12 0	15 0
Poinsettias, per doz. blooms	15 0	18 0
Richardias (Arums)— per doz. blooms	10 0	15 0
Roman Hyacinths, per doz. bun., 6's	24 0	27 0
Roses, doz. blooms— —Melody	6 0	10 0
—Ophelia	6 0	10 0
—Golden Ophelia	6 0	9 0
—Liberty	6 0	8 0
—Mme. Butterfly	8 0	10 0
—Mme. Abel Chatenay	5 0	6 0
—Niphetos	3 0	4 0
—Richmond	6 0	8 0
Smilax, per doz. trails	3 0	3 6
Violets, doz. bun.	4 0	7 0

REMARKS.—Supplies from home growers have been gradually lessening during the past week. Roses are very scarce, and those sent have been cleared very early. Richardias (Arums) are still very limited in numbers and, like Liliums, realise a high price, the market being quickly cleared of these subjects. The value of Carnations has fallen owing to a better supply. Good Chrysanthemums are dearer both blooms and "sprays"; the best sorts are Heston White, Winter Cheer, Wilcox, Negoya, and Baldock Crimson. The best white disbudded blooms are Autocrat and Favourite; coloured sorts include Winter Cheer, Negoya, Tuxedo, December Gold, W. H. Lincoln, and Hortus Toulousainus (bronze). A few large Hyacinths, on bulbs, will be on sale this week. Tulips are also shortly expected to make their first appearance in the market this season. Supplies of flowers from the continent have been lessening and are getting dearer, owing to the bad weather in France. There is likely to be a further shortage with a general rise in prices for some days to come, especially for Narcissus. Violets are now arriving in excellent condition, and with Parma Violets more plentiful their prices are again normal. Roses are also arriving in a fairly good condition; the varieties consist of Ulrich Brunner, Frau Karl Druschki, and Safrano. Better consignments of white Lilac are being received from Holland about three times weekly. A few sprays of mauve Lilac were on sale last week.

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus, forced— French	7 0	9 0
English	3 6	5 0
Beans Guernsey, lb.	1 0	3 0
Madeira, Basket	2 0	3 0
Beets, cwt.	8 0	10 0
Cabbage, doz.	1 3	2 0
Carrots, cwt.	8 0	10 0
Cauliflower, doz.	2 6	5 0
" Italian	6 0	8 0
Chicory	0 4	0 6
Celery, fan	1 6	2 6
Cucumber, doz.	12 0	18 0
Lettuce, French— crate	3 0	4 6
Endive, doz.	2 6	3 0
Mushrooms— —Forced, lb.	2 0	3 0
Mint, doz.	4 0	6 0
Onions, Valencian, case	14 0	16 0
Onions, English cwt.	10 6	12 6
—Dutch	10 0	10 6
Parsnips, cwt.	7 0	8 0
Potatos, King Edward, per ton	140 0	150 0
— Others	110 0	130 0
—Guernsey, lb.	0 3	0 6
—Forced	0 10	1 0
Savoys, doz.	2 0	2 6
Seakale punnet	3 6	4 0
Spinach	3 0	3 6
Sprouts, bus.	4 0	5 0
—Bags	3 0	3 6
Tomatos— —English Pink New Crop	4 0	7 6
Others	1 6	2 0
—Pink and White New Crop	4 0	7 0
Others	1 0	2 0
—Canary Island	10 6	18 0
Turnips, cwt.	5 0	8 0

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples— —Cox's Orange Pippin, ½ bus.	10 0	25 0
—Allington Pip	4 0	6 0
—Blenheim	3 6	5 6
—Bramley's Seedling, bus.	8 0	12 6
—Lane's Prince Albert	7 0	10 0
—Newton Wonder	8 0	10 0
—Oregon Newtown	10 6	14 0
—Californian	9 0	10 0
— Jonathan	9 0	11 0
Nova Scotian— —Blenheims	21 0	25 0
—Kings	22 0	26 0
—Ribston Pip	20 0	24 0
—Russets	28 0	32 0
Bananas, singles	14 0	25 0
—doubles	15 0	25 0
Dates, Tunis, doz. cartons	5 6	6 6
Grapes— —Alicante	1 6	2 6
—Almeira, barrel	12 6	22 6
—Belgian	1 3	2 6
—Gros Colmar	1 6	4 0
—English Muscat	3 0	7 0
Grape Fruit— —Cuban	25 0	—
—Jamaica	20 0	25 0
Lemons— —Mandarines, box	—	24 6
—Messina, case	20 0	25 0
—Messina, box	10 6	15 0
—Murcia	12 0	15 0
Nuts— —French Walnuts bags	—	13 0
—Brazil, cwt.	80 0	100 0
—Cobs	1 2	1 4
—Italian Chestnuts, bag	24 0	28 0
—Italian Walnuts, bag 50 kilos	60 0	65 0
Oranges— —Florida	27 6	28 6
—Jamaica	12 0	14 0
—South African	14 0	18 0
—Spanish 300	18 0	32 6
— — 360	10 0	16 0
— — 504	9 0	15 0
Pears— —D'Anjou, cases	18 0	24 0
—Glou Morceau, ¼ cases	10 0	10 6
—Winter Nelis	18 6	22 6
Pines, each	1 6	4 0

REMARKS.—In some sections there is a maintenance of the recent small improvement in business, but generally the trade is dull. There is a fairly steady inquiry for Apples in barrels and cases, but the stocks on hand are large. Larger quantities of English Apples have been available lately and prices are not so firm, even for large cookers. Cox's Orange Pippin, however, is an exception, and the demand is sufficient to maintain prices at their former level. Grapes are a strong line just now, and both English and Belgium Grapes are selling freely. Pineapples for the Christmas trade are also popular, the latest consignment selling readily. Oranges are not a good trade; the bulk of the fruits from Spain are immature and lack sweetness. Guernsey Beans show a better inquiry with an advance in price. Forced Asparagus, on the contrary, is a drug on the market, and saleable only a very low figures. A few forced Potatos have sold readily, but, for the most part, the tubers are not good, and not the sort wanted by the trade. Beans from Madeira are plentiful and cheap and have been arriving in good condition; Mushrooms are a good trade and supplies moderate. A few well-coloured new crop English Tomatos are selling at satisfactory prices, but other sorts are almost unsaleable. Tomatos from the Canary Islands are only in moderate demand; the quantities on hand are heavy. The few Cucumbers available are selling at high prices. Seakale is in short supply and prices are firm. Green vegetables are steady in price. There is an upward tendency in the Potato trade.

GARDENING APPOINTMENTS.

Mr. A. Aylett for the past three years Gardener to H.I.H. Prince Napoleon at Farnborough Hill, Farnborough, Hampshire, as Gardener to H.I.H. at the Chateau de Rouchinne, Par., Assesse, Provence de Namur, Belgium. (Thanks for 2s. 6d. for R.G.O.F. Box)—EDS.

Mr. A. W. Elliott, for the past nine-and-a-half years Gardener to the late W. L. NICKELS, Esq., Chenetrie, Noctorum, Birkenhead, as Gardener to the same gentleman at Hallsannery, Bideford, North Devon. (Thanks for 2s. 6d. for R.G.O.F. Box—EDS.)

Mr. T. A. Hooker, for eight years Gardener to Sir BERKELEY MOYNIHAN, Bt., Carr Manor, Meanwood, Leeds, as Gardener to EDGAR L. GAUNT, Esq., Hawksworth Hall, Guiseley, Near Leeds.

Mr. William T. Parsons, for the past seven years and eight months Gardener to the late Captain E. H. SAWBRIDGE, J.P., Denford House, Hungerford, Berkshire, as Gardener to Sir FREDERICK H. W. CARDEN, Bt., Stargroves, Newbury, Berkshire (Thanks for 2s. 6d. for R.G.O.F. Box)—EDS.)

Mr. F. A. Reynolds, for four years Gardener to H. O. HOSEASON, Esq., Letcombe Manor, Wantage, Berkshire, as Gardener to A. E. MALLANDAIN, Esq., Tankerton Towers, Whitstable, Kent. (Thanks for 2s. for R.G.O.F. Box—EDS.)

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THE
Gardeners' Chronicle
No. 1930.—*SATURDAY, DEC.* 22, 1923.

CONTENTS.

Books, notices of—
"Fruit Grower" Directory and Handbook 360
Handbook of Coniferae 361
R.H.S. Gardeners' Diary... 360
Bulb garden—
Alstroemerias... ... 366
Catalpas 359
Cercidiphyllum japonicum 370
Cultural memoranda—
Planting hardy flowers 366
Pruning of the Apricot 366
Englemann's, Mr. C. G., success at Cambridge 359
Fruit register—
Apple King of Tompkin's County ... 369
Highly - coloured Apples 369
Fruits in Covent Garden market, Christmas ... 369
"Gardeners' Chronicle" seventy-five years ago 360
Garden notes from South-west Scotland 366
Hardy flower border—
Christmas Roses ... 363
Eryngium 363
Polygonum campanulatum ... 363
Indoor plants—
Roupala Pohlii ... 368
Some Begonia species 368
Obituary—
Jaques, J. 371
Laxton, W. H. L. ... 371
Orchid notes and gleanings—
Miltonioda Hilda ... 361
Pelargonium Rollisson's Unique 364
Plum stocks 359
Rose garden—
Rose Sensation ... 365
Rose Fanny Oppenheimer 370
Schizostylis coccinea ... 370
Societies—
Orchid Club 371
Royal Caledonian Horticultural ... 371
Smithfield Club ... 370
United Horticultural Benefit and Provident 371
Southport Floral Fête, 1924 359
Trail, the late Prof., memorial to 360
Trees and shrubs—
Diervilla florida ... 367
Some Gaultherias ... 367
Upjohn, Mr. W. ... 370
Vegetable garden—
Early Dwarf Beans... 368
Veronica pedunculariis... 367
Week's work, the ... 362
Woolly aphis 369

ILLUSTRATIONS.

Cypripedium Prince Albert, Chardwar variety 361
Diervilla florida 367
Pelargonium Mme. Salleroi and a green-leaved sport therefrom 364; P. Rollissop's Unique 365
Polygonum campanulatum 363
Trail, the late Professor, memorial tablet to 360

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 38.6.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, December 19. 10 a.m.: Bar, 30.3; temp. 41°. Weather—Bright.

Plum Stocks.

THE perfect stock from the point of view of the gardener does not exist. Among the qualities which the ideal Plum stock should possess are a constant habit, reasonable ease of propagation, a good anchoring, non-suckering root system, a dwarfing effect on the scion, so that growth is restricted, a readiness of union with the scion, early bearing, and the power of aiding the scion to resist or recover from Silver-leaf Disease. In view of this formidable catalogue of virtues required of Plum stocks, it is not perhaps surprising that the search for the possessor thereof, although it has engaged the skilled energies of Mr. Hatton and his colleagues at the East Malling Research Station, has not yet proved wholly successful. Nevertheless, as the most recently published results* of the East Malling investigations show, great progress has been made in ascertaining the properties of the many Plum stocks in common use. The need for this preliminary investigation is the more important in that from their habit of suckering freely certain stocks have come into common use, in large measure regardless of any consideration other than that of the ease with which they may be propagated. It is no doubt for this reason that nearly every Plum growing district has its local Plum, the suckers of which are used largely in that district as stock—Bush Plum and Farleigh Damson in Kent, Pershore in Worcestershire, Blaisdon in Gloucestershire, the Gage in Cambridge, and the Drooper in Warwickshire. On the other hand, nurserymen generally select their stocks from the Brussels, Brompton, common Plum, various Mussels, Myrobalans, St. Juliens and Black Dumas, and consequently these stocks are widely distributed among the orchards of the country. One fact which emerged from the East Malling investigations is that—as might be expected — seedling stocks, *e.g.*, of Myrobalan and St. Julien show considerable variability and hence it is necessary for nurserymen to make careful selection if uniformity is to be achieved, and having selected the right stock to keep it true by propagating it vegetatively and not by seed. Among the stocks which are most easily raised are the Brussels and common Plum from layers; the Mussels for layers and root cuttings; Pershore and Brompton are, on the contrary, rather shy of rooting. The trials at East Malling, although they must be continued for many years yet before they admit of certain conclusions, already indicate that some stocks make better "mothers" than others—that is, "take" the buds and grafts of most varieties and enable the scions to form good maiden trees. Such are Pershore, Myrobalan and Brompton. These stocks would therefore seem safe for general use. Other stocks are not so accommodating and do not mate readily with certain varieties of Plum and Damson. In this group are included common Plum, Brussels and Broad-leaved Mussel. In illustration, the result of budding Czar on some of these varieties may be cited. With Myrobalan and Brompton about ninety per cent. of the buds of the Czar put on them "took"; nearly eighty per cent. took on Pershore, but on Brussels and Common Plum more than three-quarters of the buds of Czar put on them failed. Although no dwarfing stock has as yet been discovered, some, *e.g.*, Brussels and Common Plum, have a slightly restricting effect. Vigour, if required, may be had by using Myrobalan, Brompton, and Pershore; but in our experience, Plums generally suffer from excess of vigour and a more dwarfing stock than may yet be introduced remains greatly to be desired. On Pershore or Common Mussel and some St. Julien, varieties like Victoria blossom at an early age and more freely than on other stocks and, hence, come into thrifty bearing earlier. Pershore and some St. Julien stocks accelerate the time of flowering—a very doubtful advantage, and some, such as Brompton, Myrobalan and certain St. Juliens, provide a firmer anchorage than do other stocks. The bad suckerers are Brussels, common Mussel and common Plum: Brompton, some Myrobalan forms and Pershore are more free from this defect. Unfortunately, the results obtained by Mr. Brooks and the indications noted at East Malling, hold out little hope that choice of stock will help to reduce risk of Silver-leaf Disease. There is the possibility, however, that one type of Myrobalan and common Mussel which show a measure of resistance to Silver-leaf Disease may prove of value in this respect. Although work of the kind which is being prosecuted at East Malling is, of necessity, long in leading to conclusions, all horticulturists who follow it recognise that this work is on sound and sure lines. In consequence, even the interim reports which are issued from the Station have great practical value. The progressive nurseryman cognisant of the futility of rule of thumb methods can ponder the results and draw his conclusions as to whether on the whole the stocks he is accustomed to use are the best available, or whether he should not begin to co-operate with East Malling by trying other stocks side by side with those which he is accustomed to use and the virtues and defects of which he knows.

* "Some Notes on Stocks for Plums." By R. G. Hatton, M.A. Reprinted from the *Journal of the Kent Farmers Union*, November, 1923. Price 2d., plus postage.

"Gardeners' Chronicle" Almanack for 1924.—We shall publish in our issue of January 12 a "Gardeners' Chronicle" Almanack for the year 1924. In order to make it as useful as possible for reference we shall be obliged if Secretaries of Horticultural, Botanical, and Allied Societies, or any of our correspondents WILL SEND US IMMEDIATE INFORMATION OF ALL FIXTURES FOR THE ENSUING YEAR.

A Horticultural Visitor from America.—On the 8th inst. Mr. Nathaniel Ireland sailed from New York, on the White Star Liner, Baltic, for Liverpool. He is on an extended visit to Europe and will not return for at least two months. Mr. N. Ireland is a brother of Mr. Andrew Ireland, of Marks Tey, Essex, and he is in charge of the Charles M. Schwab estate at Loretto. He is visiting Europe on behalf of Mr. Schwab and after inspecting the leading horticultural establishments in England and Scotland, he will proceed to France and Italy for the purpose of studying many of the famous gardens in those countries.

Catalpas.—Catalpa bignonioides, often sent out by nurserymen under its synonymous name of C. syringaefolia, is still the species most generally cultivated in this country. Yet, as pointed out in the *Bulletin of Popular Information* (No. 12), published by the Arnold Aboretum, another American Catalpa, C. speciosa, is superior to it. Indeed, the writer in the *Bulletin* claims for this species that it is the largest, fastest growing, the hardiest and the handsomest of all Catalpa trees. Whereas the former species was introduced into England from South Carolina in the early part of the eighteenth century, C. speciosa, the home of which is along the Ohio and Mississippi rivers, has only been in cultivation for about fifty years. In its natural home this species reaches a height of 120 feet and forms a trunk four and a half feet in diameter. Elsewhere it fails to reach these dimensions, yet in eastern Massachusetts trees not more than fifty years old have attained a height of forty feet and have been flowering and fruiting for many years. A Chinese species, C. ovata, though of little value as an ornamental tree, is hardier than the American species and has yielded the hybrid C. hybrida, C. Teasii or Teas' hybrid Catalpa, as the result of a natural cross with C. bignonioides. Wilson's two Chinese species, C. Duclouxii and C. Fargesii, though still living in the Arboretum, gave but little promise of becoming useful garden trees.

Southport Floral Fete in 1924.—At a meeting held on the 11th inst., the Southport Town Council adopted the recommendation of its Parks and Finance Committees that a three days' Floral Fete be held in Southport on August 27, 28 and 29, 1924.

Mr. C. G. Engelmann's Success at Cambridge.—We are very pleased to announce that Mr C. George Engelmann, eldest son of Mr. C. Engelmann, of Saffron Walden, has obtained his B.A. Degree in Horticulture at Cambridge. He is the fourth to obtain this degree at Cambridge, and the youngest to obtain it during the present term. As he is only nineteen years of age, this early success marks him as a particularly promising student in the higher branches of the horticultural industry.

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"Fruit Grower" Directory and Handbook, 1924.—The *Fruit Grower Directory and Handbook* for 1924 contains 468 pages filled with information of interest to fruit growers, and especially those who grow for market. For a work of this nature there are exceedingly few advertisements, although these in themselves are often of value, especially to traders who may require to give an estimate at short notice. The bulk of the book is devoted to a list of firms, arranged in alphabetical order, comprising fruit growers, fruit importers, seed growers, salesmen, florists, sundries' merchants, &c., and this is followed by a classified section in which dealers in certain goods may be easily referred to. Thus the first page includes agents, anthracite merchants, associations, federations and societies, auctioneers and estate agents, Bamboo merchants, manufacturers of banding materials, and so on. In this section are lists of flower growers, and fruit growers, the respective lists filling several pages, and there are also long lists of fruit and vegetable growers, glass-house nurserymen, market gardeners, and others connected with fruit growing and allied industries. There are also useful lists of commission agents, fruit growers, nurserymen, &c., in a Colonial section, which embraces Australia, New Zealand, India, Canada, and South Africa. A Continental section contains similar lists of traders in the industry in Europe, whilst a foreign section embraces the United States of America, South America, and Japan. Much statistical matter is given in the first hundred pages, all useful information, not only to fruit growers, but to cultivators generally. The names of the best kinds of fruits, plants, and flowers for market are given, with short descriptions of each, showing which are the most popular sorts for market purposes. A cultural diary gives the fruit-grower's calendar of work during the various months of the year. Railway rates and regulations are dealt with very exhaustively, and there are chapters on notifiable diseases and pests, and various Acts, such as the Seeds Act, 1920; the Sale of Horticultural Poisons; the composition of insecticides and fungicides, &c. An article on "Legal Points affecting the Horticultural Trade," gives much useful information in cases that have been dealt with in the Courts. Portraits and short biographies of prominent growers are given in the section on "Prominent men in Horticulture." This directory is well printed in bold type, and has a very attractive binding in stiff linen covers; it is published by Messrs. Benn Bros., 8, Bouverie Street, E.C, price 10s.

R.H.S. Gardeners' Pocket Diary. — The appearance of the *R.H.S. Gardeners' Pocket Diary* for 1924 is opportune as the present year is drawing rapidly to its close and the careful gardener will be ordering his diaries for the coming year. The big foolscap diaries that do duty in the potting shed and gardener's office are very useful for recording practical work done, and for making notes of duties to be performed, but every gardener, amateur or professional, needs a small, handy, and smart-looking pocket diary in which to record engagements and observations made at exhibitions, meetings and visits to gardens, and it is for this latter purpose that the R.H.S. Diary is so useful and handy. The useful features of the previous twelve editions are retained in the new and thirteenth issue, and while the information giving is necessarily incomplete, owing to the limitations imposed by the size of the diary, it is always open to a gardener to make suggestions for improvement, as these will be welcomed by Mr. W. R. Dykes, the Secretary of the R.H.S and Editor of the Diary, and "carefully considered and adopted, if possible." Copies may be obtained from our Publishing Department, for 2s. 3d. post free.

Memorial to the late Professor Trail.—Warm tributes were paid to the work and worth of the late Professor James W. H. Trail, F.R.S. (who for forty-two years occupied the Chair of Botany at Aberdeen University), on the afternoon of Friday the 7th inst. The occasion was the unveiling of a memorial tablet in the new Botany Department of the University at the Cruickshank Botanic Gardens, Old Aberdeen. Sir David Prain, F.R.S., formerly Director of the Royal Botanic Gardens, Kew, a graduate of Aberdeen University, and a member of Professor Trail's first class in 1877, performed the unveiling ceremony. Sir George Adam Smith, Principal of Aberdeen University, presided over a large audience, including Mrs. Trail, Sir Francis Grant Ogilvie, C.B., of the Carnegie Trust; Professor W. G. Craib, who now fills

MEMORIAL TABLET TO THE LATE PROFESSOR TRAIL IN THE BOTANY DEPARTMENT OF THE ABERDEEN UNIVERSITY.

Professor Trail's chair; Professor J. Arthur Thomson, of the Chair of Natural History, Aberdeen; and Dr. Macgregor Skene, Lecturer in Plant Physiology, who acted as secretary to the Memorial Committee. The bronze tablet is mounted on a slate slab with a portrait plaque of Dr. Trail in the centre. In addition to the tablet the memorial includes a *Professor Trail Memorial Volume*. This volume contains an interesting biographical notice of Professor J. W. H. Trail, by Mrs. Trail; a bibliography of Professor Trail's works; and "The Flora of the City of Aberdeen." Professor Craib, in introducing Sir David Prain, said it was appropriate that Sir David should take a prominent part in their proceedings that afternoon, for he was a member of Professor Trail's first class, and after graduating had maintained his friendship with the Professor. Sir David Prain, after unveiling the tablet, said the audience would notice that the portrait was flanked by two Brazilian Palms. They commemorated the fact that one of the earliest, and at the same time one of the most important, contributions that Professor Trail made to botany was in connection with the Palms of the Amazon. The wreath that surrounded the portrait was of Oak leaves and acorns and galls, which were so typical of Professor Trail. Below the inscription, in two decorative panels, were two symbolic and yet real references to his work. On one side was the dragon fly, representing Professor Trail's work on insects, and the water spider, which was the subject of one of his earliest papers. On the other side was the Bladderwort, which was the subject of one of his latest papers. Below that there was the following inscription: "In memory of J. W. H. Trail, M.D., F.R.S. Born Birsay, Orkney, 1851. Traveller on the Amazon, 1873-5. Professor of Botany in Aberdeen University from 1877 till his death in 1919. Fellow of the Royal Society. He knew and loved the realm of living Nature, and inspired successive generations of students with his desire for deeper knowledge." Those beautiful words, said Sir David, expressed the aptitude of Professor Trail as a teacher, but as a friend of forty-two years standing he desired to say that his high integrity, the staunchness of his friendship, and his zeal for intellectual progress in all branches of knowledge were equal to what he did in and for natural history. Sir David then asked Principal Sir George Adam Smith to take over the custody of the memorial and the manuscript of the memorial volume. Principal Sir George Adam Smith accepted custody of the memorial, and promised that the University would cherish it with the reverence and affection that were due to Professor Trail's great memory. There never was a more loyal son of that Alma Mater than Dr. Trail, nor a servant of the University who, as teacher, served her more constantly than he did. He worthily earned the most enviable reputation that a teacher could aim at in having claimed so large a number of those who rose to high positions in the world of botanical teaching as teachers themselves. His colleagues would agree with him that there was no one who took a wider, a more impartial, a more liberal, and a more zealous interest in the progress of Aberdeen University than Professor Trail. To know him was not easy at first, but when one did get to know him one formed the very highest opinion of the purity, honesty, and unselfishness of his character. Another reason for remembering Dr. Trail was that he was almost the last link between the new order of things at the University and the old order that had passed away for ever. One had but to read the biographical sketch which was prefaced to the memorial volume to see what progress the University of Aberdeen had made since Dr. Trail left it as a student and during the forty-two years he served it as a Professor of Botany.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Caper Plant at Malta.* I observed the Caper bush growing in great abundance out of the crevices in the walls and ramparts of the island of Malta, where I spent two days in the end of June last. It was in full bloom at that time, and was really a handsome object; the long, white stamens tinged with purple contrasted finely with the clear green foliage. Some friends who were wandering about over the island with me sightseeing, fell into the common error regarding the Capers of commerce, and stoutly argued that it was the seed of the plant which we eat at our tables; nor could I convince them to the contrary until I procured a branch with some unexpanded flower buds upon it, and showed that these were what were gathered for use. *R. F. Gard. Chron., December* 16, 1848.

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NOTICES OF BOOKS.

A TEXT-BOOK ON CONIFERS.

THE interest in Conifers is perennial and increases from year to year. New species and varieties continue to be discovered, enriching our parks and gardens with their added beauty. When the Kew *Handlist* appeared in 1903, the number of species in cultivation was 246, and of varieties 451; or some 700 sorts of Conifers in all. Since that date, striking novelties like Taiwania and Fokienia, and new kinds of Abies, Picea and Cupressus have been found in China and Formosa. The number of sports has also increased largely, as witness Mr. Hornibrook's recent book, which gives an account of no fewer than 460 dwarf varieties alone. How great must be the labour of giving a description of all the living species, which are now estimated at 380 in number, and of listing the crowd of sports and hybrids, which make the total sorts of Conifers more than 1000! This task, necessarily a compilation, has been accomplished by Messrs. Dallimore and Jackson in the handsome volume* before us.

The authors cater for the forester and gardener rather than for the botanist; and the non-introduced species are passed over with only a brief notice. The result is a practical handbook, specializing in the easy identification of the numerous species in cultivation by the use of artificial keys and plainly written descriptions. The student is greatly helped by the admirable series of 120 drawings by Miss G. Lister, which faithfully portray the branches, buds, leaves, cones and seeds of the more important species. In addition there are 32 plates, reproduced from photographs, which depict both forest scenes and individual trees. Some of these are very beautiful, and show the wonderful effect obtained by well-grown specimens. Those of rare species, like Abies amabilis, Abies magnifica, Fitzroya patagonica and Picea Breweriana, are of special interest. The genera and species, for the sake of easy reference, are arranged alphabetically under the two families of Taxaceae and Pinaceae, into which the Conifers are usually divided. This arrangement would have been more convenient if only one alphabetical series had been adopted.

Mr. Jackson is responsible for the accuracy of the botanical part of the work. The nomenclature of the species and varieties is satisfactory, as preference is given to familiar and long-established names. The economic side has been handled by Mr. Dallimore, who supplies up-to-date information concerning timbers and many other interesting forest products, such as resins, turpentines, oils, gums, tar, charcoal, lampblack, paper pulp, pine wool, manna, etc. The tests of the strengths of various woods, quoted from official reports at considerable length, are, however, of doubtful value, as they can only be applied in rare cases to commercial samples. Of much more use are the copious notes on cultivation, fungous diseases, and insect attacks which are given under the trees of silvicultural importance, like Larch, Pine, Spruce, and Douglas Fir.

The book is well printed and has a copious index, but the name of the genus should have headed every alternate page for the sake of easy reference. The localities given for the cultivation of tender species are too restricted, as the greater part of the maritime zone around Ireland and on the western Side of Wales and Scotland furnishes as congenial a home as Cornwall. Even in Sussex, on elevated sites above the frost zone, rare Conifers from Tasmania and New Zealand thrive amazingly. Pinus canariensis, stated on p. 378 to be quite unsuitable for the climate of the British Isles, grows vigorously in Wicklow. It is the best timber tree on limestone in the Riviera, and might well replace there the native Pinus halepensis, the economic value of which is very slight.

The proof-reading has been fairly good, but one or two curious mistakes have escaped notice. On p. 66, the first cuttings of the upright Irish Yew are said to have been sent to Lee and Kennedy's Nursery, London, in 1867. This year is merely the date of a memorandum giving the history of the tree, which was discovered a century earlier. (See *Irish Gardening*, Nov. 1908, p. 172). In 1780, cuttings from Florence Court were planted at Comber, Co. Down, which have grown into fine trees; and it was probably at the same time that the first cuttings were sent to London to spread from there all over the world. On p. 297 there is an error in the account of the remarkable creeping Larch, Larix pendula repens, two specimens being known, one at Henham Hall, Suffolk, supported on pillars and extending horizontally for over 100 feet, and another in the Cambridge Botanic Garden. The history of the Henham Larch is given by Loudon (*Gardeners' Magazine*, xv, p. 626, 1839, and xvii, p. 353, 1841). This extraordinary sport was a seedling of the hybrid Larix pendula, Salisbury. Other queer forms of similar origin were noted years ago in the St. Petersburg Botanic Garden, as mentioned in these columns, 9 Oct., 1915, p. 234. This is a striking example of mutations resulting from hybridity.

On the whole, Messrs. Dallimore and Jackson's handbook is remarkably accurate, and is worthy of a place in the library of every lover of Conifers. For the use of student, it supersedes works like Gordon's *Pinetum* and *Veitch's Manual*.

The authors are to be congratulated on producing a reliable work which meets a great need since the older books on Conifer are not only out-of-date but out-of-print. *A. Henry.*

* *Handbook of Coniferae, including Ginkgoaceae*; by W. Dallimore and A. Bruce Jackson, A.L.S. p.p. 570, with 120 drawings by Miss G. Lister, F.L.S., and 32 plates. Price 42*s.* net. E. Arnold & Co., 1923.

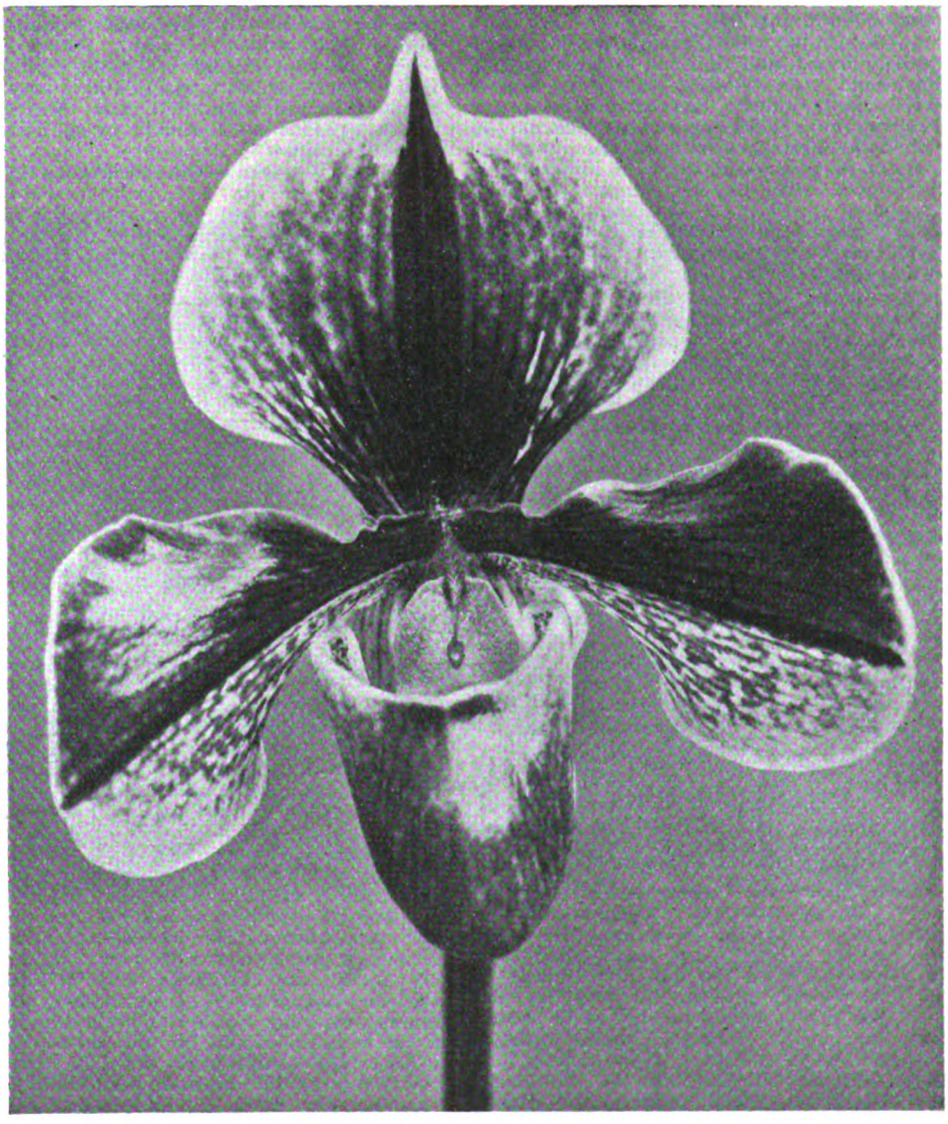

FIG. 128.—CYPRIPEDIUM PRINCE ALBERT, CHARDWAR VARIETY. R.H.S. FIRST-CLASS CERTIFICATE, DECEMBER 11 (SEE P. 356).

ORCHID NOTES AND GLEANINGS.

MILTONIODA HILDA.

A REMARKABLY pretty and distinct Miltonioda resulting from crossing Miltonia Roezlii and Cochlioda Noezliana has been flowering in Messrs. J. & A. McBean's nurseries at Cooksbridge, and flowers recently seen show that it is one of the most elegant of the Miltonia crosses. The plant has a finely branched spike densely set with pretty flowers, the sepals and petals of which are bright carmine-red and the proportionately large lip rose-pink. The flowers have a delicate fragrance derived from the M. Roezlii parent, a species which the present hybrid proves should be more extensively used in hybridising.

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The Week's Work.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL Ampthill Park, Ampthill, Bedfordshire.

Freshly Planted Subjects. — Hardy flowers, trees, and shrubs that have been planted recently should be examined after wind-storms and periods of frost, and if they are loose in the soil made firm at the roots. The re-firming of all shrubs and trees is best accomplished by treading with the foot or by the use of a large rammer, but small plants such as Carnations are best firmed with the hand to save breaking the foliage. An excellent plan in the case of freshly-planted Roses and other bush plants that may be top heavy is to tie one or two growths to a strong cane until the roots have a firm hold of the soil, when the supports may be removed. The practice entails rather more work than treading, but it ensures the plants being rigid and obviates any damage to the roots that might be caused through swaying to and fro.

Cuttings in Frames.—Stock raised from cuttings in frames is looking green and healthy. Take advantage of every favourable opportunity to admit air, as this will minimise risks from damping and keep the plants sturdy. Keep the plants clear of decaying leaves and lightly stir the soil occasionally. Choose mild days for watering.

Repairing Supports.—There are usually some supports that need to be made good, such as the stakes of standard Roses and those supporting wire enclosures. Such work should be attended to before the more busy days of Spring. Breaches in rustic arches or pergolas should also be made good, for this work may be better done now than when the climbers are in full growth and blossom. Wire arches used for the support of Roses and the like that have become loosened, may be held rigid by fixing a strong wire at one or both ends of the arch to an iron rod driven deeply into the ground.

THE ORCHID HOUSES.

By J. T. BARKER, late Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Dendrobium.—The flower buds of many of the deciduous and semi-deciduous Dendrobiums are expanding freely and the roots may receive slightly more water than they have received since the full development of the past season's growth, but even at this stage the plants should be allowed to become fairly dry before watering them. Amongst the earliest to mature their flowers are D. moniliforme, D. Cassiope, D. endocharis, and D. aureum, whilst many of the earliest matured and rested plants of D. nobile, and many of its hybrids often produce flowers at an early date. The flowering season of these plants may be greatly prolonged by introducing some of the earliest specimens into heat, and retarding the later ones by keeping them cool, but it is not advisable to attempt this with choice and rare varieties It is still too early to attempt to flower the majority of Dendrobiums, and the plants should be kept from flowering until a later date, when, with the longer days and increased light, they will develop flowers of a much better quality. Any plants that are hastened into flowering should, after the blooms are over, be returned to their resting quarters until the proper growing season arrives.

Later Dendrobiums.—It is advisable to examine Dendrobiums such as D. Wardianum, D. crassinode, D. nobile and D. Ainsworthii, and any that may be showing for flowering should be placed in a slightly warmer house than the one in which they have been rested. After their removal from the resting house water should be applied at comparatively long intervals, as any undue excitement while the flower buds are developing frequently causes the new growths, now visible at the base of the pseudo-bulbs, to start into growth, and if these extend very far the whole crop of flowers will be lost. These remarks apply particularly to the shy-flowering D. Falconeri, whilst D. Wardianum and several others are susceptible to the same influence. There are many species of Dendrobiums which bloom later in the spring, such as D. Parishii, D. Bensoniæ, D. albo-sanguineum and D. superbum and its varieties. These, and many others, having completed their current season's growth, should be placed in the lightest and driest position possible, in a Cattleya-house temperature, during their season of rest. All of them should be kept dry at the roots until their flower buds show, when they may be removed to the warmest house. Shrivelling of the pseudo-bulbs should in all cases be guarded against.

General Remarks. — Odontoglossums in the cool house are in full growth, and care should be exercised to prevent the plants receiving a check. Many plants of O. crispum are showing their flower spikes, and they should be examined nightly for slugs. The cleansing of the houses and the plants should receive attention at this season, when other work is not pressing. Examine the plants thoroughly and wash the houses both inside and out, taking care to remove the filth between the laps of the glass to allow the atmospheric moisture that condenses to pass away, and thus prevent drip, which may do irreparable harm. Previous to re-arranging the plants, each one should be thoroughly cleansed, sponging the leaves and stems with an insecticide.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Permanent Figs.—Successional Fig trees to those forced in pots should be attended to, and all necessary work preparatory to starting the trees completed. With trained Fig trees covering a large area, it is difficult to retain a sufficient number of fruit-bearing growths without an excess of old wood. In pruning it is advisable to cut out by degrees old branches that can be spared and train in their places, thinly, young growths. Crowding the shoots will result in thin, spindly growths, and fruit of an inferior quality. White scale is a troublesome pest of the Fig, and is difficult to eradicate. The best specific is strong soft-soapy water mixed with a wine-glassful of paraffin. An old spoke brush is a handy tool for removing the scales where an ordinary scrubbing brush cannot reach them; a softer brush should be used on the young wood or the embryo fruits would be damaged. Beyond tying the trees in position, carefully examine any badly infested wood, and, if necessary, give a second application of the specific. Some insecticides of a soapy nature form a soapy froth during the process of scrubbing, which makes it most difficult to see if the pest is being removed. The addition of paraffin to the soft-soap solution prevents this, and the work is carried out more expeditiously. Trees that are very vigorous will not require manure. Where food is required by the roots, a concentrated fertiliser should be applied. In most cases a top-dressing of loam, mortar rubble, and bone-meal will suffice.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Potatos.—Where new Potatos are required very early in the New Year the pots should be prepared for planting the sets. Eight or nine inch pots that have been used for the growing of Chrysanthemum should be well washed and crocked. Place some pieces of grassy turf over the crocks to ensure efficient drainage. Prepare a compost consisting half of loam, chopped finely, and half good flaky leaf-mould, with a sprinkling of wood ash. Three parts fill the pots with this material and gently press three tubers into the soil in each pot. If the tubers have been stood upright in trays or boxes they should be well sprouted, and in the right condition for planting. Cover the sets with about an inch of soil and place the pots in a cool house. Lightly water the soil but do not give any more moisture until the haulm shows through. When the stems reach the top of the pots, topdress the plants with similar compost, and give water as occasion demands. Place the plants in as light a position as possible to ensure the growth being sturdy. Failing pots, ordinary boxes will answer the purpose, provided they are of sufficient depth. May Queen, Sharpe's Victor, and Midlothian Early are splendid varieties for forcing; the last makes rather more top than the others, but is a most reliable and good variety for the purpose.

Work in Frosty Weather.—Although much tillage cannot be done during very cold weather, certain operations may be forwarded that will help with this important work when more favourable weather prevails. Manure may be wheeled on to the ground that needs it, and all rubbish burnt to obtain a supply of wood ash. The soil yard should be made tidy, and fresh turves cut from a pasture and stacked in readiness for use in frames, seed sowing, etc. Continue to make hotbeds for forwarding early crops of Carrots, Turnips, Lettuce, and other vegetables. Sheds and store houses may be cleared out and the walls whitewashed. Potatos and other roots in store should be examined, discarding any that are diseased or in any way faulty.

PLANTS UNDER GLASS.

By JOHN COUTTS Assistant Curator, Royal Botanic Gardens, Kew.

Peperomia.—Very few species of this genus of stove plants are in cultivation at the present day. P. argyreia is the most commonly grown member and also the most useful from the decorative point of view. Its leaves are beautifully marbled with silvery white. They are stout and fleshy in character, lasting well when used for house decoration. Well-grown plants in small pots or pans are very effective for filling small receptacles. P. metallica is also very pretty, especially when several plants are grown together in a small, shallow pan; this plant differs greatly in habit from the former, being upright, branching and closely set with small leaves. During the summer the plants enjoy shade but during the winter months they should be exposed fully to the light. Peperomias are easily propagated by means of cuttings rooted in a warm house; as the shoots are of a fleshy character they root readily in an open bed.

Dracæna fragrans variety Victoriæ.—This handsome foliage plant has beautifully variegated leaves and is a great favourite for decorative purposes, large specimens being specially useful in large rooms and saloons. Plants that have grown tall and leggy, and have lost their bottom leaves, should have their stems cut half way through just under the lowest leaves, and a handful or two of moss tied round the cut stem. The moss should be kept moist by frequent syringings and the plant kept somewhat dry at the roots. Fresh roots will develop in the moist moss, and when sufficiently rooted the top may be cut off and placed in a suitable-sized pot. The plant that has been rooted should be grown in a close case for a week or so until it is established; if a suitable case is not available the plant should be stood for a time in the closest and warmest part of the stove or propagating house. The stems may also be used for propagating purposes, laying them in fibre in a warm propagating

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case. When they have made young growths several inches in length the latter may be detached and rooted as cuttings. All Dracaenas and Cordylines are readily increased in this way. Old Dracaena plants afford a ready means of increase by using portions of the underground stems which have developed eyes; such portions of the stem are generally called "toes."

Paullinia thalictrifolia.—This slender climbing plant, with finely divided leaves resembling those of a Thalictrum or Adiantum Fern, is a very elegant subject for the stove house, the young leaves being bright rose in colour, changing with age to deep green. It is seen to best advantage when trained on a trellis, or neatly tied to slender stakes to form a specimen. This Paullinia succeeds in a compost consisting of good fibrous peat and loam, with sufficient sand to render the mixture open and porous. It may be propagated by means of cuttings inserted in pots of sandy soil, and plunged in a warm propagating case. Long sprays are very elegant and pretty for decorative work; for this purpose I would advise planting it out in a well-drained, raised bed, training the long growths up wires or fine string.

HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Pollination.—There being few Apples that are self-fertile, it has been recommended to interplant self-sterile ones with good pollenizers. Of the latter may be included Irish Peach, Cellini, Early Victoria, Lord Derby, Devonshire Quarrenden, Allington Pippin, Baumann's Red Reinette, Rival, King of the Pippins, Sturmer Pippin and Charles Ross. Bramley's Seedling is sometimes included, but here we had a record crop of this variety this season, and last year what was probably the smallest crop from large trees. Whether this was due to restricted activity of bees in the orchard last year I cannot say. Of those considered unfertile to their own pollen, Cox's Orange Pippin takes first place, whilst Beauty of Bath, Worcester Pearmain, Norfolk Beauty and Margil are of doubtful fertility.

Cherries and Plums.—The fruitfulness of these stone fruits year after year is undoubtedly due to cross fertilization, as numbers of varieties of these fruits are self-sterile. It is possible where this condition has not been studied when planting, that adverse seasons or conditions preventing cross pollination will be blamed. Those needing pollination by bees, or to be pollinated artificially, unless planted in proximity to self-fertile varieties, include, Cherries: Early Rivers, White Heart, Black Eagle, Black Tartarian and Waterloo. Plums: Jefferson, Kirke's Blue, Pond's Seedling, Coe's Golden Drop, Bryanstone Gage and Black Diamond. The varieties of Plums enumerated may be mixed with trees of Monarch, Czar, Denniston's Superb, Golden Gage, Early Transparent Gage and Reine Claude de Bavay, Morello Cherries, as is well known, set freely. The varieties Napoleon, Late Duke and Elton may be useful for inter-mixing with other varieties of Cherries.

Pears.—Provision should also be made in the case of Pears to ensure free setting of the fruits. In large orchards alternate rows of free and shy setters should be planted. Whatever method is adopted, care should be taken to plant varieties that will be in flower at the same time.

Pruning.—As the work of pruning proceeds any shoots required for grafting or use as cuttings should be selected and heeled in, and the remainder burnt forthwith. This will reduce the chances of spreading both disease and insect pests. The principal object of the pruner should be to prune in such a way that a well-balanced, symmetrical tree or bush is developed, with the branches well apart to allow air and light to enter the tree freely. Every endeavour should be made to obtain branches with fruiting spurs.

HARDY FLOWER BORDER.

POLYGONUM CAMPANULATUM.

THE majority of the Knot-weeds are best suited for shrubbery borders, on account of their robust and vigorous growth, but a few are well adapted for planting on the rockery on account of their miniature stature. The species in question is of neat, compact, bushy habit, with handsome foliage, and produces charming, Campanula-like, bell-shaped rosy white flowers in dense racemes, the blooms being delightfully fragrant. The plant grows from 2 to 3 feet tall and is well adapted for the second or third row in the herbaceous border. The flowering season is from August to October. This Polygonum is a useful plant for growing in a moderately moist and partially shaded position.

In common with many Polygonums, P. campanulatum (Fig. 129) produces underground creeping stems, but not so freely as in the Japanese P. cuspidatum. The best method of increasing the stock is by division of the clumps.

FIG. 129.—POLYGONUM CAMPANULATUM.

ERYNGIUM.

THE Eryngiums have a distinctly quiet steely-blue colouring that render them indispensable plants for border decoration from early August to late September and October. They succeed in good, deeply-trenched sandy soil, and a sunny position.

Their stiff, Teasel-like flower heads and spiny foliage borne on stout, rigid stems, produce a charming effect when the plants are mixed with or near the bronze foliaged Chinese Paeonies. The most showy of all are the new hybrids, Jewel and Violetta, of quite recent introduction. The former has numerous stout branching stems 2 feet high, surmounted with large flower bracts of a pretty bluish-purple, whilst the latter has large, clear, violet-purple inflorescences that are freely produced. E. amethystinum, E. Oliverianum superbum and E. Zabelli are useful, and very attractive with blue and steely blue flower bracts; E. planum is a taller growing plant of a distinct branching habit with small, pale blue heads; E. triquetrum has brilliant flower heads, whilst E. Spinalba with whitish heads and E. maritimum are both dwarfer growing, with a spreading habit. These last two are excellent for giving colour on the rockery or the front of the hardy flower borders.

The inflorescences of Eryngiums make very ornamental material when dried and placed in vases, and are especially useful in winter. *W. Logan.*

CHRISTMAS ROSES.

MOST gardeners are fully alive to the usefulness of these plants (*see* p. 338). Failures are not so much due to any inherent fastidiousness of the plants, but rather to either purchasing cheap plants or an excess of zeal on the part of the cultivator. Those who are anxious to grow these plants successfully should purchase strong, home-grown clumps and plant them as soon as possible. The flowers of the best white varieties do not equal the Eucharis in purity of colour, but are a good substitute for the same, and far more serviceable.

Where many growers err is in constantly lifting, shifting, and dividing their clumps. Large growers of these flowers for market certainly take great liberties with their plants, a breadth being annually cleared of their leaves, the roots lifted, and planted thickly under glass, in order to produce flowers for Christmas; but such growers have several large batches of plants of various ages and can afford to rest or split up any of their plants that have been exhausted by flowering. Private growers with a small stock of plants should grow their plants in such a manner as to obviate the necessity of moving them for several years.

Hellebores need a deep and fairly rich root run. A moderately rich loamy soil suits them best, although I have known them to do well in a brashy soil. A hot, dry soil or position is not suitable. Wherever planted they should be arranged in groups or patches, with a view to covering the plants with frames or hand-lights, as unless this is done the flowers will be splashed by the winter rains and, strange to relate, not last so long when cut. *James A. Paice.*

POLEMONIUM HIMALAICUM CAERULEUM.

THIS plant is commonly known as Jacob's Ladder, on account of the regularity of the bright, green side lobes of the foliage. It is perfectly hardy, a true perennial and of the easiest cultivation, producing numerous panicles of pretty, bell-shaped, clear sky-blue flowers. The variety P. h. album is equally effective on account of its pure whiteness. The plant grows 3 feet tall. *W.*

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PELARGONIUM ROLLISSON'S UNIQUE.

AS several correspondents have lately referred to this very old, scented-leaved Pelargonium (see pages 84, 107, 136, 163, 177, 191, and 236), a few notes on its history and its sporting propensity may be of interest to readers. This plant (Fig. 131) has been grown here for the past five years, but up to the present has not produced any variation in its flowers. The spelling of the name, however, should be Rollisson's, not Rollinson's, as given by some correspondents. The origin and precise date of its introduction does not seem to be known.

Donald Beaton was of opinion that the plant originated as a seedling from P. capitatum (figured in the *Bot. Mag.* tab. 7346 as P. Drummondii). In *The Cottage Gardener*, so far back as 1856 (vol. xvi., p. 4) Beaton refers to this plant as the old Purple Unique which shows that even at that date it must have been an old plant. The plant figured in *Sweet's Geraniaceæ* (vol. iv., tab. 371) as P. Rollinsoni clearly does not represent the plant now under consideration. A good figure of Pelargonium Rollisson's Unique will be found in *The Garden*, 1887 (vol. xii., p. 491, and further notes in vol. xix. (1881), pages 214 and 332. The following extracts from *The Gardeners' Chronicle* will throw some light on the history and tendency to "sport" of P. Rollisson's Purple Unique:—

GERANIUM SPORTS.—"I beg to send for your inspection flowers from two plants of Rollisson's Unique Geranium, each of which produced the purple and lilac flowers sent, in one instance, as you will observe, the two colours are united in the same truss. Is this sport a common occurrence? . . . *R. P., Pinchos*, Anglesey."—*Gard. Chron.*, 1861, p. 578).

GERANIUM SPORTS.—"Your correspondent *R. P.* (see page 578) asks if a lilac sport on Rollisson's Unique is uncommon. I think not, as I have frequently had the same sport appear on it when growing strongly in pots under glass, some branches producing all lilac flowers. Half the truss has also some crimson and the other half lilac, as mentioned by *R. P.* . . . *W. Heale*, Westerham, Kent."—*Gard. Chron.*, 1861, page 600.

EDITORIAL NOTE IN GARD. CHRON., 1861, page 925.—"Do any of our readers happen to know the origin of the Pelargonium which we believe is generally called Rollisson's or the Purple Unique? The variety to which we refer is one which though of rather straggling habit has bold "Oak" leaves and deep purple flowers, and is a great favourite in flower gardens and for general decorative purposes. We presume it owes its origin, as many such varieties do, to a sporting branch, in which, however mysterious it may seem, the character into which it has sported has become fixed. . . . Among the plants grown at Chiswick was a group of Pelargoniums of the class to which this unique variety belongs, and in this group were plants of the Purple Unique and of another, we believe the old Lilac Unique, differing only in having the flowers lilac instead of purple. On a plant of the latter we observed one truss of flowers in which half the number were of the purple colour, to which reference has been made, and the other half were lilac. The two colours, though in separate flowers, were not scattered promiscuously throughout the truss, but the blossoms and buds on the other side were purple, while those on the opposite side were lilac."

FIG. 130.—PELARGONIUM MDME. SALLEROI (LEFT), AND A GREEN-LEAVED SPORT THEREFROM (RIGHT).

SPORTING PELARGONIUMS—ROLLISSON'S UNIQUE, &C.—"The Lilac Unique was first sent out by Wm. Ivery of Peckham, and originated in the shape of a sporting branch by a gardener on Peckham Rye from a plant of Rollisson's Unique. It is pretty and useful, but not so handsome as the parent. Rollisson's Unique no doubt originated with the father of the present proprietors of the Tooting Nursery, but whether from seed or by a sport it is impossible to say. Whatever may be its origin, Pelargonium Daveyanum was one of its parents, and from the identity, if not the positive sameness of the foliage and habit of the plant, I strongly suspect it to be a sport from that variety, and my impressions are intensified by the fact that it is exceedingly difficult, if not impossible to get Daveyanum to set seed; indeed, I tried my utmost some years back, but failed. The downy foliage, the style of the truss (though much larger than Daveyanum), the colour of the flowers and straggling habit, all point to Daveyanum as one of its parents and cross-bred; perhaps P. concolor, which Sweet describes as a strong grower, suitable for training to trellis-work, was the other parent. There are in the trade two varieties of Rollisson's Unique, one a stronger grower and much superior kind to the other. There are also varieties of the Scarlet Unique, one an old Oak-leaved kind called Defiance, and the other, though a much stronger grower, I still suspect to be a sport from Rollisson's, for in the sporting flowers of both varieties the identity of colour of the lilac flowers was complete. The Scarlet Unique, as far as ever I could ascertain, is of Continental origin, having come to this country either from France or Belgium. It is a strong constitutioned, small trussed, loose growing kind, but does not make such an effective specimen as the best variety of Rollisson's Unique, which is really, in a decorative point of view, a most excellent plant." *P. A. W. Gard. Chron.*, 1861, p. 945.

PELARGONIUM PURPLE UNIQUE.—"I have always supposed that this was a cross obtained by Mr. Rollisson from P. quercifolium and another Cape variety. As to its sportive character I can bear ample testimony, and I know of stranger instances than that at the Horticultural Society's Garden at Chiswick. There are to my knowledge four distinct sports from Rollisson's Unique:—1st, Lilac; 2nd, Conspicuum (rose-crimson); 3rd, Coccineum (red), 4th, Rose d'Amour (rose); this last is a sport in the second degree from Coccineum. All these may now be considered fixed varieties, although they will occasionally produce flowers of the original colour. This year Coccineum has pushed three different colours, red, rose and lilac upon the same truss, and upon other trusses are flowers half red and half lilac; other Geraniums are also subject to variation, not only as regards colour and foliage, but also in habit of growth and dimension of leaves; the diminutive variety called Variegated Dandy is, singular as it may appear, nothing but a sport from one of the old large-leaved Scarlets. Accident made me acquainted with the fact. When it was first

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sent out I planted it in the open ground; towards the end of the summer I perceived by its side a strong shoot of a large green-leaved Geranium; supposing this to have been from an old root which might have been accidently dug in, I pulled it up and to my surprise I found it to be a sucker from Little Dandy; before mentioning this to Mr. Thompson, he told me that I was quite correct in my supposition, and informed me of the way in which he had obtained it. The Variegated Dandy is subject to other changes; very frequently it loses its variegation, but retains its Lilliputian habit. Dahlias, Chrysanthemums and many other plants present the same plastic tendency to variation both in leaves and flowers. In 1848 I raised a Chrysanthemum (Queen of England) which has produced six distinct sports, four in colour—blush, rose, yellow and white—and two in foliage, all of which have now become fixed. . . .—*John Salter*, Versailles Nursery, Hammersmith." *Gard. Chron.*, 1861, p. 968.

NOTES BY WM. PAUL.—Your correspondent *P. A. W.* is right in assuming one of the Scarlet Unique Geraniums to be of Continental origin. Many years ago, when travelling in France, I saw this Geranium growing among a lot of seedlings in the nursery of M. Boucharlat at Lyons, and bought it and sent it home, naming it Scarlet Unique. About the same time Mr. Gaines, of Battersea, raised or obtained a similar one, but not the same, and named it Scarlet Unique, neither he nor I knowing of the existence of the other. There is a fine plant of my Scarlet Unique in the conservatory at Camfield Place in this county, the seat of the Hon. Baron Dimsdale. —*Wm. Paul*, Nurseries, Waltham Cross, Herts." *Gard. Chron.*, 1861, p. 968.

NOTES BY J. SHEPPARD.—"Rollisson's Unique Pelargonium . . . One of the old plants threw out a sport last summer that has lilac-coloured flowers, that will, I think, be worth perpetuating. In beds Rollisson's Unique is too rampant a grower to flower freely, unless restricted by cramping its roots in pots, but for vases or boxes, where it can hang over, it has a fine effect. . . . *J. Sheppard.*" *Gard. Chron.* 1876: p. 84.

NOTE BY F. J. HOPE.—"This is very apt to sport as described on page 84. About twenty-five years ago the Lilac sport went under the name of Glorianum or Lilac Unique . . . *F. J. Hope*, Wartie Lodge." *Gard. Chron.* 1876., p. 180.

P. Glorianum is figured in *Sweet's Geraniaceæ*: vol. 5, tab. 82.

NOTES BY R. D.—"That fine old Pelargonium, Rollisson's Unique . . . How it originated is involved in some obscurity, but it is generally regarded as having sprung from a cross made at the Tooting Nurseries, between P. quercifolium and another Cape species. It has proved of a very sporting character, having thrown several of these, all more or less valuable in the hue of the flowers. Some years ago as many as four distinct sports were in cultivation, namely, the Lilac; rosy crimson known under the name of Conspicuum; Coccineum, red: and Rose d'Amour, rose. . . . Those now best known to cultivators are Aurora, bright glowing crimson, the upper petals darkly spotted and blotched with white; Conspicuum; Crimson Unique; Diadem, rich violet crimson, dark upper petals, flowers very large and good quality; Lilac Unique; Scarlet Unique, known also as Macbeth, which appears to be a fine form of it; and the White Unique. . . . *R. D.*" (*Gard. Chron.* 1876., p 714.

REPORT ON PELARGONIUMS GROWN AT CHISWICK 1861, BY THOMAS MOORE.—"Rollisson's Purple Unique from Messrs. Fraser—Leaves deeply blunt-lobed; flowers deep, rose purple, spotted. One of the most useful of the hybrid bedding class, and an excellent conservatory plant. Some of the branches produced trusses of both lilac and purple flowers, and on one truss both colours were produced, one side of the head having lilac flowers, the other purple." Extract from the *Journal* of the Royal Horticultural Society, vol. 2, 1862, p. 149.

Pelargonium Variegated Dandy referred to by John Salter in the above extract, is also known in gardens as Dandy and Madame Salleroi (Fig 130), &c., a very popular plant, of dwarf habit, and much used as an edging to other plants in a scheme of "bedding-out." In its normal condition, *i.e.*, dwarf, compact, and with a white margin to its leaves, it never produces flowers, but, as stated by Salter, it sometimes produces green sports. These sports are of three kinds:—

(i) Having plain, green leaves.

(ii) Having whitish centres to the leaves (reversed variegated), masked by a green skin. Both these sports grow very tall, so much as three feet, and flower very freely. The flowers are very small and dark pink in colour. These have no pollen and have proved sterile to pollen from various plants.

(iii) Having white shoots and leaves which eventually die.

The flowers are not distinguishable from those produced by Mangles's Variegated, which also produces green-leaved sports exactly similar to the green-leaved sport of Madame Salleroi or Variegated Dandy.

The illustrations in Fig. 130 show a typical plant of Madame Salleroi and a green-leaved sport which originated from it. *A. Hosking, The John Innes Horticultural Institution, Merton.*

THE ROSE GARDEN.

ROSE SENSATION.

THE new red Rose Sensation, raised in the United States, has been awarded several honours at exhibitions in that country and trade growers there are planting it extensively for market purposes. The *American Florist* for December 1 has a splendid full page illustration of a large house filled entirely with this variety and all the plants are carrying an excellent crop of fine blooms.

FIG. 131.—PELARGONIUM ROLLISSON'S UNIQUE.

The raisers' description, who state that it is a hybrid between Premier and Hoosier Beauty, is as follows:—"As large and more prolific than Premier. Well supplied with a heavy luxuriant foliage. The flowers are fine any season of the year. The colour is an entrancing shade of red. The bud is long, pointed and the open flower beautiful, with extreme size and good colour to the last. The stems are long jointed and strong with ample foliage. A good keeper and shipper. Grafts well; roots well and above all else, grows well. Properly grown it will produce more dollars per square foot of space than any other Rose of to-day." The Jos. H. Hill Co., of Richmond, Indiana, U.S.A., is placing the variety in commerce in February next and several well-known American Rose firms are assisting Messrs. Hill and Co. in the distribution of this new Rose, which has created quite a sensation in America.

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GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

RASH indeed would be the amateur who should attempt to forecast the vagaries of the British climate more than a very few hours ahead; yet there are certain phenomena that the accumulated experience of generations has taught country dwellers to regard as the forerunners of a definite type of weather. Among these phenomena is that which has prevailed over most of our island since early in November—snaps of frost, interrupted every two or three days by a quick rise of temperature. Such alternation, prevailing for several consecutive weeks, is spoken of by our local weather-wise folk as "feeding a frost," and is regarded as presage of long, hard cold. We are warned, therefore, to expect some such visitation after Christmas. If this does not come, faith in rural weather-lore may be shaken; if it does happen, there is likely to be mischief wrought among the large number of new species which a series of exceptionally mild winters has tempted us to treat as hardy plants.

Meanwhile, although it is not wise to attempt planting under present conditions, even where in mild maritime districts the soil may be soft enough to admit of it, there are many minor operations which may be attended to. One of these is propagation of the Giant Lily —L. giganteum—whereof the lofty candelabra of lusty capsules stand to remind one of fragrant summer evenings. These tall, tawny stems, carrying aloft a plentiful harvest of ripe seed, are so ornamental that one feels unwilling to displace them. Nevertheless, they provide the speediest way to secure a stock of this fine Lily. Seed germinates rapidly, but one must wait six or eight years before being rewarded by a flower from a seedling; whereas if the old stem is firmly grasped and pulled steadily up, a number of young bulbs, some of them five or six inches long, will be found clustered among the stem-roots of the old bulb which has disappeared after flowering. Some of the larger of these young bulbs will flower in two or three years, and it is a positive advantage to them to be released from the struggle for life with their companions. The one unsatisfactory feature in this prince among Lilies is the brief duration of its bloom. One must wait years before a bulb sends up a flowering stem, and when it does so to any height from six to twelve feet, with perhaps a dozen great blossoms on it, these retain their beauty and fragrance barely more than a week, and the bulb that has given them birth expires from the effort.

There is no genus of bulbous plants less exacting in cultivation than the Colchicums, yet one seldom sees the best use made of them for the embellishment of pleasure grounds. In flower borders—yes; usually our native C. autumnale—but there are several much finer species, none of which is seen at its best in such a position. They are, indeed, unsuitable for the borders in more ways than one. The winds of autumn bruise the fragile flower stems and rain splashes soil upon the blooms: while the exorbitant foliage that rushes up in spring makes a sad mess when it flags and fades in summer, to the detriment of less vigorous neighbours. Colchicums never show to such advantage as on grassy slopes, provided these are fully exposed to sunshine, for the plants are impatient of shade. Daffodils and Crocuses thrive and spread freely under deciduous trees, which are bare when these bulbs put forth their flowers, but cast too deep a shade when the autumnal Colchicums spangle the Alpine pastures.

Perhaps one reason why more and better use is not made of Colchicums is that when most amateurs and gardeners fill up their orders for bulbs, that is just the time when the plants are busy flowering. Neither can they bear transport in spring, for then the great sheaf of leaves is pushing up, bringing with them the fat, three-celled, many-seeded capsules that have formed underground during the winter. But there are two seasons when the bulbs may safely be raised and re-planted—at midsummer, after the foliage has withered, and at any time between November and February (the earlier the better), provided there is no frost. The soil is in better condition for the operation in open winter weather than in summer, when it is apt to be inhospitably dry. About thirty species of Colchicum are recognised by botanists, but C. giganteum, B. Bornmülleri and C. speciosum are probably the pick of the set. I confess that I cannot distinguish between them with any confidence; they are all large-flowered and make a splendid display on a sunny September day, and I care little for the smaller species, except a lovely little rose-tinted kind which I dug up near the king's palace at Cettinge, in Montenegro (there *was* a King of Montenegro till the war threw the *Almanach de Gotha* into printers' pie). It flowers in August and must be submitted some day for identification to Mr E. A. Bowles.

Colchicums—those species, at least, which we grow here—multiply with extraordinary rapidity. It does not seem many years since I paid pretty smartly for three bulbs of the peerless white variety of C. speciosum; now we could make a barrow load of their progeny. Colchicums are so usually spoken of as autumn Crocuses that, at the risk of being blamed for commonplace, I may venture to remind some of those who grow them that they belong to the Lily Order, with six stamens, whereas the Crocus is of the Iris Order, with only three There is a beautiful coloured plate from the late Mr. Moon's water-colour drawing of Colchicums in Mr. Robinson's *Flora and Sylva*, vol. i, p. 108.

Paeonia Mlokosewitchii, handsomest of all yellow Paeonies, is already thrusting crimson shoots above ground, despite nine degrees of frost.—*Herbert Maxwell, Monreith.*

BULB GARDEN.

ALSTROEMERIAS.

THE members of this small genus of the Amaryllis family are chiefly natives of Chili, Peru and South America and have in many cases, because of this origin, been given greenhouse treatment, which did not conduce to success. The first Alstroemerias were raised in this country from seed at Kew, in 1753, through the instrumentality of Linnaeus who had been given some seed by Baron Alstroemer. Such kinds as aurantiaca, lutea, chilensis, hybrida, and one or two others are quite hardy if planted six or eight inches deep in a dry soil, and will take care of themselves and flower freely year after year. The two best known, other than the hardy ones, are A. Pelegrina alba and A. P. rosea. It is sometimes recommended to plant these outside at the foot of a south wall. This may be suitable in Devon or Cornwall, but the risk is too great near London. However, the plants will do well in a cold frame or Alpine house and if potted in light soil will give plenty of flowers and are two of the choicest kinds.

The hardy sorts are best grown in beds and if the chilensis hybrids are chosen, many shades of yellow and red will be represented. A dry, well drained, and a sunny situation should be given them and a soil rich and deep. If planted at the suggested depth the roots will grow down from any danger of frost. Planting may take place as soon in autumn as the tubers can be obtained. The flowers are produced in summer; they are most attractive and last a considerable time when cut.

It is an interesting business to raise Alstroemerias from seed which should be sown preferably in the spring. The seedlings will flourish out of doors in a warm and dry corner, but should have a slight mulching during the first winter to protect them. The young plants may, after the first year, be planted in their flowering quarters. There is no trouble in obtaining seed as it is generally plentiful. *T. D. T.*

CULTURAL MEMORANDA.

PLANTING HARDY FLOWERS.

PLANTING is often a serious problem to the uninitiated, but to the hardy plant enthusiast it presents no difficulties. He will plant at all seasons, excepting when a plant is too far advanced towards flowering, or during very frosty weather. The general seasons for planting, however, are autumn and spring.

In arranging a hardy flower border, the scheme of planting should be well considered, with a view to keeping the border furnished with flowers from spring until autumn. It is impossible to maintain a blaze of bloom all the time, but much may be done by cutting out the old flower stems as the blossoms fade, thereby ensuring a succession of secondary flowers.

Good clumps of one colour show up much better and are more defined than a mixture, but combinations of two colours may be admitted, and they look very charming. The arrangement of colours is a matter of individual taste, but there are certain rules that should be observed, the chief of which is to commence with mild colours at the approaches to the border and gradually pass into the strongest colours in the distance.

In grouping a hardy flower border the majority of the tallest plants should be placed towards the back part; in fact, a graduated scale of height should be observed from back to front, with here and there taller subjects rising above the others to obviate severe formality.

Between clumps of Phloxes, Asters, or any late-blooming plants, Daffodils, Fritillaria Meleagris, and late-blooming Tulips may be planted; in fact, bulbs should occupy an important part in the composition of the hardy flower border.

The first step towards planting is the preparation of the ground, and whether there is a whole border to plant or only a part of one the same rules should be observed. The drainage should be thorough, and the fertility of the soil adequate to supply the demands of the plants for several years. The ground should be trenched at least two spits deep, and a good layer of either old hot-bed manure, or old cow manure put in the bottom, and another layer placed between the two spits. Wood ash and bonemeal may be mixed with the soil as the work of digging proceeds.

When the border has been dug, a dressing of lime lightly forked under the surface will be beneficial to the plants.

Do not plant for a few hours after rain has fallen, and never plant on hard ground to save the trouble of forking it again. Make a hole large enough for the reception of the roots, and be sure that the soil is firm about the latter. *James A. Paice.*

PRUNING OF THE APRICOT.

ALTHOUGH the practice of some is to defer the pruning of Apricot trees until the spring, I know of no reason why this operation should not be done in mild weather during the autumn and winter.

As is well known, the Apricot is very susceptible to injury caused by the pruning of strong branches, but if the usual stopping of the breast growths was done by hand during the early summer, little if any pruning at this time of the year should be necessary.

Where winter pruning is needed always retain fruitful shoots as near the base of the stem as possible, removing lateral shoots that appear to be unfruitful. All the natural fruit spurs on the two-year or three-year old wood should be preserved, and the end or terminal growths shortened according to their strength, disposition of the buds, and the spaces that need furnishing; keep every part of the tree open, allowing sufficent space between each branch to allow both sunlight and air to enter freely. *W. Hedley Warren.*

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TREES AND SHRUBS.

DIERVILLA FLORIDA.

THE most popular of all the species of Diervilla is D. florida, a Chinese plant introduced to cultivation in this country so far back as 1845. The collector of the species was Robert Fortune, and the plant was introduced by the Royal Horticultural Society. Few flowering shrubs excel D. florida in grace or in freedom of flowering, and as it appears to thrive in most parts of the country and in various soils there is small wonder that it is found in comparatively small gardens as well as in large groups in extensive public and private gardens. It is best known, however, as Weigela rosea, the name given it by Lindley, but which is now superseded by Siebold's name of Diervilla rosea. The accompanying illustration (Fig. 132) shows a specimen in Mr. C. Cockcroft's garden, near Rochdale, and well illustrates the natural elegance of the shrub and the profusion with which it produces its funnel-shaped, rose coloured flowers. These are borne in threes or fours at the ends of short, side shoots and appear during May and June. The variety candida has pure white flowers, while D. Looymansi aurea has yellow leaves, and D. f. variegata has its foliage margined with pale yellow. This last is a very attractive plant and has deep rose coloured flowers. A dwarf form, named nana, has paler flowers and lighter yellow edges to the leaves. *C.*

SOME GAULTHERIAS.

THE genus Gaultheria comprises a large number of Ericaceous shrubs, of which only a small proportion are in cultivation in this country. The better known among these latter are all peat and moisture lovers and fond of cool, half-shady situations. In such spots, whether in the rock-garden or woodland, they are always attractive on account of their pretty or unusual evergreen foliage, their Heath-like waxen flowers or their conspicuous and often handsome fruits.

The largest and most familiar of these Gaultherias is G. Shallon and it is also the easiest to cultivate, thriving abundantly in any damp, lime-free loam. This species, which was introduced by Douglas from N.W. America over a century ago, makes a dense thicket of upright, reddish stems 2ft. to 4ft. high, amply furnished with large heart-shaped, Apple-green leaves. The flowers, borne in early summer in racemes some 3 inches long, are of the characteristic urn-shape of the Ericas and pinky-white in colour. A well-flowered specimen of G. Shallon is an object of no little attraction in the woodland or wild garden. Since it spreads, though not always rapidly, by underground shoots and resents disturbance this is a shrub that should be given plenty of space.

G. Veitchiana, one of Mr. E. H. Wilson's (1907) Chinese introductions makes a close-set, tufted little bush less than one foot high. This species appears to need a moister soil than the above, a sandy peat or damp vegetable loam with leaf-mould suiting it admirably. The foliage of G. Veitchiana consists of rough, deeply veined, wrinkled leaves averaging about 2 inches in length. These are a dark, often bronzy green, oblong and with a breadth of about half their length. The flowers of this species, produced in axillary racemes, are white and very effective against the dull foliage and rusty fur of the branches. The fruits which follow these are about the size of a small Currant and a deep china-blue.

Perhaps the oldest Gaultheria known to our gardens is G. procumbens, the Creeping Wintergreen, or Partridge-berry, of N. American woods. This is a delightful little plant for covering the ground between dwarf Azaleas and other shrubs of the sort, its tufty growths seldom rising more than 6 inches. Although it spreads like others of its kind by creeping roots it is of slow growth. The leaves of G. procumbens are a dark glossy green, leathery in texture, obovate and about 1½ inch in length. If crushed they emit the well-known aromatic odour of oil of Wintergreen which is, or was, extracted from this species. The pretty, pinky-white flowers of G. procumbens appear singly underneath the leaves in the late summer, the succeeding fruits being much like those of the Holly in colour and size. Since these seem to be distasteful to birds and mice they will often remain on the plant throughout the greater part of the winter. G. procumbens, though delighting in peat, will thrive in ordinary cool loam with which plenty of leaf mould has been mixed. In habit and general appearance this species somewhat resembles Epigaea repens, another plant that loves shade.

G nummularioides is a Himalayan member of the genus, quite hardy and one that, despite its attractive qualities and ease of culture, is still uncommon. This species makes a dense, rounded, cushiony mat of foliage, the long and prostrate stems, covered with red-brown bristles, being furnished with heart-shaped, dark-green leaves. These are raspy to the touch, closely-set in pairs, and they gradually diminish in size towards the extremity of the growth. But for their difference in colour and texture they might be said to resemble those of Lysimachia nummularia. Though G. nummularioides spreads by underground shoots it does not do so with us to any extent, quite an old specimen being no more than a couple of feet across and a compact mat of foliage from which the long, trailing shoots extend, lying closely pressed against the mossy rocks or stumps amid which this plant delights to dwell. This species is entirely a foliage plant and one admirably suited for associating with Ferns and other woodland subjects of the kind. Its flowers are inconspicuous and here it never ripens its fruit.

Another Himalayan species of equal hardiness and certainly of no less charm is G. trichophylla. This pretty little plant creeps about by means of fine, underground stems, making a Heath-like carpet of slender, semi-prostrate growths some 3 inches or 4 inches in height. The reddish stems are furnished with tiny leaves, slightly hairy, ¼ inch in length and about half as wide, with blunt ends. The foliage is a rich, glossy green which is most attractive at all seasons. The berries which follow the pink, bell-shaped flowers are enormous for so small and frail a plant, being about the size of a sparrow's egg and of a clear turquoise blue. This beautiful species is quite prosperous with us in ordinary well-drained, woodland loam, with leaf-mould. Though it will do in shade, it undoubtedly enjoys some sun. A cool, moist root-run beneath some thin-habited deciduous shrub seems to suit it best.

Like most members of its race, Gaultheria trichophylla resents disturbance. It is best left alone for years when well-established and in planting it is wisest to use pot specimens or clumps.

Gaultheria pyrolaeoides is a very lovely little shrublet of some 8 inches in height with glossy green, oval, sharply-pointed leaves and pure white berries as large as marrowfat Peas. But as this is among the later arrivals of this genus to our garden I cannot write further of it from my personal experience. *A. T. Johnson, Ro Wen, Tal-y-Cafn, North Wales.*

VERONICA PEDUNCULARIS.

This Veronica is a little plant of distinction and much merit, and although it is quite hardy and easy to grow in any light soil in a sunny spot it seems to be very uncommon both in gardens and nurseries. From a low mat of pale green, often bronzed, leaves, which are remarkably like those of our own V. Chamaedrys, this species sends up in spring numbers of extremely elegant flowering sprays which bear on their many slender branches pure white flowers lined with rose. These blossoms are about the same size as those of V. Catarractae, but they are produced in such extraordinary abundance as to almost smother the plant. This amazing yield is not only maintained for some two months, or more, in the late spring and early summer, but if, after flowering, the stems are cut back and the plant well watered it will give another display in autumn

The plant I have of this species was given me by Mr. E. C. Buxton who obtained his original stock from the late Mr. Wolley Dod, who, it is said, found the plant on a roadside in Hungary. For some years it was catalogued by a nurseryman—presumably the only one who had it—as "Veronica sp. E. C. Buxton"—much to the latter's amusement! Later, I think in 1914, the species was identified by Kew as V. peduncularis of the Caucasus. *J.*

FIG 132.—DIERVILLA FLORIDA.

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INDOOR PLANTS.

SOME BEGONIA SPECIES.

MANY species of Begonia are well worth growing for decorative purposes. Their graceful habit, the profusion of delicate male and female flowers—typical of the family—and the richly variegated foliage of some, are qualities that make them useful subjects for the warm and intermediate houses.

A well-grown plant of B. manicata is very beautiful. This species was introduced to England from Mexico during the earlier part of the nineteenth century. The light and fairy-like flowers, produced in great profusion, give it a foremost place among Begonia species even to-day, and yet with a fairly warm temperature it is easier to cultivate than many others. Kew makes a speciality of B. manicata, and it is a feature of the greenhouse there during the early Spring. This species has growth of a somewhat succulent nature; the leaves are smooth, massive, and solid looking. The flower scapes average from two to four feet, varying in accordance with the size of the plant and the pot it is grown in. No special method of cultivation is necessary for B. manicata. An ordinary potting compost is all that is required, but care should be taken to render the soil open in texture by the aid of broken crocks as well as sand. Good drainage is essential, for the plants are evergreen and require water and nourishment at all seasons. B. nitida is the oldest introduced species. It is an almost perpetual bloomer, and the flowers, of very pale pink, are delicately scented. As a stage plant for the conservatory, B. nitida never fails to please.

B. acuminata, another perpetual-blooming species, produces its flowers much more profusely than the last named; a batch of this species on the stage of an intermediate house will always give a striking and prolonged effect. Like all Begonias, it requires much care in watering, otherwise, in a moderate heat B. acuminata is not difficult to cultivate. The plant may be raised readily from cuttings.

B. coccinea, a native of Brazil, is a beautiful species with a habit well adapted for training up pillars and rafters of a warm house. The Bamboo-like stems grow with amazing rapidity, and the numerous blood-red flowers on drooping penduncles are picturesque and durable; the leaves, too, are effective, a refreshing green in colour, somewhat succulent, and almost pointed in shape.

Another species remarkable for its graceful habit and usefulness as a plant for covering pillars and walls is B. fuchsioides, brought to this country from New Grenada in 1846. The bright scarlet, pendulous flowers of this Begonia are very like those of the Fuchsia, and are produced in great profusion on a well-grown plant. The tall stems are woody and the leaves small and numerous. It should be grown in a good peat border with liberal root room, and a happy medium between wet and dryness should be maintained, for this particular species will not tolerate careless handling of the water-pot; a little too much water and the leaves will very soon turn yellow and drop off, whilst drought at the roots is equally harmful, the only difference being that the leaves just drop off without changing colour or even wilting.

B. Evansiana is a useful pot plant, originally found in China, and in a few other countries since. It is tuberous, with annual stems; the rose-coloured flowers are borne on slender, axillary stalks, and these, together with the leaves of uncommonly blended red and green shades give a pleasing effect. Bulbils are numerously produced in the leaf axils of this species, and propagation is an easy matter.

B. natalensis and B. Sutherlandii are tuberous species with habits that are very similar. In the former the leaves are small and mottled and the flowers white: the latter has leaves that are tinged with red, and salmon-red flowers.

B. Rex is not seen so frequently in gardens as formerly; it was much favoured at one time. It is a beautiful species with rose-coloured flowers and variegated foliage, the leaves having dark green edges and centre with a silvery belt between. Many varieties with leaves even more gaily variegated than the type have been raised.

B. Dregei and B. socotrana were made famous when M. Lemoine obtained the annual-stemmed hybrid, Gloire de Lorraine, as a result of crossing the two species. B. socotrana had proved a useful breeder, it seems, ever since its introduction from Socotra in 1880, for there are numerous hybrids between it and other species, all of them good garden plants.

To make merely a passing reference to the species B. Schmidtiana, B. polyantha, B. macrophylla, B. glaucophylla, B. Haageana, B. boliviensis, and B. octopetala does them an injustice, yet much space would be necessary to discuss them in detail. *H. W. Stenning.*

TWO USEFUL GREENHOUSE PLANTS.

Lapageria rosea, a Liliaceous twining climber introduced from Chili in 1847, is eminently suitable for the cool greenhouse. It resents fire-heat and will withstand a few degrees of frost under dry conditions.

For this plant a compost consisting of a mixture of rough peat and loam with plenty of sharp sand and charcoal intermixed is advisable. The rooting area should be moderately restricted and perfect drainage is essential. During the plant's season of active growth frequent and heavy syringings are necessary to keep down attacks of insect pests, and in the hottest months shading is beneficial.

It should be trained on wires under the roof, not too near the glass. The rich rosy-crimson, pendulous flowers are borne in the axils of the leaves of the lateral branches and at the apices of the branches. They are produced in profusion, frequently overlapping each other in string-like inflorescences, the effect of which is magnificent. The wax-like consistency of the flowers enables them to persist over a very long period, thus making the plant extremely valuable from the decorative point of view.

Sparmannia africana, an arborescent South African shrub, is another old plant of considerable merit for the cool greenhouse. It was introduced in 1790 by Dr. Andrew Sparmann, in whose honour it was named. It is a handsome, quick-growing, Malva-like shrub with large, soft, hairy, cordate leaves and white flowers — with prominent yellow stamens—borne in terminal umbelliform cymes.

It is a gross feeder, and should be given a rich compost. If planted in a border with unrestricted root-run it quickly attains a height of 10 feet. Grown in pots it needs a receptacle of fairly large dimensions and should be fed liberally as soon as the roots become pot-bound.

Cuttings inserted in sandy soil and placed under a glass in heat root readily. In view of its ease of propagation and quick growth it is a most useful plant for sub-tropical bedding. *W. A.*

ROUPALA POHLII.

This handsome foliage plant, which is sometimes known as R. corcovadensis, is usually afforded stove treatment, whereas it succeeds perfectly in an ordinary greenhouse; in fact, it will grow all the year round in a cool living room. It is surprising that this fine plant seems to have been completely over-looked for decorative purposes, big specimens being very effective in large, lofty rooms. Like most members of the natural order Proteacea, this Roupala is by no means easily propagated: the cuttings take a long time to root, generally about six months. The more slender side shoots should be selected for use as cuttings, and they should be placed singly in small pots containing sandy soil. The pots should be plunged in a warm propagating bed in a house having a temperature of about 60°. Once rooted their subsequent cultivation presents no difficulty. *C.*

VEGETABLE GARDEN.

EARLY DWARF BEANS.

KIDNEY BEANS may be had practically the year round and, for the earliest crop, preparations for forcing should be made with the turn of the year. When forced, the plants are usually grown in large pots, although where heated pits are available they will give excellent results in beds of light loamy soil. In the early stages of growth a temperature between 55° and 60° is sufficient, but when three or four leaves have formed the warmth should be raised to 70° by day in the absence of sunheat. The plants should be exposed to all the light possible and grown in a genial atmosphere, with as much ventilation as the weather permits. Red spider is the greatest enemy of Beans grown indoors and the syringe should be used freely on the undersides of the leaves to keep the pest in check. Healthy plants respond to liberal feeding after the flowers have set.

In most localities it is not necessary to use fire heat after March is well in, but to grow the plants in cold frames. The frames should be placed in a sunny, sheltered situation. In order to insure perfect drainage the pots should rest on a layer of strawy litter. Failing this, very light garden soil, or loam of an open texture should be provided to a depth of about nine inches. In all cases heavy soil should be made lighter by a liberal addition of charred refuse, fine rubble and manure from an old Mushroom bed. Sow the seed in drills made one foot apart and in sufficient quantity to leave the plants standing six inches apart. Water the roots sparingly until they have become well established, and ventilate the frame without admitting cold draughts. Make the most use of sunheat by closing the frame early in the afternoons, and in the case of frost have mats in readiness to cover the lights. Watering and feeding should be done carefully, especially when the plants are passing out of flower and onwards.

To obtain Dwarf Beans very early in the open, raise the plants in cold frames either in boxes, or pots. I prefer the latter method as it enables planting out to be done with the least possible check. Sowings may be made in this manner from the middle of April, or even earlier, in favoured districts. The plants should, however, be allowed to develop steadily, as forcing results in the foliage becoming very tender and liable to injury from cold on being placed in the open.

A warm border should be selected for this early outdoor crop and the plants should be transplanted about the middle of May; if means of protection can be provided from cold winds and frost, so much the better. The usual time to sow in the open varies, according to the district, from the end of April to the end of the first fortnight in May. The plants are not fastidious, although there is an appreciable difference between their behaviour in rich, light soils and those on the heavy side, therefore light material of whatever kind available should be freely employed in order to create a suitable rooting medium.

Varieties differ in their habit, but an average distance of twenty inches between the rows and ten inches between the plants is suitable. These distances refer to main crop varieties; early sorts will do quite well in double rows made about six inches apart, allowing a distance of twenty inches between each pair of rows. To maintain a succession of pods, sowings should be made at regular intervals up to the last week in June. Those sown later will need protection in early autumn.

Good varieties are plentiful. I have found Sutton's Forcing an ideal variety for pot culture. The plants are very dwarf and bear a good crop of medium-sized pods of fine quality. Superlative I prefer to sow towards the end of February, when the days are getting longer. This sort and Webb's Bountiful are suitable varieties to plant for the earliest crops in the open. *Grower.*

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CHRISTMAS FRUITS IN COVENT GARDEN MARKET.

THOSE who visit Covent Garden Market during the fortnight or so preceding Christmas day will find ample evidence that the festival associated with Christmas is losing nothing of its importance. Indeed, now more than ever, Christmas is a time when produce flows from all parts of the world to the great London markets for distribution throughout the length and breadth of the land. Those who have been acquainted with Covent Garden Market for the last quarter of a century are aware that the volume of trade has increased immensely during that time. Nowadays, the Market can supply choice fruits in the pink of condition, which are brought from distant lands by rapid steamships, and presented on the stands just as though they had been freshly gathered. Perhaps the greatest change that has taken place in the last decade or so is in the quantities of Apples and Pears, which may be seen in boxes and barrels sent from overseas. We are so little dependent nowadays on our own supplies of these fruits that, whether the season be good or bad, Apples and Pears of the choicest quality may be had in plenty in Covent Garden Market at Christmas time. No praise of the quality of these imported Apples and Pears can be too high, and even the Apples sent thousands of miles in barrels overseas arrive in splendid condition, while the choicest fruit in boxes are magnificent specimens. Probably the best of these imported Apples are the Oregon Newtown Pippins, and another variety of special merit is Jonathan. Of those sent in barrels there are remarkably fine fruits of Ben Davis, Northern Greening, Bismarck, and Summerfield Codlin, the last a big variety of pale yellow colour, which looks very promising for cooking purposes. The choicest of the Pears are Winter Nelis, grown and packed in the north-west States of America. The fruits are much larger than those grown in this country, and the flavour is delicious. Glou Morceau is another excellent Pear from abroad; and there are some Pears to which the name of Muskadoon is given in the Market, a very choice looking variety with a russet-brown skin. Some of the Pears are sent in barrels, the most prominent variety being Keiffer, a fruit of large size, tapering somewhat after the manner of Glou Morceau, although the whole fruit is larger.

Of our own Apples and Pears, the Market contains good samples of Bramley's Seedling, Northern Greening, Newton Wonder and Dumelow's Seedling, amongst Apples, but practically no Pears, so that the supplies from overseas will be very acceptable this Christmas.

Oranges, which are always associated with the Christmas festivities, are plentiful enough, but the choicest varieties have only just begun to arrive, the market being dependent largely at present on such sorts as Denia, Murcia and Valencia Oranges. By far the choicest Oranges are those known as Navels, from California, of which the first shipment reached this country during the past few days, and these command a very high price, retailing for about sixpence each. The Italian and Spanish Orange growers do not appear to have paid so much attention to the improvement of their varieties as have the more up-to-date American and South African growers, hence the quality of these European Oranges is comparatively poor. The Mandarin Oranges imported in fancy boxes and covered with silver or gold paper form a very attractive line, and these are sweeter than the ordinary Oranges.

Almeria Grapes packed in cork dust in barrels arrive in splendid condition, and are this year of very good quality. These cheap Grapes are in great demand at Christmas time, and a big trade is done in them. The choicer indoor Grapes are obtained largely from Holland and Belgium, but these are of very poor colour, the berries of coloured varieties being in some cases almost white. The few English Grapes obtainable are of much better quality.

Both Dates and Figs have grown considerably in importance as market fruits for Christmas time use, due to the improved methods of offering them for sale in dainty little boxes and cartons. Dates from Biskra in 10 lb. boxes, arranged so as to appear growing on the stalk, look very appetising, and find a ready sale. Thousands of small cartons are packed and sent from Marseilles, the Dates being shipped there in bulk from the French colonies. There are several brands of these dates, some much superior to others. Dates are also displayed for sale in bulk, in large boxes, in smaller boxes holding five to ten pounds, and some in narrow boxes about a yard long holding a single layer of the fruit.

Lemons do not appear to be very plentiful, but this fruit is more in demand in hot weather than in winter, although fair numbers are used at Christmas time.

The growers of Pineapples in the Azores have sent ample supplies of these choice fruits, which are realising 2s. 6d to 3s. each wholesale. The importation of Pine-apples is probably responsible for the decline in the cultivation of this choice exotic fruit in our gardens, for the price of a Pineapple grown in this country would exceed by many times the price for which the imported fruits may be purchased.

Among more uncommon fruits are Persimmons from the Rouen district of France, packed in pad baskets and small wooden boxes, realising about 4s. a box of from twelve to fifteen fruits; Mangos and Custard Apples from the Madeiras, for which there is but little demand; Cranberries from the United States, packed in boxes containing about twenty pounds; and Grape fruits from the Isle of Pines, Cuba.

FRUIT REGISTER.

APPLE KING OF TOMPKIN'S COUNTY.

I WOULD advise adding this late Apple to all plantations. In March and early April there is no variety superior to it. The fruits are of good size, highly coloured, and the tree is a prolific bearer and a good grower. I believe it is for the want of knowing the variety that it is not grown more freely. Sturmer Pippin is often recommended as one of the best late Apples, but it is not equal to the former in flavour. *W. A. C.*

HIGHLY COLOURED APPLES.

MANY times I have been requested to name the prettiest Apples, both dessert and culinary, worth growing; and in some cases, garden adornment has been the first consideration of the enquirer. Truly, no tree gives more effect to the landscape than a standard Apple tree, say, of Gascoyne's Scarlet Seedling, Devon Red or Worcester Pearmain, excepting perhaps John Downie and Dartmouth Crabs. The economic usefulness and ornamental value of these highly coloured Apples are very high. Of dessert varieties I recommend Worcester Pearmain, Barnack Beauty, Beauty of Bath, Duchess of Oldenburg, Benn's Red, Lady Sudeley, Maidstone Favourite, May Queen, Mother, St Everard, The Houblon, Wm. Crump and Wealthy. Amongst culinary sorts, with highly coloured fruits are The Queen, Peasgood's Nonesuch, Newton Wonder (this variety colours wonderfully on some soils), Mère de Ménage, Lady Henniker, Golden Noble (a rich golden yellow Apple), Gascoyne's Scarlet Seedling, Emperor Alexander, Bismarck, Annie Elizabeth and Crimson Bramley. I advise the planting of a tree or two of Worcester Pearmain on the westward of any of the varieties mentioned, to insure fertilisation of the blossom. *Pomona.*

APPLE NANNY.

IN the account of this Apple on page 354 of your issue of December 15, reference is made to *A Handbook of Fruits*, by Mr. E. A. Bunyard. It should be pointed out, however, that the Apple described under this name by Mr. Bunyard is not the true Nanny. The real Nanny is earlier in season, though in some other characteristics Bunyard's Nanny and the true variety appear to be similar. *Pip Pin.*

APPLE ALLINGTON PIPPIN.

IN the collection of the best Apples in season, shown by Messrs. Bunyard and Co. at the Royal Horticultural Society's meeting on the 11th inst., there were splendid specimens of this very free cropping variety. It may be useful to point out that Allington Pippin is one of the best of all Apples for use at Christmas, as, contrary to most varieties, this fruit improves with keeping.

WOOLLY APHIS.

THE woolly aphis, Schizoneura lanigera, is the most formidable enemy of the Apple grower. It is dangerous because its faculty of reproduction is so prodigious that it becomes a veritable scourge, because of the great difficulty in destroying it and because its ravages are so persistent that it often causes the death of a tree. The attacks of this pest if neglected, even for a short time, result in tremendous losses.

Reproduction commences in early spring, continues actively throughout the summer and, in mild seasons, into November or even December, many generations being produced during this period

Two difficulties arise in combating the pest; firstly, the insect is highly protected by the woolly substance exuded from the back of the female, which effectively resists ordinary insecticides and secondly, infestation occurs on the roots as well as on the branches and migration may take place from the trunk to the root or from the root to the trunk.

Where infestation occurs all loose bark should be removed from the trees immediately after the fall of the leaf and they should be sprayed with a caustic emulsion wash to destroy those insects which might migrate from the trunk to the root. A good wash for this purpose is made as follows:—Dissolve 1½ lb. of soft soap in 1 gallon of boiling water: add gradually 2 gallons of paraffin, churning up the whole with a syringe until it becomes a thick, creamy emulsion; stir this emulsion into 27 gallons of water in which 6 lbs. of caustic soda have previously been dissolved. In using this specific, care should be taken that the hands, face and clothes of the operator are protected.

It is not easy to attack root infestations, but where much damage is being done by the pest it is a good plan to use bisulphide of carbon. This should be injected into the soil in three or four places about two feet from the trunk of the tree at the rate of about one fluid oz. to each good-sized tree. Care should be taken that the fluid does not come into direct contact with the main roots as although the vapour is harmless the liquid is injurious.

In the spring a vigilant watch should be kept for any re-appearing insects and their attack should be pursued with redoubled energy. Spraying is not very effective because of the woolly protection of the insect and the only really efficacious way of using an insecticide is to apply it with a brush and vigorously work it in. Paraffin emulsion is useful, but needs handling by a careful person; methylated spirit is more effective.

There are not many natural enemies that do much good in checking the increase of this pest, but probably Tits are the most useful in this direction. The Blue Tit especially does inestimable good by devouring woolly aphis and other insects and should be protected in every fruit plantation. *W. Auton.*

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HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

William Carey, D.D., F.L.S.—In the biography of this great pioneer Indian missionary, which has just been published, there is a fascinating chapter entitled: "The Garden Grower." Amidst his multitudinous duties as a missionary (his Biblical translations alone were over a score) Carey found time to make great collections of plants and to found the Agri-horticultural Society of India, in 1820. At the Society's third show he could say that they were experimenting with grafts from English Apple trees, with Seville and Mozambique Oranges, with the best Mulberries and Peaches, with Cape Figs, Canton Litchis, Manilla Guavas and with the choicest Pine-apples and Vines; also with the growth of Arrowroot and Celery, Tobacco, Cotton, &c. He was a subscriber to Curtis's *Botanical Magazine*, "scarcely exceeded to-day in the glory of its colour-prints," says his biographer, who also beautifully adds: "Carey's mission work and his horticulture were twin expressions of one aim—to enrich men with God's loveliest and best." *W. Cuthbertson, Maitland Lodge, Duddingston.*

Cercidiphyllum japonicum.—There is a specimen of this pretty plant at Tyninghame about or over 30 years of age. It is not a shrub nor quite a tree, perhaps not quite 20 feet in height. Last year, Lady Holford informed me that it is the finest specimen in the United Kingdom.—*R. P. Brotherson, Tyninghame Gardens, Pestonkirk.*

——In reply to Mr. Thatcher's request for particulars of any large Cercidiphyllum japonicum growing in this country, this fine shrub does remarkably well in the South-west of Scotland. We have several plants in these gardens, the largest of which are nearly twenty feet in height, with a proportionate circumference, and although their "fleeting glory," referred to by Sir Herbert Maxwell on p. 224, is now a thing of the past, the remembrance of them when dressed in their autumn tints remains with us. Another very highly-coloured shrub in autumn is Euonymus alatus. This forms a compact-growing plant about five feet high, covered in autumn with finely tinted leaves shading from pale pink to deepest blood-red. This shrub is worthy of inclusion in any collection where autumn tints are desired. Zanthorhiza apiifolia is also beautiful in autumn when its foliage turns bronze, shading to pale yellow. It forms a dense, spreading shrub about three feet high and is useful for furnishing the front of the shrubbery border. The plant flowers in April and its curious chocolate coloured racemes of flowers, which open in advance of the development of the foliage, never fail to attract attention. *A. T. Harrison, Culzean Castle Gardens, by Maybole, Ayrshire.*

The Gloucester Root, Fruit and Grain Society.—The interesting account of the Diamond Jubilee of this Society, which appeared on page 331, recalls to my mind the financial struggles connected with its early years. My father (Mr. L. James), who is still alive, was then gardener to Wm. Nicks, Esq., Greville House, Longford, Gloucestershire, and he, accompanied by a Mr. Davis, who was then foreman at Messrs. J. C. Wheeler and Son's nursery, used to canvass for subscriptions in the evenings after their daily gardening operations. It is highly probable that many of their colleagues have passed away, but I can just remember the immense pyramidal Fuchsias that were exhibited from Greville House Gardens, the Grapes, hardy fruits berried plants in pots, and the now seldom seen Libonia floribunda. During the summer months, Messrs J. C. Wheeler and Son had a fine display of "carpet-bedding" and other plants arranged in beds, with surrounding lawns, on a piece of ground at the corner of Denmark Road. Mr. "Jack" Barnes, a local market grower, also exhibited and he, I believe, was responsible for the introduction of Adiantum gracillimum, which came up between the brickwork of a greenhouse interior. This plant was distributed by Mr. W. Bull, of Chelsea, and is now well-known to Fern lovers throughout the world. *Frank James, Allesley, Mitcham.*

Mr. W. Upjohn.—I should like to add my tribute of respect to Mr. Upjohn, of Worsley (see page 318). I was living as journeyman at a neighbouring estate, when the young men talked enviously (perhaps) of "clever young Upjohn" at Dalkeith Gardens. Mr. Thomson's eulogy of him bears out all that can be said of his professional career. After knowing him there, I met him again 25 years afterwards at the great Whit-week Shows at the Botanic Gardens, Manchester. He was always Mr. Bruce Findlay's right hand man, acting as his assistant in the arranging of the exhibits, and all who were showing could always rely on his help. I can corroborate what is written concerning the low wages of those early days. In my own case I paid a premium and received 5/- per week the first year; 6/- the second year; 8/- the third year, and after that 10/- per week, with good bothy. We had to look after ourselves, and all through the summer months we had scythe mowing from 5 a.m. until 8 a.m. and no pay for overtime or Sunday work. How different now; my son started in employment at 14/- per week as garden boy, the wage that a 40 year old foreman received 60 years ago. *Wm. Irvine (Senior), Bradley New Gardens, Grimsby.*

Rose Fanny Oppenheimer.—In regard to the note on this Rose (see page 319), it is stated that surprise was expressed by many that its merits were passed over by the judges when it was exhibited at the Autumn Show of the National Rose Society on September 20th last. It is granted that the colour of this Rose was certainly beautiful, and, moreover, it was also distinct There was all the more reason, therefore, for the judges to be particularly careful when making their decision. Its merits were very carefully weighed; so, too, were its faults. The latter, in the opinion of the majority of the judges, turned the scale. There are other things than colour to consider in a new Rose. I wonder how many of those good folks who expressed surprise at the decision of the judges took the trouble to examine the maiden plant which—in accordance with the schedule—must accompany the flowers? I think the judges made an honest award under the circumstances. The variety will, no doubt, come up again for approval, and it will again be carefully examined by the judges to see if its fault is still present. *George M. Taylor, Edinburgh.*

Schizostylis coccinea.—I agree with your correspondent *T. D. T.* (page 321) as to the merits of Schizostylis coccinea. I have grown the plant for many years. I have plants in six 10 inch pots and up to the time of writing I have cut over four dozen spikes and as many more remain for cutting. The plants flower from the beginning of November to the end of January. I divide and repot the plants in April, standing them out-of-doors, near Chrysanthemums, and giving them similar treatment. They are brought into a cool house in the first week of October I have crossed this Schizostylis with Montbretia Star of the East and have 100 seedlings in a cold frame just showing signs of pushing up their flower spikes. I hope to flower these plants in the frame. I shall be pleased to write you the results at a later date. *W. Turner, Winthorpe House Gardens, Newark.*

SOCIETIES.

SMITHFIELD CLUB.

THE Cattle Show at Islington is one of those seasonal events that have a special interest for the country dweller, and horticulturists as well as agriculturists always find much that is of interest at this great metropolitan show of cattle, sheep, pigs and poultry, for in addition to the animals and birds, exhibits of a miscellaneous character, that are staged in the gallery and the Gilbey Hall, provide an opportunity for the rural worker to become acquainted with the latest appliances and sundries pertaining to rural industries. Thus the farmer has brought prominently before his notice the latest types of farm machinery, including tractors, ploughs and reapers, fencing, binding material, dairy implements, covers, sacks, elevators pumps, agricultural tools and a thousand and one other things that are used on the farm.

The horticulturist also uses many of the things displayed at the Cattle show and he finds, beside such things as barrows, bags, baskets, tools, ropes, lines, cords, insecticides, fungicides, fertilisers, etc., many interesting and useful things among the implements, such as small cultivators, manure distributors, Potato-lifters, oil-driven engines, pumps, trucks, spraying and lime-washing machines. The gardener also finds displays of seeds of vegetables that are of special value for cultivating on a large scale to obtain produce of the kind required by market gardeners and farmers. Many noted seed houses had exhibits of farm and garden seeds at the recent show, the latter principally of the special type to which we refer.

Messrs. SUTTON AND SONS had one of the largest exhibits of this kind in the gallery and the display took the usual form of a collection of large roots, such as Mangolds, Swedes and Turnips interspersed with cereals, fodder plants and numbers of choice vegetables. Of the farm roots they showed a new Mangold which has not yet been named, of the Globe type, deep in colour, with a solid flesh of high feeding value. They also had a very fine new Swede, said to be far in advance of anything in commerce for feeding qualities and for its hardiness. Their exhibit contained some of the finest Swedes in the Show. The vegetables included some thirty varieties of Potatos, embracing all the newer varieties, and it was interesting to note that the dish of Up-to-Date variety was of almost perfect quality and from appearance still equal to any variety shown. They had also splendid Onions of the selected Ailsa Craig type, Exhibition Sprouts, excellent Leeks of the Prizetaker variety, Stachys tuberifera, Carrots, Tomatos, Celeriac, Turnips and many more.

Messrs. JAMES CARTER AND CO. also had a big exhibit arranged in a somewhat similar manner in which Mangolds, Swedes and Turnips were prominent features. The roots of Model Kohl Rabi were as large as some of the Mangolds, and it was interesting to note the great difference of the size of the Kohl Rabi in the collection of garden vegetables, the latter being no larger than tennis balls. This firm showed many varieties of Peas, amongst which we noticed such old favourites as Harrison's Glory, Thomas Laxton, Senator and Standard, whilst of Broad Beans there was a fine sample of the White Leviathan sort; excellent Potatos, a very fine Purple-topped Yellow Turnip, Autumn Queen Onions, Carrots and other roots, were included in this exhibit.

Messrs. J. KING AND SONS were also the exhibitors of large farm roots and in addition we noticed some splendid dishes of Lord of the Isles and King John Potatos, varieties that are not so extensively known as some others. Their Reading Matchless and Exhibition Globe Onions were of very high merit

Messrs. E. WEBB AND SONS had an exhibit of large extent in which they displayed Mangolds, Swedes and Turnips for farm purposes and

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also a number of vegetables for garden purposes. The latter included the second early Potato Mighty Atom, which has an exceedingly russety skin, and also a new sort named Ardneil Rose, an early variety with somewhat deep eyes. They had also excellent Beet of the Volunteer variety, large Onions of Ailsa Craig and Webb's Masterpiece, Carrot Defiance Intermediate, and Leeks Champion Prize, their vegetables being some of the finest in the exhibition.

Other exhibits of this nature were shown by Messrs. TILLIE-WHITE AND CO., Messrs. ALEX. BLATCHFORD, LTD., Messrs. CANNELLS, Messrs. GARTONS, Mr. H. J. SPEED, Messrs. KENT AND BRYDON, LTD., Messrs. TOOGOOD AND SONS, Messrs. E. W. KING AND CO., Messss. W. DENNIS AND SONS, Messrs. HARRISON AND SONS, and Messrs. DICKSONS, LTD.

Large numbers of growers of Potatos for seed purposes had samples on view, but the majority displayed only ware tubers. In our opinion the prospective purchaser of seed tubers would have been more interested in samples fit for planting, although this year the majority of seed Potatos are on the large size, and in some cases we were informed that certain varieties have failed to produce tubers of seed size at all. Amongst the varieties of Potatos, Field Marshal, which is not immune to wart disease, impressed us by its appearance, and although it has a considerable amount of russet as in Golden Wonder, the popular belief that it is a cross between Golden Wonder and Up-to-Date is said to be erroneous. It is, however, a fine-looking Potato and said to be a heavy cropper. Mr. T. A. SCARLETT, Edinburgh, was one of the few Potato exhibitors who showed other things in addition to Potatos; he had some remarkable fine bushes of the new Edina Black Currant and very large heads of Ormskirk Savoys.

The only exhibitors of fruit were Messrs. SEABROOK AND SONS, who showed finely coloured Apples of such sorts as Bismarck, Rival, Wealthy and King of the Pippins; some of the fruits were packed in market boxes.

THE ORCHID CLUB.

DECEMBER 14.—The first meeting of the newly established Orchid Club at Manchester, was remarkable for the large number and fine quality of the Odontoglossums and Cypripediums shown. At 3 o'clock Professor W. H. LANG F.R.S. gave a short address on "The Bird's Nest Orchid" as exemplifying in the most typical way, the important commensalism which obtains between the Orchid and its associated fungus, and discussed the work which had already been done on the substitution of special nutrition for fungous action in the early stages of Orchid development.

AWARD

PREMIER DIPLOMA.

Cypripedium Chrysostom, var. Richard Fort. (Christopher var. Grand Duke Nicholas - Pyramus magnificum), a large flower, the dorsal sepal, 4½ inches in diameter, is flat and well displayed; it is white with a small green luna and purple spots radiating on to the white ground. The petals and lip are in good proportion, well displayed and in colour greenish yellow tinged with mahogany-red.

GROUPS.

Mr. FRED HARDY, Ashton-on-Mersey (gr. Mr. C. Branch), exhibited a group of exceedingly well-grown Odontoglossums carrying full spikes, and including sixteen members of the xanthotes section and eight coloured forms, amongst which Hardyanum, with a spike of fifteen flowers, was remarkable for the substance, size, perfect form and colouring of the flowers. A new Odontioda hybrid, with only four flowers of the spike open, was of superlative excellence.

Mr. G. F. MOORE, Bourton-on-the-Water (gr. Mr. W. H. Page), exhibited a small group of the new Chardwar hybrid Cypripediums, including the varieties Mrs. Eley, Chrysostum var. Grace Darling, Our Prince, The Great Mogul, W. H. Page, Memoria F. M. Ogilvie vars., Conyngham and Premier. Mr. Moore also showed cut blooms of C. Chrysostom, Chardwar var., C. Gwen Hannen, Chardwar var., and C. Prince Albert, Chardwar var., all of which were awarded the R.H.S. F.C.C. on the 11th inst.

Mr. B. J. BECKTON, Irlams o' th' Height (gr. Mr. W. A. Stewart), exhibited a large collection of mixed Orchids; the centre of the group consisted of Coelogyne barbata with plants of Laelia Gouldiana and Epidendrum vitellinum. The exhibit also contained well-grown Cypripediums and finely-grown plants of Oncidium corynophorum.

Dr. F. CRAVEN MOORE, Manchester, exhibited a selection of Cypripediums, including C. Madame Albert Fevrier var. Oxford, a fine form of C. Charlotte Dillon, C. Corsair Holford's variety, and C. Monialis.

Mr. A. T. CUSSONS, Haliwell House, Kersal, (gr. Mr. F. Cookson), staged a group of Cypripediums, a good plant of Trichosma suavis and other Orchids.

Dr. HARTLEY, Wigan, had an effective group in which Cypripedium John Hartley, fine forms of Oncidium Forbesii and well-flowered plants of Platyclinis Cobbianum were conspicuous.

Hon. H. D. MCLAREN, Bodnant (gr. Mr. F. C. Puddle), showed several interesting plants, including a good form of the beautiful new Cypripedium Albion.

Sir WILLIAM THOM, Athol House, Blackburn, staged a few choice Cypripediums, including C. burtonense and a pretty variety of C. Sanaederae.

Mr. J. H. WALKER, Oak Cottage, Eccles (gr Mr. C. Weaver), exhibited a fine group of Cypripediums, among which various varieties of C. Maudiae were conspicuous.

Messrs. JAMES CYPHER AND SONS, Cheltenham, showed a large and effectively arranged group, comprising many well-known varieties of Cypripediums, Cattleya Astion, Oncidiums and well flowered plants of Masdevallia tovarensis.

ROYAL CALEDONIAN HORTICULTURAL.

DECEMBER 4.—The ordinary monthly meeting of this Society was held at 5, St. Andrew Square, Edinburgh, on this date, Mr. W. G. Pirie, vice-president, in the chair. Professor W. Wright Smith, Royal Botanic Garden, Edinburgh, delivered a lecture entitled "Life in a Tropical Garden," which was illustrated by lantern slides. The garden described was the Calcutta Botanic Garden, which, as Professor Smith remarked, had been under the direction of Scotsmen since its foundation by Colonel Kidd in 1785.

The exhibits were:—Chrysanthemums, from Messrs. DOBBIE AND CO., Edinburgh; Primula malacoides and P. m. alba, from Mr. D. ARMSTRONG, The Drum Gardens, Edinburgh (awarded a Cultural Certificate); and Primula malacoides Pink Beauty, and Ornithogalum thyrsoides (Chinkerichee), from Mr. ARNOT, Corstorphine. The intimation was made that the Society would hold a Spring Flower Show on the 11th and 12th of April, 1924.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE monthly meeting of this Society was held in the R.H.S. Hall on Monday, December 10, Mr. T. R. Butler presiding. Three new members were elected. Two lapsed members withdrew the sum of £17 12s. 3d., and two members over 70 years withdrew £3 from their deposit accounts. The sick pay on the private side amounted to £75 10s. 8d. and on the State section to £68 18s. 6d., while maternity benefits totalled £12. Grants for extra benefits were made to five members and amounted to £10 12s. 9d.

TRADE NOTES.

THE Ministry of Agriculture has deemed it necessary in the early part of 1923 to issue an Order (The Colorado Beetle Order of 1922) which in effect prohibited the entry into this country of living plants and vegetables grown in a wide area in France. Following representations made to the Ministry, it has now been decided to amend the regulations. The Colorado Beetle Order of 1923 has accordingly been issued and this came into operation on the 17th December 1923, revoking the corresponding Order of 1922.

The effect of this new Order will be that in place of the declaration required at present, each consignment of living plants, Potatos or Tomatos shipped from ports in European France to this country must in future be accompanied by the under-mentioned certificate or copy certificates:—

(1) If grown in France.

(a) For Potatos and for all plants which are subject to the Destructive Insects and Pests Order of 1922, the copy certificates required under that Order. These certificates must be officially endorsed to the effect that the produce was not grown in the neighbourhood of those districts where the Colorado Beetle has existed.

(b) For Tomatos and for plants which are not subject to the Destructive Insects and Pest Order of 1922, an official certificate to the effect that the produce was not grown in the neighbourhood of those districts where Colorado Beetle has existed.

Either the copy certificates required under the Destructive Insects and Pests Order of 1922, or a certificate of origin viséd by a local authority in the country of origin; the country and the place where the produce was grown must be stated in the certificates

In all cases, the relative certificate or copy certificate must be delivered to an Officer of Customs at the same time and together with the entry relating to the consignment. In the event of failure to produce the necessary document, a consignment must be destroyed or re-exported by and at the expense of the importer unless its disposal is otherwise authorised by the Ministry.

It will be noted that in future no certificate or declaration of any kind will be required in the case of vegetables for consumption other than Potatos or Tomatos.

Obituary.

John Jaques.—We regret to learn that Mr. John Jaques died at Grey Friars, Chorley Wood, on the 17th inst, after a long illness. He was in his 82nd year, and for many years previous to his retirement was gardener to the late Miss Alice de Rothschild, at Waddesdon Manor, Aylesbury.

W. H. L. Laxton.—We very greatly regret to learn of the death of Mr. W. H. L. Laxton, which occurred on the 14th inst. after a brief illness. The deceased gentleman was senior member of the firm of Messrs. Laxton Bros., Bedford, and for the past thirty-five years he had been engaged in the interesting business of raising new varieties of fruits, notably Apples and Strawberries and new culinary Peas, and the successes he and his brother, Mr. E. A. Laxton, have achieved are well-known in the horticultural world. Mr. W. H. L. Laxton was fifty-seven years of age. After education at Bedford Modern School he proceeded to Germany and was with Messrs. Haage and Schmidt for some time. On returning to England he entered the service of Messrs. Jackman and Sons, of Woking, to obtain a wider knowledge of the nursery trade. Subsequently he returned to Bedford and eventually became partner in the firm of Messrs. Laxton Bros. He had not enjoyed very robust health for a long period, but was nevertheless a frequent visitor to the principal horticultural exhibitions in London and the provinces and was a well-known member of the horticultural trade.

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ANSWERS TO CORRESPONDENTS.

BLACK CURRANT SHOOTS: *H. P. K.* The specimens sent are, as you suspect, affected with Big Bud mite. If the whole plants are very badly affected, your best plan will be to cut down the bushes and burn them on the garden fire The plants will send up strong sucker growths and fruit again in a year or two. If the numbers of big buds, however, are not very numerous, remove the swollen ones by hand-picking, taking care not to allow them to fall on the ground, and burn them. In late spring and early summer the bushes should be dusted with lime and sulphur, one part of finely-ground quicklime and two parts of sulphur, and again on two occasions at intervals of a fortnight.

CHRYSANTHEMUM BUDS FAILING TO OPEN: *Mayflower.* The trouble is not due to disease. In the immediate neighbourhood of London this trouble is not uncommon in the case of late varieties, and is doubtless due to lack of light. In your case the trouble may be caused by lack of sunshine during the autumn, as the shoots appear too soft and unripened. Overfeeding, combined with lack of sunshine, might also cause the flower buds to become abortive.

MOSSES IN FLOWER POTS: *G. C.* Sample No. 1 consists largely of Mosses, a species of Polytrichum being numerous; and Sagina procumbens, a flowering plant. No. 2 consists chiefly of Marchantia polymorpha with cup-like structures, and apparently a few bits of Lunularia with half cups, all containing bulbils or gemmae which reproduce the plants. Both these belong to the Marchantaceae, allied to the Mosses. No. 3 consists chiefly of Mosses of the Hypnum and Polytrichum types in the young stage with an occasional grass. The soil is very heavy and contains little vegetable matter. It is useful for Vines and Roses because it will hold artificial fertilisers well. It is well mixed with coarse silver sand, but may have been rather sour when first obtained, and this favours the growth of Mosses, these being often the first vegetation to grow upon sour soil. There are two methods of dealing with the Mosses Marchantia and Sagina. In winter the soil may be allowed to become fairly dry, when it should be well scratched with a label or pointed stick, and the bulk of the Moss taken off by hand on wet days. A boy could be set to do this. Another plan is of a preventive nature, and consists in putting a peck, more or less, of quicklime in a barrel of water and letting it stand for twenty-four hours. The pots should then be watered with the clear liquid which will sweeten the soil and render it less suitable for the growth of Mosses. There is no fear of using it too strong, because the water will not hold more than a certain amount of lime. The plan of scratching the surface soil is often adopted by gardeners, because the Mosses wither and die off when the pots are left dry for two or three days.

POTTING PALMS: *M. T.* Although the present is not a good time for re-potting Palms, there is no reason why your plants should show signs of distress, assuming the work was carefully done. But Palms, especially old ones, resent much interference with their roots, as they are very apt to die back if unduly disturbed; and once they get into the condition you describe it is not easy to bring them back to health again. The best plan is—if possible—to put them in a warm house, where a close, moist atmosphere is maintained, taking special care in watering until they have made new roots. The best compost for Palms is a good fibrous loam, with about one-third leaf soil and some clean, coarse sand to keep the whole open and porous. Palms should always be potted fairly firmly.

MARKETS.

COVENT GARDEN, Tuesday, December 18, 1923.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz.	10 0	18 0
—elegans	10 0	12 0
Aralia Sieboldii	9 0	10 0
Araucarias, per doz.	30 0	42 0
Asparagus plumosus	12 0	15 0
—Sprengeri	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Cacti, per tray, 12's, 15's	5 0	7 0
Chrysanthemums —white, doz.	12 0	18 0
—pink ,,	12	15 0
bronze ,,	12 0	15 0
Crotons, per doz.	30 0	42 0
Cyrtomium	10 0	15 0
Erica gracilis, 48's per doz.	24 0	30 0
— 60', per doz.	12 0	15 0
— hyemalis 48's per doz.,	24 0	30 0
—nivalis, 41's ,,	24 0	30 0
— —60's	12 0	15 0
Hyacinths, per doz.	6 0	10 0
Hydrangeas white, doz.	18 0	24 0
Nephrolepis, in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	24 0	30 0
—60's	15 0	18 0
—Cocos	24 0	36 0
Pteris, in variety	12 0	21 0
—large 60's	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's	3 6	4 0
Solanums, per doz.	12 0	18 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum decorum, doz. bun.	18 0	21 0
—cuneatum, per doz. bun.	10 0	12 0
Asparagus, plumosus, per bun, long trails, 6's	4 0	5 0
med. sprays	2 6	3 6
short ,,	1 0	1 6
—Sprengeri, per bun. long sprays	2 6	3 0
med. ,,	1 3	1 6
short ,,	0 9	1 0
Bouvardia, white, per doz. bun.	9 0	12 0
Camellias, 12's, box	3 6	4 0
Carnations, per doz. blooms	4 6	7 0
Chrysanthemum, per doz. blooms —white ,,	2 6	6 0
—yellow ,,	3 6	5 0
—bronze ,,	3 0	4 0
—pink ,,	4 0	6 0
spray, doz. bun.	15 0	24 0
—singles, disbudded blooms	3 0	5 0
—singles, sprays, per doz. bun.	15 0	18 0
Croton leaves, var., per bun.	2 0	2 6
Gardenias, per box	—	—
Fern, French, per doz. bun.	1 0	1 3
Forget-me-not, per doz. bun.	0 0	12 0
French Flowers— —Acacia (Mimosa) per bun.	1 0	1 6
—Marguerite, yellow, per doz. bun.	3 0	3 6
—Narcissus Paper White, per doz. bun.	5 0	6 0
—Narcissus Soliel d'Or, per doz. bun.	5 0	6 0
—Ranunculus carmine, per doz. bunc.	8 0	10 0
—Ranunculus Romano, large red, per doz. bun.	21 0	24 0
French Flowers— —Violets, single per doz. bun.	3 0	4 0
—Violets, Parma, per bun.	7 0	9 0
Heather, white, per doz. bun.	9 0	12 0
Lilac, white, per doz. sprays	6 0	8 0
Lilium longiflorum long, per doz.	9 0	10 0
short ,, ,,	10 0	11 0
—speciosum album, long, per doz. blooms	4 6	5 6
—short ,, ,,	4 6	6 0
—rubrum long, per doz. blooms	4 0	5 0
—short, ,, ,,	3 0	3 6
Lily of the Valley, per doz. bun.	24 0	36 0
Orchids, per doz. —Cattleyas	18 0	24 0
—Cypripediums, per doz. blooms	4 0	6 0
Pelargonium, per doz. bunch, double scarlet	12 0	15 0
Poinsettias, per doz. blooms	18 0	24 0
Richardias (Arums)— per doz. blooms	12 0	18 0
Roman Hyacinths, per doz. bun., 6's	24 0	27 0
Roses, doz. blooms— —Melody	8 0	10 0
—Ophelia	8 0	10 0
—Golden Ophelia	8 0	10 0
—Liberty	8 0	10 0
—Mme. Butterfly	8 0	10 0
—Mme. Abel Chatenay	5 0	7 0
—Niphetos	3 0	4 0
—Richmond	8 0	10 0
Smilax, per doz. trails	3 0	3 6
Violets, doz. bun.	4 0	7 0

REMARKS.—This department is getting very busy and a further rise in prices is anticipated, especially for Carnations and Roses. There is likely to be a very limited supply of the latter flowers; Scarlet Carnations will also be in great demand and no doubt will realise high prices before the market closes on Saturday next. There is the usual big demand for Chrysanthemums, both white and coloured, in disbudded blooms and "spray" in bunches; the quality of Chrysanthemums generally is fairly good, and according to present consignments there will be sufficient for all requirements, with a slight advance in prices. It is difficult to give correct quotations for Liliums and Richardias (Arums); at present there is every prospect of there being good supplies of these flowers as well as of Lily-of-the-Valley. Cut Roman Hyacinths appear to be fairly plentiful, also white Camellias. Poinsettias are usually in great demand during the week previous to Christmas, but this year supplies promise to be cut very short before the week-end. French flowers include Narcissus Paper White and Soliel d'Or, Acacia (Mimosa), Anemones, scarlet Ranunculus and Violets. White Lilac, of which there is likely to be a good supply, will be in good demand. The best berried Holly is arriving from France this season and meets with a good demand. Large consignments of Mistleto are expected for this week; already large quantities have arrived and been despatched to Scotland and provincial English towns. There have been large quantities of Picea and other Conifers used as "Christmas Trees," and they have sold freely at reasonable prices.

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus, forced— French	7 0	9 0
English	3 0	6 0
Beans		
Guernsey, lb.	2 0	3 6
Madeira, Basket	3 6	5 0
Beets, cwt.	8 0	10 0
Cabbage, doz.	1 3	2 0
Carrots, cwt.	7 6	9 0
Cauliflower, doz.	2 6	5 0
,, Italian	4 0	6 0
Chicory	0 5	0 6
Celery, fan	1 6	2 6
Celeriac	3 0	4 0
Cucumber, doz.	15 0	18 0
Green Artichokes, doz.	3 0	4 0
Lettuce, French— dozen	2 3	2 9
Endive, doz.	4 0	4 6
Mushrooms— —Forced, lb.	1 6	3 0
Mint, doz.	4 0	6 0
Mistleto	14 0	22 0
Onions, Valencian, case	13 0	15 0
Onions, English cwt.	10 6	12 6
—Dutch	8 0	9 0
Parsnips, cwt.	7 0	8 0
Potatos, King Edward, per ton	140 0	160 0
— Others	110 0	130 0
—Guernsey, lb.	0 4	0 6
—Forced	0 10	1 0
Savoys, doz.	2 0	2 6
Seakale, punnet	3 6	4 0
Spinach	3 0	3 6
Sprouts, bus.	4 6	5 0
—Bags	3 6	4 0
Tomatos— —English Pink New Crop	4 0	8 6
—Pink and White New Crop	4 0	8 6
Others	—	—
—Canary Island	12 6	16 0
Turnips, cwt.	4 6	6 0

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples— —Cox's Orange Pippin, ½ bus.	10 0	25 0
—Allington Pip	4 0	6 0
—Blenheim	3 6	6 0
—Bramley's Seedling, bus.	9 0	13 0
—Lane's Prince Albert	7 0	10 0
—Newton Wonder	8 0	10 0
—Oregon Newtown	11 6	13 6
—Californian	9 0	10 0
— Jonathan	11 0	12 6
Nova Scotian— —Baldwin	16 0	26 0
—Starks	16 0	25 0
—Fallawater	17 0	26 0
—Greenings	17 0	27 0
Bananas, singles	14 0	25 0
—doubles	15 0	25 0
Dates, Tunis, doz. cartons	5 0	6 6
Grapes— —Alicante	1 6	2 6
—Almeira, barrel	12 6	22 6
—Belgian	1 6	2 6
—Gros Colmar	1 6	4 0
—English Muscat	4 0	8 0
Grape Fruit— —Cuban	24 0	25 0
—Jamaica	20 0	25 0
Lemons— —Mandarines, box	1 6	2 3
—Jamaica	12 6	13 0
—South African	14 0	18 0
—Spanish 300	18 0	35 0
— — 360	10 0	16 0
— — 504	10 0	16 0
Pears— —D'Anjou, cases	18 0	24 0
—Glou Morceau, ½ cases	10 0	10 6
—Winter Nelis	18 6	22 6
Pines, each	1 6	4 0

REMARKS.—The seasonable demand has caused some expansion in the volume of business and in many sections improved prices are recorded. Ample stocks of Apples from the North American continent are on offer and quotations are firmer. More English Apples have been marketed lately but prices have been maintained for really first grade consignments. English Cox's Orange Pippins are scarce and all supplies meet a ready sale. Grapes are moderately plentiful and in much demand just now. Pineapples also are selling well, two timely shipments meeting a good market. Oranges from Spain are plentiful and cheap, although not yet of very good quality. Bananas meet a steady trade, as do the various fruits from Madeira. Forced Asparagus shows an improving tendency after a very bad period. Forced Beans, although inclined to be easier in price, are still comparatively costly. New Potatos are inquired for, especially hothouse grown produce. Mushrooms are plentiful and are offered at lower prices, which is not unusual at this season of the year. Beans from Madeira have cleared readily at higher prices. Brussels Sprouts are in better demand and the Potato trade shows some improvement.

CATALOGUES RECEIVED.

W. J. UNWIN, Histon, Cambridge.—Sweet Pea Seeds, Vegetable Seeds, etc.

DOBBIE AND CO., LTD., Ltd., Edinburgh.—Seeds.

SUTTON AND SONS, Reading.—Seeds.

DICKSON AND ROBINSON, Cathedral Street, Manchester.—Seeds.

KEITH, LUXFORD AND CO., Sheering Nurseries, Harlow.—Chrysanthemums and perpetual-flowering Carnations.

HERD BROS., The Nurseries, Penrith.—Forest Trees, Fruit Trees, Roses, etc.

D. HAY AND SONS, Montpellier Nurseries, Auckland, New Zealand.—Chrysanthemums, Dahlias, etc.

GARDENING APPOINTMENTS.

Mr. P. Chaplin, for the past year and eight months Gardener to Mrs. POOLE, Bucklers Wood, Beaulieu, Hampshire, as Gardener to R. C. BACON, Esq., Harrow Lodge, Bransgore, Christchurch, Hampshire.

Mr. C. Edwards, for the past three year and four months Gardener to Brig.-Gen. R. B. COLVIN, C.B., Monkhams Hall, Waltham Abbey, Essex, as Gardener to E. H. M. DENNY, Esq., Stapleford Place, Haywards Heath, Sussex.

Mr. Thomas Weaving, for the past three years Gardener to H. SEARBY, Esq., Spalding, Lincolnshire, as Gardener to Captain RANKIN, Broughton Towers, Broughton-in-Furness, Lancashire.

Communications Received.—E. M.—K. C.—H. P. K.—R.—W. K.—M. T.—J. K.—H. D.—J. C.—H. G. S.—J. P.—W. M. H.—A. Bros.

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THE
Gardeners' Chronicle
No. 1931.—*SATURDAY, DEC.* 29, 1923.

CONTENTS.

Apples, hybrid 377
Aster ericoides praecox 381
Boenninghausenia albiflora 381
Books, notices of—
Apple culture in America ... 3
Cockayne, Dr. L. ... 374
Fig trees at Lambeth Palace 381
"Gardeners' Chronicle" seventy-five years ago 374
Gardeners' Mutual Improvement Societies 380
Germination in light and darkness 374
Hardy flower border—
Ranunculus ... 375
Kew, visit of Queen Mary to 374
Lads and horticulture 372
Magnolia virginiana × M. macrophylla ... 374
Obituary—
Malcolm, James ... 382
Orchids, new hybrid 380
Rock garden, late autumn in the ... 377
Societies—
Royal Horticultural 381
Sofia, professor of Horticulture and Pomology for ... 374
Trees and shrubs—
Veronica salicifolia 375
Ward, Mr. A. J. ... 374
Ward, Mr. Kingdon, seventh expedition in Asia 378
Wart disease, the inheritance of immunity to 373
Week's work, the ... 376
Wisley, notes from ... 379

ILLUSTRATIONS.

Chrysanthemum Mrs. F. J. Yarrow 375
Mali Kha: and the Monsoon jungle, 379; thirty miles from the confluence 378
Pyrus diversifolia × cultivated Apple 377
Ward, Mr. A. J., portrait of 374

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 38.3.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Monday, December 24. 10 a.m.: Bar, 30.1; temp. 41°. Weather—Dull.

The Inheritance of Immunity to Wart Disease.

THE mode of inheritance of immunity to Wart Disease exhibited by varieties of Potato is a subject of the greatest interest both to the grower and the man of science. The grower, particularly if his land is situated in an "infested area," is interested for many reasons, but chiefly because of the announcement which is made from time to time that in such a variety immunity has broken down and the variety has become susceptible to the disease. The careful and thorough investigations which have been carried out by Dr. Salamon and Mr. Lesley during the past ten years, the results of which have been recently published,* may serve to reassure Potato growers as to the permanence of immunity in Wart-disease resisting varieties. Immune varieties kept under observation for ten years and even longer—in the case of Sutton's Abundance for fourteen years—have maintained their immunity intact. As the author points out, the occasional reports to the contrary are probably due to the chance introduction of susceptible rogues into immune stock. That the Ormskirk trials are thorough may be judged from the facts that the number of plants of a variety which is grown in the immunity trials is forty and the trial extends over two years. The latter provision is necessary for, even in soil thoroughly infected with the Wart Disease organisms (Synchytrium endobioticum), the disease may fail to declare itself in a variety if the season is unfavourable for the infection of the tubers by the parasite. Thus, in a dry season, susceptible varieties may escape not only because moisture favours infection, but also because in such seasons the tubers ripen rapidly, and hence tend, as it were, to run away from infection. The results of breeding experiments carried out by Messrs. Salamon and Lesley give yet firmer support for the view that immunity is a fixed character. These results show that immune varieties self-fertilised or crossed with another generally give rise to a large number of immune and a small number of susceptible offspring. On the contrary susceptible varieties selfed or crossed with one another produce offspring of which either all or almost all are susceptible. These facts indicate that immunity is what is known as a dominant character dependent on the presence in the germ cells of one or more factors which prevent the tubers from becoming infected. As an example, the result of crossing the two immune varieties, Kerr's Pink and Champion II, may be cited. The number of seedlings tested was seventy-nine, and of this number seventy-six proved immune and three susceptible. On the other hand, crosses between the two susceptible varieties, Myatt's Ashleaf and Edgecote Purple, gave one-hundred-and-fifty-one seedlings, of which one-hundred-and-twenty-two proved to be susceptible and only twenty-four failed to become infected. Students of genetics who scrutinise these and other results obtained by the authors will agree with the suggestion put forward by Messrs. Salamon and Lesley that immunity depends not on a single factor but on two, or it may be more than two, factors. The nature of the two factors for immunity remains unknown, and for purposes of description the factors may be denoted by the letters X and Y. From the results of the numerous experiments which have been made in which different immune varieties have been used in breeding, it is to be inferred that the presence of either factor confers immunity. A variety which possesses *one* of the immunity factors even though it lacks the other is, nevertheless, immune. It follows, therefore, that the immune varieties in existence fall into different categories. All have at least one of the factors, but some have both. Some, moreover, having inherited both factors from both parents, have these factors in double dose. Other have more mixed genetic compositions. Thus, immune varieties form a series of different genetic composition and, hence, will give different numerical ratios of immune and susceptible offspring when selfed or crossed with one another. Without pursuing this analysis further, the satisfactory conclusion may be emphasised that whether an immune variety be genetically pure or impure for the immunity factors, its tubers may be expected to continue always to retain their immunity. The inheritance of immunity may, however, be more complicated than this simple scheme would suggest. The authors find that some immunes when selfed, *e.g.*, Leinster Wonder, give immunes and susceptibles in proportions which cannot be explained by the two-factor hypothesis, and they are driven to assume that in this case, and probably in all cases, there is a third party to immunity—a third factor, Z, which must be present for either X or Y to exercise its immunising function. In many immune varieties Z is present, and if two such varieties are crossed there will be no indication that this factor is exercising its beneficent work; but from some varieties the third (Z) factor is absent, and if a cross be made of one of such varieties with another variety which contains Z, only the offspring in which X and Z or Y and Z are present will behave as immunes. Yet another complication is introduced by the behaviour of the well-known Myatt's Ashleaf. Although susceptible, this variety when self-fertilised gives susceptibles and immunes in almost equal proportions, and the conclusion is forced upon us that Myatt's Ashleaf is really an immune variety in which the factors for immunity which it contains are rendered impotent to prevent infection because of some other factor which prevents the immunity factors from exercising their effect. Cases of such inhibitors are well known. Certain white Primula sinensis flowers have been shown to owe their whiteness, not to a lack of the factors for colour, but because they possess a factor inhibiting the development of flower colour. From these experiments, which deserve to be studied with attention by all horticulturists, we have a new and more vivid picture of the nature of susceptibility and immunity. Certain varieties are lacking in all the immunity factors and fall ready victims to Wart Disease; others may have an immunity factor but, containing also an inhibitor, though they may put up a good resistance, such varieties in the end fall victims to the disease. Others, though they are susceptible, may contribute, when crossed with immunes, to the immunity of the offspring. Lastly, any variety which proves its immunity in the field may have one of many genetic constitutes and, accordingly, may be more or less propitious as a starting point for the breeding of new immune varieties. Above all, these observations are of the utmost importance to all breeders of varieties, and we recommend to them the most careful study of this most important research.

* "Genetic Studies in Potatos: The Inheritance of Immunity to Wart Disease." By R. N. Salamon, M.A., M.D., and J. W. Lesley, M.A. *Journal of Genetics*. 13, 2nd August, 1923.

"Gardeners' Chronicle" Almanack for 1924.—We shall publish in our issue of January 12 a "Gardeners' Chronicle" Almanack for the year 1924. In order to make it as useful as possible for reference we shall be obliged if Secretaries of Horticultural, Botanical, and Allied Societies, or any of our correspondents WILL SEND US IMMEDIATE INFORMATION OF ALL FIXTURES FOR THE ENSUING YEAR,

A Gardeners' Library in the City of London.—In 1891 the Worshipful Company of Gardeners started a gardeners' library with just over one hundred books on gardening; with these books as a foundation the Gardeners' Company is now getting together a fine library for the free use of professional and amateur gardeners, horticultural students and such of the general public as may be keen lovers of gardens as well as admirers of flowers. At the instance of the Company's Master, Mr. Victor Brown, some £120 has already been subscribed by certain of the members to enable the Guildhall Librarian to begin the purchase of the best books on every horticultural subject, so that what is at present often beyond the reach of the average reader may be easily consulted in the library. These books are to be placed in a large case in the Newspaper Room at the Guildhall Library, London, E.C. 2, where they will be seen by hundreds of readers daily, and should form the nucleus of a large and valuable library. If the Gardeners' Company can obtain the practical sympathy of the general public, as well as of its own members, a library of national horticultural importance may be

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established in the heart of the City of London. Any questions and suggestions regarding the scheme may be addressed to the Clerk of the Gardeners' Company, Mr. E. A. Ebblewhite, 5, Essex Court, Temple, London, E.C. 4.

Magnolia virginiana × M. macrophylla.—According to *Bulletin* 12 of the Arnold Arboretum there is in North America no more satisfactory shrub or tree for garden planting than Magnolia virginiana. It bears dark green lustrous leaves, silvery-white below, and though its flowers are smaller than those of other North American species they are beautiful and fragrant, and moreover open from June to August when danger of late frosts is past. The hybrid, M. Thompsoniana (M. major) has larger leaves and flowers, the latter with evening perfume as pleasingly fragrant as that of M. virginiana. This hybrid has for its parents M. virginiana and the Umbrella tree, M. tripetala. The last of the Magnolias to flower in the Arboretum is M. macrophylla, which, though a native of the southern States, is hardy in Massachusetts, where it may reach a height of thirty feet. It has the distinction of possessing the largest leaves and flowers of any tree outside the tropics. The leaves, silvery white on their lower surfaces, are from twenty to thirty inches in length and eight to nine inches in breadth, and the expanded flowers are often a foot in diameter. Though hardy at Boston it is found best to plant M. macrophylla in a position in which it is sheltered from the wind, as otherwise its large and delicate leaves are apt to be badly torn.

Visit of H.M. the Queen to Kew.—Her Majesty, Queen Mary, recently visited Kew for the purpose of planting a tree on the site of the Temple of the Sun, which was destroyed by a Cedar of Lebanon crashing on it during a gale in March, 1916. The object in planting the tree is recorded by the following notice placed by the side of the tree:—"Maidenhair Tree. Ginkgo biloba. This tree was planted here on the site of the Temple of the Sun by Her Majesty the Queen on November 27th, 1923. The Temple of the Sun, which was destroyed in the gale of March 1916, marked the centre of the original Botanic Garden established by Princess Augusta, Princess of Wales in 1760. The fine Maidenhair Tree close by was probably planted by Princess Augusta about 1762."

Dr. L. Cockayne, F.R.S.—The Canterbury Philosophical Institute, which is one of the affiliated societies of the New Zealand Institute, has honoured itself as well as the recipient by electing Dr. Leonard Cockayne, F.R.S., to honorary membership. It is notable that this is the first occasion since the formation of the society in 1868 that an honorary member has been elected. Naturally Dr. Cockayne, who is an old worker and officer of the Institute felt gratified at the honour; his friends are equally gratified, and trust that his energy and enthusiasm in field work and in transferring the result of his field work to print may continue. Dr. Cockayne joined the Canterbury Philosophical Institute in 1895, and was elected to its presidency in 1899. He read his first paper "Improvement of wild flowers by artificial selection" in 1896, followed in 1897 by a paper describing experiments with Alpine plants in a freezing chamber; this was his first paper published in the *Transactions of the New Zealand Institute*. Since that time nearly every volume has contained some of his work. In addition he has prepared valuable departmental reports on botanical subjects, in the preparation of which he has visited almost every part of New Zealand and its outlying Islands. He has also found time to publish two books. *New Zealand Plants and Their Story*, issued in New Zealand, is now in its second edition; *The Vegetation of New Zealand* has passed through one edition, and a revised edition is now being prepared. He also has in the press a hand-book on the *Culture of New Zealand Plants*.

Mr. A. J. Ward.—Mr. A. J. WARD, Superintendent of Shrewsbury public parks comes from a family of gardeners. His father was superintendent of the Norwich City Parks for many years, and previously gardener and forester to the late Lord Dunleath, and it was under his father that Mr Ward received his early training in gardening. He secured an appointment as improver in the gardens at Battenhall Mount, the residence of the Hon. Percy Allsopp. Leaving there he served as a journeyman in Welbeck Abbey Gardens. From there he went to the Royal Gardens, Windsor Castle, and gained considerable knowledge under Mr. MacKellar. At Windsor he had charge of the Palm house, conservatory, etc., and also took a leading part in arranging the floral decorations in the castle. His next appointment was as floral decorator to the late Mrs. Bischoffsheim at Bute House, London, whose house parties often included members of the Royal Family. Mr. Ward next turned his attention to public gardening

MR. A. J. WARD.

and served under his father in the Norwich City Parks, leaving there to take up a more responsible position in the Birmingham City Parks under Mr. W. H. Morter, the Chief Officer. During his six years service as foreman he gained a first class knowledge of the upkeep of public parks, gardens, playing fields, etc. He was appointed to his present charge in March, 1914, and has given the utmost satisfaction to the Shrewsbury Corporation and townspeople. The beautiful Quarry Park, where the great Shrewsbury flower show is held, is probably known to more gardeners than any other public park in the country, and has been greatly improved during Mr. Ward's term of office. Thanks to the generosity of the Shropshire Horticultural Society, this year he has been able to continue the improvements, which were admired by visitors at the recent show. Mr. Ward has gained the confidence of all under whom he has served and is held in the highest esteem in horticultural circles in Shropshire.

A Gardener's Successful Efforts on Behalf of the two Gardening Charities.—Mr. W. Auton, of Pyrford Court Gardens, Woking, has raised the sum of £62 for the two gardening charities, the Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund, and the amount has been allotted equally between the two funds. It will be remembered that last year Mr. Auton was successful in raising the sum of £42 (see *Gard. Chron.*, January 27, 1923, p. 44), and his method of obtaining this considerable sum may be of interest to other gardeners who might desire to help these two deserving institutions. A whist drive was promoted on October 11 to raise money to finance a greater scheme held in December. The whist drive resulted in a profit of six guineas. During the time between the whist drive and December 12, Mr. Auton arranged for the collection of material for a rummage sale and sale of garden produce. This was responded to very liberally by residents in the Pyrford district, and most owners and gardeners of both large and small gardens contributed plants, flowers and vegetables for the garden produce stall. The sales were held in the afternoon of December 12 and they were followed by a fancy dress ball in the evening at which over one hundred people attended, the dance alone showing a profit of nearly £10. An interesting fact in connection with the fancy dress ball was that the first prize for a lady's fancy dress was awarded to a costume made up of Messrs. Carter and Co.'s seed packets, the wearer carrying a basket of vegetables to represent the produce. Doubtless there are many other districts where money could be raised in such a manner, and it is to be hoped that other gardeners will adopt similar methods to those of Mr. Auton to assist the good work which is being done by both the Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund.

Germination in Light and Darkness.—From experiments carried out by Mr. G. Wieringa and reported in the *Seed World*,* it appears that certain garden seeds give equally good results when tested for germination capacity in light or in darkness; but that others give better results when the test is carried on in the light. To the former category belong Parsnip, Chicory and Parsley, and to the latter, Tomatos, Celery and Endive.

Professor of Horticulture and Pomology for Sofia.—The University of Sofia is inviting applications for the appointment of a Professor of Horticulture and Pomology. The engagement will be for five years, but if the selected candidate acquires Bulgarian nationality, it will be renewable indefinitely. During the first two years lectures may be given in any Slavonic language, French, or German, but after the expiration of two years they must be given in Bulgarian. Applications should reach the Rector of the University of Sofia not later than January 31, 1924. Further information concerning the Professorship may be obtained from the Ministry of Agriculture and Fisheries, 10, Whitehall Place, S.W. 1.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Orchids at the Horticultural Society's Garden.*—We have on former occasions stated that Mr. Gordon has been treating the Orchids under his care on a different plan from that generally followed. Instead of keeping them uniformly warm and moist, he pursues the opposite course of keeping them comparatively dry and cool, more especially in winter, so as to give them a season of complete repose. The result of this treatment is that the plants awaken on the first excitement in spring with fresh vigour, make excellent growths early, which become well ripened by autumn, and the plants are again allowed to go quietly to rest. Under this system of management they have so much increased in size that they will soon require more ample accommodation than the present Orchid-house affords them. The broad, healthy foliage, extending across the pathways from their opposite sides, already precludes the possibility of walking comfortably along them. The finely-flowered specimen of Barkeria Skinneri, which was exhibited at the last meeting in Regent Street, is still in perfection, and promises to continue so for some time to come. Phalaenopsis amabilis, which flowers nearly all the year round, was also finely in blossom. *Gard. Chron.*, *December* 23, 1848.

* *Seed World*, 1313.. 192

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NOTICE OF BOOKS.

Apple Culture in America*.

It is always interesting to read about the methods of fruit culture adopted in other countries. In this little book the author, who is qualified by both practical experience on his own farm and by theoretical training, sets out to help general farmers in the North-eastern States to make the fruit department more profitable. It appears that the "wasted orchard" is almost as common an object on American farms as it is in this country, for we are shown that the production of Apples in the United States has steadily declined in the last fifteen years, owing to the decay and destruction of old trees, and this in spite of the heavy planting in recent years.

In many respects American cultural methods do not differ from our own, but in some directions there are marked contrasts. Here we choose a mild aspect for an orchard where possible, but this author advises planting the Apple on the colder slopes, which hold it back in spring until danger from frost is past, north-east exposures being considered best. Trees with stems from 3 feet to 4 feet high are favoured; and these evidently grow to enormous size, since they are expected eventually to fill the space when planted from 35 feet to 40 feet apart. To bring in an early return "fillers" are often planted temporarily between the permanent trees, these having stems 18 inches high. Peaches and Japanese Plums may be used for this purpose in favourable localities, and Pears and European Plums in colder districts. Further intercropping with farm crops or vegetables is also advised in the young orchard, but no mention is made of an under-crop of bush fruits or Strawberries such as is popular in this country. Pruning is not treated at all fully, but it appears to be much lighter than is common with us.

Cultivation plays an important part. When the orchard has grown beyond intercropping it is usually ploughed in early spring, cultivated repeatedly up to midsummer to get a tilth, after which shallower cultivation with lighter implements is continued to maintain a dust mulch in a dry season. In July or August the land is sown with a cover crop, to be ploughed in during the following early spring. The use of Leguminous crops for this purpose supplies the orchard with the necessary organic nitrogen, the other plant foods being given in the form of mineral fertilisers Grass orchards are grazed with sheep or pigs, the latter preferred, but they are considered to be inferior to cultivated orchards. The "sod mulch" system, however, is recommended for hilly land where cultivation is difficult, and for districts with a heavy rainfall. A regular routine of spraying is prescribed, and is much on the lines recommended in this country. Marketing systems and problems are almost identical with our own.

THE ROSE GARDEN.

ROSE DR. A. J. PETYT.

Of the many new Roses of recent years there are few, to my mind, that stand out so prominently as the variety Dr. A. J. Petyt. The colour is a dark crimson, shaded maroon; the blooms are of perfect shape, with large, massive petals, and are very freely produced on strong, upright stems; moreover, they are very sweetly scented. It is a particularly desirable Rose and one that is suitable alike for exhibition and garden cultivation, and ideal for bedding. I have had it for some two years in my garden and am very pleased indeed with it. It is a seedling from George Dickson with all that excellent Rose's good qualities and none of its bad ones. Messrs. Burrell and Co. are to be congratulated on this fine production. *C. P.*

* *Apple Growing.* By M. C. Burritt. The Macmillan Company. pp. 177. Price 4s. 6d. net.

TREES AND SHRUBS.

VERONICA SALICIFOLIA.

I was pleased to learn from Mr. Richardson's note on p. 309, that the above species of shrubby Veronica has proved so hardy at Edinburgh, even although I knew that the Maiden Town has long been a home for the shrubby Veronicas in this country.

Mr. George Nicholson had and Mr. W. Bean has ample opportunity of knowing that V. salicifolia cannot be regarded as hardy at Kew. Very few of the fine collection came safely through the winter of 1916-17, for the long border has been almost completely replanted since then. The same species has, however, been repeatedly planted at Kew during the past forty years, only to be killed during severe winters. The soil is a very sandy alluvium. Two fine plants of V. salicifolia growing in a clay soil in mid-Surrey, three and five feet high respectively, flowered handsomely previous to the severe winter referred to above. The largest plants I know at present are at Merstham, Surrey, on the gault formation, and they flower profusely all the summer long, as stated by Mr. Richardson, and are six to seven feet across each way so near as I can remember. It was my impression that soil has something to do with the hardiness of this Veronica. I have also seen it sowing itself freely in a Berkshire garden, and a seedling I obtained from there was killed by frost after it had lived for three years. I may also refer to V. lobelioides (V. elliptica × V. speciosa) raised by Mr. J. A. Henry of Edinburgh in 1862. I compute that thousands of plants of this Veronica were killed in the above severe winter in London and the suburbs, yet plenty of large bushes survived in the Medway Valley, Kent, on alluvial soil overlying chalk. Mr. J. M'Gran lives in a part of the country with a mild climate suited to the requirements of shrubby Veronicas, which revel on the sea-board. *J. F.*

HARDY FLOWER BORDER.

RANUNCULUS.

Most of these hardy border plants have showy double flowers. December is a suitable month in which to plant the roots, which may be classed as tubers. A good method of growing Ranunculuses is to procure a shallow box, fill it with sharp sand and lay the roots singly, claws downwards, on the top. Stand the box on a shelf in a light, frost-proof shed, and keep the soil just damp until February. The plants will then be well rooted in the sand, and should be planted in the border, carefully, six inches apart and two inches deep.

Ranunculuses will succeed in any good garden soil, but the best rooting-medium is one containing plenty of leaf mould and well-decayed cow manure. These materials should be incorporated with the soil not later than the middle of December, and the tubers may be planted at the same time if desired; if planted in winter they should be placed a trifle deeper in the ground, and if embedded in coarse sand better results will be obtained.

When the foliage dies down in summer the roots should be lifted, dried and stored until the following December.

The Turban kinds are the best to grow, these having large, double, rose-like, self-coloured flowers, and being much more hardy than any of the other varieties. The chief colours found in these handsome varieties are yellow, white, scarlet, rose, orange and crimson.

This type grows just over a foot high and makes a useful addition to any border, producing a fine display of flowers in early summer; the plants will grow to perfection in soil with a cool base and in slight shade. *W. Miller, Wurley, Essex.*

FIG. 133.—CHRYSANTHEMUM MRS. F. J. YARROW, N.C.S. COMMENDATION, NOVEMBER 12 (SEE P. 301).

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The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, late Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Mexican Laelias.—These Laelias, of which L. anceps is the principal, include a whole series of beautiful varieties, with flowers ranging from pure white to the richest colours. The early, or coloured varieties, are in bloom, and these will be followed by the exquisite white forms. At the present time these plants are not cultivated so extensively by Orchid lovers as their merits deserve. Being easy to cultivate, and flowering during December and January when Cattleya blooms are scarce, a series of them should be grown where choice flowers are in demand the whole year round. By judiciously manipulating the plants their blooming period may be considerably extended where they are grown in sufficient quantities. Should it be desirable to hasten the flowering of the late varieties, they will readily respond to increased warmth, likewise they are easily retarded by keeping them in a temperature of 55° with very little water at the roots. No harm will accrue to the plants at this season by growing them in a moderately dry atmosphere. When these Orchids have finished flowering, water should be almost withheld, but the pseudo-bulbs must not be allowed to shrivel.

Potting.—If during the winter any of these plants begin to send out roots from the last formed pseudo-bulbs, they should be repotted, but it is not advisable to disturb them more than is absolutely necessary. Half pots or deep pans are the best receptacles, and, owing to the large amount of water these plants require whilst growing, exceptionally good drainage should be afforded them. They should be potted firmly, and the best compost is coarse Osmunda fibre. These Orchids need an abundance of light at all seasons, and fresh air in quantity in accordance with the weather. Whilst opening their flowers a temperature of about 60° with a proportionate rise with sun heat is suitable.

FRUITS UNDER GLASS.

By W. MESSENGER, Gardener to J. A. BERNERS, Esq., Woolverstone Park Gardens, Ipswich.

Melons—If ripe Melons are required by the end of April seed should be sown now. The house or pit devoted to growing early Melons should be well heated, and so constructed that the plants will receive the full benefit of the few hours of sunshine that occur during the early part of the year. The plants should receive no check whatever, and to ensure this there should be sufficient top and bottom warmth to maintain the requisite temperature without heating the pipes to excess. Most growers have their own fancy as regards the variety to grow for early cropping, but to those in doubt I would recommend Hero of Lockinge as one of the best and earliest sorts. The fruits of this variety are not large, but the plant is sturdy, sets fruits freely, and the latter are of excellent flavour. At Woolverstone we sow two seeds in a medium 60-sized pot. The soil for the early sowings should be moderately light in texture and should not be pressed down on the seed after filling the pot, a sharp tap on the potting bench being all that is needed. Germinate the seeds in a brisk heat with atmospheric moisture; provided the soil is moist when the seeds are sown, watering will not be necessary until the plants are above the soil, when they should be removed to a position near the roof-glass to promote sturdy growth. We usually leave the two plants in each pot until after planting, when the weaker one of the two is removed. The plants should be secured to small stakes to keep them erect. The fermenting material of which the hot-bed is to be formed should be prepared and placed in the house a few days previous to planting. The soil may be either placed in mounds, or as a continuous ridge, and it should be on the hot-bed in time to allow it to become warmed through before planting takes place. To encourage a free root action it is advisable to use a lighter mixture than for later plants, which grow under more favourable conditions. The temperature should not fall below 60° at night; 5° to 10° higher by day, and a further rise by sunheat will be very beneficial to growth. Very little ventilation will be required until the flowering period.

THE FLOWER GARDEN.

By C. TURNER, Gardener to EMILY, LADY AMPTHILL, Ampthill Park, Ampthill, Bedfordshire.

Deciduous Hedges.—Most gardens contain one or more deciduous hedges, as they are useful for screening unsightly objects, breaking the wind, or as dividing lines between different parts of the garden. Where they exist, such hedges should be trimmed more or less according to their growth and the position they occupy. A Beech hedge should not be cut so closely as, say, a Hawthorn hedge—the former being less responsive to the pruning tends to produce a host of twigless, hard snags or short stubbs, and thus loses much of its beauty and use. Where a Thorn hedge has grown too tall, it is by far the best plan to pleach it (or lay it, as it is more often termed in the west counties), after which operation the hedge will become bushy with growth from the base again.

Rose Briar Hedges.—Hedges of Briar Roses may also be pleached at this time, if desired; or a quicker way of dealing with such hedges, where labour is scarce, is to cut the growths down with the pruning shears to varying heights, so as to avoid a stiff appearance both now and when growth is active. Lime trees covering alleys or entwined as hedge-shields should also be pruned back, and any necessary extension of training attended to.

PLANTS UNDER GLASS.

By JOHN COUTTS Assistant Curator, Royal Botanic Gardens, Kew.

Alpinia vittata.—This beautiful variegated species when grown in a large pan makes a fine specimen for the stove. Unlike some other species of Alpinias which may be partly rested during the winter, this plant should not be dried off, although the roots should be watered with extreme care during winter. Alpinia vittata is best increased by division during the spring, when it is commencing to make fresh growth.

Cannas.—Where Cannas are grown in small pots for furnishing the plant stages, a portion of the stock may now be started into growth. The rhizomes should be shaken out, and strong portions selected for potting, trimming off all old or decayed portions. The prepared rhizomes may be laid out in a bed of fibre until they start into growth, or they may be placed direct into 48-sized pots, from which, in due course, they should be shifted into six or seven inch pots, in which they will flower. Cannas need a rich compost and plenty of feeding when in full growth. At this stage they should be grown in a house having a temperature of 55° to 60°. Under this method of cultivation the growth is best restricted to one strong shoot; with plenty of stock available a display may be maintained from May until late autumn. Very little water should be given the plants in their earlier stages of growth as the rhizomes are very apt to damp off. When growing freely they need ample supplies of water at the roots. Canna rhizomes are much weakened by being kept too dry during the winter they keep much better and start into growth more readily if they are stored on a moist, earthen floor.

HARDY FRUIT GARDEN.

By A. J. HARTLESS, Gardener to Major J. F. HARRISON, King's Walden Bury, Hitchin, Hertfordshire.

Bush Fruits.—Black and Red Currants fruit on young and old wood respectively, therefore the method of pruning them differs. Red and White Currants produce their fruit on spurs developed on shoots of two or more year's growth. It therefore follows that two or three year old wood should be encouraged, older shoots producing only small racemes of fruit. A bush of these fruits should only consist of six to eight main stems, and fresh ones may be allowed to develop to replace one or two of the older ones each year. The Black Currant produces its fruit on the shoots of the previous year, therefore plenty of one-year-old shoots are necessary to obtain satisfactory crops. It is always advisable to have a reserve stock of young Currant and Gooseberry bushes to take the places of those of doubtful age. Gooseberries make free growth and need severe pruning. In some districts the destruction of the buds by birds has to be guarded against, and in such cases the pruning is best deferred until the spring. It is equally important too, with Gooseberries, to encourage the development of three-year-old wood. Raspberry plantations should be kept free of weeds, and if the ground in the rows is tilled, the work should be done by carefully forking it to prevent damaging the roots. Proceed with the pruning and training of wall bush fruits as weather permits.

Pruning.—Proceed with this work as opportunity will allow. In the case of large limbs, care must be taken to cut them back to the main stems, leaving no spur. If necessary, employ a broad chisel when the saw cannot be used, in order that the wound, however large, may callus over. Nothing is more detrimental to any tree, whether fruiting or ornamental, than to leave snags which may admit disease and insect pests and prevent the bark from covering and healing the wound quickly. It is far better to make a larger wound to get the cut right back to the main stem than cut to a smaller diameter a short distance away, and such cut surfaces will heal much more quickly. All wounds made in this way should be coated with gas tar.

THE KITCHEN GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Mushrooms.—Beds that have become exhausted should be removed from the house, and the spent manure stored in a dry shed for mixing with soil for a variety of purposes. A supply of fresh horse-droppings should be secured, and turned several times preparatory to making fresh beds in the same house. The ammonia from the manure will greatly benefit the existing beds, and the extra warmth from the material as it ferments will help the other beds to continue producing Mushrooms in quantity. Soil from an old pasture is the best material for covering the manure when the beds are spawned, and it should be cut and carted when the weather is open and dry. The soil should be passed through a coarse sieve, retaining as much of the fibre as possible. Beds in the open should be well protected in severe weather by covering them with plenty of long stable litter.

Horse Radish.—Roots of Horse Radish may be lifted and stored in sand if the ground is required for other purposes. Pieces of the roots, each with a crown, should be tied in bundles and stored separately, so that they may be ready at hand for planting whenever the ground is in a suitable condition. The ground should be dug deeply. The finest and best flavoured roots are produced by planting annually.

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LATE AUTUMN IN THE ROCK GARDEN.

IF, as autumn advances, the cultivator of Alpine plants gets worried because the rock garden is not so gay and interesting as it was during spring and summer, he may be sure that either his ideals are wrong, or the rock garden is at fault. Possibly a little of both. Folk are apt to long for a state of perpetual spring in the garden, an ideal which, if it could be realised, would be unutterably boring. Autumn may be, in fact should be, a comparatively flowerless time in the rock garden, and yet if things are ordered properly it should be a good time, full of interest and beauty.

Autumn and winter are certainly the seasons which impose the severest test upon good planning, right placing of rocks, and tactful use of dwarf trees, shrubs, and tiny Conifers. In summer a succession of easy triumphs of sheer blossom will cover a multitude of geological sins. Rocks tend to become mere frames and settings for the plants, and dwarf Pines and Junipers become foils—a relief to the eye amid a flux of colour. When flower time is over the rocks themselves assume a greater importance. Both they and their Mosses and Lichens seem to grow sleek under autumn rains, and much more beautiful. The small trees, too, stand out with greater importance as features of the landscape. How easy it is to sneer at unskilfully placed rocks with the time-worn jest about "a pudding stuck with almonds," and how difficult it is to use rocks well, and lay them so as to satisfy even one's self! And how difficult, too, to place dwarf trees in such a way that they do not look as incongruous as sprigs of Parsley garnishing a pudding!

I think, however, that the two most important things that experience has taught me in this view of rock gardening are, firstly, to set out to arrange rocks and trees in such a way as to please myself—and let all critics talk themselves hoarse; secondly, not to worry too much about immediate effect. Rain, wind and weather will work wonders with a dwarf tree after it is planted. It may strike an awkward attitude when first put in, but in a year or two it will grow to its position, and the branchlets and leaves will naturally assume the poise most appropriate to the tilt which you have enforced on the trunk.

A fault which is too common in rock gardens in autumn and winter is that there are too many large spaces of bare soil. In nine cases out of ten these dreadful, bald spots might be clothed with judicious plantings of the common downland Thymes, Thymus Serpyllum, and its varieties, without injuring the deciduous plants underneath. Many of the Campanulas, especially C. carpatica, go offensively bald in winter. Over a carpet or scattered, rather than massed, should be the method of planting them. The Serpyllum Thymes are glorious plants in all their forms. There are the white-flowered form, the crimson coccineus, the even showier coccineus major, and the common Heather-purple wild type which mixes inimitably with dwarf Campanulas on the slopes, or with yellow Stonecrop on the path. I have recently acquired a pale, flesh-pink form which promises well, and a tiny dwarf called minor, which should make an ideal carpet to keep Gentiana verna happy. But for winter effect the best of all Thymes are the woolly-leaved T. Serpyllum lanuginosus and the golden T. Serpyllum aureus. Put the woolly Thyme where it may trail out and down over a rock, and soon it will form a rounded mass of most attractive quaker-grey felt. The golden Thyme is somewhat of a new comer, and is golden only in winter. All the summer it is just ordinary Serpyllum, green leaved, and "purple" flowered. In autumn the whole plant turns as gold as a guinea, and so remains through the dead months a most cheerful note which may even be enjoyed by folk who look upon variegated foliage as unpleasantly diseased leaves, for this gold of the Thyme is in the nature of an "autumn tint" rather than variegation. Golden foliage may very easily be overdone in the rock garden, but a splash of colour here and there gives a pleasant, warming, sunny effect. One of the best plants I know for suggesting mid-winter sunshine is the golden form of the common Ling, Calluna vulgaris aurea. The whole plant, both in winter and summer has the most delicious effect of rich autumn colouring—gold, shading into curious coppery reds and crimsons—and like all Heathers this plant is at all times picturesque in form and growth.

It is neither right nor natural that there should be many flowers in the rock garden in late autumn and winter, and it is a mistake to mourn their absence or to overdo such flowers as will come naturally there. Polygonum vaccinifolium will remain in flower until cut by frost, and is one of the loveliest of late autumn rock plants. Give it a warm, sunny slope, and, if possible, a raised and rounded rock over which to drape itself, or a sharp little precipice over which to cascade. It is a rapid trailer, and makes a perfect forest of 2-inch to 3-inch spikes of warm rosy pink.

Where it is really happy, as here at Stevenage, Gentiana acaulis will nearly always give an odd trumpet or two at intervals throughout the winter. By acaulis I mean the old garden form about whose origin and real name the horticultural savants hold such argument. But none of them *know* whence it came or what rightly to call it, any more than they know what it wants in the way of soil. Who can say that he has ever seen this particular form, this exact species or variety of Gentian, wild in the Alps? All we know is, that it has been in cultivation for a very long time; that if it likes your soil it will flower; if it does not it will not; and that it is easily among the "best" alpines.

Lastly, let me introduce my very good friend Gentiana sino-ornata. This Gentian is a perfectly glorious and splendid plant, which, until recently, has greatly bothered me in the growing. But I think I can now give a fairly certain recipe for success. I think it dislikes lime, and I am quite sure it dislikes hot, stiff soils. What it does like is a soft, rich mixture of peat, leaf mould and silver sand. Give it a bed of these materials and it will form lush turves of glossy green foliage, and then in autumn—September, October, and November—it will cover itself with a wild profusion of great sapphire trumpets, trailing-stemmed and upturned. The brilliant, wide-mouthed trumpets are as large as those of G. acaulis, and as an added splendour they are striped, in panels, outside, with lines of dull blue and sapphire on a ground of dim, old ivory. *Clarence Elliott.*

HYBRID APPLES.

PYRUS DIVERSIFOLIA × CULTIVATED APPLE.

PYRUS DIVERSIFOLIA (the P. rivularis of Douglas) is one of the few deciduous trees of the West Coast of Vancouver Island, where in the dense, evergreen, Coniferous forests it attains a height of 20 feet to 30 feet. This Pacific Coast Crab Apple seems more primitive and obscure than either P. Malus or P. baccata, and in hardness of wood and habit of growth resembles Crataegus brevispina. Its corymbs of small white flowers open a little later in spring than those of the majority of Apples; the dull yellow, oblong, obovate, rarely round fruits seldom exceed half-an-inch in length, and after a very little frost they turn to watery pulp, little resembling an Apple.

In 1913 the writer fertilized a few flowers on a branch of a tree growing by the edge of the forest with mixed pollen of the following nine varieties of Apples:—Lemon Pippin, Ribston Pippin, Grimes' Golden Pippin, Gravenstein, Lord Suffield, Belle de Boskoop, Ontario, Northern Dumpling, and Beauty of Moray; from these crosses fifteen seedlings were raised, ten of which, for some unknown reason, refused to grow more than a foot or so high. The remaining five are normal in growth, and the illustration (Fig. 134) shows three of the hybrid fruits, with examples of P. diversifolia in the foreground.

FIG. 134. PYRUS DIVERSIFOLIA × CULTIVATED APPLE.
THE THREE LARGER FRUITS ARE HYBRIDS AND THE SMALLER ONES IN THE FOREGROUND THOSE OF P. DIVERSIFOLIA.

The hybrid Apple on the left is a decidedly late variety, with the skin beautifully sprinkled with bright red on the sunny side. The middle Apple has the pearly-white, stomata-like spots showing through its pale yellow skin, as in some of the old Golden Pippins. The specimen on the right is an early variety and inclined to decay on the tree. All three, when cooked with a little sugar, are pleasantly acid to the taste and a decided improvement on the astringent fruits of the Siberian Crab Apple and its varieties. It will be noticed that the calyx is persistent in the hybrids; in the seed parent it is nearly deciduous.

P. diversifolia is hardly, if at all, subject to the form of canker prevalent on the Pacific Coast—so deadly to the cultivated Apple wherever the rainfall is heavy—and the object in view in this cross was to see if the immunity to canker in P. diversifolia could be transferred to cultivated Apples. A long time must elapse ere this can be ascertained. In the meantime one of the hybrids has been crossed again, on this occasion with Devonshire Quarrenden, and the second generation seedlings look as though they had more variety in their wood and foliage. *G. Fraser, Ucluelet, B.C., Canada.*

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. 26.—BACK TO CIVILIZATION.

IN the hills there is more variety of vegetation. Some of the narrow valleys are filled entirely with Bamboo; elsewhere Palms and Screw pines predominate. The former include Fan Palms (Borassus), used for thatching; climbing Palm, or rattan, used for the support cables of suspension bridges; Sago Palm, cultivated in most villages; and an almost stemless species with large, pinnate leaves provided with trident thorns down the midrib.

Elsewhere are groves and belts of wild Banana, which is particularly abundant in the flat, wide valleys of the larger streams. Two varieties are found in the hills, one kind having the under surface of the leaves and petioles (hence also the "stem") covered with a very fine, floury white meal, the other without this embellishment. The Kachins distinguish them, calling the former *lagyep*, the latter *ngakrop*. The inflorescence of the *ngakrop* is boiled and eaten, but neither yields an edible fruit. The two grow side by side, and I could distinguish them in no other way than that described.

A clump of *lagyep* flapping its leaves in the sunshine was a pretty sight, the silver white coming to the surface here and there like foam on a bright green sea.

In the valleys, according to Kachin lore, grow two other species, also found cheek by jowl, though they do not mix with the hill species. One of them is a dwarf plant with narrow leaves; the other is rather tall. I must confess I could not distinguish these two myself, though we must have seen plenty of both of them. The inflorescence of the dwarf, like that of *ngakrop*, is boiled and eaten. This, however, is not a regular article of diet, but either a delicacy or more probably resorted to in times of famine.

In shady places, the big leaf-blades of these plants, when young, stand vertically with all sail spread, so to speak; but on sunny slopes, and as they grow old and jaded, the two halves of the leaf droop down on either side of the midrib like the pages of a book, giving a very dejected appearance to the plant. The final stage is reached when the leaf, cut into strips by the wind, hangs in tatters.

At this season flowers were rare, particularly in the lowlands. In open thickets a few twining Convolvulaceæ lingered on; and in the jungle the short fat pokers of a Phlogacanthus, the gaping, purplish-pink flowers craning their long necks, were abundant. By the way-side were small weed-like Acanthaceæ, one species having lurid magenta flowers.

On heavily-shaded banks, never reached by the sun's rays (at least not at this season), and consequently always moist, grew clumps of pale yellow flowered Chirita; and this remained with us for many day's march.

About the ninth day south we saw the snow-clad Lohit divide, now a hundred miles distant, for the last time. It was very faint—a white line across the enamelled blue of the sky.

The road follows a different alignment to what it did eight years ago, when I first visited Hkamti. After traversing the plain, it crosses and recrosses the Mali Kha itself within a few miles—this to avoid the dangerous passage of a tributary on the right bank, which it was found impossible to bridge.

Keeping to the lowlands for several marches, it then winds up through the hills as before, but never achieves such altitudes as formerly. Nor are the gradients so steep. Probably no point on the modern road much exceeds 3,000 feet altitude; whereas the old road frequently climbed to 5,000 feet. In fact, the new road is just about as good a road as can be made through these jungly hills. After passing the half-way mark, flowers became more numerous. On January 4 I dived into the jungle and emerged triumphant with a canary-yellow ground Orchid, and a Strobilanthes new to me. This latter had an uncommonly large, pale violet flower. The plant, though too weak to stand erect, grows many feet in height, finding support in the surrounding vegetation.

It is difficult to penetrate the hill jungle, on account of the dense undergrowth. There are plants which prick and stab one, and tear one's clothes; others which trip one up, or forcibly oppose progress. But occasionally one strikes a track, and then, after a little time, surprising things come to light.

There were plenty of Orchids on the trees, though not in flower, except one Coelogyne. Thus I was able to bring home plants of Cymbidium, Coelogyne, Eria, Dendrobium, Bulbophyllum, Saccolabium, Pholidota, Phaius, &c.—plants doubtless of no value to horticulturists, but botanically interesting.

On January 5, when we were within a hundred miles of Myitkyina, more flowers turned up, including a white-flowered Clerodendron, also Thunbergia sp. (a solitary, blue-violet flower), and an Acanthous herb, which had prickly, Thistle-like leaves. It was curious how the Acanthaceæ had almost a monopoly of the flowering plants.

No tree was in bloom, though a few showed symptoms. Neither were any trees bare of leaves—most of them drop their foliage in the hot weather, and the new leaves develop almost immediately. On this same day a change began to steal over the jungle. New species appeared, of which the Tamarind tree and a Cassia were the most noticeable. We were getting down into the strictly monsoon forest.

On January 6, 1923, I observed more additions to the vegetation—two new Palms. One had tall, smooth, reed-like stems, crowned by a plume of small, pinnate leaves (Areca). Another had a stumpy stem hidden by the bases of old leaves, with their basket-work sheaves, and immense pinnate leaves, silvery beneath and without thorns.

A small, root-climbing Ficus, with leaves flattened against the bank, and very neatly set, was abundant. Also mysterious-looking Gesnerads of the Didissandra, or Ramondia type, Ferns, Lycopodium, Selaginella, and other unfamiliar plants, with quaint or picturesque foliage. On sunny banks Polygonum capitatum was common. Another excursion into the heart of the jungle brought to light a curious undershrub in fruit. It had scarlet pods, hanging in fours. Another had pairs of follicles, green without, orange inside, with crimson seeds. There were also patches of Strobilanthes with purple flowers and close to Myitkyina a third species, with white flowers, appeared.

FIG. 135.—THE MALI KHA, THIRTY MILES FROM THE CONFLUENCE.

Even here the contrast between the vegetation on the north and south slopes is marked. On the former, and in deep ravines where the mist lurks late, is big tree jungle—the real Indo-Malayan type. On drier slopes and in open valleys facing south are dense tangles of Bamboo, shrubs, and small trees.

On January 8, we reached the Mali Kha (Figs 135, 136) once more. Here were masses of Begonia, and on sand-banks in the river bed actually a Violet; it was like a message from home!

We were now only forty miles from Myitkyina, rail-head and civilization. Already the plains, or rather the mouth of the Mali Valley, where eastern and western branches unite to form the Irrawaddy of commerce, were visible. Henceforward the road was practically level.

A wee violet-flowered Torenia; two Acanthous weeds (one with two kinds of leaves); a second species of Phlogacanthus bearing spikes of ruby flowers, but smaller all over than the previous species (which also occurred here); and bushes of chalk-white, fragrant Jasmine, were the pick of the flowers. Yet, had I collected everything I saw — every

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, 29, 1921; January 7, 21, March 11, 25, April 8, 22, May 6, 20, June 3, 17, July 1, 15, 22, August 5, 26, September 9, 23, October 7, 21, November 4, 18, December 2, 16, 30, 1922; January 13, 27, February 10, 24, March 10, 24, April 7, 21, May 5, June 2, 23, July 7, 21, August 18, September 1, 29, October 20, November 2, 17, and December 1, 1923.

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unworthy little Composite and miserable Polygonum, I doubt if I should have amassed fifty species down the Putao road. Even here winter had come.

On January 11 I did my last march. The remaining twenty miles was to be done by steam launch. We went on board at eleven o'clock, and two hours later stepped ashore at Myitkyina. The journey was over.

Ever since leaving Hkamti Long I had been looking forward to the end of the trip; but once in civilization, I began to look back on it with regret. Even the anti-climax had been pleasant. However, that is always the way, and caused no surprise. *F. Kingdon Ward.*

THE END.

NOTES FROM WISLEY.

CHANGES in the colour of the foliage of shrubs and trees during successive seasons, and the reasons for them, would make an extremely interesting subject for study. The autumn is usually associated with the most beautiful effects, but in certain plants winter is the season of climax.

A common instance is that of Berberis Aquifolium, the leaves of which turn to rich reds and purples during winter, and when dusted over with hoar frost are most attractive. In winter also, certain Conifers which normally possess a bronzed appearance develop a much more intense colour. This is seen in certain varieties of Cupressus, and particularly in the case of Cryptomeria japonica elegans, of which there is a large specimen in the rock garden at Wisley. Although damaged in previous years by heavy falls of snow, it is still ornamental in habit, and the present dark chocolate-red colour of its leaves makes a good background for the silvery foliage of Atriplex Halimus growing at its base.

Another Conifer in the rock garden exhibiting this winter colouring is a plant of Thuja orientalis Spathii, which has formed a roughly spherical bush, barely fifteen inches high, although it has been growing here for a considerable number of years.

In the Alpine house also there are examples of coloured foliage. Azalea amoena has bright-red leaves, and Calamintha barosma has purplish, Thyme-like foliage. This recently-introduced plant is remarkable for the very pungent odour emitted when the leaves are bruised, which resembles and rivals that of Menthella Requienii. The flowers are pink and large in comparison with the leaves. In this house a few Primulas are to be seen in flower, including P. viscosa, P. Juliana, and P. megaseaefolia. The last, however, has no business to be flowering now. Another freakish occurrence has been discovered in one of the propagating pits, where some plants of Primula capitata have been making proliferous growth. In one case so many as five shoots were sent out from the flower head, each bearing a subsidiary inflorescence.

Three plants each of some three-hundred-and fifty stocks of perennial Delphiniums have been planted for trial, and the merits of many kinds of Dianthus, including D. Allwoodii, Pinks and border Carnations are also to be determined, while, under glass, trials of annual Delphiniums and Schizanthus are in progress.

In the trial grounds Gentiana acaulis has for a long time been grown as an edging and has always done very well there the ground being much less dry and sandy than in other parts of the gardens. Although the normal flowering season is late spring, numbers of blooms are to be seen at the present time; in fact there are few occasions throughout the year on which it is impossible to find one or more of the brilliant blue flowers of this plant.

In this field garden large numbers of Heaths in great variety are being planted in stretches which will occupy about an acre of ground when completed. Among these are to be seen a few groups of suitable trees and shrubs, such as Pines, Birches and Brooms. *J. G. White.*

YOUNG LADS AND HORTICULTURE.

QUITE recently a communication reached me from the secretary of an organisation which concerns itself with the welfare of lads. He stated that many boys who have passed all their examinations in elementary schools are still at school for the simple reason that they cannot obtain employment, and he asked if I could do anything to secure openings where the boys would have an opportunity to learn gardening.

It is strange that this should be so at a time when, from careful observation over a wide-spread area, one realises with some concern that there are very few lads and youths in gardens and nurseries to-day who show signs of making good gardeners and plantsmen to carry on the craft after the veterans of to-day have laid down their tools. It is no mere idle fancy of narrow-minded old age which simply will not admit that the present and rising generation can be as clever, industrious, and enthusiastic as the last; but it is the plain and simple fact that we have not in professional or commercial gardening circles to-day a sufficient number of lads in training to fill the ranks as they must inevitably become depleted. With that fact admitted, and coupled with the authoritative information that boys are crowding elementary schools, thus hindering the progress of their juniors, simply because employment cannot be found them, we must surely admit there is a problem to be solved.

Every good gardener and every nurseryman who is a true horticulturist must feel that it is a part of his life's work to train a youngster to his calling, for the future of horticulture is to that extent in the keeping of the horticulturists of to-day. Furthermore, every good citizen must be considerably concerned about the welfare of the lads who should be engaged in some useful occupation, and fitting themselves for the sphere of manhood, for wasted youth may too easily be the prelude to wasted manhood.

Unfortunately, the simple recognition of the existing needs and even the personal desire to do the right thing cannot completely solve the problem, for there are very stubborn obstacles in the way. When I was a boy, it was customary for well nigh every head-gardener and every nursery foreman or propagator to have a lad constantly beside him, not merely to do odd jobs but, if he showed aptitude and interest, to watch and learn how the work of a gardener or a plantsman should be done; at that time, a young lad's wages were, maybe, half-a-crown or three shillings per week, and not more than five shillings a week for the second year. Even though the half of the boy's time might be occupied in watching and learning, the expense was small, and if the lad was keen it was a delight to the gardener to teach him, while the effort was repaid when the lad had learned sufficient to be useful. In this way beginners learned the practice of horticulture by a mastery of detail and knew their work thoroughly from beginning to end.

To-day, however, a lad must earn what were then the wages of many men. The consequence is that of necessity fewer lads can be employed, and whoever may be responsible for a lad's employment is bound to see that he does sufficient work to earn his money. This means that lads are put at ordinary labouring work that requires no skill, and they must work fairly well to earn their pay. There is no time for teaching because time costs too much money.

The majority of parents are obliged to demand the highest possible wages for their sons, and it is by no means a rule that the lads whose parents can afford to waive the question of wages are the best or the most promising of pupils.

We cannot ignore facts, and if we are reasonable we must admit that, not alone can either parents nor employers over-ride the obstacles.

When I was a youth, I remember a wealthy gentleman who had been a great patron of horticulture, provided a sum sufficient to enable two lads to receive three years' training in a good nursery, and then start them off in their first situation with a trunk of clothes and some cash. Two fresh lads took the places of those that had gone, and then another two. Four out of those six lads I have met on various occasions in recent years, and they have carved out for themselves highly successful careers. There never was so great a need for similar philanthropy as to-day. It is not scholarships to horticultural colleges that are so urgently needed, but facilities for the placing of lads who have a bent for horticulture in good gardens and nurseries. The Royal Horticultural Society is wealthy. What a grand thing it would be for it to assist in such a scheme, not solely by providing tuition in its gardens at Wisley, but by assisting in the maintenance of lads in training in gardens and nurseries. This, surely, is a work of both horticultural and national importance. *A. J. Macself.*

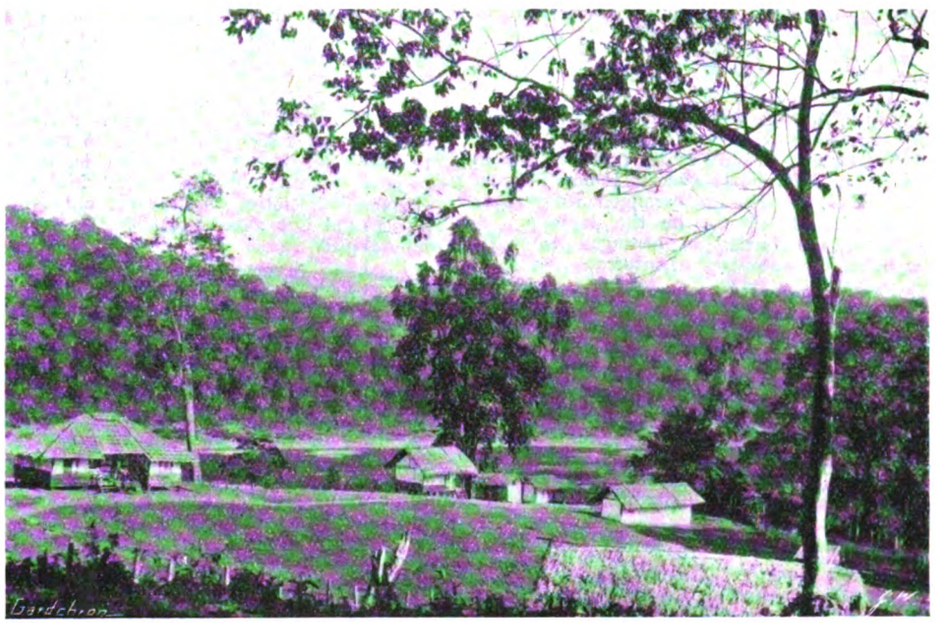

FIG. 136.—THE MALI KHA AND MONSOON JUNGLE.

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GARDENERS' MUTUAL IMPROVEMENT SOCIETIES.

A RECENT experience has prompted these notes, in the hope that they may be helpful in aiding the formation or furthering the development of Gardeners' Mutual Improvement Societies. As a rule it is not easy to create sufficient enthusiasm to maintain the interest in such societies and to keep them flourishing, notwithstanding the obvious fact that periodical meetings for the mutual discussion of difficulties and exchange of views are of educational value.

It is, therefore, extremely pleasant to find a society where the management has succeeded in arousing so great an enthusiasm that full meetings and animated discussions may be relied on. The Reading Gardeners' Mutual Improvement Society is such an one.

It was gratifying to learn that this old Society is still increasing its membership, indeed, at every meeting held during the current year new members have been introduced. The meetings are held fortnightly throughout the year, and are always well attended, and one of the difficulties with which the secretary will have to contend in the near future is the provision of sufficient accommodation. At each meeting arrangements are made for the reading of a paper on a horticultural subject. Exhibits of vegetables, flowers, and fruits are also staged, and some of those I saw were well worthy of the Chelsea exhibition. Prizes and certificates of merit are awarded to successful competitors. In the summer visits are arranged to gardens and places of interest in the locality. A special annual outing is arranged to visit some more distant place of interest.

Gardeners are not uncommunicative, but are always ready to pass on information for the benefit of others. I found this spirit, however, particularly in evidence among members of the Reading Society. As an example I may quote the instance of a member who staged Fig-trees, in pots, only eighteen months old from the cutting, yet laden with ripe fruit, and who gave the fullest details concerning the propagation and culture of his plants. This unselfishness in co-operating for the mutual good may be one of the chief reasons for the flourishing condition of this Society.

Reading is, of course, a specially favoured locality to those interested in horticulture. The value of the scientific and practical contributions made to horticulture by the staff of Reading University Gardens is well known. The members of the staff attend the meetings and make valuable contributions to the discussions. The fame of Reading seeds is also world-wide. In such an atmosphere it is not surprising that interest in horticulture is stimulated to an unusual degree. Notwithstanding these advantages it will be obvious that such striking success could not be attained without organizing ability and a committee working in harmonious co-operation, to which must be added the genial personality of the secretary.

The meeting I attended at Reading reminded me of two or three decades ago when, if memory does not deceive, enthusiasm was more widespread in spite of fewer facilities. In those days, almost every small town or village had its horticultural society, which held frequent and well-attended meetings, and it was not unusual for young gardening enthusiasts to walk many miles through muddy country lanes on dark nights to be present. As for the annual show, this was, without exception, the village event of the season. Probably the war was the cause of the dissolution or decline of many of these societies, some of which have not been revived or have not yet fully recovered from the effects of suspended animation. There is, however, no good reason why Gardeners' Mutual Improvement Societies should not only recover lost ground but show increasing membership and interest.

Gardening in some form appeals to a wide and ever-extending section of the public; there is no industry, in fact, which has such a wide field from which to attract possible new members. If a suitable programme is provided, calculated to stimulate and maintain interest, there will be no lack of membership for such societies. The following suggestions are made in the hope that the adoption of some of them may prove a means to this end. If the presidency of a local celebrity can be secured so much the better, particularly if he takes a personal and practical interest in the proceedings and attends the meetings. Incidentally, he will be constantly brought into touch with some of the difficulties in the way of pests, diseases, and weather conditions with which the gardener is confronted before he can gather and deliver the fruits of his labours.

Provided formalities can be dispensed with, meetings of this kind tend to foster a better relationship between employer and employée and to increase that spirit of mutual co-operation which is so essential to the success of industrial undertakings. And, after all, the modern garden is but an industrial undertaking on a modified scale. He is a poor head gardener who, as managing director of such a concern, does not endeavour to give his employer the maximum production for the minimum expenditure in labour and material, just as he is a poor employer who fails to recognise efficiency in his employées.

Prizes should be offered for the best papers on any horticultural subject read by members during the session. It is surprising how this will stimulate the zeal and interest of the members, not so much for the value of the prize as for the honour of winning it. Not only will a vast amount of information be obtained and communicated in this way to the members of the society, but the preparation of a paper is an education in itself for the author, as its delivery will have the effect of making him an expert in that particular subject.

When I was a young gardener at Kew, this system of prize-giving was a feature of the Mutual Improvement Society; prizes were also given for the best debates, with the result that a spirit of keenness to join in the discussions was created which considerably enhanced the value of the meetings.

As a variation, practical suggestions or questions might be invited from members in turn and prizes given at the end of the season for those of most value. This gives an opportunity for the practical man to shine, for there are still many good cultivators who have no literary or scientific ability.

These suggestions are intended to operate in addition to the main scheme, the essence of which is a series of lectures by horticultural experts on subjects calculated to be of practical, theoretical, or scientific value. The horticultural section of the County Council concerned is always ready to supply suitable lecturers. The Ministry of Agriculture and several of the Agri-horticultural Institutes are also able to send out lecturers who have specialised in various subjects, and are able to communicate knowledge which the ordinary gardener has no opportunity of obtaining first-hand.

In planning a syllabus the charm of variety should be remembered; no side of the subject should be wholly excluded. Often a series of lectures of the same type is arranged: for example: "Roses and How to Grow Them," "Herbaceous Borders and their Upkeep," etc. While the practical value of such lectures is obvious, it is desirable to include a proportion dealing with general principles such as those pertaining to chemistry, botany, biology, and vegetable physiology. It must not be forgotten that in horticultural education, as in all forms of education, it is more important to master principles than details.

Care should also be taken not to cultivate too intensively that national trait of character—insularity. However good and capable the members of a society may be, nothing but good can result from the importation of outside talent. This may often be arranged by the interchange of members as lecturers between various societies.

That great gardener, Sir Joseph Paxton, knew the value of such communal gatherings; many of the old Paxton Societies were founded under the guidance of his ideas and some of these still exist. *W. Auton*

NEW HYBRID ORCHIDS.

(*Continued from November* 24, 1923, *page* 307.)

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Chassaingiana	B.-C. Thorntonii × C. Percivaliana...	M. Chassaing.
Brasso-Cattleya Leila	C. amabilis × B.-C. Digbyano-Mossiæ	Pauwels, Ghent.
Brasso-Cattleya Moronel	B.-C. Mme. C. Maron × C. Mendelii	Stuart Low.
Brasso-Cattleya Trimabilis	B.-C. Vilmoriniana (amabilis) × C. Trianae ...	Pauwels.
Brasso-Laelio-Cattleya Geoffrey ...	L.-C. Geoffrey × B. Digbyana	C. J. Lucas, Esq.
Cattleya Birucha	Mrs. Pitt × Iris	Pauwels.
Cattleya Cressida	Cooksonii alba × Hardyana alba	Sanders.
Cattleya Leveriana	Comet var. Maroc × Luddemanniana	M. Chassaing.
Cattleya Mordana	Moira × Hardyana	Stuart Low.
Cattleya Orietta	Maggie Raphael alba × Fabia alba	Pauwels.
Cattleya Percivenus	Percivaleana alba × R. Prowe	Pauwels.
Cattleya Shinjik	maxima × Trianae	Tokyo Botanic Gardens.
Cattleya Tambora	intertexta Juliettae × R. Prowe	Pauwels.
Cattleya Wolterslana	Queen Mary × Rajah	Pauwels.
Coelogyne Shibata	speciosa × flaccida	Tokyo Botanic Gardens.
Cypripedium Cyclopian	Cyclops × Leeanum Gratrixiae	Sanders.
Cypripedium Harrettianum	Harrisianum × Pollettianum	Cowan.
Cypripedium Luna	Desdemona × Mrs. Carey Batten	Armstrong & Brown.
Cypripedium Madrigal	bingleyense Charltonii × Royal George	S. Gratrix Esq.
Cypripedium Papyrus	Earl Tankerville × Charlesworthii	Mrs. Gratrix.
Cypripedium Rosalind	Niobe × Reginald Young	Sanders.
Cypripedium Shinjik	Germinyanum × Alcibiades	Tokyo Botanic Gardens.
Laelio-Cattleya Hiram	eximia × St. Gothard	Pauwels.
Laelio-Cattleya Lucirea	L.-C. Lucia × C. Dowiana aurea	Pauwels.
Laelio-Cattleya Phantasy	L.-C. Thyone × C. Maggie Raphael	Flory & Black.
Laelio-Cattleya Radina	L. xanthina × C. radiata	Stuart Low.
Laelio-Cattleya Uttona var. Viscount Fukuba	L. purpurata × L.-C. highburiensis	Tokyo Botanic Gardens.
Laelio-Cattleya Troilus	C. Rex × L.-C. Canhamiana, Rex	Sanders.
Miltonioda Hilda	M. Roezlii × C. Noezliana	McBean.
Odontoglossum Conquest.	Amethyst Glebelands var. × ardentissimum ...	McBean.
Odontoglossum Crispindia	crispum Rossendale × Empress of India	C. J. Lucas, Esq.
Odontonia Papillon	M. Bleuana × Odm. harvengtense (loochristiense)	P. Smith, Esq.
Rolfeara Charm	B.-C. Mrs. J. Leemann × S.-C Thwaitesii ...	Sanders.
Sobralia Baron Ohara	virginalis × Amesiae	Tokyo Botanic Gardens.
Sobralia Shinjik	macrantha × dellensis	Tokyo Botanic Gardens.
Stanhopea Shinjik	tigrina × saccata	Tokyo Botanic Gardens.

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HOME CORRESPONDENCE.

Aster ericoides praecox.—I have been growing two forms of Aster ericoides, varying in height, habit and time of flowering, to learn in what particulars they differed from one another. In minute botanical characters they agree very closely. This year A. ericoides praecox opened its first bloom at the beginning of September when two feet high and in sandy soil; but a change in the weather checked further development till the end of that month, when the plant came into full bloom, with the flowers rather crowded on short side branches three to six inches long. These flowers all faded by the time a scattered few were open on the typical A. ericoides, which grew three and a half feet high side by side with the other. The branches on the type were twelve to eighteen inches long with more scattered and larger white flowers and green stems. The stems of A. e. praecox were purple. The value of the two forms is that they give a long succession of flowers. I had the plants from Messrs. J. House and Son, Westbury-on-Trym, Bristol. *J. F.*

Fig Trees at Lambeth Palace.—The first two trees of the Fig introduced to this country were said to have been brought from Italy in 1548 by Cardinal Pole, in the reign of Henry VIII. and planted against the walls of Lambeth Palace. These trees were much injured by the severe winter of 1813-14, but after having been cut down they had greatly recovered three years later. The Caledonian Horticultural Society visited the grounds in September, 1836, but the old trees had disappeared some years previously when the palace was undergoing repair. There were, however, some young trees raised from cuttings and growing in the Archbishop's kitchen garden. The trees now growing there were most likely planted in their present position soon after the Scottish society's visit, so that they would be about ninety years old, and parts of the original ones. The trees all lean away from the wall very much and one of them was partly broken and brought down on the grass by a gale early last September, and its recovery is somewhat doubtful, unless the large limb resting on the grass roots into the soil during the coming season or two. In warm seasons the trees ripen a considerable quantity of fruit, and this says much for the climate of London and for untrained trees. *J. F.*

Boenninghausenia albiflora.—I read with interest in your issue of December 15 (p. 351) the note by Mr. Grove on Boenninghausenai albiflora. In this note he makes a statement which I must refute. Mr. Grove states: "From this we may conclude—did not we already know—that the species, which Farrer never saw in his Asiatic travels, did not prosper in Ingleborough." I was with Farrer in Upper Burma during 1919, and we saw masses of what has definitely been named Boenninghausenia albiflora below Itpimaw Fort at an altitude of 8,000 feet. There it grew on a rather hot, sunny bank, and we never saw a plant over a foot high. I have plants growing in my garden from seed collected by myself. They are planted in a sheltered portion on the banks of a stream. Although it is extremely healthy and obviously at home, in no case does the plant exceed a foot in height. There are two possible explanations for Mr. Grove's large plants. One, that his seed is not that of the true species. I have not heard of an importation of this seed from India for many years. The second explanation, which is the more likely, is that it is a plant which varies enormously in its native habitat. I can only draw attention to Rhododendron aureum. When Forrest first found it, it was distinctly an alpine plant never growing more than eighteen inches in height. Last year he found it again as a plant of eight feet and with no more attributes of the dwarf than I have. I can also affirm that Boenninghausenia albiflora flowered in Burma, and also with me in Scotland, during July and August. *Euan Cox.*

SOCIETIES.

ROYAL HORTICULTURAL.

TRIAL OF EARLY-FLOWERING CHRYSANTHEMUMS AT WISLEY.

THE following awards have been made by the Royal Horticultural Society to early-flowering Chrysanthemums after trial at Wisley:—

AWARDS OF MERIT.

DECORATIVE VARIETIES: White: *Candida*, sent by Messrs. LOWE AND SHAWYER; *Sanctity*, sent by Messrs. DOBBIE AND CO., Mr. H. J. JONES, Mr. W. H. SIMPSON, Messrs. BARR AND SONS, and Mr. I. GODBER; *Excelsior* (*syn. Sanctity*), sent by Messrs. R. H. BATH, Ltd.; *Framfield Early White*, sent by Messrs. DOBBIE AND CO., and Mr. H. J. JONES; *Framfield White*, sent by Messrs. R. H. BATH, Ltd., and Messrs. BARR AND SONS; *Roi des Blancs*, sent by Messrs. DOBBIE AND CO., Mr. H. J. JONES, Mr. I. GODBER, Messrs. R. H. BATH, Ltd., and Messrs. BARR AND SONS; *September White*, sent by Messrs. DOBBIE AND CO., Mr. H. J. JONES, Messrs. R. H. BATH, Ltd., and Mr. I. GODBER.

Blush: *Silver Lining*, sent by Messrs. H. J. JONES, R. H. BATH, Ltd., and Mr. A. W. THORPE. Nos. 55, 57, and 59 sent as Miss G. K. THORPE, by Messrs. DOBBIE AND CO., R. H. BATH, Ltd., and H. J. JONES, all are Silver Lining.

Pink: *Pearl*, sent by Messrs. H. J. JONES, Ltd.; *Normandie*, sent by Messrs. DOBBIE AND CO., H. J. JONES, and R. H. BATH, Ltd.; *Freda*, sent by Mr H. J. JONES.

Mauve-Pink: *Mme. Marie Masse*, sent by Messrs. DOBBIE AND CO., H. J. JONES, Ltd., and R. H. BATH, Ltd.; *Claret*, sent by Messrs. DOBBIE AND CO.

Purple: *Jamie*, sent by Messrs. R. H. BATH, Ltd.; *Lichfield Purple*, sent by Messrs. H. J. JONES, DOBBIE AND CO., A. W. THORPE, and W. H. SIMPSON.

Pale Yellow: *Ralph Curtis*, sent by Mr. H. J. JONES; *White Masse*, sent by Messrs. DOBBIE AND CO., and Mr. H. J. JONES; *Mrs. Bailey*, sent by Messrs. R. H. BATH, Ltd.; *Tuckswood Early*, sent by Messrs. DOBBIE AND CO.; *Charming*, sent by Mr. H. J. JONES; *Framfield Early Primrose*, sent by Messrs. R. H. BATH, Ltd.; *Southover Yellow*, sent by Messrs. H. J. JONES and Messrs. BARR AND SONS; *Willington Early Yellow*, sent by Messrs. DOBBIE AND CO.

Yellow: *Horace Martin*, sent by Messrs. H. J. JONES and R. H. BATH, Ltd.; *Elstob Yellow*, sent by Messrs. DOBBIE AND CO.; *Maggie*, sent by Messrs. DOBBIE AND CO.; *Hollicott Yellow*, sent by Messrs. LOWE AND SHAWYER; *Goldfinder*, sent by Mr. H. J. JONES; *Philip*, sent by Mr. LADDS.

Orange Yellow: *Golden Polly*, sent by Messrs. R. H. BATH, Ltd., and Messrs. PROCTOR; *Florrie Wilkinson*, sent by Mr. I. GODBER; *Miss B. Miller*, sent by Messrs. DOBBIE AND CO.; *Golden Almirante*, sent by Mr. CHATFIELD; *Vinstone Bronze*, sent by Messrs. WEBBER.

Terra-cotta: *Polly*, sent by Messrs. JONES, DOBBIE and GODBER; *Verona*, sent by Messrs. JONES, W. H. SIMPSON, BARR AND SONS, and R. H. BATH, Ltd.; *Phœnix*, sent by Messrs. SCOTT AND WICKHAM; *Well's Scarlet*, sent by Messrs. DOBBIE AND CO.

Bronze: *Hollicott Beauty*, sent by Messrs LOWE AND SHAWYER; *September Glory*, sent by Messrs. H. J. JONES AND R. H. BATH, Ltd.; *Shirley Conquest*, sent by Mr. W. H. SIMPSON; *Mrs. Jack Pearson*, sent by Mr. LADDS; *Bronze Goacher*, sent by Messrs. H. J. JONES, DOBBIE AND CO., R. H. BATH, Ltd., AND BARR AUD SONS; No. 373, sent by Messrs. BARR AND SONS, as Mrs. J. Fielding is Bronze Goacher.

Chestnut: *Crimson Polly*, sent by Messrs. H. JONES, R. H. BATH, Ltd., DOBBIE AND CO. AND W. H. SIMPSON; *Abercorn Beauty*, sent by Messrs. DOBBIE AND CO.; *Crimson Marie Masse*, sent by Messrs. H. J. JONES, R. H. BATH, AND PROCTOR; *Mrs. J. Fielding*, sent by Messrs. BATH, and DOBBIE AND CO.; *Ernest Ballet*, sent by Messrs. DOBBIE, BATH, and JONES; *Almirante*, sent by Messrs. LOWE AND SHAWYER, H. J. JONES, DOBBIE AND CO., BARR AND SONS, and R. H. BATH, Ltd.

Chestnut-crimson: *Fire-fly*, sent by Messrs. W. H SIMPSON and BARR AND SONS; *Ethel Blades*, sent by Mr. H. J. JONES; *Alcade*, sent by Messrs. LOWE AND SHAWYER; *Red Almirante*, sent by Mr. H. J. JONES.

Crimson: *Goacher's Crimson*, sent by Messrs. DOBBIE, BARR, JONES, BATH and PROCTOR; *Dick Barnes*, sent by Messrs. DOBBIE, BATH, JONES, THORPE, W. H. SIMPSON, and PROCTOR; *Jeannie*, sent by Mr. C. PRIESTNER; *Mrs. W. Sydenham*, sent by Messrs. W. H. SIMPSON and DOBBIE AND CO.

Rose-crimson: *Babia Ferrer*, sent by Messrs R. H. BATH, Ltd.

POMPON VARIETIES.

Yellow: *Flora*, sent by Messrs. DOBBIE AND CO. and BARR AND SONS.

Terra-cotta: *Orange Pet*, sent by Messrs. BARR AND SONS and R. H. BATH, Ltd.

Chestnut: *Little Bob*, sent by Messrs. BARR AND SONS and DOBBIE AND CO.

SINGLE VARIETIES.

White: *Taplow White*, sent by Messrs. BARR AND SONS.

Mauve-pink: *J. Woolman*, sent by Messrs. DOBBIE AND CO.

Orange-yellow: *Golden Firebrand*, sent by Messrs. BARR AND SONS.

Terra-Cotta: *Midnight Sun*, sent by Messrs. W. H. SIMPSON, THORPE, and BARR AND SONS; *Sunstar*, sent by Messrs. W. H. SIMPSON.

Chestnut: *Firebrand*, sent by Messrs. BARR AND SONS.

Crimson: *Ruby*, sent by Messrs. DOBBIE AND CO.; *Garnet*, sent by Mr. H. J. JONES; *Chieftain*, sent by Mr. THORPE; *Mrs. S. Smith*, sent by Messrs. PROCTOR; *Glorious*, sent by Messrs. W. H. SIMPSON.

HIGHLY COMMENDED.

The following were Highly Commended in their respective colours:—

DECORATIVE VARIETIES.

White: Blanche du Poitou, sent by Mr. I. GODBER; Miss G. K. Thorpe, sent by Mr. THORPE.

Mauve-pink: Bouquet Rose sent by Mr. H. J. JONES; Eden, sent by Messrs. BARR AND SONS, and R. H. BATH, Ltd.

Purple: No. 395 sent by Messrs. BARR AND SONS as R. Pemberton, is Rubis; No. 417, sent by Messrs. BARR AND SONS as Rubis is R. Pemberton.

Pale Yellow: Cream Perrier, sent by Messrs. DOBBIE AND CO.; Chatillon, sent by Messrs. R. H. BATH, Ltd.

Yellow: Golden Diana, sent by Messrs. BARR AND SONS, R. H. BATH, Ltd., and DOBBIE AND CO.; Mrs. R. C. Hamilton, sent by Mr. H. J. JONES, and Messrs. LOWE AND SHAWYER; Ethel Harvey, sent by Messrs. R. H. BATH, Ltd.; Leslie, sent by Messrs. DOBBIE, BATH and JONES; and Carrie, sent by Messrs. BARR AND SONS, and R. H. BATH, Ltd.

Orange Yellow: Guinea Gold, sent by Messrs. W. H. SIMPSON; Harry Thorpe, sent by Messrs. DOBBIE AND CO., R. H. BATH, Ltd., A. W. THORPE, and PROCTOR.

Terra-Cotta: Ivan, sent by Mr. H. J. JONES; Nina Blick, sent by Messrs. R H. BATH, Ltd., and H. J. JONES.

Bronze: Golden Goacher, sent by Messrs. DOBBIE AND CO., R. H. BATH, Ltd., H. J. JONES, and W. H. SIMPSON; No. 206, sent by Mr. JONES as Provence, is Bronze Provence; Provence sent by Mr. H. J. JONES No. 1 Bronze, sent by Messrs. LOWE AND SHAWYER.

Chestnut: Present Meugy, sent by Messrs. R. H. BATH, Ltd., and H. J. JONES.

Chestnut-crimson: Red Cross, sent by Messrs. R. H. BATH, LTD.; l'Argenteuillaise, sent by Messrs. BARR AND SONS and Mr. JONES; Fleube Rouge, sent by Messrs. DOBBIE AND CO.

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POMPON VARIETIES.

Blush: Mr. Selly, sent by Messrs. DOBBIE AND CO.

Yellow: Gladys Gray, sent by Messrs. BARR AND SONS; Craigmillar, Mignon, and Piercy's Seedling, all sent by Messrs. DOBBIE AND CO.

SINGLE VARIETIES.

Rose Perfection, Mizpah, Rosea, and Fairy, these four varieties sent by Mr. H. J. JONES; Rosamund Hall, sent by Messrs. W. H. SIMPSON.

Purple: Merstham Glory, sent by Messrs. BARR AND SONS and DOBBIE AND CO.

Terra-cotta: Shrapnel, sent by Messrs. W. H. SIMPSON, THORPE and DOBBIE AND CO.

Yellow: Canary, sent by Mr. JONES.

READING AND DISTRICT GARDENERS'.

AT the fortnightly meeting of this association held on the 3rd inst., Mr. W. Chislett, Bill Hill Gardens, Wokingham, gave a lecture, before a large attendance of the members, on "Artificial Manures." He prefaced his remarks by asking, "Why do we manure," and answered the question by stating that it is done to sweeten the soil, to improve its texture and to set free one or more of the chemical substances locked up in the soil. The lecturer considered lime to be the cheapest and best manure for all land improvements, for with it heavy lands become more fertile and light soils are made sweeter and more productive. The following chemical manures were also dealt with and directions given for their use for various crops, viz.: nitrate of soda, sulphate of ammonia, nitrate of lime, nitrate of potash, bone meal, basic slag, sulphate of potash, muriate of potash and kainit.

In the competition for three dishes of dessert Apples there were eight entries and the judges awards were as follow:—1st, Mr. A. G. Nichols, Goddard's Farm, Mortimer; 2nd, Mr. A. W. Gower, Calcot Grange gardens; 3rd, Mr. H. Goodger, Stoneham House gardens, Calcot. In the non-competitive section a First Class Certificate was awarded to Mr. M. Goddard, Bear Wood gardens, Wokingham, for a collection of twelve dishes of Apples,; this exhibitor also received an Award of Merit for a brace of Cucumbers and a dish of Tomatos respectively. Mr. H. Wynn, Quern's House gardens, Goring Heath, staged some good specimens of New Red Intermediate Carrots, for which an Award of Merit was granted.

Obituary.

James Malcolm—We regret to learn of the death, on December 12, at Brierybush, Ewes, Langholm, of Mr. James Malcolm, who was for forty years head gardener to the Duke of Buccleuch at Langholm Lodge, Dumfriesshire. Mr. Malcolm, who was in his 83rd year, had lived in retirement for some time. He was very highly esteemed by the family he had served for so long and by all who knew him. His abilities as a gardener were widely recognised, and his death is much regretted. The funeral took place at Staplegordon Churchyard on December 14.

TRADE NOTES.

WE are informed by the Chamber of Horticulture that the International Bureau of Registration of Horticultural Novelties connected with the Federation Horticole Professionnelle Internationale, registered in October, 1923, a plant named Aralià Lizéi, submitted by the raisers, M. Lizé Freres, 115, rue des Hauts-Paves. The plant is described as a hybrid between Aralia Moseri and an Irish Ivy; fixed since 1910.

This bigeneric hybrid was described on p. 352 of our issue of December 15, under its correct title of Fatshedera Lizéi.

MARKETS.

COVENT GARDEN, Monday, December 24, 1923.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz.	10 0	18 0
—elegans	10 0	12 0
Aralia Sieboldii	9 0	10 0
Araucarias, per doz.	30 0	42 0
Asparagus plumosus	12 0	15 0
—Sprengeri	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Cacti, per tray, 12's, 15's	5 0	7 0
Chrysanthemums —white, doz.	12 0	18 0
—pink "	12 0	15 0
bronze "	12 0	15 0
Crotons, per doz.	30 0	42 0
Cyrtomium	10 0	15 0
Erica gracilis, 48's per doz.	24 0	30 0
— 60', per doz.	12 0	15 0
— hyemalis 48's per doz.,	24 0	30 0
—nivalis, 41's "	24 0	30 0
— —60's	12 0	15 0
Nephrolepis, in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	24 0	30 0
—69's	15 0	18 0
—Cocos	24 0	36 0
Pteris, in variety	12 0	21 0
—large 60's	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's	3 6	4 0
Solanums, per doz.	12 0	18 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum decorum, doz. bun.	15 0	18 0
—cuneatum, per doz. bun.	9 0	10 0
Asparagus, plumosus, per bun, long trails, 6's	4 0	5 0
med. sprays	2 6	3 6
short "	1 0	1 6
—Sprengeri, per bun. long sprays	2 6	3 0
med. "	1 3	1 6
short "	0 9	1 0
Bouvardia, white, per doz. bun.	9 0	12 0
Camellias, 12's, box	3 6	4 0
Carnations, per doz. blooms	3 6	4 0
Chrysanthemum, per doz. blooms —white "	2 6	6 0
—yellow "	3 6	5 0
—bronze "	3 0	4 0
—pink "	3 0	4 0
spray, doz. bun.	12 0	24 0
—singles, disbudded blooms	3 0	5 0
—singles, sprays, per doz. bun.	15 0	18 0
Croton leaves, var., per bun.	2 0	2 6
Daffodils, single, per bun.	—	3 6
Gardenias, per box	—	—
Fern, French, per doz. bun.	1 0	1 3
Forget-me-not, per doz. bun.	0 0	12 0
French Flowers— —Acacia (Mimosa) per bun.	1 0	1 6
—Marguerite, yellow, per doz. bun.	3 0	3 6
—Narcissus Paper White, per doz. bun.	5 0	6 0
—Narcissus Soleil d'Or, per doz. bun.	3 0	3 6
—Ranunculus carmine, per doz. bunc.	8 0	9 0
French Flowers— —Ranunculus Romano, large red, per doz. bun.	18 0	24 0
—Violets, single per doz. bun.	3 0	4 0
—Violets, Parma, per bun.	5 6	6 0
Heather, white, per doz. bun.	9 0	12 0
Lilac, white, per doz. sprays	6 0	8 0
Lilium longiflorum long, per doz.	8 0	9 0
short " "	9 0	10 0
—speciosum album, long, per doz. blooms	4 6	5 6
—short " "	3 6	4 6
—rubrum long, per doz. blooms	5 0	6 0
—short, " "	2 6	3 0
Lily of the Valley, per doz. bun.	24 0	36 0
Orchids, per doz. —Cattleyas	18 0	24 0
—Cypripediums, per doz. blooms	4 0	6 0
Pelargonium, per doz. bunch, double scarlet	12 0	15 0
poinsettias, per doz. blooms	18 0	24 0
Richardias (Arums)— per doz. blooms	10 0	15 0
Roman Hyacinths, per doz. bun., 6's	15 0	18 0
Roses, doz. blooms— —Melody	6 0	10 0
—Ophelia	6 0	10 0
—Golden Ophelia	6 0	9 0
—Liberty	6 0	8 0
—Mme. Butterfly	8 0	10 0
—Mme. Abel Chatenay	5 0	6 0
—Niphetos	3 0	4 0
—Richmond	6 0	8 0
Smilax, per doz. trails	3 0	3 6
Violets, doz. bun.	4 0	7 0

REMARKS.—With the exception of one or two subjects, such as Daffodils, Pointsettias, and Roses, the general supplies were sufficient for all requirements, plenty of Chrysanthemums being left over when the Market closed on Saturday morning. Prices remained normal throughout the week. The scarcest subject was Lilium lancifolium rubrum; of L. longiflorum and Richardias (Arum) there were ample supplies. All foliage advanced slightly in price, but supplies were equal for all requirements. There was not much demand for Holly; Christmas trees appeared to be selling freely, especially the smaller trees. Mistleto advanced considerably in value towards the week end. Supplies of French flowers were sufficient for the requirements, and only Anemones, red Ranunculus, and Solanum berries were limited in quantity, and these advanced considerably in price. All Narcissi and single Violets, which arrived in good quantity, remained normal in price. Parma Violets were scarce, and consignments uncertain, 10s. and 12s. per bunch being realised for them during the later part of the week.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples— —Cox's Orange Pippin, ½ bus.	12 0	25 0
—Allington Pip	3 6	4 0
—Bismarck	8 0	10 0
—Bramley's Seedling, bus.	9 0	13 0
—Newton Wonder	8 0	10 0
—Oregon Newtown	11 0	12 0
—Californian	9 0	10 0
— Jonathan	10 6	12 0
Nova Scotian— —Baldwin	16 0	24 0
—Starks	16 0	24 0
—Fallawater	17 0	26 0
—Greenings	17 0	26 0
Bananas, singles	14 0	25 0
—doubles	15 0	25 0
Dates, Tunis, doz. cartons	5 0	6 6
Grapes— —Alicante	1 6	2 6
—Almeira, barrel	12 6	22 6
—Belgian	1 6	2 6
—Gros Colmar	1 6	4 0
—English Muscat	4 0	8 0
Grape Fruit— —Cuban	24 0	25 0
—Jamaica	20 0	25 0
Lemons— —Mandarines, box	—	—
—Messina, case	30 0	40 0
—Messina, box	—	12 0
—Murcia,	12 0	15 0
Nuts— —French Walnuts bags	—	13 0
—Brazil, cwt.	64 0	90 0
—Cobs	1 3	1 6
—Italian Chestnuts, bag	22 0	25 0
—Italian Walnuts, bag 50 kilos	50 0	65 0
Oranges— —Florida	27 6	28 6
—Mandarines, box	1 0	1 6
—Jamaica	12 6	13 0
—Spanish 300	15 0	24 0
— — 360	11 0	14 0
— — 504	8 0	14 0
Pears— —D'Anjou, cases	20 0	24 0
—Glou Morceau, ½ cases	10 0	10 6
Pines, each	1 6	4 0

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus, forced— French	9 0	11 0
English	4 0	10 0
Beans		
Guernsey, lb.	2 0	4 0
Madeira, Basket	3 6	5 0
Beets, cwt.	8 0	10 0
Cabbage, doz.	1 3	2 0
Carrots, cwt.	7 6	9 0
Cauliflower, doz.	2 6	5 0
" Italian	4 0	6 0
Chicory	0 8	0 9
Celery, fan	2 0	3 0
Celeriac	3 0	5 0
Cucumber, doz.	18 0	30 0
Green Artichokes, doz.	3 0	4 0
Lettuce, French— dozen	2 3	2 9
Endive, doz.	4 0	4 6
Mushrooms— —Forced, lb.	1 6	3 0
Mint, doz.	4 0	6 0
Mistleto	20 0	30 0
Onions, Valencian, case	13 0	15 0
Onions, English cwt.	10 6	12 6
—Dutch	8 6	9 0
Parsnips, cwt.	7 0	8 0
Potatos, King Edward, per ton	150 0	170 0
— Others	110 0	130 0
—Guernsey, lb.	0 4	0 6
—Forced	1 6	1 6
Savoys, doz.	2 0	2 6
Seakale, punnet	3 6	4 6
Spinach	3 0	3 6
Sprouts, bus.	5 0	8 0
—Bags	5 0	8 0
Tomatos— —English Pink New Crop	4 0	8 6
—Pink and White New Crop	4 0	8 6
Others	—	—
—Canary Island	16 6	20 0
Turnips, cwt.	4 6	6 0

REMARKS.—A steady trade has been done throughout the week and generally the demand has been satisfactory. Ample stocks of imported Apples, Oranges, and Grapes are on hand, not having been cleared by the Christmas demand. English Grapes have sold well, and values have kept at a satisfactory level throughout. Choice vegetables, such as forced Beans, Asparagus, and Peas have sold well at slightly higher prices. New Potatos were wanted earlier in the week, the most important consignments from Guernsey did not reach the market until Monday and were too late for the Christmas trade. Brussels Sprouts were in good demand throughout the week and finished at firm prices. The Potato trade has an improving tendency.

GARDENING APPOINTMENTS.

Mr. Andrew Taylor, previously Gardener to the late DOWAGER COUNTESS OF EGLINTON AND WINTON, at Skelmorlie Castle, Ayrshire, and JAMES COUCHIE, Esq., Castle Feddal, Braco, as Gardener to G. CRAIG SELLARS, Esq., Ardtornish, Morven, Argyllshire.

Mr. Albert A. Cavanagh, previously at KEW, as Under Steward to Sir ARTHUR P. VIVIAN, K.C.B., at Bosahan Farm, St. Martin, R.S.O., Cornwall. (Thanks for 2s. 6d. for R.G.O.F. Box.—EDS.)

CATALOGUES RECEIVED.

JOHN KNIGHT AND SON, Wolverhampton.—Seeds.

CLIBRANS, Altrincham.—Seeds.

Foreign.

AKERBOOM AND FOPMA, Boskoop, Holland.—Roses.

A. SCHWARTZ, 230, route de Vienne, Venissieux-les-Lyon, France.—Roses.

H. CORREVON, Floraire, Chene-Bourg, Geneva.—Plants

JOHN D. VANDERSCHOOT, Hillegom, Holland.—Bulbs Roses and Herbaceous Plants.

VILMORIN-ANDRIEUX AND CO., 4, Quai de la Megisserie, Paris.—Tree and shrub seeds.

Communications Received.—P. N., Sweden.—S. A.—Sir W. L.—W. G.—J. R.

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COLOURED PLATE: Begonia Haageana.

THE GARDENERS' CHRONICLE

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MALMAISONS.—Duchess of Westminster, Nell Gwynne, Iolanthe, Sault, Horace Hutchinson, 3/6 doz.; ALLWOODII: strong rooted cuttings, Harold, Jean, Dorothy, Phyllis, Rufus, Betty, Jean, Ruby, 18/- 100. Carriage free for cash with order. Sweet Pea List on application.—GEO. MORBEY, F.R.H.S., Preston Hall Nurseries, Aylesford, Kent.

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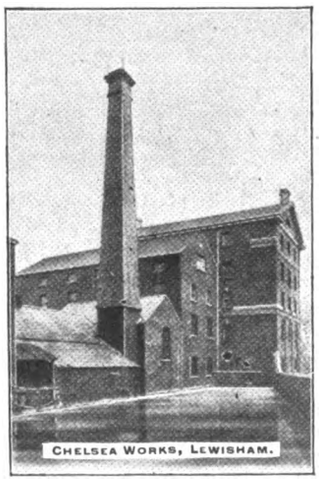

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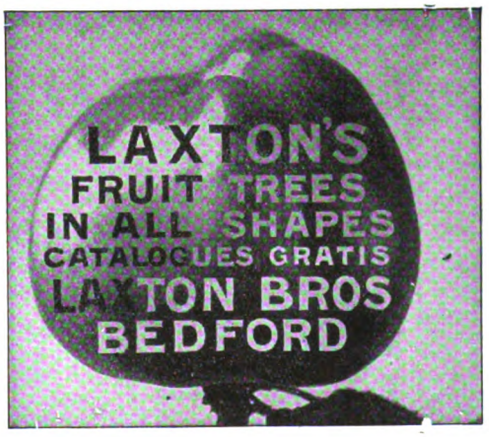

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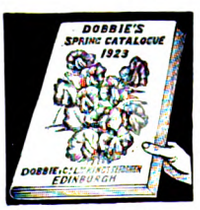

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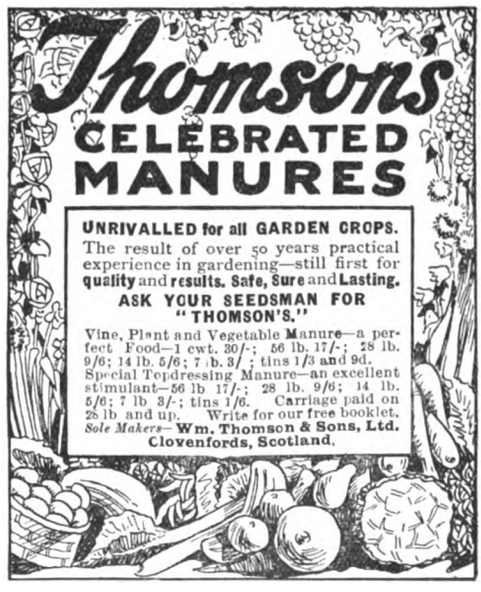

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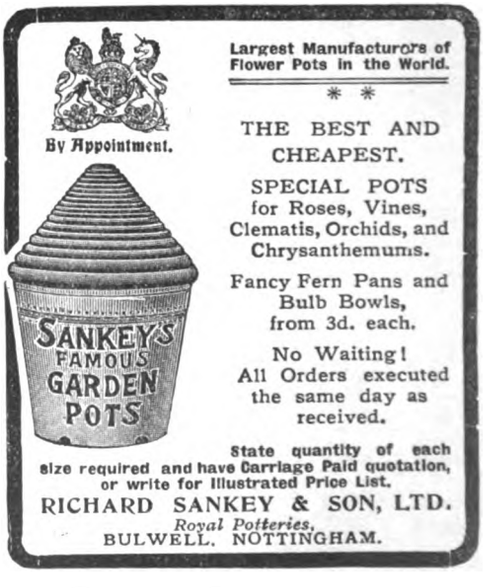

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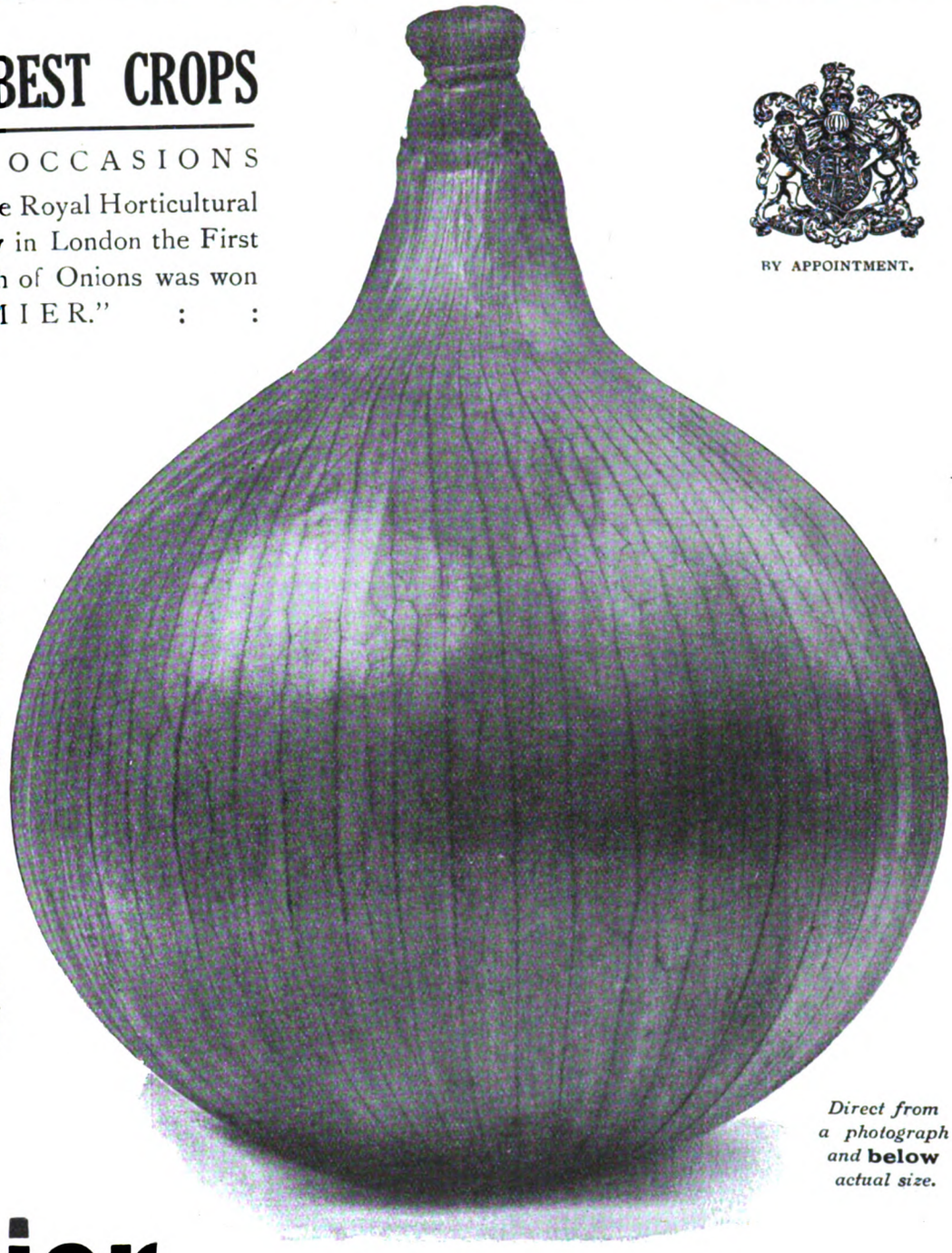

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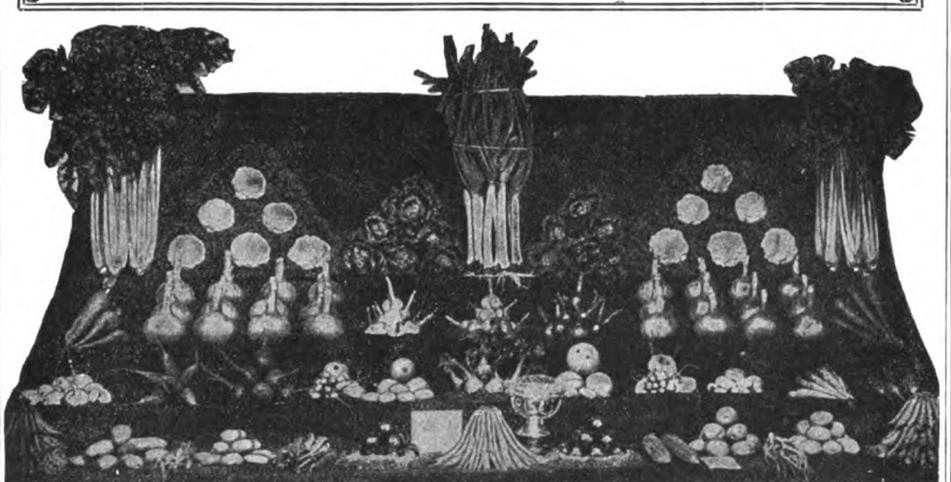

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—CHEAPEST, BEST, AND MOST ECONOMICAL.—

GUARANTEED ANALYSIS.

PHOSPHATES.			NITROGEN		POTASH	
Water Soluble	Citric Soluble	Insoluble	Nitrogen	Equal to Ammonia	Soluble Potash (K_2O)	Equal to Sulphate of Potash (K_2SO_4)
18%	4%	3%	4%	4·85%	5%	9·25%

THOMAS VICKERS & SONS, Ltd., Phosphate Works, WIDNES, LANCS. H Dept.

CHEAP GLASS

14×10	20×14
14×12	24×14
16×12	20×15
18×12	18×16
20×12	20×16
24×12	24×16
20×13	20×18
16×14	22×18
18×14	24×18

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21 oz. **FOREIGN,** these sizes, 200 feet boxes, delivered London.

21 oz. **BRITISH,** cut to buyer's sizes, delivered free and sound in the country in quantities.

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STOVE AND GREENHOUSE PLANTS OF ALL KINDS.

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Exotic Nurseries, CHELTENHAM.

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Special offer while stock lasts.

		per doz.
4 ft. long,	1 in. —1¼ in. diam. at butt	1/-
5 ft. ,,	1¼ in.—1½ in. ,, ...	1/6
6 ft. ,,	1¼ in.—1½ in. ,, ...	2/-
7 ft. ,,	1½ in.—1¾ in. ,, ...	2/6
8 ft. ,,	1½ in.—1¾ in. ,, ...	3/-

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FOR THE

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SUPPLIED BY

Carters TESTED SEEDS

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FLOWER SEEDS,
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FERTILISERS, WORMKILLER, Etc.

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Cooper's Winter Fluid

THE GREAT ORCHARD CLEANSER AND RE-INVIGORATOR.

Wm. COOPER & NEPHEWS, Ltd., Berkhamsted.

CLEAN, HEALTHY, VIGOROUS FRUIT TREES

Write for Pamphlet

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MARKETS.

COVENT GARDEN, Tuesday January 2, 1923.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples,—		
British Columbian		
—Jonathan .	7 0	9 0
—McIntosh Red...	8 0	9 0
—Wagner	7 0	8 0
Californian		
—Newtown Pip.	—	12 0
—Oregon ...	14 0	16 0
English, per bus.		
—Allington Pippin	2 6	5 0
—Blenheim Pippin bushel	5 0	7 0
—Bramley's Seedling ..	5 0	7 0
—Cox's Orange Pippin best ½ bushel ..	7 0	8 0
—ordinary ..	4 0	5 0
—Newton Wonder.	5 0	7 0
Nova Scotian,		
—Fallawater ...	16 0	20 0
—Nor'n Greening	16 0	20 0
—Russet	26 0	30 0
Apricots (Cape)	5 0	8 0
Bananas, singles	30 0	40 0
—doubles ..	30 0	40 0
Grapes		
—Alicante ..	1 9	2 0
spec.	2 6	3 6
Grapes,		
—Almeria, barrel	20 0	27 6
—Cannon Hall..	10 0	14 0
—Gros Colmar ..	1 6	4 6
—Muscat ..	10 0	12 0
Grape Fruit ...	22 0	25 0
Lemons		
—Messina boxes	14 0	15 0
,, cases	25 0	30 0
—Murcia ...	20 0	25 0
Nuts—Brazils ..	45 0	55 0
—Chestnuts bag	18 0	26 0
—Cob..	-	2½ 0 0
Oranges,		
—Denia ...	16 0	20 0
—Jamaica ...	—	17 6
—Mandarines ..	1 9	2 6
—Murcia	16 0	20 0
Peaches (Cape)..	10 0	15 0
Pears,		
—Doyenné du Comice, dozen	6 0	12 0
Californian ½ case	14 0	17 0
—Winter Nelis case..	22 0	24 0
Pineapples ..	20 0	25 0
Plums (Cape) ...	4 0	7 0
Tunis Dates, doz. cartons ...	5 0	5 6

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus, bundle		
—Special Devon	12 0	16 0
—Best Devon ..	6 0	7 0
—Sprue	1 6	2 0
—French ..	8 0	12 0
Beans,		
—Guernsey lb...	2 0	5 0
—Madeira basket	4 0	8 0
Cabbage, tally ..	2 0	3 0
Carrots, cwt. ..	3 0	3 6
Cauliflowers, doz.	2 0	4 0
Celery, roll ..	1 6	2 6
Cucumbers, doz.	18 0	30 0
Endive, doz.		
—English ...	2 0	2 6
—French ...	4 0	5 0
Lettuce, doz. ..	2 0	3 0
Mint, dozen ..	6 0	9 0
Mushrooms, lb.	2 0	3 0
Onions		
—Dutch, bag ..	3 6	4 0
—English, cwt.	5 0	6 0
—Valencia, case	7 0	10 0
Parsnips, cwt. ..	3 0	3 6
Peas, lb.	3 6	5 0
Potatos,		
—Guernsey, new, lb	1 3	1 6
Dunbar	£5	- -
—King Edward	£3 15	£4 10
—Others ..	£3 10	£4 10
Rhubarb, Forced, doz.	2 6	3 0
Savoys, tally ..	3 0	4 0
Seakale, lb. ...	1 0	1 3
Sprouts, bushel ½	1 3	1 9
Tomatos English		
—New crop, pink	8 0	9 0
—Pink and white	—	8 0
—Canary Islands	17 6	27 0
Turnips, cwt. ...	3 0	3 6

REMARKS.—Trade is very quiet in all departments. Apricots, Peaches and Plums from the Cape have arrived. The prices for Grapes have advanced considerably.

Plants in Pots, etc.; Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d.	s. d.
Adiantum cuneatum, per doz. ..	10 0	18 0
—elegans ..	10 0	12 0
Aralia Sieboldii	10 0	12 0
Araucarias ..	30 0	48 0
Asparagus plumosus ..	12 0	15 0
—Sprengeri ..	12 0	18 0
Aspidistra, green	48 0	72 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus ..	12 0	15 0
Azaleas, 48's per doz. ...	30 0	48 0
—60's	18 0	24 0
Cacti, per tray, 12's, 15's ..	5 0	6 0
Cinerarias, per doz. ..	12 0	15 0
Crotons, per doz.	30 0	42 0
Cyclamens, per doz. ..	24 0	30 0
Cyrtomium ...	10 0	15 0
Erica gracilis 48 per doz.	24 0	36 0
,, 60 ,,	12 0	15 0
,, Thumbs ,,	6 0	8 0
Erica hyemalis, 48's per doz....	24 0	36 0
Erica nivalis 48 ,,	24 0	30 0
,, 60 ,,	10 0	15 0
,, Thumbs ,,	6 0	8 0
Genistas 48's per doz.	15 0	18 0
Marguerites, per doz.	18 0	24 0
Nephrolepis, in variety ..	12 0	18 0
—32's	24 0	36 0
Palms, Kentia ..	24 0	30 0
—60's	15 0	18 0
—Cocos.. ..	24 0	36 0
Pteris, in variety	12 0	21 0
—large 60's ..	5 0	6 0
—small	4 0	4 6
—72's, per tray of 15's ..	3 6	4 0
Solanums, per doz.	10 0	12 0

CUT FLOWERS.

REMARKS.—With the exception of Roses there did not appear to be any particular shortage in this department for the New Year festivities. Disbudded Chrysanthemum blooms are still on sale in good condition; the principal sorts in white are Chestnut White and Pasckoucke. Coloured varieties begin to show signs of the end of the season. Of bunch blooms Heston White and Winter Cheer (pink), and Nagoya (yellow) are the best varieties. Daffodils, Hyacinths, Tulips and Freesias are daily increasing in numbers, and prices are falling. Small consignments of yellow and white Narcissi are arriving in good condition from the Channel Islands; also a few boxes of Blue Irises. The quantities of Richardias (Arums) and Lilium longiflorum have been sufficient to meet all requirements both for the Christmas and New Year trade, and their prices remained moderate. Increased supplies of flowers came to hand from across the water, but prices showed a tendency to rise on Friday and Saturday last. Scarlet Ranunculus and Anemones were much in demand, also Violets, Acacia (Mimosa), and Paper White Narcissus.

YORK STONE CRAZY PAVING

50/- per ton, 100 ft. lots or more.

GREY LIMESTONE AND RED SANDSTONE ROCKERY, **50/-** per ton.

Waterworn and Weathered WESTMORELAND LIMESTONE, also WALLING STONE, at **57/6** per ton.

Delivered Free in London within reasonable distance.

SPECIAL PRICES FOR TRUCKLOADS.

ROCKERIES FORMED AND PLANTED.

Closely trimmed BOX, BUSHES, PYRAMIDS, STANDARDS, CUBES, BALLS, **6/6** and **7/6** each.

Wm. BIGNELL & SON,
NURSERYMEN, HIGHGATE, N.6.
'Phone: Hornsey 2868.

LOAM

Rich yellow fibre fat and marly. No waste.
Carriage Paid quotations.
Wm. WOOD & SON, LTD.,
TAPLOW, BUCKS.

TO FLORISTS

Cut Asparagus Nanus Fern—Medium Size Fronds 1/6 per bch.
" " " " Large Spray ... 2/6 " "
" " " " Short Trails, per bch. of 6, 2/- " "
" " " " Long " " 3/6 " "
" " " Sprengeri Medium Size Bch. 1/6 " "
White, Scarlet, and Double Pink Tulips, cut or on bulbs, 2/- per doz.
All carriage paid. Cash with order.
H.S. HOLMESTED, Bretby Nurseries, Burton-on-Trent

WILLIS BROS.'
Garden Fertiliser

A Real Manure. Not a Substitute.
NO STABLE MANURE REQUIRED.
For digging in or as a top dressing. For Kitchen Garden and Herbaceous Borders. We are constantly receiving orders and testimonials from satisfied users both on heavy and light soils. 1 cwt. **17/6**; ½ cwt. **10/-**; 28 lb. **6/-**; per ton **£16 10s.** All carriage paid.

LAWN SAND AND DAISY KILLER.
This preparation will be found very effective for thickening the sward and encouraging the grasses; also destroys the daisies and other weeds and moss so troublesome on Lawns.
Per cwt. **27/6**; 56 lbs. **15/-**; 10 cwt. **£13 10s.** Carriage Paid.

WORM DESTROYER.
The most efficient preparation for destroying Worms on Lawns, etc. 1 cwt. **22/-**; 1 ton **£20.**
DIRECTIONS FOR USE.
Use at the rate of half-pound to square yard, and thoroughly water in. The worms will be found to come rapidly to the surface and soon die.

LIQUID WORM DESTROYER. (Poison).
7/6 per pint. 1 pint makes 80 gals.

WILLIS BROS.' WINTER WASH FOR FRUIT TREES.
This is prepared from the receipt of a celebrated Canadian Apple Grower, who is noted for his clean fruit and orchards.
1 gallon **10/-**; 5 gallons **45/-**. Cans included. Carriage paid. Kills mussel scale and American Blight.

HESSIAN MATS (New).
9 ft. by 4 ft. 6 in., **3/-** each; **35/-** doz.

DRESSED CANVAS COVERS.
For covering Frames, Violet Pits, etc. Fitted with Eyelets and Cords Complete, and made to any size. Prices on application.

BONE MEALS, SUPERPHOSPHATE, NITRATE OF SODA, SULPHATE OF AMMONIA, KAINIT, SULPHATE OF POTASH, BASIC SLAG, etc., supplied.

Send for our list of Garden Manures and Horticultural Sundries. Free on application.
WILLIS Bros. *Horticultural Manure and Garden Sundries.*
(HARPENDEN) Ltd. HARPENDEN, HERTS.

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Over 100 Acres.

CHEALS' Ornamental Trees and Shrubs in great variety, Climbers, Forest Trees and
CHEALS' Roses in all sections.
CHEALS' Fruit Trees, Hardy, Healthy, true to name.
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CHEALS' Dahlias a speciality.
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Catalogues of each department free.

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Illustrated Pamphlet Free.

J. CHEAL & SONS, LTD.,
The Nurseries, Crawley.

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The Pots that Drain
PETER BAILEY & SONS, Ltd.
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Fruit Trees, Roses, Vines, Figs, Oranges, & Orchard-House Trees *are of First-class Quality.*

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Nurserymen,
NANCY, FRANCE.
NEW AND RARE PLANTS A SPECIALITY
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The best gift-book for the gardener.
A collection of poetic and literary quotations on gardens and gardening, for every day in the year.
With six beautiful coloured illustrations.
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"Le Fruitier."

THE WORLD'S BEST MANURE.
First at Shrewsbury this year.
Prices: 1 cwt. 30/-; ½ cwt. 16/6; 28 lb. 9/-; 14 lb. 5'-.

Taplow Garden Mats

No Archangels this season! Taplows are equal in weight, superior in frost resistance, wear longer, and are nearly as cheap as Archangels
Made in four sizes, 6 x 4 35/- per doz. Carriage Paid.

Caustic Alkali

The Original Winter Wash.
Tested and accepted by the World's Fruit Growing Centres as the best.
40 tins, **47/6**; 20 tins, **24/-**; 10 tins, **12/6**; 5 tins, **6/6.**
New 1923 Catalogue Gratis.

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Dwarf Roses For Sale.

British Queen, Caroline Testout, Eugene Fürst, Frau Karl Druschki, Gloire de Dijon, General McArthur, George Dickson, Hugh Dickson, La France, Lady Ashtown, Lady Hillingdon, Mrs. W. J. Grant, Mrs. Chas. E. Shea, Mrs. John Laing, Madame Abel Chatenay Madame E. Herriot, Pharisaer, Richmond, Ulrich Brunner at 7/6 per doz. 50/- per 100.

Climbing Roses.

Aglaia, American Pillar, Blush Rambler, Crimson Rambler, Dorothy Perkins, Excelsa, Evangeline, Hiawatha, Jersey Beauty, Joseph Lamey, Minnehaha, Mrs. F. W. Flight, Madame Alfred Carrière, Paradise, Rubin, Tausendschon, Zéphirine Drouhin at 9/- per doz. 65/- per 100, C. W. O.

Apply: **J. LEMON, Brox Nursery,**
Ottershaw, Chertsey, Surrey.

BENTLEY'S Concentrated Alkali

(Winter Wash).

A highly effective and most popular Winter Wash for Fruit and Forest Trees of every kind.

In tins sufficient to make 22 gallons of Wash.

1 to 5 tins **3/-** each; 8 tins **2/10** each; 12 tins **2/8** each; 20 tins **2/6** each; 40 tins **2/4** each.

Carriage paid on orders of 15/- and upwards to any station in Great Britain.

Bentley's Weed Destroyers.
Bentley's Fertilisers.
Bentley's Insecticides.
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Sole Manufacturers:—
JOSEPH BENTLEY Ltd.
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EVERY PACKET OF

FOGWILLS BEST RESULT SEEDS

IS BACKED BY OUR REPUTATION OF SEVENTY YEARS' TRADING.

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POST FREE 10/6.
Other Collections at 3/6, 5/6, 15/6, 21/-.
Beautiful Art Catalogue, Guide to Garden Success and Particulars of Free Seeds, Post Free.
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Can now supply truck loads,
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Recommended for general use in Country Houses
SPECIAL FURNACE COKE
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Low quotations given for all qualities of Coal & Anthracite.

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PURE CULTURE METHOD

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able to supply large or small quantities of plants having the robust constitution unobtainable in the Orchids imported from the Tropics.

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An Opportunity While They Last

These are all absolutely first class bush Apple trees.

Cox's Orange
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Newton Wonder
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Ellison's Orange
} **7/6 each.**

Also Doyenne du Comice and Fertility Pears (Cordons.)

These trees are about 10 years old and some have been moved recently, we moved a quantity last December and had a good crop on last Autumn. They are in a very fine condition for moving and we believe are unprocurable anywhere else at the price. Advise ordering early to—

Excts. of T. PAGE,
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ALVESCO
WHITE FLY FUMIGANT.

WINTER WASH Cleans and Improves your Trees.
TREPAR Keeps Rabbits from Barking Trees.
LIME SULPHUR Ensures Clean Fruit and Trees.

MURPHY & SON LIMITED
SHEEN LANE, MORTLAKE, S.W.14

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WANTED at once, KNIFESMAN; thoroughly experienced in budding, grafting, pruning, and general plantation work; also GREENHOUSE JOURNEYMAN (single men only need apply).—Applications, giving full particulars of experience, age, and wages expected, to SECRETARY, University of Bristol Research Station, Long Ashton, Bristol.

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WANTED, HEAD GARDENER; first-class knowledge, Inside and Out; man and boy kept; cottage accommodation; small family.—Write, giving experience, references, wages required, MRS. FORT, Kingstanding, Burton-on-Trent.

WANTED, HEAD GARDENER for good gardens, with thorough knowledge of Inside and Outside gardening; essentially a hard worker and capable organiser; preference given to one who has had experience in marketing, as gardens are now run with smaller staff and surplus produce sold; good house, etc, provided.—Apply, with full particulars, stating age, experience, wages expected, and with copies of testimonials, to COL. W. M PRYOR, Tannock Manor, Weston, near Stevenage, Herts.

WANTED, HEAD WORKING GARDENER (3 kept), thoroughly experienced and trustworthy; age not under 40.—Write particulars and wages expected, with cottage and garden produce, to M. M., Box 9, 5, Tavistock Street, Covent Garden, W.C.2.

WANTED, HEAD WORKING GARDENER (Kent) (six kept), to take charge of fine old garden, which has been neglected, to work up and develop for market purposes; married; age 35 to 45; must have thorough knowledge of Inside and Outside work, also hard worker and capable organiser, able to market produce and keep accurate accounts; must be strictly honest, sober, obliging and trustworthy; good house, coals and vegetables free.—Please reply, giving experience, wages required and when free to LEWIS SMITH, Cadland Park Gardens, Southampton.

WANTED, HEAD WORKING GARDENER, Leicestershire (two under), married, age about 35, experienced Inside and Out, hard worker and good organiser, strictly honest, sober, and obliging; good house, coals, and vegetables. State experience and wages required and when free.—LEWIS SMITH, Cadland Park Gardens, Southampton.

EXPERIENCED SINGLE-HANDED GARDENER wanted immediately; cottage; middle-aged man; no children.—State wages and references, MURPHY, Hatfield Grange, Harlow, Essex.

WANTED, MAN for Pleasure Grounds, used to pony lawn mower and look after fowls and able to take turn at duty, for which 6/- is paid.—Apply, stating wages expected, with bothy, to HEAD GARDENER, Stamford Hall, Loughborough.

WANTED at once, FOREMAN under Head Gardener, for Pleasure Grounds, West Country; good cottage provided.—Send details of experience and copies of testimonials, with wages required, to E. N., Box 20, 5, Tavistock Street, Covent Garden, W.C.2.

A THOROUGHLY experienced FOREMAN for Kitchen Garden required for Cambridgeshire; must understand the growing of every vegetable.—Apply, with particulars of experience, stating wages required, with cottage. No original testimonials to be enclosed.—B. T., Box 19, 5, Tavistock Street, Covent Garden, W.C.2.

FOREMAN (INSIDE) wanted for the Fruit and Plant Houses; must be a good decorator; wages 35s. per week; duty once a fortnight; 3s. extra duty money.—Apply, G. MOORE, The Gardens, Berwick House, Shrewsbury

FOREMAN (INSIDE).—Keen, smart young man, with thorough knowledge of Fruit, Plants, Carnations and Decorating; good FIRST JOURNEYMAN might suit; 42s. per week, bothy, milk, vegetables and attendance; comfortable place to a good man.—Full particulars to Mr. J. E. PALMER, Tilstone Lodge Gardens, Tarporley, Cheshire.

WANTED, smart JOURNEYMAN (INSIDE). Full particulars as to experience, wages required (duty extra), with bothy, etc.—J. S. HIGGINS, Glynllivon Gardens, Llanwnda, Carnarvonshire, N. Wales.

WANTED, JOURNEYMAN (OUTSIDE); able to take duty every third week, paid extra.—Age and wages (with bothy), and full particulars to CH. BROOKES, Burnham Grove Gardens, Burnham, Maidenhead.

WANTED, JOURNEYMAN (INSIDE): 37s. 6d.; also one Kitchen Garden, 32s. 6d.; bothy; duty paid.—References to G. A. FUNNELL, Brambletye, E. Grinstead.

WANTED, JOURNEYMAN; age about 24; experienced Cucumbers, Melons, Grapes, thinning, etc; wages 34s. per week, bothy, vegetables; Sunday duty, 7s. extra.—C. EARL, Somerhill Gardens Tonbridge, Kent.

TRADE.

WANTED, MANAGER for old-established West of England Nursery; must be a live man, of strong character, a good organiser and well versed in all branches of the Nursery trade, Roses and Fruit Trees essential.—Full particulars of experience and salary required to NURSERYMAN, Box 10, 5, Tavistock Street, Covent Garden, W.C.2.

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WANTED, first-class PROPAGATOR for Clematis and Hard Wood Department, used to raising large quantities.—Apply by letter, J. PIPER & SON, Nurserymen, Bishops Road, Bayswater.

WANTED, FOREMAN (WORKING) to take entire charge of Trees, Shrubs, Roses, etc.; must be good budder and grafter, and well used to propagating perennial stuff, etc., be capable of executing orders and serving customers.—State salary required (no house) to A. E. TURNER, Vine Nursery, Sevenoaks, Kent.

REQUIRED, a first-class MAN well up in Chrysanthemums for market, also Spring Stocks; permanent position; must have held similar position previously.—Apply to MARKET, Box 6, 5, Tavistock Street, Covent Garden, W.C.2.

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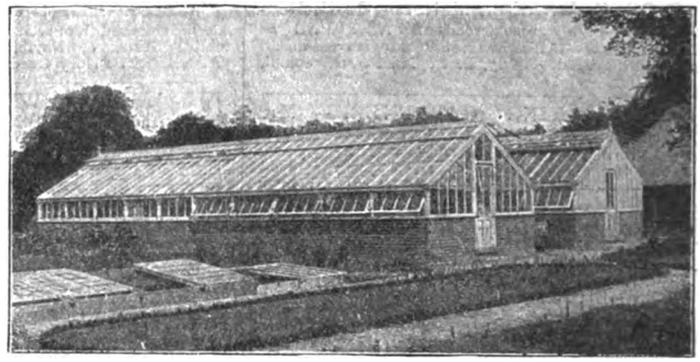

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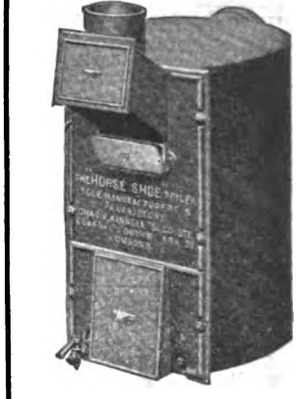

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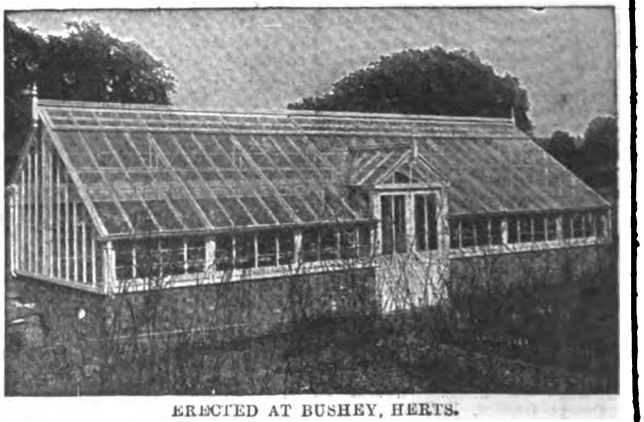

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THE GARDENERS' CHRONICLE

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At 11 o'clock.

Quantities of Hyacinths, Narcissus, early and late-flowering Tulips, Crocus, English and Spanish Iris, Snowdrops, etc., etc.

At 1 o'clock.

Consignments of English and Dutch ROSES, including many new varieties, FRUIT TREES, Azaleas and Rhododendrons. Herbaceous and Rock Plants. Ornamental Trees and Flowering Shrubs.

At 3.30 o'clock.

100 CASES OF DUTCH BULBS,
LILY OF THE VALLEY, SPIRÆAS,
Hardy Lilies, Dielytras, Deutzias, &c.

At 5.0 o'clock.

BAY TREES, PALMS, ASPIDISTRAS, MYRTLES, AZALEAS, etc., from Belgium.

MESSRS. PROTHEROE & MORRIS will sell the above by auction at their
CENTRAL SALE ROOMS,
67 & 68, CHEAPSIDE, LONDON, E.C.2.
on Wednesday next, January 2nd
Catalogues on application.

PROPERTY TO LET.

HATCHFORD PARK KITCHEN GARDENS, COBHAM, SURREY

TO BE LET, as from Christmas, 1923, on yearly tenancy or on lease for 3 or 5 years, the above Gardens, with 2 cottages, bothy for 3 men, usual glasshouses; the whole comprising an area of five acres.—Particulars and order to view of LOFTS & WARNER, 130, Mount Street, London, W.1.

PARTNERSHIPS, FINANCIAL, &c.

SITUATION required as MANAGER or WORKING PARTNER in up-to-date Nursery, Seed and Florist Business by advertiser with life experience of the trade, inside and out, office work, etc. Could invest small capital in really sound concern. Write full particulars—S. DEES, Box 51, 5, Tavistock Street, Covent Garden, London, W.C. 2.

NOTICE.

FRENCH RIVIERA. Flower Growers desire to enter into relations with Firms able to effect sales of regular sendings. Write giving full particulars to A. E. P., Box 52, 5, Tavistock Street, Covent Garden, London, W.C. 2.

PLANTS, &c., FOR SALE.

ELLISON'S PEDIGREE SEEDS cost no more to grow than ordinary strains. Prices most reasonable, Government Germination Guaranteed, therefore grow ELLISON'S PEDIGREE SEEDS. When doing so you are buying from a firm Established 1890. Regular Exhibitor at the principal shows, 46 Gold medals awarded. 64 page Catalogue free. Seeds, Bulbs, Roses, Fruits, Fertilisers, Shallots 6d. lb. G. & A. Fertiliser 5/- cwt. Broad Leaf Privet 15 inch. 12/- 100. Scotch Seed Potatoes 11/- cwt. Sweet Peas, exceptional value.—ELLISON'S, Seedsman, West Bromwich.

NEPHROLEPIS BASKETS; fine lot now ready, fully developed and well finished, 15/- and 25/- each; English grown.—Apply, COLE PARK NURSERIES, Mogdon Lane, Isleworth.

SALE'S TRANSPLANTED PYRAMID APPLES.—Large fruiting trees Cox's Orange Pippin, etc. Catalogue of Fruit Trees, Roses, Hedging Plants, Bulbs, etc., post free.—SALE & SON, Nurserymen, Wokingham.

FERNS! FERNS!!—Tree, Basket, Climbing, Stove, Greenhouse and Garden Ferns, Palms, Crotons, Dracaenas, Begonias, Gloxinias, Hydrangeas, Geraniums, Ericas, Lilies. The New Book on Ferns 3/6 post free. Catalogues free.—SMITH, London Fern Nurseries, London, S.W.9.

100,000 LARGE GARDEN FERNS, 30/- 100, variety; wanted, 1000 large Aspidistras, for dividing. Catalogues free.—SMITH, Fernery, London, S.W.9.

PALMS for exhibition at Wembley.—Magnificent collection from 5 to 25 ft. in height, some quite exceptional specimens; English grown.—Apply ROBERT GREEN (1911), LTD., 28, Crawford Street, Baker Street, London, W.

BAY TREES, established, in tubs, magnificent selection; Pyramids and Standards for sale, in all sizes; sizes and prices on application.—ROBERT GREEN (1911), LTD., 28, Crawford Street, London, W.1.

PERENNIALS and Herbaceous Plants.—100 choice named plants in 50 varieties, 2 of each, for 35/-; 50 ditto, ditto, 25 varieties, 20/-. Also Trees, Shrubs, Evergreens, Greenhouse Plants, etc. Full list free.—MORLE & CO., LTD., 150-156, Finchley Road, N.W.

PLANTS for forcing, mostly grown in pots, full of buds, Azaleas, Lilacs, Almonds, Cherries, Deutzias, Hydrangeas, Kalmias, Liliums, and L. Valley, Magnolias, Laburnums, Wistarias and many others. Full list free.—MORLE & CO., LTD., as above.

PRIMULA obconica sanguinea grandiflora, finest strains, bushy plants in 60's 6/-, 48's 9/-, doz. all in bud.—MORLE & CO., LTD. as above.

VEGETABLE and FLOWER SEEDS; our very select list of the best varieties only, now ready, sent with pleasure to any address.—MORLE & CO., LTD. as above.

LAVENDER, Old English and Dwarf Blue, 21/- per 100, carriage paid; sample doz. 4/-, satisfaction guaranteed.—CHILVERS, Hunstanton.

RARE PRIMULA & ALPINE SEEDS, from very large collection, sold cheap. List free.—Rev. J. F. ANDERSON, Glenn Hall, Leicester.

RHODODENDRON AURICULATUM and other rare species and hybrids. List on application.—E. J. P. MAGOR, Lamellen, St. Tudy, Cornwall.

MISCELLANEOUS.

IRON AND WIRE FENCING for Gardens, Tree Guards, Gates, Arches, Espaliers, Rose Stakes, and Ornamental Garden Iron and Wire Work of every description; send for illustrated catalogue. Also Kennel Railing and Poultry Fencing. Ask for separate lists.—BOULTON & PAUL, LTD., Norwich.

SEWAGE DISPOSAL for country houses factories, farms, etc.; no emptying of cesspools; no solids; no open filter beds; everything underground and automatic; a perfect fertiliser obtainable.—WILLIAM BEATTIE, 9, Lower Grosvenor Place, Westminster.

BIRDS' BATHS, Sundials, Vases, Statuary, Birds' Nesting Boxes, etc.—Catalogue (No. 3) free.—MOORTON, 60, Buckingham Palace Road, S.W.1.

STONE PAVING.—Crazy and Rectangular York Garden Paving, Copings, Steps, etc., Grit and other Rocks for Rock Gardens; Flat Stone Rubble for "Dry" Walls. Nottingham Marl. Large or small quantities carriage paid to any Railway Station in England.—HODSON & SONS, LTD., Castlegate, Nottingham.

SELECTED GREY WESTMORLAND Weathered and Waterworn Mountain Limestone Rockery. The finest Rockery Stone; also York Stone Garden Paving.—HERBERT BROOK, 40, Valley Road, Streatham, S.W.16. and Lightcliffe, Yorkshire.

PEAT for Orchids, 10/- sack; Peat Mould 25/- ton; 4 ton lots. Loam and Leaf Mould 12/- yard; 6 yard lots. Silver Sand 3/- cwt., 15/- ton; 2 and 4 ton lots. C. N. Fibre 3/- bag; list free; on Rail or C. P. & Co.—J. HANDSCOMBE, Stores, Feltham.

PEAT MOULD for Rhododendron and Nursery work, 5/- bag, 52/- ton, in truckloads, on rail.—WALKER, Pinewoods, Camberley.

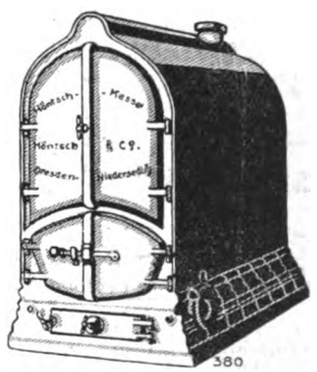
LOAM, Peat, very fibrous; a large heap of well-rotted turf; excellent for glass houses; potting and all garden purposes; in large or small quantities.—FROGLEY & SONS, Hoddesdon, Herts.

BEAUTIFUL pure OAK LEAF MOULD splendid Surrey Loam, coarse Sand, Peat or Bulb Fibre; trial bags 3/- each; really good.—MISS HERBERT, Soil Specialist, Holly Lodge, Romford.

SELECTED CUMBERLAND TURF, finest in the world; waterworn Limestone Rockery; all descriptions Stone and Flags for Crazy Paving.—KERSHAWS, LIMITED, Garden Makers for 50 years, Keighley.

ANTHRACITE FOR GREENHOUSES.—SemAnthracite, Large (registered), Smokeless, 25/6 per ton at pit; Horticultural Semi Anthracite, 22/6 ton, pit; SemAnthracite Cobbles, 33/6 ton, pit; recommended by the National Radiator Company. Gas, Furnace, and Foundry Coke from 30/-, works. Delivered prices any station on application.—BUCKLE COLLIERY CO., 59, Hales Cheltenham.

FOR SALE, Atco Motor Mowing Machine, 24-inch, good running order; two-and-a-half season's work; owner getting larger machine. What offers?—Address, Mr. JENKINS, Kingston Maurward, Dorchester, Dorset.



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The most economical Boiler for heating Greenhouses. Suitable for any class of fuel.

HÖNTSCH & Co.
DRESDEN-NIEDERSEDLITZ, GERMANY.

Representatives wanted in all places.

CLIMBING PLANTS.

By W. WATSON.

THIS volume, one of the best in the ever-popular "Present Day Gardening" series, is now again available, after having been out of print for some time. The price is 5s., or 5s. 6d. post free, and the volume, with its eight lovely coloured plates and many other illustrations, would make an ideal gift to anyone interested in gardening.

To be obtained from:—
GARDENERS' CHRONICLE, Ltd.
5, Tavistock Street, Covent Garden, London, W.C.2.

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IMPORTANT SALE NOTICE

CLAYTON, ACCRINGTON, LANCASHIRE

The St. Mary's Collection

OF

CHOICE and VALUABLE ORCHIDS

Now being sold on the premises per Catalogue and Private Treaty. As this collection **must be cleared by December 31st** the owner will dispose of the Unsold Plants at greatly reduced prices. Specially generous terms will be given to large purchasers.

THERE ARE

Hundreds of Choice and Splendidly Grown

Cypripediums in Bud and Flower now

To anyone desiring to have fine Plants in Bloom for Christmas-time, this is an exceptional opportunity. Inspection invited.

Full Particulars and Revised Catalogues sent at once on application.

A. J. KEELING & SONS, Westgate Hill, BRADFORD

Messrs. JOHNSON & HEWITT

Horticultural Auctioneers and Valuers,

Wandsworth Common Station, S.W. 12 and Sunbury-on-Thames.

Telephones - Battersea 1022 and Sunbury 26.

Auction Sales conducted of Nursery Stock, and Valuations made.

CYCLAMEN. **Giant White, Giant Salmon, Crimson, Salmon Scarlet** (the new colour in Cyclamen) and **Choicest Mixed.** Fine, strong, vigorous, transplanted plants, August sown, ready for 3-in. pots, 2/6 doz., 15/- 100. One of the finest strains in the country.

H. H. MAW & SON, Friarwood Nurseries. Pontefract.

The Gardeners' Chronicle

Scale of Charges for Advertisements.

Advertisements intended for insertion in the next issue MUST reach THE PUBLISHER not later than

TUESDAY, 5 p.m.

	Ordinary positions.	Facing matter or back cover.
Page	£12 0 0	£15 0 0
½-Page	6 0 0	7 10 0
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First **3** lines (not exceeding **20** words), **2/-**, and **6d.** for every aditional **3** words or portion thereof.

(Advertisements at this Special Rate are only accepted direct from Gardeners, etc.).

(Payable in advance.)

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On front page advertisements no discounts are allowed. On a series of other advertisements, if ordered in advance, they are allowed as follows :—

For three insertions, 5%; thirteen, 10%; twenty-six, 15%; fifty-two, 20%.

All series must be arranged to attain completion within twelve months.

Advertisers may have replies to their advertise ments addressed to the GARDENERS' CHRONICLE Office.

A fee of 1s. is charged for this service, and initials, Box number and our own address must also be included in the number of words paid for.

Cheques and Postal Orders are to be made payable to GARDENERS' CHRONICLE, LTD., and crossed "& Co."

5, Tavistock Street, Covent Garden, W.C. 2.

Telegrams: "Gardchron, Rand, London." Telephone: Gerrard 1543.

Books for New Year Presents.

SPRING FLOWERS AT BELVOIR CASTLE. By W. H. Divers. The art of Spring Bedding, as employed in the famous gardens at Grantham. 5/6

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ENCYCLOPÆDIA OF GARDENING. By T. W. Sanders. A veritable vade-mecum for the gardener, whether professional or amateur. 6/6

POPULAR HARDY PERENNIALS. By T. W. Sanders. Beautifully illustrated; the very book for a valued present. 8/-

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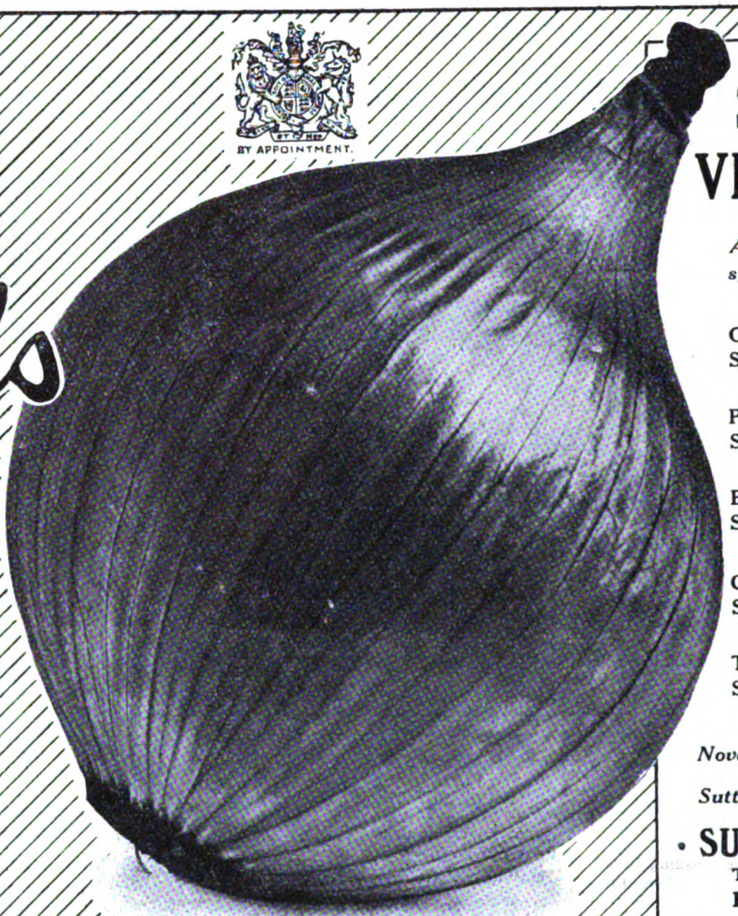
BY APPOINTMENT.

FOR very many years "Sutton's" have been famed for the superior character of their strains of Vegetable Seeds, and the result of years of unremitting labour in cross-breeding and selection has never been more apparent than in the stocks now offered.

The high quality of "Sutton's Seeds" has been proved conclusively on the exhibition stage at all the leading shows of the country, and our GOLD MEDAL DISPLAY, and the wonderful Collection of Vegetables staged by our valued Customer The Hon. Vicary Gibbs (Head Gardener, Mr. E. Beckett) which was awarded the CORONATION CUP and GOLD MEDAL at the Royal Horticultural Society's Autumn Show, 1923, will be remembered by all visitors.



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A few of our leading specialities for the Table and Exhibition Stage.

ONION,
Sutton's Selected Ailsa Craig
per packet 2/6 and 3/6

PEA,
Sutton's Early Giant
per pint 2/3, quart 4/3

BEET,
Sutton's Globe
per packet 1/-, ounce 1/6

CUCUMBER,
Sutton's Everyday
per packet 2/6 and 3/6

TOMATO,
Sutton's Best of All
per packet 1/9, 2/6 and 3/6

Novelties for 1924 see Sutton's Garden Seed Catalogue

SUTTON & SONS
The King's Seedsmen
READING.

Webbs' Exhibit at the R.H.S. Chelsea Show, 1923. Awarded a Large Silver Cup.

WEBB & SONS, Ltd., The King's Seedsmen, STOURBRIDGE

WEBBS' MANURE WORKS, SALTNEY, CHESTER (6 acres in extent).

140 GOLD MEDALS and SILVER CUPS
awarded to
WEBBS' VEGETABLES and FLOWERS
in 8 years.

BY APPOINTMENT
Webbs' SEEDS

... send for ...
WEBBS' ILLUSTRATED CATALOGUE FOR 1924.
POST FREE ON REQUEST.

Contains particulars of the Finest strains of Vegetables and Flowers, also Potatoes, Lawn Seeds, Lawn Sand, Special Fertilisers for all Crops, etc., etc.

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NEW
Knapsack Sprayers
Less than Half Price

An Exceptional Opportunity

A good sprayer is absolutely essential in every garden. During the war we supplied a considerable number of our well-known Four Oaks Knapsack Sprayers—Rubber diaphragm type — to the Government, and we have just repurchased a small quantity back again **which have never been used.** They are made of copper, but painted service grey colour. They possess various special additions to the ordinary machines, and the price to-day would be £5 each machine.

We guarantee them to be in perfect working order as new. We will send one machine carefully packed and carriage paid for 50s. Cash with order, or two machines for 90s., but cash must accompany all orders.

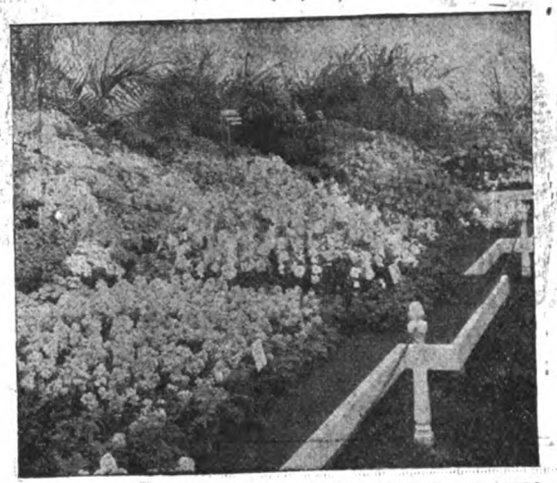
Please mention this paper.

The Four Oaks Spraying Machine Co.,
Four Oaks Works, Sutton Coldfield, BIRMINGHAM.
Telegrams: "Sprayers, Four Oaks."

CARTERS TESTED SEEDS

LET Carters TESTED SEEDS SUPPLY ALL YOU NEED FOR THE

GARDEN AND LAWN.



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ILLUSTRATED CATALOGUE
POST FREE ON APPLICATION.

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RAYNES PARK, LONDON, S.W., 20.
Branches:- { 237 & 238, HIGH HOLBORN. W.C. 1.
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Carters TESTED Seeds
REGISTERED TRADE MARK

PARSONS. OXFORD RD. READING.

CONSERVATORIES, GREENHOUSES, PITS, HEATING APPARATUS.

THE CLEANER THE TREES THE BETTER THE FRUIT
NOW is the time to spray the Orchard with
COOPER'S WINTER (V1) FLUID
1 pt. 2/3 Qt. 3/3 1 gall. 9/6 5 gall. 38/6
WILLIAM COOPER & NEPHEWS LTD., BERKHAMSTED

Please Obtain from Your Seedsman or Nurseryman

Beware of Imitations. Shad Thames, London, S.E.1

ONLY MEDAL INTERNATIONAL EXHIBITION EDINBURGH - 1886
ONLY GOLD MEDAL EDINBURGH - 1891

THOMSON'S CELEBRATED MANURES

Unrivalled for all Garden Crops.
Prices:—Vine, Plant and Vegetable Manure, 1 cwt. 30/- 56-lbs. 16/-; 28-lbs. 9/-; 14-lbs. 5/-; 7-lbs. 3/-; Tins, 1/3 and 9d.
Special Topdressing Manure:- 56-lbs. 17/-; 28-lbs. 9/6; 14-lbs. 5/6; 7-lbs. 3/-; Tins, 1/6. Carriage paid on 28-lbs. and up.
Sold by all Seedsmen,
SOLE MAKERS:
Wm. Thomson & Sons, Ltd., Clovenfords, Scotland.

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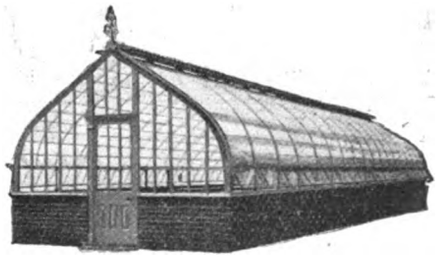
From 15/- dozen.
ALL GUARANTEED
BRITISH GROWN.
New Catalogue. Post Free.
FRANK CANT & CO.,
Bairswick Rose Grounds,
COLCHESTER.

"WIRE TENSION" GREENHOUSES

IRON FRAME FLAT GLASS
NO ROOF PAINTING NO PUTTY
PHOSPHOR BRONZE CLIPS
WOOD LATH BLINDS



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GREENHOUSE & HEATING SPECIALISTS,
BRISTOL

ORCHIDS.

Clean, well-grown and cheap; also Many Rare and Choice Varieties.
STOVE AND GREENHOUSE PLANTS OF ALL KINDS
Kindly send for Catalogue.
JAMES CYPHER & SONS,
Exotic Nurseries, CHELTENHAM.

YOUR GARDEN —A BIRD SANCTUARY.

PROVIDE the Birds with lodgings and they will board themselves off your garden pests and give you constant entertainment with their pretty ways. They like a Bath (it need not be h. and c.)
Catalogue (No. 3a) of Nesting Boxes, Feeding Tables and Baths for Wild Birds: also Sundials, Vases and all Garden Ornaments, post free.
ARTHUR H. MOORTON LTD.
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By Appointment

THE BEST AND CHEAPEST.

SPECIAL POTS for Roses, Vines, Clematis, Orchids, and Chrysanthemums.

Fancy Fern Pans and Bulb Bowls, from 3d. each.

No Waiting! All Orders executed the same day as received.

State quantity of each size required and have Carriage Paid quotation, or write for Illustrated Price List.

RICHARD SANKEY & SON, LTD.
Royal Potteries,
BULWELL, NOTTINGHAM.

McDOUGALL'S
INSECTICIDE
"FUMERS"
FOR GREENHOUSE FUMIGATION.

FOR 1000 CUBIC FEET 1/6 EACH.

SOLD BY SEEDSMEN, IRONMONGERS, ETC., OR DIRECT FROM McDOUGALL AND ROBERTSON, LTD., 66/68, PORT STREET, MANCHESTER

FOR 2000 CUBIC FEET 2/6 EACH.

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CURRANTS ON WALLS.

Dr. Johnson, while appreciating Mrs. Thrale's Peaches, was a great lover of Red Currants.

As grown on walls they attain a size and flavour which makes them a dessert fruit,

We have good Fan Trained Trees of Fay's Prolific, Prince Albert (very late), Scotch Red, Raby Castle, Skinners' Early and Utrecht at 3/6 each; larger trees 5/- each.

Planting can be done now when weather is open.

GEO. BUNYARD & Co., LTD.,
The Royal Nurseries,
MAIDSTONE.

ENGLISH GROWN

We have large stocks of

HERBACEOUS AND ALPINE PLANTS

All strong well-grown stuff including Novelties

Send for List.

W. WELLS, Junr.
: *Hardy Plant Nurseries* :
MERSTHAM, Surrey.

RIVERS'

FRUIT TREES, ROSES, VINES, FIGS, ORANGES AND ORCHARD-HOUSE TREES

are of first-class quality.

A LARGE AND SELECT STOCK ALWAYS ON VIEW.

Price List post free on application.

Thomas Rivers & Son Ltd.,
SAWBRIDGEWORTH, HERTS.
Station: Harlow, L. & N. E. R.

WILLIS BROS.'
Garden Fertiliser

A Real Manure. Not a Substitute.

NO STABLE MANURE REQUIRED.

For digging in or as a top dressing. For Kitchen Garden and Herbaceous Borders. We are constantly receiving orders and testimonials from satisfied users both on heavy and light soils. 1 cwt., 17/6; ½-cwt., 10/-; 28 lb., 6/-; per ton. £16 10s. All carriage paid.

LAWN MANURE.

Having been connected with the experimental Manuring of pastures, etc., for over 40 years, we are in the position to offer you the above with perfect confidence as to results.

Specially suitable for poor mossy lawns; improves the texture of the grass, and helps the lawns to keep their colour in dry seasons. Can be used at the rate of 5 cwt. to the acre.

1 cwt. bags, 20/-; 56 lbs., 11/-; 1 ton, £19; 10 cwt., £9 15s. Carriage paid. We quote special prices for Grass Manures for Park Land in quantities.

ANTI-CLOVER MIXTURE.

Specially prepared for Golf Greens, Tennis Courts and Bowling Greens. This mixture will check the growth of clover, and after one or two dressings the clover will be found to have disappeared, leaving a fine grass. Should be used at the rate of three to four ounces per square yard. 1 cwt. bags, 30/-; 56 lbs. 16/-; carriage paid.

SPECIALLY SELECTED LAWN GRASS SEED.

For Tennis Courts, Bowling Greens, and Golf Courses, and Renovating Lawns. Per lb., 2/6; 14 lbs., 30/-. Bags charged extra.

STRONG GROWING GRASS MIXTURE.

For growing under trees. Per lb., 2/6; 14 lbs., 30/-.

NEW RUSSIAN MATS.

7 ft. by 3 ft. 6 in., 20/- per doz. No full-sized Archangel Mats are being made.

HESSIAN MATS.

9 ft. by 4 ft. 6 in., 35/- per doz. Canvas Covers Tanned. PRICES ON APPLICATION.

BONE MEALS, SUPERPHOSPHATE, NITRATE OF SODA, SULPHATE OF AMMONIA, KAINIT, SULPHATE OF POTASH, BASIC SLAG, etc., supplied.

Send for our list of Garden Manures and Horticultural Sundries. Free on application.

WILLIS Bros. (HARPENDEN, LTD.)
Horticultural Manure and Garden Sundries
HARPENDEN, HERTS.

"Say Bull's" THE FOOD FOR PLANTS

ORCHIDS.
COWAN & CO.,
Orchid Growers and Exporters.
SOUTHGATE, LONDON, N. 14.

CRETS
The Pots that Drain
PETER BAILEY & SONS, Ltd.,
Heaton Mersey Pottery,
Nr. Manchester.

A two-year-old Plant.

Lonicera nitida

is a quickly-growing, hardy plant, suitable for cut greenery for all kinds of decorative purposes. It is in many ways quite equal to Asparagus Sprengeri for decorations, single sprays sometimes measuring one yard in length.

For plants in large or small quantities, apply to the actual grower,

GUSTAV WINKLER.
Reichenbach i. Schlesien, GERMANY.

HAVE YOU PROVIDED?

THE UNITED HORTICULTURAL BENEFIT and PROVIDENT SOCIETY

PROVIDES 27/- per week in illness for 1/1½ 18/- for 9d., or 12/- for 6d. weekly contributions.
PROVIDES your dependants with £10 at death
PROVIDES you with a Savings Bank.
PROVIDES grants from Distress and Convalescent Funds.

Benefit by the experience of a member who has £150 to his credit.

State insured members may pay an additional 2d. per week for 4/- sick pay, or 4d. per week for 8/-, in addition to the State Benefits and £10 payable at death.

Private and Market Gardeners, Nurserymen, Seedsmen and Florists up to the age of 45 years are eligible for membership

These advantages are fully explained in the pamphlet (send Stamp), obtainable from the SECRETARY, 35, ALEXANDRA RD., WEST KENSINGTON, W.14.

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HAWLMARK SEEDS

By Appointment to His Majesty.

The Results of a Century's Research

Genuine only from DICKSON'S, HAWLMARK, BELFAST.

Stop the Rot

Rot, decay and vermin are always watching for unprotected woodwork. "Sidol" foils them. This rich nut brown preservative penetrates, and converts sappy wood into long lived timber. Cheaper and more artistic than paint for interiors, bringing out the natural grain of the wood. Easy to apply, very long lasting. From 2/3 per qt. tin up to 3/- per gall. in 40 gall. barrels.

In standard shade of Nut Brown. Also in Green.
Stocked by Ironmongers and Colourmen.
Write for Booklet to Dept. 24.

D. ANDERSON & SON, LTD.,
Park Road Works, Stretford, Manchester.
Roach Road Works, Old Ford, London, E.
and at Belfast.

"SIDOL"
(REGISTERED)
THE IDEAL WOOD PRESERVATIVE.

LAXTONS BEDFORD

FRUIT TREES & ROSES

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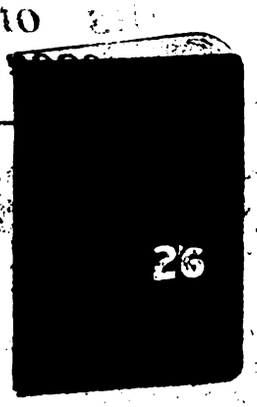

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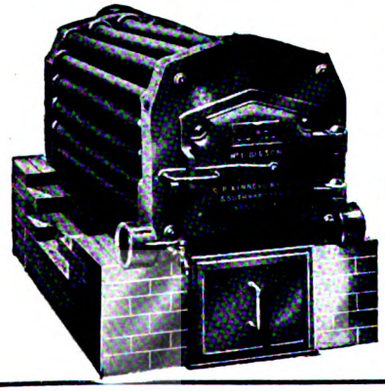

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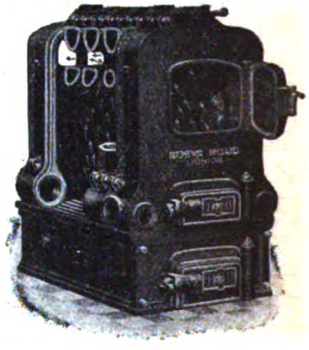

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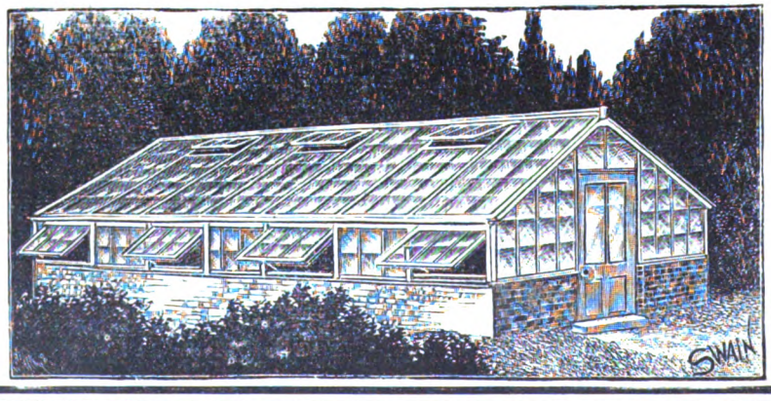

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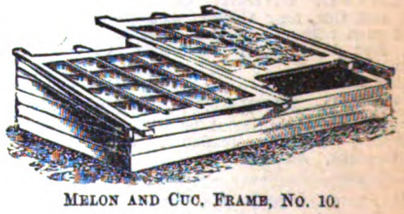

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